CITY OF Hollywood FLORIDA

PROPOSAL FOR

INFRASTRUCTURE PROJECTS (WATER, SEWER, REUSE, AND STORMWATER)

FEBRUARY 28, 2023

RFQ # 042-223-JJ

TETRA TECH

FEBRUARY 28, 2023

TETRA TECH

City of Hollywood
Department of Public Utilities
c/o City Clerk
2600 Hollywood Blvd
Hollywood, FL 33022-9045

SUBJECT: RFQ-042-23-JJ - INFRASTRUCTURE PROJECTS (WATER, SEWER, REUSE, AND STORMWATER) FOR THE CITY OF HOLLYWOOD, FLORIDA (CITY)

Dear Selection Committee Members:

The City of Hollywood is seeking qualified, experienced, and licensed firm(s) to provide engineering consulting services for the infrastructure (water, sewer, reuse, and stormwater) projects. Tetra Tech has been a trusted partner to the City in this capacity for over 12 years.

Based on the City's solicitation, it is our understanding that this scope of services will include a full range of professional engineering design services to support the design and construction of various Department of Public Utilities projects, including the following:

- Conceptual, preliminary and final design
- Permitting, construction administration and management
- Studies and evaluations, reviews and other services evaluation
- Upgrades for existing and/or proposed sewer lift stations
- Stormwater pump stations and structures
- Pipelines associated with water, reuse, stormwater and sewer networks
- Asset management
- Grant application assistance and grant management
- Lead and copper rule revision compliance
- Climate change and sea level rise, sustainability and resiliency
- Green and sustainable infrastructure design
- Water treatment plant and wastewater treatment plant projects
- And other services

Based on the City's request and review of the CIP, it is our understanding that this scope of services will include evaluations, survey, design, permitting, bidding, and construction management of a wide variety of water and reuse water projects. Our approach, methodology, and philosophy toward providing these services reflect our commitment and ability to deliver comprehensive solutions that meets the goals of the City.

4601 SHERIDAN STREET, SUITE 212, HOLLYWOOD, FL 33021
TEL: 954.364.1752 | www.tetratech.com

Our proposed team of professionals have many years of relevant experience in water, wastewater, reuse, and stormwater systems, serving as continuing consultants and consultants on specific projects. Tetra Tech is confident that we can address any infrastructure assignment from the City.

Tetra Tech is a full-service engineering consulting firm established in 1966 with a strong, south Florida presence and offices throughout the state, including our Hollywood office, located just minutes from the City's offices. Our firm is committed to quality service and cost-effective solutions for the City of Hollywood. Tetra Tech is one of the largest engineering firms in the nation and is currently ranked No. 1 in water supply, water treatment, environmental management, and others, as well as No. 5 in design firms by Engineering News-Record (ENR). Our local office philosophy allows our clients to benefit from the best of both worlds; local, personalized service with nationally recognized resources. As a national full-service firm, Tetra Tech has the resources to provide all of the categories listed above.

Our team is augmented by three subconsultants, two with offices headquartered in the City of Hollywood:

- NV5 - Geotechnical Engineering
- Hillers Electrical Engineering - Electrical Engineering
- Gibbs Land Surveying - Surveying

Our presence and repeat selection for continuing contracts in South Florida and with the City of Hollywood exemplify our commitment and client satisfaction. We have planned, designed, permitted, and overseen the construction of numerous projects in South Florida, because of dedication on these continuing contracts.

Tetra Tech currently provides services to the City of Hollywood through the existing continuing contract for these same services. We have held this contract since 2003. We have successfully completed numerous projects as part of this project. Tetra Tech's most recently completed or ongoing projects include:

- Project 11-5111 – Hollywood Blvd to Johnson Street between N 46th Avenue and N. 52nd Avenue
- Project 13-5119 – Hollywood Blvd to Sheridan Street between Federal Highway and the Intracoastal Waterway
- Project 14-5124 – Hollywood Blvd to Sheridan Street from Federal Highway to N. 21st Avenue
- Project 15-5130 – Hollywood Boulevard from N 21st Avenue to City Hall Circle
- Project 16-5136 – Pembroke Road and Hollywood Boulevard from South 56th Avenue to State Road 7
- Stormwater Pump Stations Assessment
- Hollywood Beach Infrastructure Improvements
- Boulevard Heights
- Grants Management and Assistance

We have provided general engineering services for many South Florida municipalities under continuing services contracts, including:

- City of Cape Coral (28 years)
- City of Hollywood (19 years)
- City of Fort Lauderdale (10 years)
- Village of Key Biscayne (17 years)
- City of Miramar (12 years)
- City of Tamarac (14 years)
- City of North Miami Beach (11 years)
- City of North Miami (11 years)
- City of Hallandale (4 years)
- City of Pompano Beach (5 years)
- City of Miami (2 years)
- Others throughout the state

Currently, Tetra Tech is serving as continuing consultant to over 50 governmental agencies in Florida. Projects for this assignment will be performed and delivered from our Hollywood and Miami offices.

Our proposed team of professionals, well known to the City, is extremely qualified to deliver the City's proposed projects for the following reasons:

- **Local Experience.** Our professionals have served the South Florida community since 1975 on a wide range of civil engineering projects, including those identified within the City's RFQ. Our ability to provide local service is highlighted by our location within the City of Hollywood. We have provided services from project inception and planning to design, permitting and construction management for numerous coastal municipalities similar to the City of Hollywood and look forward to working with the City as one of its General Engineering Consultants.
- **Proven Results**. Tetra Tech has successfully provided these services to the City of Hollywood and others. Specifically, Tetra Tech has provided general engineering services to numerous municipalities and major utility providers throughout Broward and Miami-Dade Counties, throughout the State of Florida, and nationally. Tetra Tech continues to serve these municipalities because we produce results year after year. We believe that the extensive experience we have with similar projects and local experience will enable Tetra Tech and our team members to successfully execute projects for the City of Hollywood.
- **Ability to Perform the Work.** Our team is positioned to dedicate resources to the City to immediately implement City projects. From our City of Hollywood office and from the more than 500 professionals located throughout the State of Florida, we are ready to deliver any size project to meet the City's needs. Our Project/Client Services Manager, Kenneth Caban, PE, LEED® AP, will ensure that the team meets or exceeds the City's expectations, as he has previously.
- **Experienced Personnel.** The team presented in the following submittal represents more than 30 years of continuing consultant contract experience in the State of Florida: serving as an extension of staff. Tetra Tech will manage the proper execution of projects assigned through this contract. As will be demonstrated within this submittal, Tetra Tech has the capabilities to provide the full range of continuing engineering services requested by the City.
- **Successful Project Delivery.** At Tetra Tech, we pride ourselves on delivering on-time and on-budget projects. We use several tools to ensure successful projects. Such "tools" include a structured project management approach, including monthly estimates of project completion status, including a review of time to complete and budget remaining.

We submit this statement of qualifications for the City's consideration to select Tetra Tech as one of your continuing consultants. Our entire team is committed to continue serving as an extension of the City's staff. We look forward to the opportunity to bring our years of experience, local knowledge, and dedication to quality service to the City of Hollywood.

Sincerely,
Tetra Tech

Ken Caban, PE, LEED AP
Vice President

4601 SHERIDAN STREET, SUITE 212, HOLLYWOOD, FL 33021
TEL: 954.364.1752 | www.tetratech.com

TAB A

TABLE OF CONTENTS

TAB B

EXECUTIVE SUMMARY

LOCAL AND GLOBAL

Tetra Tech is a full-service engineering consulting firm that offers proven experience and demonstrated excellence in professional engineering services in the water and wastewater utilities, hydrogeologic, roadway, stormwater, geotechnical, and environmental disciplines. A registered corporation in Florida, Tetra Tech serves over 50 public entities under continuing services contracts. Tetra Tech has provided these services to clients in Florida since 1975. It is our core belief that our professionals serve as an extension of our client's staff. We place a large emphasis on serving the specific project needs and tasks of the City of Hollywood while maintaining and updating an in-depth knowledge of the City's various systems.

Tetra Tech has more than 550 offices worldwide and four infrastructure offices serving Florida: Hollywood, Miami, Orlando, and Fort Myers. The City of Hollywood will be served from our Hollywood and Miami offices, just a few miles from the City of Hollywood's Office. Our proximity and management philosophy will allow sound communication between the Tetra Tech team and City staff. Physical proximity will also enhance the involvement of City staff in every element of planning, design, permitting, and construction. Tetra Tech is committed to continuing to provide the City of Hollywood with on-time, responsive service without delays.

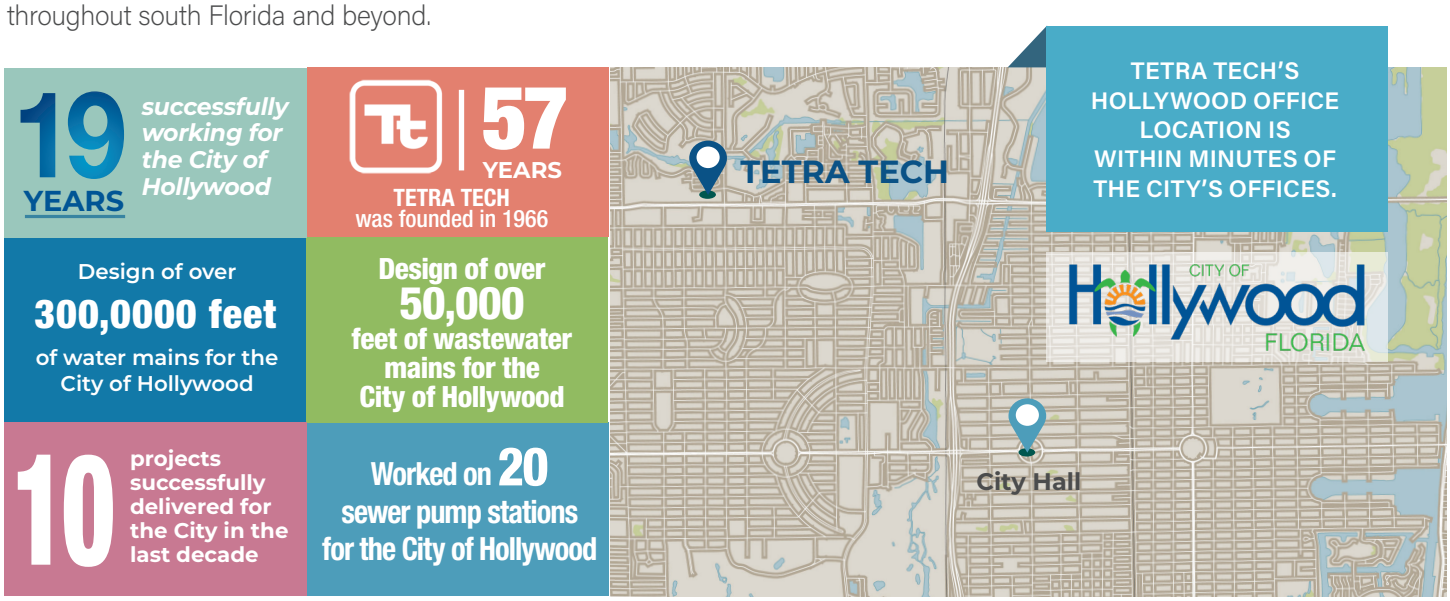
Tetra Tech takes a proactive approach to all levels of project management, including engineering studies, design and plan development, permitting, and construction administration. Our management plan is based on client service and technical excellence. Tetra Tech has developed and refined this approach through numerous continuing contracts we have throughout south Florida and beyond.

HISTORY SERVING THE CITY OF HOLLYWOOD

Tetra Tech has provided engineering services to the City of Hollywood since 2003. Our understanding of the City's underground infrastructure and its operation has been gained through years of dedicated service to the Engineering and Underground Utilities Divisions of the Public Utilities Department. Our work with the City includes work on the water, wastewater, roadways, and stormwater systems and grant and asset management.

OFFICE LOCATION

The City will be served from our Hollywood office for this project. Our proximity to the project sites and City offices will facilitate client service to the City. From our office in the City of Hollywood, we have successfully completed numerous projects for the City of Hollywood and other municipalities in South Florida. Tetra Tech has assisted the City with its Water Programs since 2010, including incorporation of stormwater improvements and backflow prevention valves within some project areas. Because of our office location, established in the City years ago and only minutes away from City Hall and other offices of the City, we are able to successfully design, permit, and assist during the construction of various projects. Our location allows ease of coordination between the City, regulatory agencies, and the project site.



FIRM DESCRIPTION

Tetra Tech was founded in 1966 to provide engineering services for waterways, harbors, and coastal areas. We are highly ranked by *Engineering News-Record (ENR)*, including ranked No. 1 in numerous categories. As of August 2022, Tetra Tech is ranked the No. 5 design firm in the United States by *ENR*. Over the past 54 years, we have substantially increased the size and scope of our business becoming a more diverse company, including individuals with expertise in science research, engineering, construction, and information technology through a network of more than 550 offices and 27,000 associates.

Tetra Tech is a leading provider of high-end consulting and engineering services for projects worldwide. We provide clear solutions to complex problems in water, environment, infrastructure, resource management, energy, and international development. Tetra Tech is Leading with Science® to provide sustainable and resilient solutions for our clients.

We have more than 500 staff in Florida, including those in south Florida offices. Tetra Tech's technical knowledge and hands-on site work is broad and deep. Our staff is supported by a uniform administrative and management system that project teams access in real-time to effectively complete work. As a full-service multidisciplinary firm, Tetra Tech has every type of professional necessary for this project.

OUR TEAM KNOWS HOLLYWOOD

The Tetra Tech team brings the best of the best, successfully delivering some of the most high-profile coastal resiliency and infrastructure projects in the United States, as well as key municipal infrastructure, environmental enhancements, and open space projects in south Florida. Tetra Tech is part of the Hollywood community and has a vested interest in the success of the City's continuing services projects.

TETRA TECH IS ASSISTING THE CITY TO MEET ITS INFRASTRUCTURE NEEDS DUE TO REDEVELOPMENT ON HOLLYWOOD BEACH

TAB C

FIRM QUALIFICATIONS AND EXPERIENCE

GENERAL ENGINEERING CONTRACT EXPERIENCE

Tetra Tech has provided a variety of engineering services through general engineering continuing contracts for hundreds of clients across the country. Our portfolio includes thousands of projects from, minor pipeline improvements and lift stations upgrades to watershed, management studies to treatment plant improvements and expansions. Through efficient management and effective leadership, our professionals have worked as an extension of our client's staff providing similar as-needed general engineering services for over 100 clients across the southeast under general engineering services contracts, including the City of Hollywood and other municipalities of Fort Lauderdale, Pompano Beach, North Miami, and many others. Many of these are repeat clients as Tetra Tech has provided responsive service and innovative solutions on-time and within budget.

OUR TECHNICAL EXPERIENCE

Tetra Tech has extensive experience throughout Florida with pipelines, pump stations, green infrastructure, climate change, sea level rise, and resiliency experience, as well as in the southeast and around the world..

TETRA TECH HAS DESIGNED OVER 50 MILES OF WATER MAIN REPLACEMENT FOR THE CITY'S WATER MAIN REPLACEMENT PROGRAM

Relevant areas of key expertise include:

- **Water, Wastewater, Reuse, and Stormwater Conveyance:** We have planned, designed, permitted and/or constructed hundreds of miles of water lines throughout the southeastern US ranging from 6-inch to 72-inch diameter pipelines. This experience includes construction through complex corridors including roadway, railroad and even water body crossings and environmentally sensitive areas. Tetra Tech has designed over 50 miles of water main replacements for the City's Water Main Replacement Program.
- **Pumping and Storage Facilities:** Our experience also includes the design and construction management of hundreds of water, wastewater, combined sewer, and stormwater pump station and storage projects ranging from 1 MGD stations up to 206 MGD stations.
- **Stormwater Related Environmental Services:** Tetra Tech has extensive climate resiliency and drought management experience in the states of Florida, Georgia, California, New York, and Rhode Island. For the Miami-Dade Water and Sewer Department, Tetra Tech is assisting with the incorporation of resiliency, climate change, and sea level rise into all planning and preliminary design activities for their CIP program. Tetra Tech is also providing leading-edge implementation of stormwater capture and green infrastructure planning for cities such as San Diego and Detroit. The Detroit program involves coordination between city departments and implementating of new ordinances.

We understand the technical issues related to these types of projects, along with the permitting requirements necessary for construction.

OUR PERFORMANCE

While experience and innovative solutions are part of what the City of Hollywood looks for in a consultant; responsiveness, flexibility, and project management discipline are the keys to effective, efficient project delivery. Our proven track record of success is highlighted by 80 percent of our work coming from repeat clients. The experience, safety record, organizational capability, and project management presented in this proposal demonstrates our performance.

SIMILAR EXPERIENCE

Our extensive experience with similar projects enables Tetra Tech to provide the City with high-quality service. The table of the following page presents an overview of Tetra Tech's expertise with similar continuing professional services contracts. Following Tables 3.1 and 3.2, we have provided detailed descriptions of some of our most relevant experience within the last five years.

Table 3.1: Infrastructure Depth of Florida Project Experience

FLORIDA CLIENT	DATES OF SERVICE	RELEVANT WORK PERFORMED
City of Hollywood	2003 to Present	• Design, permitting, and construction administration services for water main replacements, including trenchless installations • Railway crossings • Multiple permitting agencies • Various pipe sizes and materials • Numerous trenchless installations
City of North Miami	2010 to Present	• Assistance with water system hydraulic modeling of the existing and future scenarios • Technical review of contract documents for the rehabilitation of six surficial water supply wells • Technical review of contract documents for the rehabilitation of four dual media filters • Design of water mains, force mains, and gravity sewers, including horizontal directional drilling • Basis of design and contract documents for the rehabilitation of other WTP process components • Stormwater
Miami-Dade County Water and Sewer Department	2009 to Present	• Basis of Design Reports for wastewater collection and transmission systems • Pump station evaluation • Gravity systems • Pressure systems • Urban District areas • Population growth and future needs evaluation • Existing utilities evaluation and optimization • Stakeholder coordination • Hydraulic modeling • Cost estimating and scheduling • Climate change • Regulatory compliance • Sea level rise

FLORIDA CLIENT	DATES OF SERVICE	RELEVANT WORK PERFORMED
City of North Miami Beach	1999 to 2012	• Raw water supply wellfield expansion and design • Raw water treatability and pilot studies • 17.0 MGD WTP Expansion • Review of interconnects agreements and negotiations • Utility system financing, bonds, and grant programs • Operations center storage and booster station • Permitting – DoH, DERM, SFWMD, MDWASD • Construction administration • Quarterly and annual reports preparation
City of Fort Lauderdale	2012 to Present	• Potable water quality improvements • Fire hydrant coverage improvements • Water main bridge crossing • FDOT R/W utility replacement • Gravity sewer improvements • Lift station improvements at D10 and D11 • FDOT R/W force main replacement • Force main bridge crossing
City of Pompano Beach	2016 to Present	• WTP Hurricane Hardening: – Study – Architectural and structural engineering design – Permitting – Construction bidding/administration – Water supply and piping evaluations and design
City of Key Biscayne	2004 to Present	• Stormwater master planning • Sea level rise mitigation • Climate change resiliency • Lunar tide vulnerabilities mitigation • Design, permitting, and construction administration • Backflow valves • Outfall rehabilitation
Collier County	1998 to Present	• Raw, potable, and reuse mains • Multiple lift station improvements • Odor control assistance • Emergency power design
City of Clearwater	2009 to Present	• Groundwater replenishment preliminary feasibility study • Clearwater Community Partnership Program • Groundwater replenishment program– bench, pilot and field testing • SCADA plan

FLORIDA CLIENT	DATES OF SERVICE	RELEVANT WORK PERFORMED
City of Orlando	2000 to Present	• Lift Station 69 Improvements • Wastewater CADD services • Lift Station Site Improvements (8 Stations) • Improvements to Lift Stations 16, 17, 52 & 57 • Sanitary Sewer System Desktop Evaluation Azalea Park/Lift Station Nos. 12 & 69 • Electrical Upgrades for 15 Pump Stations • Downtown District Sewer Master Plan • Central Boulevard Sanitary Sewer Improvements • Lift Station Nos. 28, 54, 60 & 67 Upgrades – Preliminary Design
City of Clermont	2009 to Present	• East Side WRF Reclaimed Water Ground Storage Tank • Reclaimed Water System Supplemental Supply Well • Installation and Sampling of FDEP Monitoring Wells • Southern Sector Wastewater Service Cost Estimate • Wastewater Transmission System Evaluation • Wastewater System Master Plan • Reclaimed Water System Master Plan • Water System Master Plan • SCADA Support
City of Daytona Beach	2000 to Present	• Water Use Permit, Wetlands Monitoring Report • Water Master Plan • Hydraulic Modeling of Water Distribution System • Water System Mapping and GIS • Review of Ground Storage Tank Refurbishment • Population Projections and Water Demand Projections • Development of Water Distribution System Improvements for the CIP • Surface Water and Drainage Modifications

Table 3.2: Utility Infrastructure Depth of Florida Project Experience

*(* denotes projects performed within the past 5 years)*

(WM - Water Main, FM - Force Main, GS - Gravity Sewer, SD - Stormwater, SS - Sanitary Sewer)

PROJECT NAME	CLIENT	SIZE
PIPELINES ASSOCIATED WITH WATER, REUSE, STORMWATER, AND SEWER NETWORKS		
Water Main Replacement Program*	City of Hollywood	300,000 LF 4" - 24" WM
East Las Olas Boulevard Force Main*	City of Fort Lauderdale	2,000 LF 12"-18" FM
NE 6 Avenue Water Main*	City of North Miami	4,000 LF 12" WM
Lake Estates Small Water Mains*	City of Fort Lauderdale	10,000 LF 4"-12" WM
Commerical Corridors Water & Sewer*	Miami-Dade County	220,000 LF GS; 66,000 FL FM; 100,000 LF WM
Woodcrest Road, Glenridge Road and Buttonwood Drive Stormwater Improvements	Village of Key Biscayne	2,000 LF 4" - 8" SD
Granada Force Main Replacement*	City of Coral Gables	7,000 LF 44" SD
Southwest 6& Utility Expansion Project*	City of Cape Coral	279,000 LF 12" WM; 380,000 LF 4" FM & 8" - 24" Gravity Piping; 343,200 LF 30" Irrigation; 10 miles 12"-42" SD
SE Galvanized Pipe Replacement*	City of Cape Coral	35,000 LF of 6"FM
Royal Hawaiian Village Wastewater Improvements*	City of Cape Coral	12,000 LF of 8"-16" FM
Ceitus Parkway Water Main	City of Cape Coral	14,200 LF of 12" WM
Southwest Service Area Reclaimed Water Expansion*	City of Winter Garden	12,700 LF of 8" - 20" RWM
Banyan Village Utility Expansion	Hendry County	260,000 LF of 4"-12" WM
Naples Reclaimed Water System Expansion	City of Naples	130,000 LF of 4"-6" RWM
Royal Harbor Water System Improvements*	City of Naples	30,000 LF of 8" WM
Astor/Astor Park Centralized Wastewater Facilities (Phase I)	City of Astor Park	95,000 LF of 2"-10" FM
Water Main Design-Build Improvements*	Town of Fort Myers Beach	23,540 LF 3" - 12" WM
Wastewater Collection System Improvements - Periwinkle Way	City of Sanibel	11,000 LF of 8"-12" SS and 14,000 LF of 4"-10" FM
Phase II Sewer System Expansion, Donax WRF to Wulfert Point WRF*	City of Sanibel	4,000 LF of 8" SS and 45,000 LF of 8"-16" FM
Nassau Court Water Main Improvements*	City of Marco Island	1,500 LF 6" - 8" WM
San Marco Road Water Main*	City of Marco Island	7,500 LF 12" - 18" WM
Summerlin Road Water Main*	Lee County	16,000 LF of 16" WM
Phase I Water and Wastewater System Expansion	DeSoto County	115,000 LF of 16"WM; 168,000 LF of 8"-16"FM

PROJECT NAME	CLIENT	SIZE
Cape Canaveral WWTP and Reclaimed Water Reuse Project	City of Cape Canaveral	130,000 LF of 4" - 16" RWM
Northeast Booster Pump Station and Water Main	City of North Port	85,000 LF of 12"-16" WM
James P. Snell Sub-Regional WWTP and Off-Site Pipelines	City of Mount Dora	18,000 LF of 8"-16" FM; 21,000 LF of 8"-20" RWM
Phase I Water Distribution Improvements	City of Palm Bay	14,000 LF of 6"-8" WM
Phase II Reclaimed Water Transmission System Improvements	Utilities Commission, City of New Smyrna Beach	95,000 Lf of 6"-24" RWM
Water Transmission System Improvements	City of Palm Bay	21,000 LF of 12"-20" WM
Reclaimed Water Reuse Facilities	City of Palatka	12,000 LF of 8"-12" RWM
Championsgate Water and Wastewater Transmission Mains	RIDA Development/City of Kissimmee	24,000 LF of 24"-30" WM; 31,000 LF of 24"-36" FM
Northwest Water Transmission System Improvements	City of Lakeland	53,000 LF of 6"-36" WM
San Souci West Water Distribution System and Wastewater Collection System Upgrades	Jacksonville Electric Authority	20,000 LF of 6"-12" WM; 16,000 LF of 8"-12" FM Gravity Sewer
Centralized Wastewater System	City of Daytona Beach Shores	75,000 LF of 6"-18" FM
Pine Island Water Main Improvements	Greater Pine Island Water Association, Inc.	12,000 LF of 16" WM
Bartow Water Transmission System Improvements	City of Bartow	29,000 LF of 6"- 24" WM
Veteran's Memorial Parkway Water Main	City of Orange City	11,000 LF of 8"-20" WM; 12,000 LF of 8"-16" FM
South Lake Weir Water System	Marion County	36,000 LF of 8"-12" WM
Wastewater Transmission Improvements	Canaveral Port Authority	15,000 LF of 8"-10" FM
Spruce Creek Pump Station and Force Main	Marion County	27,000 LF of 10"-12" FM
Lazy Lagoon Collection System Improvements	Lazy Lagoon Homeowners Assoc.	8,000 FL of 8" Gravity Sewer
CR 545 Ruse Water Main Improvements*	City of Winter Garden	4,000 LF 12" RWM
9th Street Gravity Sewer Improvements*	City of Winter Garden	1,000 FL 24" Gravity Sewer
US 27 Pressurized Water Main Extension	City of Minneola	1,400 LF 16" - 20" WM
Howland Boulevard Ph I & II*	City of Deltona	16,400 LF 4" - 12" WM
Howland Boulevard Ph III*	City of Deltona	9,230 LF 4" - 12" WM; 10,225 LF 12" FM; 5,000 LF 4" - 12" RWM
Normandy Boulevard	City of Deltona	11,450 4" - 16" WM
Debary Avenue	City of Deltona	10,800 LF 4" - 8" WM; 6,350 LF 8" FM
Fort Smith Boulevard Phase I & 2*	City of Deltona	17,370 LF 4" - 16" WM

PROJECT NAME	CLIENT	SIZE
PUMP STATIONS, LIFT STATIONS, AND STORMWATER PUMP STATIONS AND STRUCTURES		
Commercial Corridors Water and Sewer*	Miami-Dade County, FL	36 Pump Stations
D10 & D11 Seventh Avenue Pump Stations*	Fort Lauderdale, FL	2 Pump Stations
Southwest 6&7 Utility Expansion Program Lift Stations*	Cape Coral, FL	18 Lift Stations
Bonneville Water Storage and Repump Facility*	Orange County, FL	21.6 MGD
Malcolm Road Water Supply Facility*	Orange County, FL	12.6 MGD
Riverside Storage and Repump Facility*	Orange County, FL	8.6 MGD
Hidden Springs Repump Facility*	Orange County, FL	15.0 MGD
Courtland Site 11 Storage & Pumping Improvements	Deltona, FL	7.5 MGD
Winterset & Winterset Gardens Storage & Pumping Improvements	Winter Haven, FL	9.2 MGD
Shore Drive Pump Station	St. Johns County, FL	4.3 MGD
Water Supply Wells, Ground Storage Tank, and High Service Pump Station	Plant City, FL	12.96 MGD
Solana Road and East Naples Booster Station Upgrades*	Naples, FL	22.5 MGD
High Service Pump No. 4	Punta Gorda, FL	4.32 MGD
Western Reuse Service Area Storage and Pumping Facility	Kissimmee, FL	12.4 MGD
Silver Springs Shores Master Pump Station	Marion County, FL	3.0 MGD
Reclaimed Water Storage and Pumping*	Tarpon Springs, FL	5.2 MGD
STORMWATER PROJECTS AND RELATED ENVIRONMENTAL ISSUES		
Stormwater Pump Station Evaluations	City of Hollywood	Citywide, ten pump
Stormwater Master Plan*	Village of Key Biscayne	Village-wide
Outfall Rehabilitation*	Village of Key Biscayne	3 outfalls
$15M Green Infrastructure Program Management*	Detroit Water and Sewerage Department, MI	Varies
U.S. EPA Green Infrastructure Program*	U.S. EPA	Varies
Municipal Separate Storm Sewer System (MS4) Annual Program Management*	Lexington-Fayette Urban County Government, KY	987+ acres
Watershed Modeling to Evaluate Impacts of Climate Change & Land Use Change on Hydrology and Water Quality	U.S. EPA	20 watersheds across the US
Community Resiliency and Green Infrastructure Pilot Project*	U.S. EPA	Four Municipalities
Safewater RI: Ensuring Safe Water for Rhode Island's Future (Climate Change Impacts)*	Providence, RI	31 Water Utilities
Kelsey Avenue Ecosystem Restoration Project (including GI)*	City of Griffin, GA	Varies

WATER MAIN REPLACEMENT PROGRAM

CITY OF HOLLYWOOD, FLORIDA

The City of Hollywood has been undertaking a water main replacement program throughout its water service area due to the age and condition of the existing water mains. Tetra Tech has been assisting the City with this program since 2011, and multiple projects have been successfully designed, permitted, constructed, and in operation.

Tetra Tech has provided surveying, geotechnical evaluations, design, permitting, and construction management for multiple projects under this program. Tetra Tech has assisted with the replacement of over 300,000 feet of water mains ranging in size from 4-inches to 24-inches in diameter, utilizing various pipe materials including PVC, HDPE, DIP, steel, and PCCP. Construction methods include open cut for roadways and horizontal directional drilling (HDD) and jack and bore installations under major intersections and the FEC railroad.

The following projects have been assigned to Tetra Tech (prime consultant) to date:

- **Project 1 -** Hollywood Boulevard to Johnson Street: 27,000 LF of Water Main Replacement, Designed, Permitted, Constructed
- **Project 2 -** Hollywood Boulevard to Sheridan Street East of Federal Highway: 99,000 LF of Water Main Replacement, Designed, Permitted, Under Construction
- **Project 3 -** Hollywood Boulevard to Sheridan Street West of Federal Highway: 99,000 LF of Water Main Replacement, Under Design and Permitting
- **Project 4 -** Hollywood Boulevard from City Hall Circle to West Dixie Highway: 3,000 LF of Water Main Replacement with FDOT Complete Streets Project, Under Construction
- **Project 5 -** Pembroke Road to Hollywood Boulevard from N. 52nd Avenue to SR411. Includes 7,000 LF of water main replacement and is currently under design.

RELEVANCE TO CLIENT

- Potable water transmission mains
- FEC, FDOT, Broward County Permitting
- Trenchless Installations

TETRA TECH HAS ASSISTED WITH CONSTRUCTION ADMINISTRATION OF THE WATER MAIN REPLACEMENT PROGRAM

RELEVANT TECHNICAL COMPONENTS

Potable water transmission mains

FEC, FDOT, Broward County Permitting

Trenchless Installations

ORIGINAL SCOPE

300,000 LF of water mains

4,000 LF of force mains

Design, survey, geotechnical, permitting, bidding, construction administration

ACHIEVED SCOPE

300,000 LF of water mains

Design, survey, geotechnical, permitting, bidding, construction administration

CLIENT/PROJECT MANAGER

Ken Caban, PE

COST

Initial Engineering Fees: Est. $3 million (to date)

Actual Engineering Fees: Est. $2 million (to date)

SCHEDULE

Original Schedule: 2011-Present

Achieved Schedule: 2011-Present

Date of Completion: Ongoing

NUMBER OF CHANGE ORDERS

As with most projects, unforeseen conditions can arise. Tetra Tech worked diligently to define all unknowns to avoid change orders. We are proud to say that the majority of our assignments resulted in no change orders, except for scope added on or removed by the City.

CLIENT & POINT OF CONTACT

City of Hollywood

1621 North 14th Avenue

Hollywood, FL 33019

Wilhelmina Montero, PE
(954) 921-3930

SEPTIC TO SEWER AND WASTEWATER PROGRAM

CITY OF HOLLYWOOD, FLORIDA

As part of the City of Hollywood Septic to Sewer and Wastewater Program, Tetra Tech is providing surveying, geotechnical evaluations, design, permitting, and construction administration services on multiple projects concurrently. To date, Tetra Tech's program project comprises over 50,000 linear feet of gravity sewers and force mains.

The improvements included sewer expansion with new gravity sewers, ranging from 8- to 15-inch in diameter. Gravity sewer expansions included manholes, sewer laterals, and cleanouts at the property lines. In addition, lift stations were proposed or rehabilitated, along with new or replaced force mains. The gravity sewers and force mains were located within residential streets. The program also includes extensive maintenance of traffic (MOT), asphalt pavement, and pavement markings restoration and improvements.

The following projects have been assigned to Tetra Tech (prime consultant) to date:

- **Project 1 -** Royal Poinciana Septic to Sewer: 27,000 LF of gravity sewers and force mains. Designed, permitted, and constructed.
- **Project 2 -** Pembroke Road to Hollywood Boulevard from SR 7 to S 52 Avenue: 25,000 LF of gravity sewers. Under design, permitting, and bidding. Design, permitting, bidding, and construction administration services.
- **Project 3 -** City of Hallandale Large User Meter 7 and Force Main Replacement: 3,000 LF of Force Main and Large User Meter Replacement. Designed, permitted, and under construction. Final design, permitting, and construction administration services.
- **Project 4 -** Hollywood Beach Utility Infrastructure Improvements. Final design, permitting, and construction administration services.

RELEVANT TECHNICAL COMPONENTS

Gravity sewers, force mains, lift stations, large diameter interceptor modifications

ORIGINAL SCOPE

Survey, geotechnical, design, permitting, bidding, construction administration

ACHIEVED SCOPE

50,000 linear feet of gravity sewers and force mains, lift stations, and abandonment of lift stations

CLIENT/PROJECT MANAGER

Ken Caban, PE

COST

Initial Engineering Fees: $1 million (to date)

Initial Construction Fees: $10 million (to date)

Actual Engineering Fees: $1 million (to date)

Actual Construction Fees: $10 million (to date)

SCHEDULE

Original Schedule: 2017-Present

Achieved Schedule: 2017-Present

Date of Completion: Ongoing

NUMBER OF CHANGE ORDERS

As with most projects, unforeseen conditions can arise. Tetra Tech worked diligently to define all unknowns to avoid change orders. We are proud to say that the majority of our assignments resulted in no change orders, except for scope added on or removed by the City.

CLIENT & POINT OF CONTACT

City of Hollywood
1621 North 14th Avenue
Hollywood, FL 33019

Jeff Jiang, PE
954.921.3930

RELEVANCE TO CLIENT

- Performed surveying, geotechnical evaluations, design, permitting, and construction administration services on multiple projects concurrently for the City of Hollywood

TETRA TECH HAS ASSISTED THE CITY WITH CONSTRUCTION ADMINISTRATION OF ITS WASTEWATER INFRASTRUCTURE

STORMWATER PUMP STATION CONDITION ASSESSMENT

CITY OF HOLLYWOOD, FLORIDA

Tetra Tech provided engineering services to the City of Hollywood for stormwater pump station condition assessment. Tetra Tech prepared a technical memorandum of the City's 10 stormwater pump stations ranging in size and capacity between 10 HP to 60 HP and 400 GPM to 21,200 GPM.

The following scope was assigned to Tetra Tech (prime consultant) to date:

- **Pump Station Condition Assessment -** Each pump station (SW01-SW-10) was inspected and evaluated based on visual observation of the condition of the pump stations civil, mechanical, electrical, structural, and architectural infrastructure. An opinion of probable construction cost was provided for the recommended rehabilitation improvements.
- **Pump Station Discharge Analysis -** The stormwater runoff volume for the Sub-basins contributing to each of the pump stations was computed.
- **Coastal Pump Stations Hydraulic Modeling Analysis -** The existing City's stormwater model was converted from ICPR version 3 to version 4 and utilized for the hydraulic modeling of year 2020 and 2050 for five of the pump stations in coastal area. These pump stations were SW-01, SW-02, SW-06, SW-07 and SW-09. Multiple model runs were studied under normal groundwater and King Tide conditions for the two different years. Model runs were performed incrementing the pump's capacity by 10 percent, 20 percent, and 30 percent.
- **Pump Station SW-06 and SW-08 Piping Configuration Analysis -** Both pump stations SW-06 and SW-08 had a need to improve the discharge piping configuration. Two alternatives were provided to address this issue for each pump station.

RELEVANCE TO CLIENT

- Condition assessment of the City's pump stations and evaluated considering climate change and sea level rise

TETRA TECH IDENTIFIED REHABILITATION MEASURES FOR EACH OF THE CITY'S STORMWATER PUMP STATIONS

RELEVANT TECHNICAL COMPONENTS

Condition assessment, rehabilitation cost, hydraulic modeling, preliminary design

ORIGINAL SCOPE

Condition assessment, electrical, structural testing, rehabilitation

ACHIEVED SCOPE

Condition assessment, electrical, structural testing, rehabilitation

CLIENT/PROJECT MANAGER

Ken Caban, PE

COST

Initial Engineering Fees: $49,000 (to date)

Initial Construction Fees: N/A (to date)

Actual Engineering Fees: $199,472 (to date)

Actual Construction Fees: N/A (to date)

SCHEDULE

Original Schedule: 2019-2022

Achieved Schedule: 2019-Present

Date of Completion: Ongoing

NUMBER OF CHANGE ORDERS

One change order to add other services that the City requested.

CLIENT & POINT OF CONTACT

City of Hollywood
2600 Hollywood Boulevard
Hollywood, FL 33020

Raul Wainer, PE
954.921.9390

GRANT MANAGEMENT PROGRAM

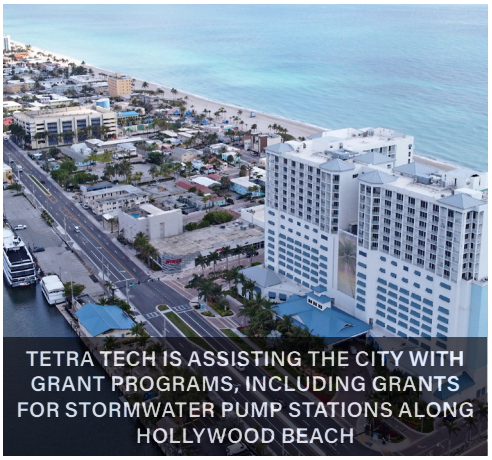
CITY OF HOLLYWOOD, FLORIDA

Tetra Tech is working with the City of Hollywood to assist with the identification and evaluation of available grant funding opportunities, preparation of grants/loans applications, monthly and quarterly reporting, existing and future grant administration, and preparation of engineering supporting documentation, including environmental reviews, review of grant timelines, and requirements. The list of projects involves water, wastewater, and stormwater infrastructure. Tetra Tech will manage and execute the grants and loan funding applications to agencies such as Broward County, Florida Department of Transportation, Florida Department of Environmental Protection, Environmental Protection Agency, Federal Emergency Management Association, and others.

- **Evaluation of available grant funding opportunities and preparation of grants/loans applications and engineering supporting documentation** - Each pump station (SW01-SW-10) was inspected and evaluated based on visual observation of the condition of the pump stations civil, mechanical, electrical, structural, and architectural infrastructure. An opinion of probable construction cost was provided for the recommended rehabilitation improvements.
- **Preparation of monthly and quarterly reporting, existing and future grant administration -** Tetra Tech has collected data, tracked status updates, review specific grant requirements, coordinated with multiple agencies grant managers to properly prepare and submit monthly and quarterly reports and associated back up documentation in a timeline fashion. In addition, Tetra Tech has assisted the City with reviewing existing and future grants requirements and attending frequent meetings with the grant agencies for status updates and to provide engineering support.

RELEVANCE TO CLIENT

- Assistance to identify and complete applications for new grants, along with administration and management



TETRA TECH IS ASSISTING THE CITY WITH GRANT PROGRAMS, INCLUDING GRANTS FOR STORMWATER PUMP STATIONS ALONG HOLLYWOOD BEACH

RELEVANT TECHNICAL COMPONENTS

Technical support for grant program, including costs and other technical requirements

ORIGINAL SCOPE

Grant identification, application, administration, and management

ACHIEVED SCOPE

Grant identification, application, administration, and management

CLIENT/PROJECT MANAGER

Ken Caban, PE

COST

Initial Engineering Fees: $400,000 (to date)

Initial Construction Fees: N/A (to date)

Actual Engineering Fees: N/A (to date)

Actual Construction Fees: N/A (to date)

SCHEDULE

Original Schedule: 2022-Present

Achieved Schedule: 2022-Present

Date of Completion: Ongoing

NUMBER OF CHANGE ORDERS

0

CLIENT & POINT OF CONTACT

City of Hollywood
1621 N. 14th Avenue
Hollywood, FL 33020

Wilhelmina Montero, PE
954.921.3930

CONTINUING SERVICES

CITY OF FORT LAUDERDALE, FLORIDA

Tetra Tech currently provides services to the City of Fort Lauderdale through the existing continuing contract for water and wastewater infrastructure. We have held this contract since 2012. Some of the projects Tetra Tech has completed or is currently completing for the City of Fort Lauderdale include:

- **East Las Olas Boulevard 12-Inch Force Main Replacement.** The City of Fort Lauderdale selected Tetra Tech to assist the City with replacement of an existing 12-inch-diameter force main that experienced multiple unexpected ruptures resulting in damaged public and private property and regulatory actions against the City, due to sewer overflows into the Intracoastal Waterway. Because of the regulatory actions against the City, expedited services and the use of corrosive-resistant piping and coatings were necessary. The existing force main is along East Las Olas Boulevard, an FDOT roadway, and includes an aerial crossing of a canal connected to the Intracoastal Waterway. Services provided by Tetra Tech for replacement of approximately 2,000 feet of 12-inch-diameter force main included the following: survey; geotechnical evaluations; utilities verification, including subsurface utility evaluations; route analysis; structural evaluations of aerial water crossing pilings; regulatory coordination and negotiations; design; permitting; bidding assistance, and construction oversight
- **Lake Estates Small Water Main Improvements.** This community improvement involves the design of approximately 10,850 linear feet of 8-inch diameter potable water mains to replace existing aged pipes. Permitting involved the City of Fort Lauderdale Building Department, Florida Department of Health, Broward County Environmental Protection and Growth Management Department, and Florida Department of Transportation. The project includes surveying, geotechnical, preparation of design and construction documents, permitting, bidding review and assistance, construction administration and inspection, and project closeout and certification.

ORIGINAL & ACHIEVED SCOPE

Design, permitting, bidding, construction administration of 2,000 LF force mains; 2 pump stations; 500 LF of gravity sewer; 10,000 LF of water mains

CLIENT/PROJECT MANAGER

Ken Caban, PE

Cost

Initial: $533,021
Actual: $533,021 (anticipated)

SCHEDULE

Original Schedule: Varies

Achieved Schedule: On Schedule

Date of Completion: Ongoing

NUMBER OF CHANGE ORDERS

Engineering: No change orders
Construction: No change orders

CLIENT & POINT OF CONTACT

City of Fort Lauderdale
100 North Andrews Avenue
Fort Lauderdale, FL

Jorge Holguin
(954) 828-5675
jholguin@fortlauderdale.gov

RELEVANCE TO CLIENT

- Potable water transmission mains
- Wastewater collection system
- Wastewater force main
- Sewer lift stations
- Climate change
- Sea level rise
- Sustainability
- Climate resilience

TETRA TECH SUCCESSFULLY ASSISTED THE CITY TO REPLACE THE E LAS OLAS FORCE MAIN, WHICH WAS THE FIRST PROJECT REQUIRED BY THE CONSENT DECREE WITH FDEP.

CONTINUING SERVICES

CITY OF POMPANO BEACH, FLORIDA

Tetra Tech is currently providing general engineering services to the City of Pompano Beach through a continuing services contract. The following projects have been or are currently being completed by Tetra Tech on this continuing contract::

- **Task Order No. 1 - Pompano Beach Water Treatment Plant Hurricane Hardening Study:** Tetra Tech completed a facility-wide hurricane hardening evaluation for all of the water treatment plant's manned buildings. Tetra Tech detailed deficiencies and capital improvements in line with Florida's Building Code. Cost estimates and a prioritized improvements schedule were developed to aid the City in planning implementation of the improvements.

  Task Order No. 2 - Pompano Beach Water Treatment Plant Filter and High Service Pumps 1-4 Building Hurricane Hardening Design, Permitting, and Construction Administration: The Filter and High Service Pumps 1-4 Building at the City of Pompano Beach Water Treatment Plant is moving one step closer to resiliency by hardening the structure to comply with current Florida Building Codes. Tetra Tech provided engineering and architecture services to design the hurricane hardening project including plans, calculations, specifications, and an opinion of probable cost. The improvements were permitted through the City Building Department and Fire Department. Tetra Tech will assist the City in bidding and awarding the project and providing construction phases services through project closeout.

- **Task Order No. 6 - Pompano Beach Reuse Water Master Plan Updates:** Tetra Tech assisted with identify the existing system deficiencies, prioritizing improvements, estimating costs, and identify financing options. The Master Plan will evaluate the existing system, estimated demand projections using current growth assumptions, update the existing hydraulic model to assist in identifying system sizing deficiencies and develop a capital improvement program to accommodate future demands..

ORIGINAL & ACHIEVED SCOPE

General Engineering Services

CLIENT/PROJECT MANAGER

Chuck Drake, PG

COST

Initial Engineering Fees: $675,044 (to date)

Initial Construction Fees: $3,141,249 (to date)

Actual Engineering Fees: $675,044 (to date)

Actual Construction Fees: $3,491,910 (to date)

SCHEDULE

Original Schedule: 2016 - Present

Achieved Schedule: 2016 - Present

Date of Completion: Ongoing

NUMBER OF CHANGE ORDERS

Engineering: No change orders
Construction: No change orders

CLIENT & POINT OF CONTACT

City of Pompano Beach
1205 NE 5TH Avenue
Pompano Beach, FL 33060

Randy Brown, PE
(954) 545-7043
randolph.brown@copbfl.com

RELEVANCE TO CLIENT

- Hardening of water plant against hurricanes, planning of expansion of reuse systems, and water supply permitting and improvements

TETRA TECH IS ASSISTING THE CITY TO MAKE ITS WATER INFRASTRUCTURE RESILIENT AGAINST HURRICANES AND OTHER STORMS

CONTINUING SERVICES

CITY OF NORTH MIAMI, FLORIDA

Tetra Tech was selected by the City of North Miami in 2011 to assist the City with overseeing the City's largest program, renewal and rehabilitation of its existing lime softening water treatment plant and expansion of the water system with a new reverse osmosis water treatment plant. Tetra Tech has functioned as an extension of the City's staff in overseeing and guiding the projects as well as providing technical reviews for all technical submittals, including preliminary design reports, construction plans and specifications, and coordination with the design engineer and permitting agencies.

To date, Tetra Tech has assisted the City with technical reviews and recommendations for the following projects under this program:

- Hydraulic analysis master planning of the City's water supply, transmission, storage, and distribution system
- Rehabilitation of six Biscayne aquifer water supply wells
- Water Supply Facilities Work Plan
- WTP Filter Rehabilitation
- WTP Lime Softening Process
- NE 6th Avenue 12-inch diameter water transmission main

All the above rehabilitation projects have been designed and are being bid for construction or are constructed. During construction, Tetra Tech will continue to oversee the project progress and act as an extension of the City's engineering staff.

Tetra Tech also designed and permitted a 12-inch diameter water main along NE 6 Avenue. The project was bid and is currently under construction. Tetra Tech is assisting with construction administration and inspection services.

Because of our successful performance on the renewal and rehabilitation project described above, the City recently selected Tetra Tech for an additional continuing contract for Water Resources/Stormwater Design, which will include sea level rise mitigation, climate resiliency, and other sustainability components.

ORIGINAL & ACHIEVED SCOPE

Design, staff augmentation, owner's representative

CLIENT/PROJECT MANAGER

Ken Caban, PE

COST

Initial Engineering Fees: $600,000 (to date)

Initial Construction Fees: N/A (to date)

Actual Engineering Fees: $600,000 (to date)

Actual Construction Fees: N/A (to date)

SCHEDULE

Original Schedule: Varies

Achieved Schedule: Varies - All Completed Schedule

Date of Completion: Ongoing

NUMBER OF CHANGE ORDERS

Engineering: No change orders
Construction: No change orders

CLIENT & POINT OF CONTACT

City of North Miami
776 NE 125th Street, Third Floor
North Miami, FL 33161

Wisler Pierre-Louis, PE
305.895.9830
pwisler@northmiamifl.gov

RELEVANCE TO CLIENT

- Potable water transmission & distribution mains
- Climate change
- Sea level rise
- Drainage
- Sustainability
- Climate resilience

TETRA TECH FUNCTIONED AS AN EXTENSION OF THE CITY'S STAFF TO REHABILITATE ITS WATER TREATMENT PLANT

CONTINUING SERVICES

CITY OF KEY BISCAYNE, FLORIDA

Tetra Tech has provided professional engineering services to the Village of Key Biscayne since 2004. Our broad range of services has included studies, design, permitting, bidding and construction administration services and public outreach, as applicable. Related projects include:

- **Outfall O-15R at 398 Harbor Drive –** Design, permitting, cost estimates, bidding, and construction administration for a new 24-inch stormwater outfall within an existing easement along with backflow prevention device within a stormwater structure to mitigate tidal and sea level rise impacts.
- **Outfall O-16 at 260 Harbor Drive –** Design, permitting, cost estimates, bidding, and construction administration for the removal and replacement of an 18-inch stormwater outfall within drainage easement along with backflow prevention device within a stormwater structure mitigate tidal and sea level rise impacts.
- **NPDES Reports 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 -** Responsible for preparation of annual NPDES reports, submittal to Miami-Dade County DRER, and reapplication.
- **Drainage Improvements for Buttonwood Drive, Glenridge Road and Woodcrest Road –** Prepared revised plans for expansion of existing drainage basin for installation of additional storm drain pipes and inlets, and permitting.
- **Stormwater Master Plan Update -** Update of 1993 stormwater master plan involving hydraulic & hydrologic modeling, GIS mapping, tidal fluctuations, and sea level rise mitigation.

ORIGINAL & ACHIEVED SCOPE

Planning, design, permitting, bidding, construction administration

CLIENT/PROJECT MANAGER

Ken Caban

COST

Initial Engineering Fees: $500,000 (to date)

Initial Construction Fees: N/A (to date)

Actual Engineering Fees: $500,000 (to date)

Actual Construction Fees: N/A (to date)

SCHEDULE

Original Schedule: Varies

Achieved Schedule: Varies - All Completed Schedule

Date of Completion: 2015

NUMBER OF CHANGE ORDERS

Engineering: No change orders
Construction: No change orders

CLIENT & POINT OF CONTACT

Village of Key Biscayne
Key Biscayne, FL

Jose G. Lopez
786.351.2383

RELEVANCE TO CLIENT

- Stormwater
- Backflow prevention
- Coastal Permitting

TETRA TECH DESIGNED AND ASSISTED WITH CONSTRUCTION OF MULTIPLE OUTFALLS TO BISCAYNE BAY

WATER, WASTEWATER, RECLAIMED WATER, AND HYDROGEOLOGIC PLANNING SERVICES

MIAMI-DADE COUNTY WATER AND SEWER DEPARTMENT, CITY OF MIAMI, FLORIDA

In 2015, Miami-Dade County and Tetra Tech, Inc. entered into an agreement for Professional Services in connection with the water, wastewater, and reclaimed water planning and geological services. This contract is to address comprehensive planning objectives for the water, wastewater, reclaimed water, and geological systems and will be used to meet regulatory requirements.

Miami-Dade Water and Sewer Department (WASD) is the largest water and sewer utility in the southeastern United States, serving nearly 2.3 million residents and thousands of visitors daily. To continue to fulfill the department's vision of continuous delivery of high-quality drinking water and wastewater services in compliance with all regulatory requirements, WASD has planned a systematic and responsible multi-year capital improvement plan (CIP). This plan focuses on providing necessary upgrades to thousands of miles of pipes, hundreds of pump stations, and several and water and wastewater treatment plants (WTP/WWTP) that provide its customers high-quality drinking water and wastewater services. Therefore, this water, wastewater and reclaimed water master plan contract is extremely important and integral to the Miami-Dade County.

Over the past few years, regulatory pressure has required WASD to focus its attention on negotiating and planning strategies to address the ever-evolving system requirements and challenges, including legislative mandates like the Ocean Outfall Legislation, which mandates elimination of ocean outfall of wastewater treatment plant effluent, and enforcement actions such as the most recent consent decree. Programs, as well as individual projects to meet these requirements have been identified, planned, scheduled and are actively being implemented. WASD has the foresight to understand that regulatory matters must be addressed to resolve the past without neglecting the plans to build the future.

ORIGINAL & ACHIEVED SCOPE

Planning and modeling, basis of design reports, sea level rise mitigation, climate change adaptation

PROJECT MANAGER

Diana Santander, PE

COST

Initial Engineering Fees: $7.7M (to date)
Initial Construction Fees: N/A (to date)
Actual Engineering Fees: $7.7M (to date)
Actual Construction Fees: N/A (to date)

SCHEDULE

Original Schedule: 2015-2018
Achieved Schedule: On Schedule
Date of Completion: March 2018

NUMBER OF CHANGE ORDERS

Engineering: No change orders
Construction: No change orders

CLIENT & POINT OF CONTACT

Miami-Dade Water & Sewer Dept.
3071 SW 38 Ave
Miami, FL 33146

Ramon R. Alba, PE
786.552.8450

RELEVANCE TO CLIENT

- Potable water transmission and distribution mains
- Wastewater collection system
- Wastewater force main
- Sewer lift stations
- Climate change
- Sea level rise
- Sustainability
- Climate resilience

TETRA TECH COMPLETED PLANNING AND PRELIMINARY DESIGN FOR THE LARGEST WATER SYSTEM IN THE SOUTHEASTERN UNITED STATES

WASD has a Planning and Development Division. Tetra Tech has provided on-site staff augmentation for hydraulic modeling, zoning application reviews, and other services to them.

In addition, Tetra Tech provided training to WASD staff on various tools utilized, such as hydraulic modeling software.

Task orders under this contract included:

- Task Order #1: Geological Services Assistance
- Task Order #2: Hydraulic Evaluations, Planning and Zoning Assistance, Capacity Analyses of Water and Wastewater Systems for Developer Connections, Cadastral Technician Services.
- Task Order #3: NW 79th Street & NW 7th Avenue Basis of Design Reports & Hydraulic Evaluations
- Task Order #4: Basis of Design Report Services for Water and Sewer Services
- Task Order #6: Capacity Analysis for Water and Wastewater Dev Connections
- Task Order #7: Hydrogeological Support Services - Staff Support
- Task Order #8: Water Demand Projections GIS Module
- Task Order #9: Assistance with Zoning Application
- Task Order #10: Miscellaneous Modeling Services
- Task Order #11: Water Reuse Feasibility Update
- Task Order # 12: Hydraulic Modeling Services for Port Miami and Septic Tanks Evaluations
- Task Order #13: Water Supplies Facilities Plan
- Task Order #14: PortMiami Distribution System Analysis and Upgrades Recommendations
- Task Order #15: Planning and Zoning Assistance Technical Memorandum for Ojus and Area S-6
- Task Order #16: Consulting Services for Planning and Project Management Assistance for Commercial Corridors, HTA, Upgrades to Sewer PS, and Resiliency Planning
- Task Order 17: Consulting Services for Calibration of Water System Hydraulic Model - Phase I Model Update and Data Gap Analysis

SOUTHWEST 6&7 UTILITY EXPANSION

CITY OF CAPE CORAL, FLORIDA

The initial development for Cape Coral planned for more than 350,000 residential lots and a projected population of over 400,000. Today, the City has nearly 170,000 residents and is the third largest city geographically in the state of Florida. As development continued, centralized water and wastewater services were added. However, as development began to outpace the rate at which centralized services could be provided, water and wastewater service had to be provided through on-site wells and septic tank/drain field systems. Although the City did expand service as funds were available, the pace of growth far exceeded the utility extension pace. As such, the City developed and adopted a Utilities Master Plan which outlined the Utility Extension Program (UEP) in a phased approach that would ultimately extend water, wastewater, and irrigation water service to virtually all areas south of Pine Island Road (SR 78) and some areas north of Pine Island Road.

As part of the UEP, the City selected Tetra Tech to perform value engineering and plan adoption of the prior design, hydraulic modeling, financial assistance, bidding assistance (including assistance with pre-qualifying contractors), and construction management/ construction engineering inspection (CEI) services for the Southwest 6 & 7 UEP:

- 53 miles of 4-inch through 12-inch potable water mains (PVC)
- 65 miles of 4-inch through 30-inch irrigation water mains (PVC)
- 12 miles of 4-inch through 12-inch wastewater force mains (PVC)
- 60 miles of 8-inch through 24-inch wastewater gravity collection piping (PVC)
- 10 miles of 12-inch through 42-inch stormwater pipe (HDPE and RCP)
- 18 wastewater lift stations
- 60 miles of new road construction

ORIGINAL SCOPE

Value engineering and plan adoption of prior design, hydraulic modeling, financial assistance, bidding assistance, and construction management/CET services

ACHIEVED SCOPE

(See Description)
Project was under budget and ahead of schedule

PROJECT MANAGER

Danny Nelson, PE

COST

Initial Engineering Fees: $500,000 (to date)

Initial Construction Fees: N/A (to date)

Actual Engineering Fees: $500,000 (to date)

Actual Construction Fees: N/A (to date)

SCHEDULE

Original Schedule: 2012-2019
Achieved Schedule: 2012-2019
Date of Completion: 2019

NUMBER OF CHANGE ORDERS

Engineering: No change orders
Construction: No change orders

CLIENT & POINT OF CONTACT

City of Cape Coral
PO Box 150097
Cape Coral, FL 33915

Paul Clinghan
239.574.0464
pclinghan@capecoral.net

RELEVANCE TO CLIENT

- Modeling for over 3,000 miles of pipe
- City-wide InfoWater and H20MAP water models
- Implementation of over 200 miles of unity infrastructure
- Value engineering for over $1.5M in estimated savings
- Assisted with Direct Purchase Orders for over $600,000 in tax savings
- SRF assistance

TETRA TECH ASSISTED WITH DESIGN AND CONSTRUCTION ADMINISTRATION OF WATER, WASTEWATER, RECLAIMED WATER AND STORMWATER INFRASTRUCTURE

ADDITIONAL FIRM QUALIFICATIONS

in addition to our previously listed qualifications, we submit the following as requested by the RFQ:

YEARS OF EXPERIENCE IN PROVIDING SERVICES AS IT RELATES TO THE WORK AND SERVICES CONTEMPLATED IN THIS RFQ

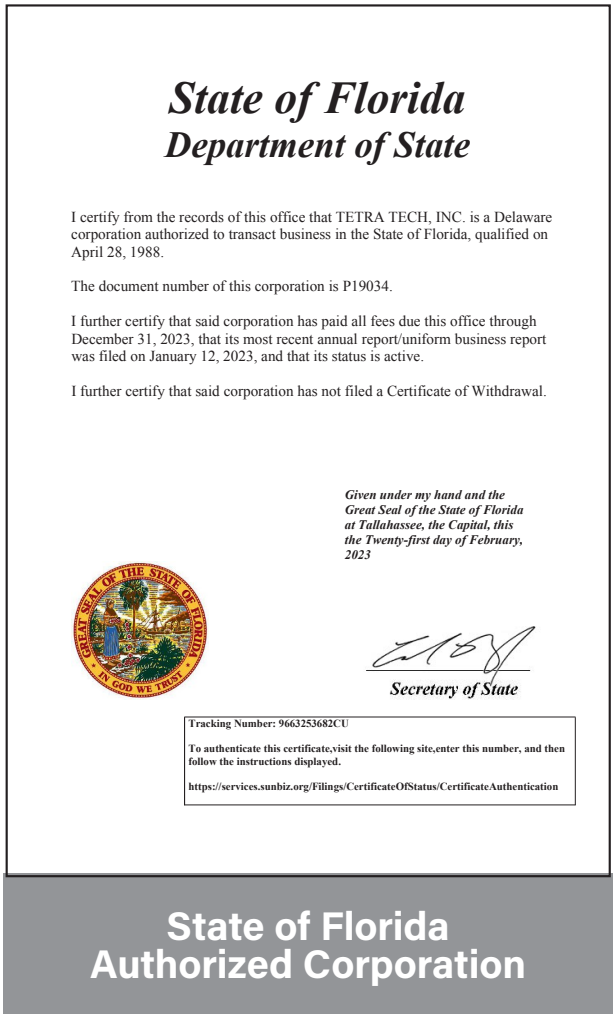
57

BUSINESS STRUCTURE:

CORPORATION

CONTACT INFORMATION:

Ken Caban, PE
Project Manager, Vice President
4601 Sheridan Street, Suite 212,
Hollywood, FL, 33021
TELEPHONE: 305.849.3404 | www.tetratech.com



State of Florida
Department of State

I certify from the records of this office that TETRA TECH, INC. is a Delaware corporation authorized to transact business in the State of Florida, qualified on April 28, 1988.

The document number of this corporation is P19034.

I further certify that said corporation has paid all fees due this office through December 31, 2023, that its most recent annual report/uniform business report was filed on January 12, 2023, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Twenty-first day of February, 2023

Secretary of State

Tracking Number: 9663253682CU

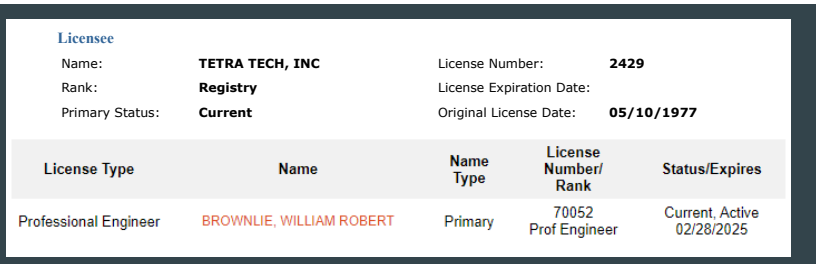
To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

State of Florida Authorized Corporation

FIRM LICENSES

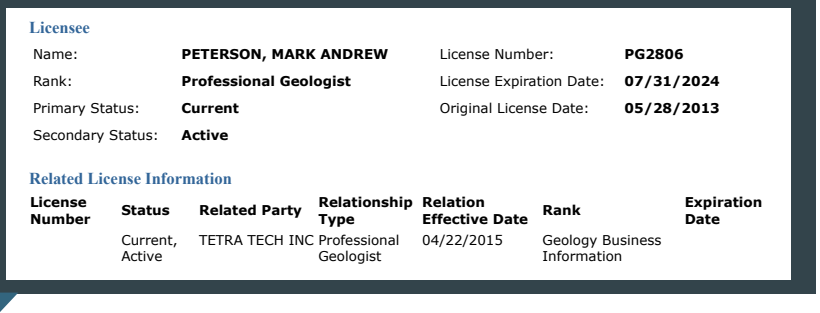
Newly passed Florida legislation "Occupational Freedom and Opportunity Act" (effective July 1, 2020) eliminates separate business licenses for architects, geologists, and landscape architects who already hold an individual license. Therefore, we have included licenses of Tetra Tech, Inc.'s sponsoring qualifiers, Professional Engineer, William Brownlie (PE 70052), and Professional Geologist, Mark Peterson (PG 2806).



Licensee

Name:	**TETRA TECH, INC**	License Number:	**2429**
Rank:	**Registry**	License Expiration Date:	
Primary Status:	**Current**	Original License Date:	**05/10/1977**

License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	BROWNLIE, WILLIAM ROBERT	Primary	70052 Prof Engineer	Current, Active 02/28/2025



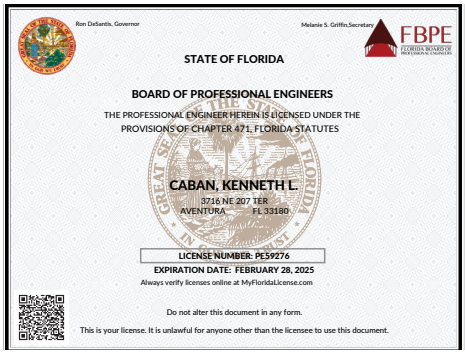
Licensee

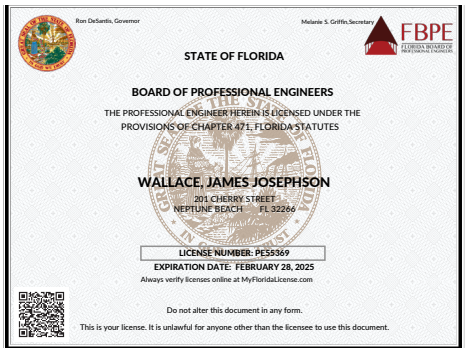
Name:	**PETERSON, MARK ANDREW**	License Number:	**PG2806**
Rank:	**Professional Geologist**	License Expiration Date:	**07/31/2024**
Primary Status:	**Current**	Original License Date:	**05/28/2013**
Secondary Status:	**Active**		

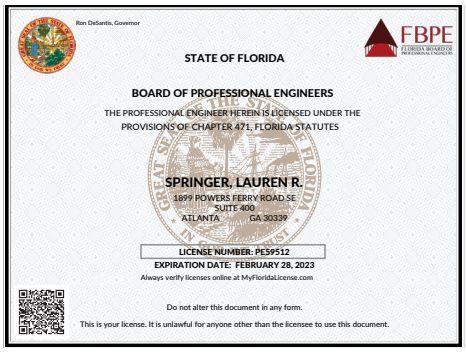
Related License Information

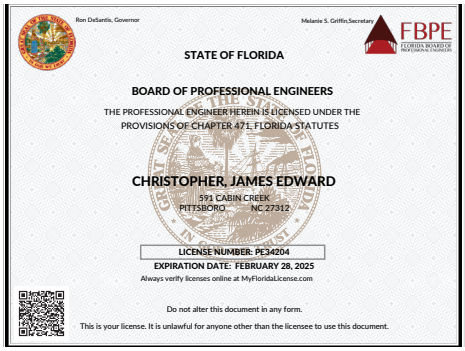
License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
	Current, Active	TETRA TECH INC	Professional Geologist	04/22/2015	Geology Business Information	

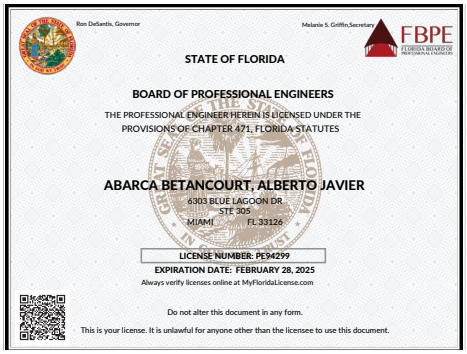
KEY STAFF LICENSES

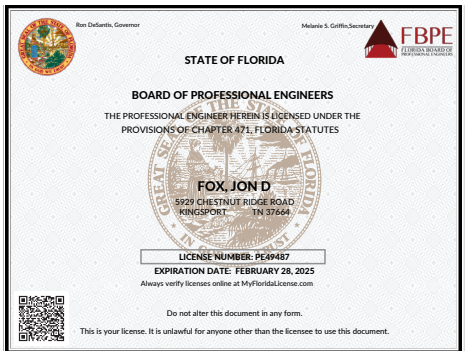

Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
CABAN, KENNETH L.
3716 NE 207 TER
AVENTURA FL 33180
LICENSE NUMBER: PE59276
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

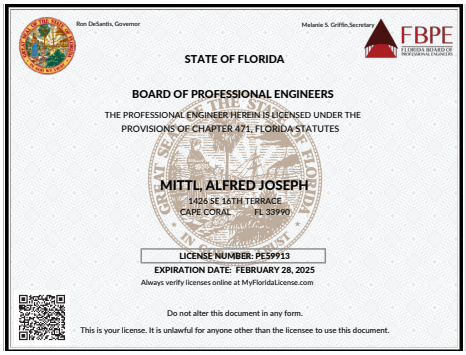

Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
WALLACE, JAMES JOSEPHSON
201 CHERRY STREET
NEPTUNE BEACH FL 32266
LICENSE NUMBER: PE55369
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

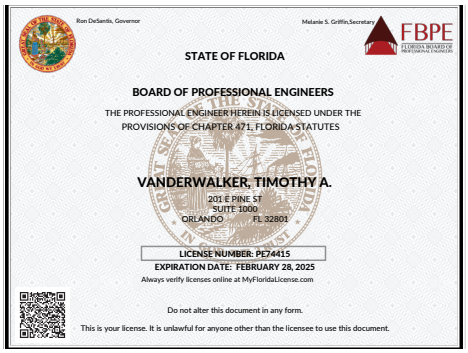

Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
SPRINGER, LAUREN R.
1899 POWERS FERRY ROAD SE
SUITE 400
ATLANTA GA 30339
LICENSE NUMBER: PE59512
EXPIRATION DATE: FEBRUARY 28, 2023
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

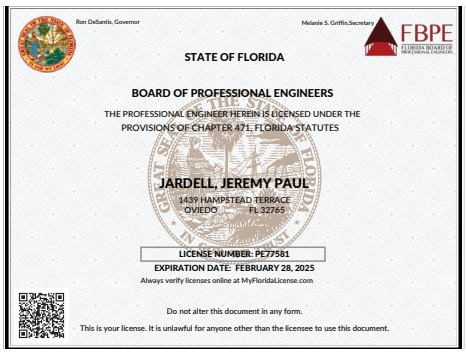

Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
CHRISTOPHER, JAMES EDWARD
591 CABIN CREEK
PITTSBORO NC 27312
LICENSE NUMBER: PE34204
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
ABARCA BETANCOURT, ALBERTO JAVIER
6303 BLUE LAGOON DR
STE 305
MIAMI FL 33126
LICENSE NUMBER: PE94299
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
FOX, JON D
5929 CHESTNUT RIDGE ROAD
KINGSPORT TN 37664
LICENSE NUMBER: PE49487
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

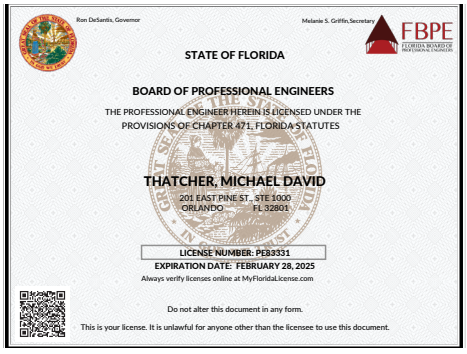

Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
MITTL, ALFRED JOSEPH
1426 SE 16TH TERRACE
CAPE CORAL FL 33990
LICENSE NUMBER: PE59913
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
VANDERWALKER, TIMOTHY A.
201 E PINE ST
SUITE 1000
ORLANDO FL 32801
LICENSE NUMBER: PE74415
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

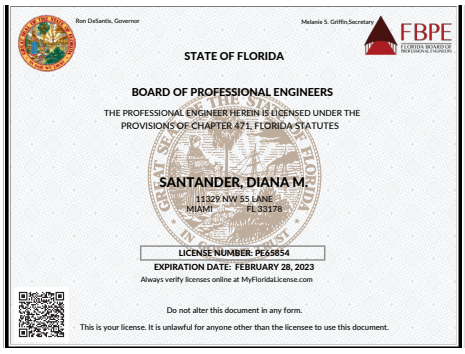

Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
JARDELL, JEREMY PAUL
1439 HAMPSTEAD TERRACE
OVIEDO FL 32765
LICENSE NUMBER: PE77581
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

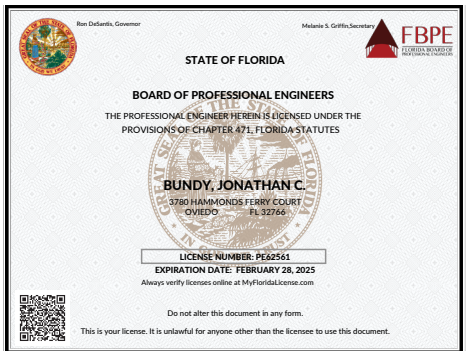
License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	TOOMEY, JOHN PETER	Primary	40264 Prof Engineer	Current, Active 02/28/2025

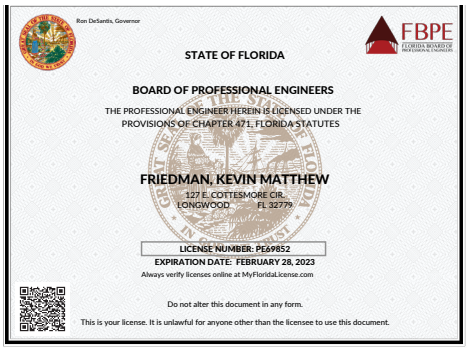
License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	ZAVATSKY, CHRISTOPHER ADAM	Primary	76885 Prof Engineer	Current, Active 02/28/2025

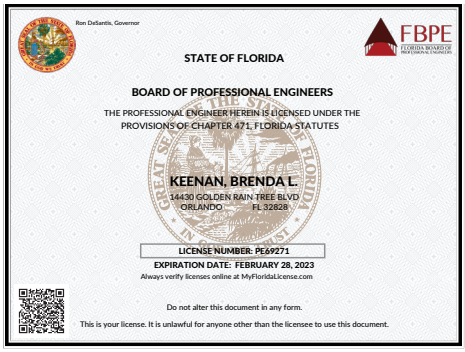

Ron DeSantis, Governor
Melanie S. Griffin, Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
THATCHER, MICHAEL DAVID
201 EAST PINE ST., STE 1000
ORLANDO FL 32801
LICENSE NUMBER: PE83331
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

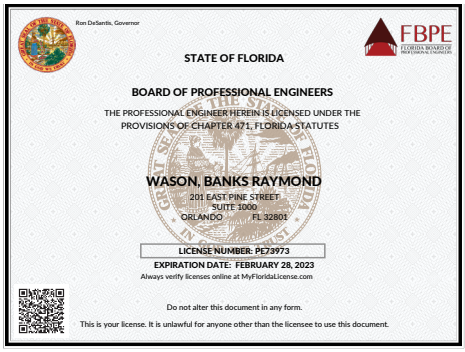
NOTE: OUR KEY STAFF ARE CURRENTLY IN THE PROCESS OF RENEWING THEIR LICENSES FOR THE STATE OF FLORIDA. SOME LICENSES ARE STILL PENDING UPDATE AND WILL BE RENEWED SHORTLY.

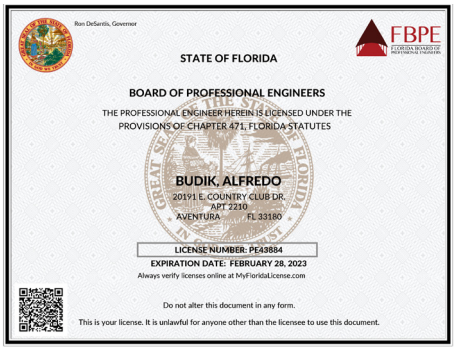

Ron DeSantis, Governor
Melanie S. Griffin,Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
SANTANDER, DIANA M.
11329 NW 55 LANE
MIAMI FL 33178
LICENSE NUMBER: PE65854
EXPIRATION DATE: FEBRUARY 28, 2023
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
Melanie S. Griffin,Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
BUNDY, JONATHAN C.
3780 HAMMONDS FERRY COURT
OVIEDO FL 32766
LICENSE NUMBER: PE62561
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
FRIEDMAN, KEVIN MATTHEW
127 E. COTTESMORE CIR.
LONGWOOD FL 32779
LICENSE NUMBER: PE69852
EXPIRATION DATE: FEBRUARY 28, 2023
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
KEENAN, BRENDA L.
14430 GOLDEN RAIN TREE BLVD
ORLANDO FL 32828
LICENSE NUMBER: PE69271
EXPIRATION DATE: FEBRUARY 28, 2023
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
WASON, BANKS RAYMOND
201 EAST PINE STREET
SUITE 1000
ORLANDO FL 32801
LICENSE NUMBER: PE73973
EXPIRATION DATE: FEBRUARY 28, 2023
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
BUDIK, ALFREDO
20191 E. COUNTRY CLUB DR.
APT 2210
AVENTURA FL 33180
LICENSE NUMBER: PE43884
EXPIRATION DATE: FEBRUARY 28, 2023
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

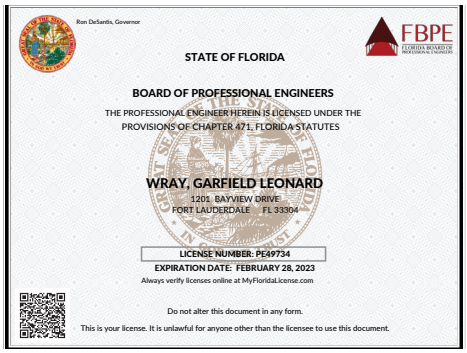
License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	VOSS, JUSTIN DONALD	Primary	87245 Prof Engineer	Current, Active 02/28/2025

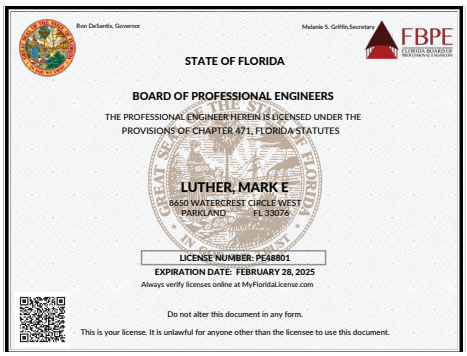
License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	WOODCOCK, ANDREW THOMAS	Primary	47118 Prof Engineer	Current, Active 02/28/2025

License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	KINSLOW, JARRETT KARL	Primary	63900 Prof Engineer	Current, Active 02/28/2025

License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	BURKETT, JASON LEE	Primary	69879 Prof Engineer	Current, Active 02/28/2025

License Type	Name	Name Type	License Number/ Rank	Status/Expires
Professional Engineer	SUTHERLAND, MICHAEL GENTRY	Primary	78587 Prof Engineer	Current, Active 02/28/2025


Ron DeSantis, Governor
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
WRAY, GARFIELD LEONARD
1201 BAYVIEW DRIVE
FORT LAUDERDALE FL 33304
LICENSE NUMBER: PE49734
EXPIRATION DATE: FEBRUARY 28, 2023
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.


Ron DeSantis, Governor
Melanie S. Griffin,Secretary
FBPE
STATE OF FLORIDA
BOARD OF PROFESSIONAL ENGINEERS
THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES
LUTHER, MARK E
8650 WATERCREST CIRCLE WEST
PARKLAND FL 33076
LICENSE NUMBER: PE48801
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com
Do not alter this document in any form.
This is your license. It is unlawful for anyone other than the licensee to use this document.

TAB D

ORGANIZATIONAL PROFILE AND PROJECT TEAM QUALIFICATIONS

COMMITMENT TO THE CITY

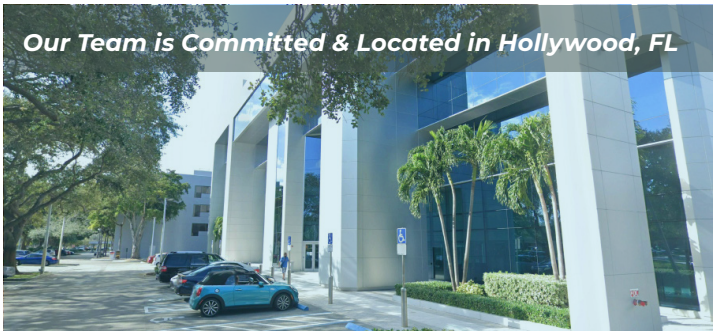
Tetra Tech is committed to continuing to provide the City of Hollywood with the most qualified staff to complete the projects under this contract.

In the following pages, we will demonstrate that our team is structured to provide effective, efficient, and seamless service to the City of Hollywood as we have done on previous projects.

A PROVEN HISTORY OF DELIVERING ON GENERAL ENGINEERING SERVICES CONTRACTS

Tetra Tech has 57 years of a strong Florida presence and offices throughout the state. Over the last 48 years, Tetra Tech has served the south Florida community on a wide range of engineering projects, including those identified within this RFQ.

Our presence and repeat selection for continuing contracts throughout Florida exemplifies our commitment and client satisfaction. We have planned, designed, permitted, and overseen the construction of numerous projects in Florida, through our numerous continuing contracts. Our team includes staff that have provided general engineering services for many south Florida municipalities under continuing services contracts, including the City of Hollywood; Village of Key Biscayne; City of North Miami Beach; City of North Miami; City of Tamarac; City of Miramar; and the City of Fort Lauderdale. Currently, Tetra Tech is serving as continuing consultant to over 50 governmental agencies in Florida.



DEPTH OF RESOURCES TO DELIVER

Our team is positioned to dedicate resources to the City to immediately implement City projects. From our Hollywood and Miami offices and from the more than 1,000 professionals located throughout the state of Florida, we are ready to deliver any size project to meet the City's needs. Our Project/Client Services Manager, Ken Caban, PE, will check that the team meets or exceeds the City's expectations.

The team presented in the following submittal represents more than 300 years of continuing consultant contract experience in the state of Florida, serving as an extension of staff. As will be demonstrated within this submittal, Tetra Tech has the capabilities to provide the full range of utility infrastructure general engineering services requested by the City. **Our team's organizational structure is provided on the following page and supplemented by an overview of our key personnel.**

HOLLYWOOD-BASED SUBCONTRACTORS

To supplement Tetra Tech's qualifications and experience and provide the capabilities to meet all needs of the City, we have included three specialized subconsultants, **Gibbs Land Surveying, Hillers Electrical Engineering,** and **NV5**, both headquarted in the City of Hollywood.

NV5

Tetra Tech has worked hand-in-hand with all of these team members on projects, including projects for the City of Hollywood. Our experience working together, especially on City of Hollywood projects, will provide unparalleled value to the City on the contract.

HILLERS ELECTRICAL ENGINEERING, INC.

GIBBS | LAND SURVEYORS

ORGANIZATIONAL CHART

Project / Client Services Manager
Kenneth Caban, PE, LEED AP*

Senior Management Team
James J. Wallace, PE*
Lauren Springer, PE*

Quality Assurance / Quality Control
Jon Fox, PE*
James Christopher, PE*
John Toomey, PE*

Water/Wastewater Conveyance
Alberto Abarca, PE*
Jeremy Jardell, PE*

Water/Wastewater Pump Statons
Christopher Zavatsky, PE*
Fred Mittl, PE*

Civil / Stormwater
Tim Vanderwalker, PE*
Michael Thatcher, PE, CDT*

Distribution Water Quality
James Christopher, PE, BCEE*
Justin Voss, PE*

Integrated Planning & Reuse
Diana Santander, PE*
Andrew Woodcock, PE*

Water Resources/Hydrology & Hydraulilc Engineering
Kevin Roe, PE*
Diana Qing Tao, Eng. M. Eng.*

Water Treatment
Jon Bundy, PE*
Jarrett Kinslow, PE*

Wastewater Treatment
Kevin Friedman, PE*
Brenda Keenan, PE*

Construction Management & Administration
Travis Lizak*
Rick Hoadley

Asset Management
Andrew Woodcock, PE*

Grants
Allison McLeary*

LEGEND:
(1) NV5
(2) Gibbs Land Surveyors
(3) Hillers Electrical Engineering

Support Services

Environmental / Coastal Engineering
Richard Czlapinski, PE, D.CE
Erin Hague, CEP

Structural
Jason Burkett, PE, SE, MLSE

Architectural
Quintin Biagi, RA LEED AP BD+C

Geotechnical
Alfredo Budik, PE (1)
Garfield Wray, PE (1)

Surveying & Mapping
Lawrence Jenkins, PSM
Steven Seeley, PSM (2)

Mechanical
Michael Sutherland, PE, LEED AP BD+C

Cybersecurity/Instrumentation/ Real Time Control
Mark McKinney
Diana Qing Tao, Eng. M. Eng.

Electrical
Banks Wason, PE
Aurora Reinefeld, PE
Mark Luther, PE (3)

* RESUMES OF KEY STAFF ARE INCLUDED IN THIS SUBMITTAL

MANAGEMENT TEAM

KEN CABAN, PE

Mr. Caban has over 20 years of experience in all facets of water, wastewater, reuse, and stormwater systems. He has been involved in the planning, design, and construction of numerous projects on the largest systems in South Florida, including highly complex, high profile projects. Mr. Caban understands and delivers client expectations, including the City's expectations.

He has served the City of Hollywood for the last twelve years, successfully assisting the City with implementation of replacement of nearly 60 miles of pipe on the City's Water Main Replacement Program. Mr. Caban has served in a technical capacity, reviewing all deliverables, and also as the main point of contact between Public Utilities senior management and Tetra Tech.

JAMES J. WALLACE, PE

Mr. Wallace brings over 27 years of progressive and diverse professional expertise. His comprehensive experience is primarily focused within the municipal water and wastewater sector having served as the Owner's Engineer, Project Manager, Engineer-of-Record and/or Project Principal on the majority of the projects in his portfolio. Additionally, he brings a deep resume of technical expertise exclusively built upon water, wastewater, and reclaimed water projects with a varied background in both traditional delivery and extensive design-build project delivery experience.

LAUREN SPRINGER, PE

Lauren Springer, PE will serve as the project manager and primary point of contact for efforts related to this contract. Throughout her 20+ years of experience, she has successfully managed large multidisciplinary teams and delivered large water treatment plants and pump station facilities throughout the southeast. Ms. Springer understands what it takes to manage projects from inception through construction and keep the team on schedule and under budget.

Mr. Fox has 32 years of experience with various water, wastewater, reuse, and stormwater systems. He has developed and led quality assurance and quality control programs for projects throughout Florida and the Southeast United States. Mr. Fox's technical expertise and leadership within Tetra Tech ensures that the City of Hollywood will receive technically excellent deliverables, leading to successful projects.
He has been involved in all City of Hollywood projects for the last twelve years, overseeing staff assigned to projects and working with Mr. Caban to ensure City of Hollywood projects are staff adequately and that Tetra Tech's QA/QC program is adhered to.

JON FOX, PE

Mr. Christopher is a vice president and practice leader for water treatment for Tetra Tech. His knowledge of water chemistry and water infrastructure design makes him highly qualified in defining, evaluating, and implementing water quality solutions to the most challenging problems. He has 42 years of professional engineering experience and is highly qualified in environmental engineering, with special expertise in wastewater treatment, effluent reuse/utilization/disposal, water resources, water quality and treatment, reverse osmosis and nanofiltration, granular activated carbon, pumping system analysis/station design, facility planning, construction administration.

JAMES CHRISTOPHER, PE

Mr. Toomey has four decades of nationally recognized water and wastewater engineering experience in planning, design, and construction administration of various projects. He has extensive experience in the development and evaluation of large pumping systems and wastewater treatment options.
His recent experience includes assisting the City of Eustis, Florida with saving over $5M on their Bates Wastewater Treatment Facility through an innovative alternative treatment concept without sacrificing reliability or capacity.

JOHN TOOMEY, PE

OTHER KEY PERSONNEL

ALBERTO ABARCA, PE

Mr. Abarca is an environmental engineer with extensive knowledge of the City of Hollywood water, wastewater, and stormwater utility. He has gained this experience over six years by assisting or leading planning, design, or construction activities on the City's infrastructure projects. In addition, Mr. Abarca is leading the Grant Assistance project with the City, overseeing grant opportunities and requirements on behalf of the City.

DIANA QING TAO, ENG. M. ENG.

Ms. Tao has over 25 years of experience in the fields of wastewater, water resources, water quality and environment across North America. She specializes in the evaluation and optimization of sanitary and combined sewer systems for the control of overflows, inflow and infiltration, and sewer backups. Over the years, she has participated in many sewer and real time control (RTC) studies, the design of flow control structures and the implementation of RTC for large-scale collection systems in several major cities.

DIANA SANTANDER, PE

Ms. Santander has 25 years of civil and environmental engineering experience including stormwater management, water distribution, wastewater collection systems, water conservation, and solid waste management. She has managed several projects that range from small municipal improvements to overall programs involving complex improvements in highly urbanized areas. Ms. Santander has also prepared engineering cost estimates, performed project cost tracking and scheduling, reviewed final as-built documentation, and participated in contractor and consultant selection and management.

Mr. Jardell is a Sr. Engineer with over 17 years of practice throughout Florida on many of the state's largest and most complex systems. His experience includes full lifecycle of projects for both conventional, and design-build delivery methods. This includes pursuits, planning, preliminary engineering, design, permitting, and construction administration for water, reclaimed water, raw/process water, and wastewater distribution/transmission systems for over 31 miles of installed pipe ranging in diameter from 6 to 56-inch.

JEREMY JARDELL, PE

Ms. McLeary is an experienced emergency preparedness and emergency management executive. In her most recent role with Florida Division of Emergency Management, Ms. McLeary administered over $8.8 billion in FEMA Stafford Act program funding, and developed and implemented the State strategy for $1.275 billion in CARES-Coronavirus Relief Fund payments.

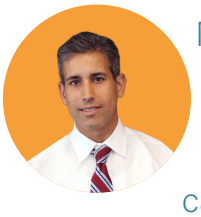
ALLISON MCLEARY

Mr. Woodcock has been involved with many different facets of environmental engineering for over 33 years. He has unique expertise in utility master planning, due diligence investigations, utility valuations, financial feasibility analyses and business plans. Mr. Woodcock's skills include assisting utilities prepare operating and capital programs and supporting those programs with a series of rates and charges to provide for their successful implementation. He is also experienced in conducting economic and feasibility analyses and serves as an expert witness on utility rate regulatory matters.

ANDREW WOODCOCK, PE

CLIENT/PROJECT MANAGER

KEN CABAN, PE



Mr. Caban has over 27 years of experience in the analysis, design, permitting, inspection, construction management, and program and project management of water, reuse, and wastewater conveyance and treatment systems, water, wastewater, and stormwater master planning and design, site development, and capital improvement programs for various municipalities.

Mr. Caban has served as client manager to the City of Hollywood for over twelve years, managing all services to the Utilities Department.

Name of Firm:
Tetra Tech, Inc.

Title:
Vice President

Education:
MS, Environmental Engineering, Florida International University

BS, Civil Engineering, Florida International University

Registrations/Certifications:
Professional Engineer: Florida #59276

Professional Affiliations:
American Water Works Association

Office:
Hollywood, FL

Percentage of Time to be Assigned Full-Time to this Project::
50%

Years of Experience:
27

Years with Tetra Tech:
12

Water Main Replacement Program, City of Hollywood, FL. Quality Manager overseeing the surveying, geotechnical evaluations, design, permitting, and construction administration services on multiple projects being completed concurrently. The entire program is comprised of over 300,000 linear feet (57 miles) of water main replacement to date, reconnection of over 1,000 service connections, numerous underground and overhead utilities conflicts, permitting through multiple agencies, and construction within schedule and budget. Existing aged cast iron water mains were replaced with both DIP and PVC water mains, ranging from 4-inch to 24-inch diameters. The existing water mains were located within residential streets, paved and unpaved alleys, and easements in the rear of residential lots, which had become overgrown or encroached upon by property owners. Existing water meters located within unpaved alleys or rear easements were relocated to the front of the lots and included new water services within private property. Aged fire hydrants were replaced some water mains were upsized by one nominal size. Extensive asphalt pavement and pavement markings restoration and improvements were also included.

Owners Engineering Representative, City of North Miami, FL. Project Manager serving as an extension of staff for multiple projects related to the potable water system planning and rehabilitation, including water supply, treatment, storage, transmission, and distribution. Services include providing in independent reviews related to the planning and rehabilitation of the City's potable water systems..

441 NW 7 Avenue Sewer Extension, City of Ft Lauderdale, FL. Quality Manager for design, permitting, bidding, and CA services for the extension of 300 feet of 8-inch gravity sewer main, one manhole and a sanitary lateral to connect the House of God to the City's wastewater system. Permitting includes Broward Co. Health/DOH.

Pump Stations D-10 and D-11 Flow Analysis and Redesign project, City of Ft Lauderdale, FL. Client Services Manager for wastewater flow analysis due to increased land use densities from single family residential to condo and multifamily uses and evaluation of existing duplex pump stations and upstream influent manholes for rehabilitation or replacement for two existing city pump stations located adjacent to East Las Olas Blvd. on the Isle of Venice (pump station D-10) and Hendricks Isle (pump station D-11).

East Las Olas Boulevard Forcemain Replacement, City of Fort Lauderdale, FL. Quality Manager. Scope includes removal of approximately 2,200 LF of existing 12-inch FM and replacement by 18-inch, 16-inch, 12-inch and 8-inch DR-11 HDPE along East Las Olas Blvd (SR 842) between SE 17th Avenue and Lido Drive with aerial crossing along bridge and connecting into Pump Station D-37. Responsible for preparation of construction plans and specifications, permitting through City, Broward County Water and Wastewater Services, and FDOT, and cost estimates.

Senior Management Team

JAMES J. WALLACE, PE

Mr. Wallace brings over 27 years of progressive and diverse professional expertise. His comprehensive experience is primarily focused within the municipal water and wastewater sector having served as the Owner's Engineer, Project Manager, Engineer-of-Record and/or Project Principal on the majority of the projects in his portfolio. Additionally, he brings a deep resume of technical expertise exclusively built upon water, wastewater, and reclaimed water projects with a varied background in both traditional delivery and extensive design-build project delivery experience.

Name of FIrm:
Tetra Tech, Inc.

Title:
Vice President

Education:
MBA., University of Florida
BS, Environmental Engineering, University of Florida

Registrations/Certifications:
Professional Engineer: Florida #55369

Professional Affiliations:
Origanization Name (no acroynms)

Office:
Jacksonville, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
27

Years with Tetra Tech:
1

Hollywood Beach Utility Infrastructure Improvements PH1, City of Hollywood Department of Utilities, Hollywood, FL. Quality Review. Responsible for water system improvements involving upgrading 2- to 6-inch diameter water mains one nominal size, replacing 8- to 18-inch diameter water mains via Open Cut with four 16- to 24-inch diameter water mains via Horizontal Directional Drill (HDD) method, isolation valves, fire hydrants, water services, and water meters. The wastewater system improvements involve replacement of Lift Station E-09, force main, gravity sewer and manhole structures.

Total Water Management Plan (TWMP) Segment 2 River Crossing Horizontal Directional Drill (HDD) Design-Build, JEA, Jacksonville, FL. Project Manager/Engineer-of-Record. This project demonstrated our ability to manage a very aggressive schedule and coordinate critical project challenges with various stakeholders and permitting agencies, including FDOT. The project included a new 7,500 LF 36-inch water main, of which 6,500 LF installed by HDD, 110 feet below the St. Johns River surface and over 1,000 LF of open cut installation with a 190 LF Jack and Bore under Arlington Expressway inside 54-inch steel casing pipe. The project was delivered through a Progressive Design-Build delivery method.

South Shores Sub-Aqueous Force Main, JEA, Jacksonville, FL. Project Manager/ Engineer-of-Record. PM/EOR for a new 5,200 LF 36-inch wastewater force main, of which 4,000 LF installed by HDD over 100 feet below the St. Johns River in 42-inch steel casing. Project demonstrated our ability to manage a very aggressive schedule and coordinate critical project decisions with third parties, including COJ, FDOT and the Jacksonville Jaguars/SMG. A second HDD of 800 LF was completed adjacent to EverBank Stadium along a very congested corridor, including open cut connections at Duval Street and Franklin Street, as well as significant open-cut connections at the Utah Master Pump Station. The project was delivered utilizing the Lump Sum Design-Build delivery method.

Membrane Design, City of Lake Worth, Lake Worth, FL. Membrane Design Engineer-of-Record and QA/QC. Design of a new 4.5 MGD Reverse Osmosis (RO) membrane water treatment system, including static filters, membrane feed pumps and membrane skids for the City of Lake Worth.

West WTP Improvements Project, City of Boynton Beach, Boynton Beach, FL. Project Manager. Included the replacement of membrane softening elements and feed pumps for a 10.4 MGD WTP expansion and upgrade. Additionally, the design of a new 1,200 lb/day on-site sodium hypochlorite generation system.

Brighton Indian Reservation 0.8 MGD nanofiltration (NF) Water Treatment Plant, Seminole Tribe of Florida, Lake Okeechobee, FL. Lead Process Engineer. Lead pipeline, pump station and treatment engineer for design of the Brighton WTP, Seminole Tribe of Florida, Brighton, FL. Included a new WTP, seven raw water wells and over 32,500 LF of 6-inch to 12-inch raw, finished and effluent water mains, as well as three new prestressed concrete ground storage tanks (4 MG, 3 MG and 0.75 MG) and five pump stations.

Senior Management Team

LAUREN SPRINGER, PE

Ms. Springer, PE will serve part of the senior management team for this contract. Throughout her 22+ years of experience, she has successfully managed large multidisciplinary teams and delivered large high profile projects for major clients throughout the southeast United States. Her understands the contractual, engineering, construction, and risk management aspects of water utilities and will provide guidance and expertise to the City of Hollywood.

Name of FIrm:
Tetra Tech, Inc.

Title:
Operating Unit President

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #59512

Professional Affiliations:
GAWP

Office:
Atlanta, GA

Percentage of Time to be Assigned Full-Time to this Project::
10%

Years of Experience:
24

Years with Tetra Tech:
22

Southern Service Area Water Main, Orange County Utilities, Orlando, FL. Project Manager. Responsible for design, permitting, construction drawing, and technical specification preparation and construction management for the southern route for the Northeast Water and Wastewater Transmission System Project including 8,700 linear feet of 30-inch high-density polyethylene water main installed via directional drill and 12,700 linear feet of 30-inch ductile iron pipe water main.

Northeast Water Transmission System, Lakeland, FL. Project Engineer. The project consisted of design, permitting, technical specification preparation, and construction management for the Northeast Water Transmission System, which included 10 miles of pipes ranging in diameter from 6- to 36-inches, with 24-inch and 36-inch throughout the major portion of the route. The project included raw water mains, potable water mains, and sanitary sewer force mains, as well as multiple wetland crossings and multiple jack and bores with casings up to 54-inches under various state roadways.

Wastewater Master Lift Station Rehabilitation and Upgrade, Toho Water Authority, Kissimmee, FL. Project Manager. Responsible for the preliminary design of wastewater Master Lift Station Nos. 60 and 97 rehabilitation and upgrade project, which include rehabilitation and redesign of master lift stations to quad-submersible stations with total design flows of approximately 3,000 gpm total for each station.

TB Williams Water Treatment Plant Filter Rehabilitation, City of Lakeland Utilities, Lakeland, FL. Project Manager. Rehabilitation of the 30 MGD filter gallery included coating system design and replacement and media and filter nozzle replacement. Scope included preliminary coating system evaluation, final design, and construction management.

Integrated Utility Master Plan, Palm Beach County, FL. Lead Planning Engineer for Water System. Developed an Integrated Utility Master Plan that guides the operations, maintenance, and capital improvements of the utility through 2050. The project is focused on developing a process rather than a document that leverages the County's CMMS, SCADA, and GIS information to identify issues and develop effective solutions for implementation. The goals and metrics will align with and support the County's goal to achieve ISO 55001 certification in Asset Management.

Wastewater Force Main Evaluation, North Miami Beach, FL. Project Engineer. The project consisted of the evaluation of a wastewater force main system including a four pump station manifold system and a booster station. Analysis involved hydraulic modeling of the system. Calculated future flows and prepared a report detailing recommendations for upgrading the system.

QA/QC

JON FOX, PE

Mr. Fox has participated in many aspects of environmental engineering including the planning, design, permitting and construction administration of both water and wastewater treatment facilities and distribution/collection systems. He has led the resource and quality control for all projects throughout Florida, including all City of Hollywood projects since 2011. Mr. Fox will continue to oversee the quality control of all Hollywood projects.

Name of Firm:
Tetra Tech, Inc.

Title:
Vice President

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #49487

Professional Affiliations:
American Society of Civil Engineers
American Water Works Association
Water Environment Federation

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
32

Years with Tetra Tech:
32

Norwood-Oeffler Water Treatment Plant Expansion, City of North Miami Beach, FL. Project Manager. This project includes preliminary and final designs, permitting (FDOH, FDEP, SFWMD, MD DERM), bidding/award and construction administration for expansion of the City's existing lime softening WTP from 17.67 MGD to 32.0 utilizing membrane treatment technology. Biscayne Aquifer and Florida Aquifer source waters will be treated with nanofiltration (NF) and low pressure reverse osmosis respectively. The expansion consists of i) expansion of the existing wellfield to include construction of 5 Biscayne Aquifer supply wells and 4 Floridan Aquifer supply wells, ii) raw water transmission mains. iii) 9.0 MGD NF and 6.0 MGD low pressure RO membrane treatment systems. iv) pre-treatment facilities to include sand separators, microfiltration and chemical feed systems. v) post-treatment/stabilization facilities to include force draft degasification, disinfection and finished water blending. vi) finished water ground storage and high service pumping. vii) class I deep injection well for concentrate (treatment low-product) disposal.

A-7 Pump Station Upgrade and Condition Assessment, City of Fort Lauderdale, FL. Principal-in-Charge. Tetra Tech performed a wastewater flow analysis due to increased land use densities for Downtown Fort Lauderdale's largest wastewater pump station. Tetra Tech also completed an evaluation of existing triplex pump station and upstream influent manholes for rehabilitation or replacement for one of the City's largest pump stations. Tetra Tech prepared a preliminary design memorandum that included findings and recommendations for rehabilitation and replacement and associated costs, and survey, design, permitting, and construction administration services for the rehabilitation and removal and replacement of existing infrastructure in disrepair.

South Regional Water Treatment Plant, City of Palm Bay, FL. Project Manager for 4.0 MGD (expandable to 10.0 MGD) low pressure reverse osmosis water treatment plant. Responsible for budget, task delegation, review, design, permitting, construction drawings and technical specification preparation.

Southwest Service Area Reclaimed Water System Expansion, City of Winter Garden, FL. Client Manager/Quality Control for the route planning, preliminary design, surveying, final design, permitting and construction administration services for approximately 13,500 LF of 8-, 12-, 16- and 20-inch reclaimed water main and six direct interconnections to the City of Orlando's reclaimed water system. Over 8,500 LF of the reuse main was installed, by directional drilling, in the City road right-of-way.

Lift Station Remote Telemetry System, City of Winter Garden, FL. Project Manager to obtain a new license from the Federal Communications Commission (FCC) for operation of the City's existing system. Services include performing a spectral analysis of three candidate SCADA frequencies for FCC licensing and the best frequency will be selected for final licensing. Upon FCC license approval, Tetra Tech reprogrammed all for the 78 remote telemetry units located at the wastewater pump stations throughout the service area and the master telemetry unit locate at Fullers Water Treatment plant.

QA/QC, Distribution Water Quality

JAMES CHRISTOPHER, PE, BCEE

Mr. Christopher is highly qualified in environmental engineering, with special expertise in water resources; water quality; reverse osmosis, pumping system analysis/station design; hydraulic analysis; pipeline design; wastewater collection, treatment, effluent reuse/ utilization/ disposal; facility planning; construction and administration and overall project administration and coordination.

Name of Firm:
Tetra Tech, Inc.

Title:
Vice President

Education:
MS, Environmental Engineering and Science, University of Central Florida
BS, Chemistry, Duke University

Registrations/Certifications:
Professional Engineer:
Florida #34204

Professional Affiliations:
American Water Works Association
Florida Pollution Control Association
Southeast Desalting Association
American Membrane Technology Association
WateReuse Association
American Academy of Environmental Engineers

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
42

Years with Tetra Tech:
32

Norwood-Oeffler Water Treatment Plant Expansion, City of North Miami Beach, FL. Senior Project Engineer. This project includes preliminary and final designs, permitting (FDOH, FDEP, SFWMD, MD DERM), bidding/award and construction administration for expansion of the City's existing lime softening WTP from 17.67 MGD to 32.0 utilizing membrane treatment technology. Biscayne Aquifer and Florida Aquifer source waters will be treated with nanofiltration (NF) and low pressure reverse osmosis respectively. The expansion consists of i) expansion of the existing wellfield to include construction of 5 Biscayne Aquifer supply wells and 4 Floridan Aquifer supply wells, ii) raw water transmission mains. iii)9.0 MGD NF and 6.0 MGD low pressure RO membrane treatment systems. iv) pre-treatment facilities to include sand separators, microfiltration and chemical feed systems. v) post-treatment/stabilization facilities to include force draft degasification, disinfection and finished water blending. vi) finished water ground storage and high service pumping. vii) class I deep injection well for concentrate (treatment low-product) disposal.

Alexander Orr Jr WTP Process Optimization Study, Miami-Dade County Water and Sewer Department, FL. Project Manager responsible for Tetra Tech's work as subconsultant to HDR for bench scale testing, field testing, review of plant operating information, development of water quality goals and development of alternatives to optimize the cost effective operation of the lime softening and stabilization process for this 262 MGD facility.

Owners Engineering Representative, City of North Miami, FL. Senior Project Engineer serving as an extension of staff for multiple projects related to the potable water system planning and rehabilitation, including water supply, treatment, storage, transmission, and distribution. Services include providing in independent reviews related to the planning and rehabilitation of the City's potable water systems.

Alternative Water Supply Design/Build, Tarpon Springs, FL. Design Manager for design and technical services associated with the design/build construction of the City's 6.4 MGD alternative water supply facility. The facility is designed to accommodate high salinity brackish water from a group of 15 Floridan aquifer supply wells and includes 3 2 MGD reverse osmosis skids, degasification, biotrickling filters for odor control, chlorine contact, transfer pumping, 5 MG ground storage reservoir and high service pumping. Raw water system and reverse osmosis skids are designed using duplex stainless steel to accommodate high salinity and seawater membranes.

Cypress Lake Water Treatment Plant, Tohopekilaga Water Authority, Kissimmee, FL. Process Team Leader for the preparation of the conceptual and preliminary design reports, cost budgets and schedules for a proposed 34 MGD reverse osmosis water treatment plant, raw water supply well field and deep injection well disposal system.

QA/QC

JOHN TOOMEY, PE

Mr. Toomey has four decades of nationally recognized water and wastewater engineering experience in planning, design, and construction administration of various projects. He has extensive experience in the development and evaluation of large pumping systems and wastewater treatment options. Mr. Toomey has designed over 30 wastewater treatment facilities in Florida and brings over 40 years of lessons learned and innovative treatment solutions.

Name of FIrm:
Tetra Tech, Inc.

Title:
Senior Project Manager

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #40264

Professional Affiliations:
N/A

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
43

Years with Tetra Tech:
23

Lift Station No. 1/7 Improvements, Orlando, FL. Client Manager. Tetra Tech provided surveying, hydraulic analysis and modeling, permitting and services. We are currently providing construction engineering services for this contract. The scope of services includes: evaluate and study LS 1/7's capacities and ability to accommodate actual and future wastewater flows, perform hydraulic modeling and analysis, evaluate existing conditions including network configurations and odor issues, locate utilities for needed improvements and provide geotechnical engineering as necessary, provide a Preliminary Engineering Report, based on evaluation and recommendations, provide 100% design plans for improvements, design electrical, emergency power, telemetry, SCADA improvements associated with project, apply for and maintain all necessary permits from building department, SJRWMD, and FDEP, assist in bidding, and construction administration activities, and provide engineering services during construction phase.

Pump Station Replacement/Rehabilitation Program, Orange County, FL. Program Manager. Oversaw the replacement program for Orange County Utilities that addressed over 600 pump stations. Mr. Toomey developed an aggressive wastewater replacement/rehabilitation program to prioritize and rank pump stations. Performed preliminary engineering to clearly define scopes and resolve issues that have historically delayed projects in final design. Project tasks included site inspections, condition assessments, improvements prioritization, pump station elimination studies, alternative analysis, and preliminary design.

Honey Creek Pump Station, Force Main, and Gravity Sewer Improvements Design-Build, DeKalb County, GA. Engineering Manager. Tetra Tech's services for the $25M fast-track design-build project included interim peak flow storage, a new 8.0 MGD submersible pump station, 17,300 LF of 16-inch ductile iron pipe (DIP) force main, 15,600 LF of 24-inch DIP gravity sewer, and sewer assessments of the existing force main infrastructure.

Miscellaneous Lift Station Improvements, Orlando, FL. Project Manager. Mr. Toomey led the Tetra Tech team providing continuing miscellaneous professional engineering services to the City of Orlando since 2000. Projects included numerous lift station refurbishments, utility infrastructure improvements and other miscellaneous engineering services as required. Services included: conversion and rehabilitation of two duplex lift stations from dry pit to wet pit, assistance developing city standard electrical/instrumentation CADD details, site improvements at 10 lift stations, and standby power improvement for master lift station.

International Corporate Park Wastewater Pump Station Improvements, Orange County, FL. Project Manager. A new major wastewater pump station and rehabilitation of an existing submersible pumping facility. The new station included a split wetwell, provisions for the installation of six pumps, above-grade discharge piping, variable frequency drives, an odor control system, flow metering facilities, a standby power system, telemetry, and an electrical building.

Water / Wastewater Conveyance

ALBERTO ABARCA, PE

Mr. Abarca is an environmental engineer with extensive knowledge of the City of Hollywood water, wastewater, and stormwater utility. He has gained this experience over six years by assisting or leading planning, design, or construction activities on the City's infrastructure projects. In addition, Mr. Abarca is leading the Grant Assistance project with the City, overseeing grant opportunities and requirements on behalf of the City.

Name of Firm:
Tetra Tech, Inc.

Title:
Civil Engineer

Education:
MS, Environmental/ Environmental Health Engineering, Florida International University

BS, Industrial Engineering, Universidad Rafael Urdaneta, Maracaibo, Venezuela

Registrations/Certifications:
Professional Engineer:
Florida #94299

Professional Affiliations:
American Water Works Association
American Society of Civil Engineers

Office:
Hollywood, FL

Percentage of Time to be Assigned Full-Time to this Project::
75%

Years of Experience:
6

Years with Tetra Tech:
6

Water Main Replacement Program, City of Hollywood, FL. Project Engineer. Providing engineering support for utility coordination, project engineering, and construction management on multiple projects being completed concurrently. The entire program is comprised of over 225,000 linear feet (42 miles) of water main replacement, reconnection of over 1,000 service connections, numerous underground and overhead utilities conflicts, FEC railroad crossings, permitting through multiple agencies, and construction within schedule and budget. Existing aged cast iron water mains were replaced with both DIP and PVC water mains, ranging from 4-inch to 24-inch diameters. The existing water mains were located within residential streets, paved and unpaved alleys, and easements in the rear of residential lots, which had become overgrown or encroached upon by property owners. Existing water meters located within unpaved alleys or rear easements were relocated to the front of the lots and included new water services within private property. Aged fire hydrants were replaced some water mains were upsized by one nominal size. Extensive asphalt pavement and pavement markings restoration and improvements were also included.

Grant Management Program, City of Hollywood, FL. Project Engineer. Tetra Tech is working with the City of Hollywood to assist with the identification and evaluation of available grant funding opportunities, preparation of grants/loans applications, monthly and quarterly reporting, existing and future grant administration, and preparation of engineering supporting documentation, including environmental reviews, review of grant timelines, and requirements. The list of projects involves water, wastewater, and stormwater infrastructure. Tetra Tech will manage and execute the grants and loan funding applications to agencies such as Broward County, Florida Department of Transportation, Florida Department of Environmental Protection, Environmental Protection Agency, Federal Emergency Management Association, and others.

W. International Speedway Blvd (ISB) Sanitary Sewer Improvements Phase III, City of Daytona Beach, FL. Project Engineer. Responsible for the design of approximately 800 LF of 20-inch DR-11 HDPE force main to be constructed via horizontal directional drill (HDD) under the Tomoka River and 130 LF of 16-inch DR-18 PVC force main connecting the City's Sanitary Sewer Improvements Phase II to lift station 63 wet well. Additional work includes rehab of wet well AGRU liner after FM connection is completed. The purpose of this project is to replace a failing 20-inch ductile iron gravity sewer, which will be constructed in coordination with other improvements by the City for future Florida Department of Transportation Highway US 92 widening. The complexity of the project in the area with wetlands, outstanding Florida Waterway, Riparian Habitat Protection Zone, conservation easements, and sovereign submerged lands requires wetland delineation, environmental study, muck probing, and other tasks led by Tetra Tech and subconsultants. In addition, this project will require extensive permitting through Florida Department of Environmental Protection for construction permits, environmental resource permit, submerge land easement (SSL), and the United States Army Corps of Engineers.

Water / Wastewater Conveyance

JEREMY JARDELL, PE

Mr. Jardell is a Sr. Engineer with over 17 years of practice throughout Florida on many of the state's largest and most complex systems. His experience includes full lifecycle of projects for both conventional, and design-build delivery methods. This includes pursuits, planning, preliminary engineering, design, permitting, and construction administration for water, reclaimed water, raw/process water, and wastewater distribution/transmission systems for over 31 miles of installed pipe ranging in diameter from 6 to 56-inch.

Name of FIrm:
Tetra Tech, Inc.

Title:
Senior Project Manager

Education:
BS, Civil Engineering, University of Louisiana at Lafayette

Registrations/Certifications:
Professional Engineer:
Florida #77581

Professional Affiliations:
Florida Water Environment Federation

American Society of Civil

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
30%

Years of Experience:
17

Years with Tetra Tech:
1

Septic Abatement Wastewater Transmission Main, Longwood, FL. Senior Project Manager. Responsible for preliminary engineering, final design, permitting, bidding and construction phase services for 20,000 linear feet (3.8 miles) of 16-inch PVC force main. The selected project corridor extended through numerous jurisdictions including the City of Longwood, Seminole County, and Altamonte Springs. Segments of the corridor varied widely in zoning from Single-Family Residential to Commercial, Light Industrial, and Public Lands. Therefore, special considerations to alignment and methods of construction were given to ensure impacts to the public and environmentally sensitive areas such as wetlands were adequately managed. This included a total of 9,600 LF installed by 10 separate horizontal directional drills, the longest of which extended 1,500 LF within the heavily trafficked R/W of Palm Springs Drive within the City of Altamonte Springs.

Lift Station 49 Force Main Replacement, City of Orlando, FL. Senior Project Manager. Sr. Project Manager for preliminary engineering, final design, permitting and construction phase services associated with the replacement of approximately 1,945 liner feet of 12-inch, 100 linear feet of 20-inch force main, CIPP lining of approximately 120 linear feet of 10-inch PVC force main and 200 linear feet of 10-inch vitrified clay sanitary sewer serving the Dover Estates Subdivision. Open cut construction crossing SR 552 (Curry Ford Rd) right of way required careful maintenance of traffic considerations and provisions for phased weekend work. The project also required one FDOT Utility Permit, one FDEP Wastewater Permit, and conducting one public involvement meeting.

Gravity R/R Replacement Package 3, Orange County Utilities, FL. Senior Project Manager. Sr. Project Manager for final design, permitting, bidding and construction phase services for the replacement of approximately 1,800 liner feet of 8-inch sanitary sewer mains within four (4) non-contiguous locations in Orange County, one (1) of which is also within the City of Maitland. This project also involves removal and replacement of fourteen (14) manholes, seven (7) of which are at depths of approximately 20-feet. Each location included unique but similar challenges associated with maintenance of traffic considerations, utility support and replacement, and construction associated with excavations to extended depth.

Gravity Sewer Interceptors for Master Pump Station No. 3. Miami-Dade Water and Sewer Department (WASD), Miami, FL. Project Engineer. Responsible for Design/Build project for Miami-Dade Water and Sewer Department. 5,000 LF x 56" (OD) gravity sewer by microtunneling beneath active roadways in the Brickell Financial District of Miami, FL. Project involved 6-30ft deep drilled shafts, and extensive coordination for regulatory permitting through RER. Project included custom designed structural covers to carry urban Miami traffic over shafts between phases of construction. This project required extensive evaluation of geotechnical conditions and design parameters, relocation of existing utilities in conflict with shaft construction, coordination with numerous local governmental and private agencies including ongoing construction involving interface with numerous simultaneous and interconnected maintenance of traffic designs in the area.

Water / Wastewater Pump Stations

CHRISTOPHER ZAVATSKY, PE

Mr. Zavatsky has a decade of planning and design experience on a wide range of projects with an emphasis on pump station planning, design, permitting, and construction. He has designed over 50 pump stations and assisted with the construction oversight of many. His experience includes pump stations on one of the largest pump station networks in the country as well as with the City of Hollywood.

Name of Firm:
Tetra Tech, Inc.

Title:
Vice President

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #49487

Professional Affiliations:
American Society of Civil Engineers
American Water Works Association

Office:
Miami, FL

Percentage of Time to be Assigned Full-Time to this Project::
50%

Years of Experience:
14

Years with Tetra Tech:
6

Lake Estates Small Water Main Improvements, City of Fort Lauderdale, FL. Engineer of Record. This project involved surveying, utilities verification, and geotechnical investigations to design and permit approximately 10,850 linear feet of 8-inch diameter PVC and DIP water mains to replace existing aged water mains. Permitting involved the Florida Department of Health, Broward County Environmental Protection and Growth Management Department, and Florida Department of Transportation. The project also required preparation of design and construction documents, bidding review and assistance, construction administration and inspection, and project closeout and certification.

Wastewater Program, City of Hollywood, FL. Project Engineer. As part of the City of Hollywood Septic to Sewer and Wastewater Program, Tetra Tech is providing surveying, geotechnical evaluations, design, permitting, and construction administration services on multiple projects concurrently. To date, Tetra Tech's program project comprises over 50,000 linear feet of gravity sewers and force mains. The improvements included sewer expansion with new gravity sewers, ranging from 8- to 15-inch in diameter. Gravity sewer expansions included manholes, sewer laterals, and cleanouts at the property lines. In addition, lift stations were proposed or rehabilitated, along with new or replaced force mains. The gravity sewers and force mains were located within residential streets. The program also includes extensive maintenance of traffic (MOT), asphalt pavement, and pavement markings restoration and improvements.

Basis of Design Report for NW 79th Street Water Distribution and Wastewater Collection and Transmission Systems Expansion (Project D2-B); City of Miami and Miami-Dade County, FL. Utility Planning Engineer. Basis of Design Report for NW 79th Street Water Distribution and Wastewater Collection and Transmission Systems Expansion (Project D2-B); City of Miami and Miami-Dade County, FL of the right-of-way, a private force main, and ongoing project improvements from the Florida Department of Transportation and Miami-Dade County Department of Transportation and Public Works. A Basis of Design Report was prepared describing plan layout alternatives, hydraulic modeling, construction cost estimating, evaluation, and recommendations for design, permitting, and construction.

Basis of Design Report for NW 7th Avenue Wastewater Collection and Transmission Systems Expansion (Project D2-D), Miami-Dade County, FL. Utility Planning Engineer. This project involved the review and evaluation of existing wastewater infrastructure to recommend a plan layout and project delivery method to extend gravity service for the purpose of invigorating commercial development along the project corridor (NW 79th Street from NW 27th Avenue to N Miami Avenue). While water mains currently serve the commercial corridor, new water mains are recommended where pipe diameter is less than 12 inches in diameter. A few challenges encountered on the project included an exfiltration trench system along the majority of the north side of the right-of-way, a private force main, and ongoing project improvements from the Florida Department of Transportation and Miami-Dade County Department of Transportation and Public Works.

Water / Wastewater Pump Stations

FRED MITTL, PE

Mr. Mittl has 34 years of diverse environmental engineering experience plus 4 years of water utility experience. Mr. Mittl's experience includes potable water, reclaimed water, and wastewater utility systems planning, funding, condition assessment, rehabilitation, design, permitting, bidding, and construction. Wastewater collection projects have included conventional, vacuum, and low-pressure collection systems constructed in Cape Coral, Marco Island, Sanibel Island, and the Florida Keys.

Name of Firm:
Tetra Tech, Inc.

Title:
Project Manager

Education:
MS, Environmental Engineering, University of Houston

BS, Environmental Resource Management, Pennsylvania State University

Registrations/Certifications:
Professional Engineer: Florida #59913

Professional Affiliations:
American Water Works Association

Water Environment Federation

Office:
Cape Coral, FL

Percentage of Time to be Assigned Full-Time to this Project:
30%

Years of Experience:
35

Years with Tetra Tech:
10

Big Cypress Lift Station and Force Mains, Seminole Tribe, Davie, FL. Sr. Project Manager. Tetra Tech is providing design, permitting, and construction services for plans to construct a second master lift station and new force mains within the Big Cypress Seminole Indian Reservation. Infrastructure includes the roads, potable water distribution system, wastewater collection and transmission system, and the Big Cypress WWTP. The existing collection system consists of 20 lift stations, multiple grinder pump stations, and approximately 23,244 feet of gravity main and 93,428 feet of force main. New planned developments at the Big Cypress Reservation are anticipated to generate additional load to the existing collection system and Cypress Lane MLS.

Sanibel Sewer System Expansion, Phases 2C, 3A, 3B, 4A, and 4B, Sanibel Island, FL. Project Manager. Sanibel had been expanding their central sewer system to replace septic systems since the system was purchased in 1991. The services included the design, oversight and management for the installation of over 5 miles of wastewater collection system piping, wastewater pumping station installations and oversight of construction installation. Phase 3A sewer system expansion included a 1.0 mgd Master Pump Station #3 with onsite emergency generator and odor control system. Upon completion of Phase 4B, nearly all of Sanibel Island was connected to the centralized sewage collection and treatment, however, several challenging areas remain to be served in environmentally sensitive zones. These properties will be served using grinder pump lift stations and small diameter force mains. Phase 4B is currently under construction, with completion scheduled for Fall 2023.

Gateway Roundabout Utility Relocation, Gateway Services Community Development District, FL. Project Manager. Project involves realignment and addition of steel casing for water, wastewater, and irrigation piping that will be located under the new roundabout pavement to be constructed at the intersection of Gateway Boulevard with Commerce Lakes Drive in the Gateway Community. The utility work will be performed simultaneously with the proposed roadway improvements, essentially through a joint project agreement (JPA) with Lee County. The project required a fast-tracked design and permitting process in order to meet Lee County's schedule for implementation of this project.

Golden Gate Wastewater Engineer of Record, Collier County, FL. Sr. Engineer. Tetra Tech was selected as the wastewater Engineer of Record for Golden Gate City within Collier County, FL. This project consists of several tasks, including conversion of an existing extended air wastewater plant to high-level disinfection; preparation of a 20-year wastewater master plan; design of a new 8.0 MGD Membrane Bioreactor (MBR) wastewater treatment plant; and collection and transmission system improvements, including rehabilitation of over 36 miles of sewer mains, 28 lift stations, and 437 manholes.

Southwest 6 & 7 Utility Extension Program, City of Cape Coral, FL. Project Engineer. Project expanded the City's water, wastewater, and irrigation systems to a four square mile area south of Pine Island Road. The project included value engineering; hydraulic modeling for water, wastewater, and irrigation systems; design, permitting, bidding, and construction management. The project included over 200 miles of potable water, wastewater collection, wastewater transmission, irrigation utility piping, and 18 lift stations.

Civil / Stormwater

TIM VANDERWALKER, PE

Mr. Vanderwalker's experience includes involvement in many diverse and challenging projects. He has gained experience in project execution through planning, design, permitting, construction, and certification. His technical expertise includes the preparation of contract documents including plans, specifications, and development of opinions of cost for numerous infrastructure projects including transportation and roadway improvement projects, water system improvement projects, and water reuse projects.

Name of FIrm:
Tetra Tech, Inc.

Title:
Project Manager

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #49487

Professional Affiliations:
Water Environment Foundation

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
16

Years with Tetra Tech:
16

PortMiami Cargo Gates Improvements Design, Permitting, and Construction Phase Services, Miami, FL. Civil Engineer for this $18M project that consists of the design and construction of improvements to the PortMiami cargo gates. The project includes 5,000 linear feet of road, five new structures, telecommunications for a 70-Acre site, paving, grading, drainage, markings, and traffic management improvements.

Stormwater Infrastructure Retrofit, Town of Fort Myers Beach, FL. Civil Engineer. Responsible for a preliminary facilities plan (including preliminary basin mapping, alternative analysis, and cost estimating) to assist the Town with stormwater infrastructure effectiveness. The project includes 42,500 LF of drainage pipe, ranging in size from 15- to 48-inches, 58 nutrient-separating baffle boxes, and 71 backflow prevention devices. The retrofit project has provided a plan for improvements to reduce nuisance flooding, provide treatment within the system prior to discharge, and increase protection from storm surge. Design and construction of this multi-phase project is underway.

Kelly Street Phase II Improvements, Destin, FL. Project Manager. Responsible for the design of improvements for a local collector within the Destin City Multi-Modal District. Project involved the widening of an existing two-lane roadway to include bike lanes, sidewalks, drainage swales, and improvements to an existing five-way intersection. Safety improvements to the five-way intersection included a realignment of the existing roadway to improve sight distance as well as traffic calming measures. Role consisted of lead designer for roadway, grading, drainage, signing and striping, and utility adjustments. During the conceptual design stage, presented design options in City CRA Board meetings as well as public input meetings.

Estero Boulevard Water Main Improvements Phases 2-4, Town of Fort Myers Beach, FL. Project Engineer. Design, permitting, and construction oversight for Segments 2-4. As part of the Fort Myers Beach reFRESH program, the Town of Fort Myers Beach (Town) and Lee County are providing water, sewer, and streetscape improvements along Estero Boulevard. As a consultant for the Town for stormwater improvements, multiple joint outfalls were modeled, designed, and constructed to provide relief for runoff collected on Estero Boulevard. In total, more than 15 outfalls will provide a connection to Estero Bay to improve the nuisance flooding conditions within the County and Town right-of-way, increase water quality discharged into the Bay, and prevent tidal backflow into the streets.

Southwest 6&7 Extension Program, City of Cape Coral, FL. Project Engineer. Engineering services associated with the expansion of the City's water, wastewater, and irrigation systems to a 4 square mile area south of Pine Island Road. The project includes value engineering, hydraulic modeling for water, wastewater and irrigation systems, design, permitting, bidding, and construction management. The project includes over 200 miles of potable water, wastewater collection, wastewater transmission, and irrigation utility piping; 18 lift stations; and a stormwater canal pumping station to supplement reclaimed water during high demand periods.

Civil / Stormwater

MICHAEL THATCHER, PE, CDT

As Tetra Tech's Florida Civil Engineering Group Leader, Mr. Thatcher is responsible for workload projecting, resource allocation, performance management, and technical oversight for a team of more than 12 engineers and technical staff. With this integration of staff, Mr. Thatcher evaluates various components of individual assignments and project requirements to assemble the appropriate technical skills and availability to meet his clients' needs.

Name of FIrm:
Tetra Tech, Inc.

Title:
Project Manager,
Civil Engineering Group Leader

Education:
BS, Civil Engineering, University of Hartford

Registrations/Certifications:
Professional Engineer:
Florida #83331

Construction Documents Technologist

Envision Sustainability Professional:
#21794

Professional Affiliations:
American Water Works Association
American Society of Civil Engineers
Florida Engineering Society

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
45%

Years of Experience:
10

Years with Tetra Tech:
10

Norwood-Oeffler Water Treatment Plant Expansion, City of North Miami Beach, FL. Project Manager. This project includes preliminary and final designs, permitting (FDOH, FDEP, SFWMD, MD DERM), bidding/award and construction administration for expansion of the City's existing lime softening WTP from 17.67 MGD to 32.0 utilizing membrane treatment technology. Biscayne Aquifer and Florida Aquifer source waters will be treated with nanofiltration (NF) and low pressure reverse osmosis respectively. The expansion consists of i) expansion of the existing wellfield to include construction of 5 Biscayne Aquifer supply wells and 4 Floridan Aquifer supply wells, ii) raw water transmission mains. iii)9.0 MGD NF and 6.0 MGD low pressure RO membrane treatment systems. iv) pre-treatment facilities to include sand separators, microfiltration and chemical feed systems. v) post-treatment/stabilization facilities to include force draft degasification, disinfection and finished water blending. vi) finished water ground storage and high service pumping. vii) class I deep injection well for concentrate (treatment low-product) disposal.

South Regional Water Treatment Plant, City of Palm Bay, FL. Project Manager for 4.0 MGD (expandable to 10.0 MGD) low pressure reverse osmosis water treatment plant. Responsible for budget, task delegation, review, design, permitting, construction drawings and technical specification preparation.

Southwest Service Area Reclaimed Water System Expansion, City of Winter Garden, FL. Client Manager/Quality Control for the route planning, preliminary design, surveying, final design, permitting and construction administration services for approximately 13,500 LF of 8-, 12-, 16- and 20-inch reclaimed water main and six direct interconnections to the City of Orlando's reclaimed water system. Over 8,500 LF of the reuse main was installed, by directional drilling, in the City road right-of-way.

Lift Station Remote Telemetry System, City of Winter Garden, FL. Project Manager to obtain a new license from the Federal Communications Commission (FCC) for operation of the City's existing system. Services include performing a spectral analysis of three candidate SCADA frequencies for FCC licensing and the best frequency will be selected for final licensing. Upon FCC license approval, Tetra Tech reprogrammed all for the 78 remote telemetry units located at the wastewater pump stations throughout the service area and the master telemetry unit locate at Fullers Water Treatment plant.

Intermediate and Master Pump Stations, City of New Smyrna Beach, FL. Project Manager. Preliminary engineering, final design, permitting, bidding and construction phase services for two new submersible wastewater pump stations. The Intermediate Pump Station included a circular precast concrete wet well, triplex submersible pump system, discharge piping, controls, and SCADA interface. The Master Pump Station included a cast-in-place concrete wet well, quadraplex submersible pump system, discharge piping, variable frequency drives, odor control facilities, a standby generator set, controls, electrical building and SCADA interface.

Distribution Water Quality, Water Treatment

JARRETT KINSLOW, PE

Mr. Kinslow serves as a project manager in the utility division and has participated in many aspects of environmental engineering including treatability studies, pilot testing, design, permitting, construction administration, data analysis, and planning. In recent years a majority of Mr. Kinslow's project experience has been in the design, construction, and startup of potable water treatment facilities ranging from 2 MGD to greater than 60 MGD in capacity. Mr. Kinslow's water treatment experience includes a specialization in membrane treatment processes with a combined experience of more than 85 MGD in membrane treatment capacity.

Name of FIrm:
Tetra Tech, Inc.

Title:
Senior Project Manager
Drinking Water Quality and Treatment Specialist
Membrane Process Technology Leader

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #63900

Professional Affiliations:
Southeast Desalting Association
American Membrane Technology Association
American Water Works Association
WateReuse Association

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
22

Years with Tetra Tech:
22

Owners Engineering Representative, City of North Miami, FL. Project Engineer. Serving as an extension of staff for multiple projects related to the potable water system planning and rehabilitation, including water supply, treatment, storage, transmission, and distribution. Services include providing in independent reviews related to the planning and rehabilitation of the City's potable water systems.

South Miami Heights Water Treatment Plant – Reservoir and Pump Station, Miami-Dade County, FL. Served as Tetra Tech's Project Manager for the multi-discipline Construction Management team acting as the County's Engineering Representatives for the delivery phase of the project. The project, consisting of a new 20 MGD water treatment facility utilizing membrane treatment was proposed in the SW service area, and was initially anticipated to be delivered through three (3) separate construction contracts. The first of these contracts consisted of a 5.0 MG potable water reservoir and high service pumping system that completed construction in 2012 and is currently operational as a storage and re-pump facility. Construction services provided by Tetra Tech for this contract included construction administration, participation in construction meetings, schedule and change order review, and site inspections.

Norwood-Oeffler Water Treatment Plant Expansion, City of North Miami Beach, FL. Project Engineer. This project includes preliminary and final designs, permitting (FDOH, FDEP, SFWMD, MD DERM), bidding/award and construction administration for expansion of the City's existing lime softening WTP from 17.67 MGD to 32.0 utilizing membrane treatment technology. Biscayne Aquifer and Florida Aquifer source waters will be treated with Nanofiltration (NF) and low pressure reverse osmosis respectively. The expansion consists of i) expansion of the existing wellfield to include construction of 5 Biscayne Aquifer supply wells and 4 Floridan Aquifer supply wells, ii) raw water transmission mains. iii)9.0 MGD NF and 6.0 MGD low pressure RO membrane treatment systems. iv) pre-treatment facilities to include sand separators, microfiltration and chemical feed systems. v) post-treatment/stabilization facilities to include force draft degasification , disinfection and finished water blending. vi) finished water ground storage and high service pumping. vii) class I deep injection well for concentrate (treatment by-product) disposal.

Shell Creek WTP Reverse Osmosis Addition, City of Punta Gorda, FL. Project Manager for final design of a brackish reverse osmosis treatment facility to provide low TDS permeate for blending with high TDS treated surface water. Services provided for the project included final design, permitting, and construction administration for the proposed 4.0 MGD expandable to 8.0 MGD RO treatment facilities. The proposed improvements include conversion of two (2) existing ASR wells to be used for RO supply wells and construction of an on-site deep injection well. The proposed RO treatment facilities will be located on undeveloped land at the existing surface water treatment plant site.

Integrated Planning & Reuse

DIANA SANTANDER, PE

Ms. Santander two decades of experience in the areas of environmental, general civil, and geotechnical engineering. She has extensive experience with water, wastewater, reuse, and stormwater utilities and infrastructure. As a Senior Project Manager, she oversees teams of engineers and other professionals on projects for major clients. She has recently successfully delivered multiple Basis of Design Reports for water and sewer utilities throughout major corridors in Miami-Dade County, incorporating sea level rise and tidal projections and climate change resiliency.

Name of FIrm:
Tetra Tech, Inc.

Title:
Senior Project Manager

Education:
MS, Civil Engineering, Louisiana State University

BS, Civil Engineering, Pontifical Xaverian University, Bogota, Colombia

Registrations/Certifications:
Professional Engineer:
Florida #65854

Professional Affiliations:
American Society of Civil Engineers
American Water Works Association

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
60%

Years of Experience:
24

Years with Tetra Tech:
7

Basis of Design Reports for Commercial Corridors, Miami-Dade County, FL. Project Manager. This project involved the review and evaluation of existing wastewater infrastructure to recommend a plan layout and project delivery method to extend wastewater collection and transmission service for the purpose of invigorating commercial development along 15 commercial corridors in Miami-Dade County. The BODRs propose resilient infrastructure and evaluate impacts of future zoning, population growth, climate change, and sea level rise. Detailed review of existing utilities, impacts of planned or ongoing projects by other stakeholders were taken into account. These reports include a total of 225,800 LF of gravity pipe, 66,347 LF of force main, 18 new pump stations, and 103,800 LF of water main. Ms. Santander was responsible for the on-time-on budget delivery of these reports, coordination of all project activities including planning, hydraulic modeling, environmental review, geotechnical review, utilities evaluation, cost estimating and scheduling, and engineering basis of design. In addition, Ms. Santander coordinated stakeholder meetings, and managed sub-consultants.

Miami-Dade County Water Reuse Feasibility Study, Miami-Dade County, FL. Project Manager. The purpose of this study is to assess the feasibility of wastewater reuse in Miami-Dade County. This project includes identifying the constraints and opportunities for reuse, the level of treatment and possible infrastructure needed for various reuse scenarios, and potential projects and their estimates of reuse volumes. Stakeholder input was obtained through the process of project selection. Short and long term benefits including environmental concerns, public acceptance, costs, and regulatory constraints were established. This study incorporates current programs and future planned wastewater treatment plant and regional pump stations. Potential reuse options evaluated include: urban irrigation; agricultural irrigation; wetland application; aquifer recharge, saltwater barrier, power plant reuse, industrial reuse, potable reuse, and sewer mining. As project manager, Ms. Santander is responsible for the overall project coordination and resource tracking. She also assists in the coordination of meetings with stakeholders and participates in the project feasibly evaluation.

Lake Estates Small Diameter Water Main Improvements, City of Fort Lauderdale, FL. Project Manager. This project involved surveying, utilities verification, and geotechnical investigations to design and permit approximately 10,850 linear feet of 8-inch diameter PVC and DIP water mains to replace existing aged water mains. Permitting involved the Florida Department of Health, Broward County Environmental Protection and Growth Management Department, and Florida Department of Transportation. The project also required preparation of design and construction documents, bidding review and assistance, construction administration and inspection, and project closeout and certification.

Integrated Planning & Reuse, Asset Management

ANDREW WOODCOCK, PE

Mr. Woodcock's water and wastewater utility planning experience includes several master plans, and capital improvements programs that include water, wastewater and reclaimed water utilities. Recent planning projects include the City of Clermont Water, Wastewater and Reclaimed Water Master Plans, the City of Bartow Water Master Plan, and the City of Naples Integrated Water Supply Study. As part of the planning process, Mr. Woodcock has conducted numerous economic, present value and feasibility analyses that evaluate the financial impacts of utility programs and provide useful decision criteria for capital planning.

Name of FIrm:
Tetra Tech, Inc.

Title:
Senior Project Manager

Education:
MBA, Rollins College
MS, Environmental Engineering, University of Central Florida
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #47118

Professional Affiliations:
Water Environment Federation
American Water Works Association

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
45%

Years of Experience:
31

Years with Tetra Tech:
31

TA-13 Water Supply and Interim Facilities Planning (20 Year), Miami-Dade Water and Sewer Department, FL. Lead Engineer for a system wide master plan of MDWASD's water treatment plants. Planning efforts involve a detailed analysis of the feasibility of combining the Hialeah and Preston water treatment plants (WTPs) collocated in the northern part of the service area. The analysis includes a condition analysis, performance review, and capacity analysis of both facilities to determine the ability of the Preston WTP to assume the treatment capacity utilized by the older Hialeah WTP. As part of the analysis, a capital program will be developed for both the decommissioned scenario as well as for continued independent operation. A detailed review of the operations and maintenance costs will be performed to evaluate the economic efficiency of each WTP. The feasibility of the decommissioning was determined through a 20-year life cycle cost analysis.

Comprehensive Wastewater Master Plan, Phase I, Collection and Transmission System, City of Orlando, FL. Project Manager. Leads the team in providing engineering services for Orlando's wastewater collection system consisting of 648 miles of gravity main, 178 miles of force main and 224 lift stations. The master plan is currently under development to generate a 20-year capital improvement program (CIP) to address the expansion and renewal and replacement of the system's assets. Major activities of the master plan include constructing, calibrating and running the City's first ever comprehensive hydraulic model of the system. Tetra Tech will train City staff on the use of the model so that it becomes a continuing tool for planning efforts. A condition assessment and business risk analysis was developed for the system assets to identify critical assets and prioritize improvements to the system. This included a number of workshops to identify condition and criticality criteria for each major asset class that was supported by a mix of field investigations, in-house condition date and geospatial analysis. The resulting CIP will include an analysis of project alternatives that will be aimed to reduce the risk on the system through economically feasible resiliency and redundancy improvements.

Integrated Water Supply Plan, Toho Water Authority, Liquid Solutions Group, Osceola County, FL. Project Manager. As-needed engineering services to Liquid Solutions Group for 50-year water supply planning of Toho Water Authority's operational and implementation planning, treatment processes at their water, wastewater, and reclaimed water plants, addressing various plant hydraulic equipment and process-related, coordinating with regional water supply project partners, and assisting with funding applications.

Integrated Water Resources Plan, City of Naples, FL. Financial Evaluation. Tetra Tech developed an integrated water resources plan for the City of Naples that evaluated all water supply options for a twenty-year planning period. All available water supply sources were considered including brackish ground water, stormwater, and surface water from the Golden Gate Canal and Naples Bay. Mr. Woodcock performed a financial evaluation of the most technically feasible alternatives to determine the short-term impact of capital and operations costs on the utility's cash flows.

Water Resources/ Hydrology & Hydraulic Engineering

KEVIN ROE, PE, CFM

Mr. Roe is a project engineer and hydraulic modeler with diverse experience in the study, planning, design, and construction of water, wastewater, stormwater, and general civil/site projects for municipal and industrial clients. As a hydraulic modeler, he plays an integral role in analyzing water, wastewater, and stormwater systems and facilities and recommending infrastructure improvement alternatives.

Name of FIrm:
Tetra Tech, Inc.

Title:
Project Engineer

Education:
BS, Civil Engineering, Arizona State University

Registrations/Certifications:
Professional Engineer: Georgia #PE039494

Certified Floodplain Manager No. US-18-10285

Professional Affiliations:
Georgia Association of Water Professionals

Georgia Association of Floodplain Management

Office:
Atlanta, GA

Percentage of Time to be Assigned Full-Time to this Project::
50%

Years of Experience:
14

Years with Tetra Tech:
10

Miami International Airport Water Master Plan, Miami-Dade County, FL. Lead Hydraulic Modeler. Technical lead for updates and evaluation of the water system hydraulic model and demand projections as part of the water master plan. Demand projection updates involved evaluating historical water use, historical air passenger data and future projections, and planned airport developments and reconstruction. Hydraulic modeling effort involved updating existing and future model demands, model calibration, system evaluations, and future system planning. Hydraulic modeling was performed using WaterGEMS.

2020 Integrated Utility Master Plan, Palm Beach County Water Utility Department, FL. Lead Project Engineer/Hydraulic Modeler. Prepared updated reclaimed water master plan. Reclaimed water hydraulic model includes three separate reclaimed systems with a total of 60 miles of pipe ranging in size from 2 to 36 inches. Specific tasks included reclaimed water customer evaluation and flow characterization, future flow projections, model update and calibration, system evaluation, and future needs summary. Hydraulic modeling was performed using InfoWater.

Water System Interconnect Study, City of Lakeland, Polk County Utilities, and City of Bartow, FL. Lead Hydraulic Modeler. Planning and model analysis of a proposed 16-inch waterline interconnection for water systems using WaterGEMS. Hydraulic model included 1,340 miles of pipes ranging in size from 1 to 54 inches.

2020 Water, Wastewater, and Reclaimed Water Master Plan Update, City of Clermont, FL. Lead Hydraulic Modeler/Project Engineer. Provided model update, calibration, system evaluation, and future system recommendations for the master plan. The water model included two treatment plants, two elevated storage tanks, and 220 miles of pipe ranging in size from 2 to 24 inches. The wastewater model included 43 lift stations, 34 miles of force main ranging in size from 4 to 32 inches, and 9 miles of gravity sewer ranging in size from 8 to 24 inches. The reclaimed water model included 63 miles of pipe ranging in size from 2 to 36 inches. Wastewater modeling was done using InfoWorks ICM software. Water and reclaimed water modeling was done using WaterGEMS software.

Broadway East Utility Extension Plan, Village of Estero, FL. Lead Hydraulic Modeler. Updated Lee County water system hydraulic model to include proposed system extensions to provide utility service to existing Village residents. Evaluated and selected proposed water main sizes based on projected demands and Lee County design standards for normal operation and fire flow conditions. Hydraulic modeling was performed using InfoWater modeling software.

Wastewater System Improvements, City of Hollywood Beach, FL. Lead Hydraulic Modeler. Evaluated proposed improvements to the City's wastewater system including upgrades to two lift stations and replacement of approximately 7,000 linear feet of 8-inch force main with 12-inch force main.

Water Resources/Hydrology & Hydraulic Engineering, Cybersecurity

DIANA QING TAO, ENG.M. ENG

Ms. Tao has over 25 years of experience in the fields of wastewater, water resources, water quality and environment across North America. She specializes in the evaluation and optimization of sanitary and combined sewer systems for the control of overflows, inflow and infiltration, and sewer backups. As a senior hydraulic specialist, she masters the application of most hydrological and hydraulic software, such as InfoWorks, PCSWMM, XPSWMM, Mike Urban, etc.

Name of FIrm:
Tetra Tech, Inc.

Title:
Director, Technical Lead for Smart Water and Operation Technology

Education:
Master's Degree in Civil Engineering and Applied Mechanics, McGill University

Bachelor of Applied Sciences, University of British Columbia

Registrations/Certifications:
Professional Engineer:
(Ordre des ingénieurs du Québec)
#131063

Professional Affiliations:
Water Environment Federation

Office:
Montreal, Canada

Percentage of Time to be Assigned Full-Time to this Project:
25%

Years of Experience:
25

Years with Tetra Tech:
19

Drinking Water Network Optimization Pilot Project, City of Montreal, QC. Technical Advisor. Tetra Tech developed an action plan, designed and modeled the hydraulic system, and supervised the work necessary for the implementation of a monitoring and optimization system for water distribution. This system includes the deployment of a network of 150 to 180 district metered areas (DMAs), which include 75 to 90 pressure management areas (PMAs), as well as the construction of some 600 measurement and regulation chambers and network supervision and controls (SCADA). She provided technical assistance in the definition of a pilot project with the ACQUIS software from the AVEVA Group in order to control, different sectors of the city's distribution system in real-time.

Real Time Control Implementation Assistance, Louisville Metropolitan Sewer District, KY. Project Manager. The project provides RTC strategy development, RTC design, multi-phased implementation and integration of additional flow control and treatment facilities for total system optimization and CSO reduction. Tetra Tech provides continuous technical support to MSD for the improvement of existing RTC system as well as integrating efficient operation and optimizing the design of future Integrated Overflow Abatement Plan facilities into the global, optimal and predictive RTC. Provided real time control modeling of the flow control structures and control rules in InfoWorks CS, IW RTC modeling training and annual system performance evaluations. Managed and coordinated the implementation of RTC facilities which include multiple in-line storage, CSO and stormwater storage basins, flow diversions, high rate treatment, combined and sanitary WWTP and pump stations.

Sewer and Storm Drain System Sensor Deployment Program, Boston Water and Sewer Commission, MA. Technical Lead. The program leverages the "Smart Sewer System" technology to develop and implement a system-wide sewer and storm monitoring system and data/dashboard platform to detect and display collection system responses on a real-time, continuous and on-going basis.

CSO Reduction Program Support Services, Seattle Public Utilities, WA. Operation management Lead. This project supports the completion of SPU CSO reduction program to meet the consent decree objectives by 2030. She supports SPU operation managers and provides direction and oversight of task leads to develop and implement task orders, such as system optimization, real time control and compliance planning, I&C and SCADA master plan, operation plan, operation resource planning, job classification, risk identification, coordination with King County, modeling QA/QC etc. RTC facilities include in-line and offline storage.

Interceptors Real Time Control Implementation, City of Toronto, Ontario.. Project Manager. The project involves conditional assessment, modeling, development control strategies, design and implementation of RTC for the 10 flow regulation chambers along the mid-Toronto interceptor, as well as services during construction and post-construction. The objectives are to improve operational efficiencies and reduce overflows.

Water Resources/ Hydrology & Hydraulic Engineering

JUSTIN VOSS, PE

Mr. Voss is the hydraulics discipline leader for Tetra Tech's IEW operating unit. He has 17 years of hydraulic modeling and design experience for large and small municipal, state, and private clients. His work experience includes wastewater, stormwater, and combined sewer collection systems, water distribution, open channel hydraulics and scour evaluation and mitigation, coastal hydraulics, and several hydraulic modeling sub-disciplines.

Name of FIrm:
Tetra Tech, Inc.

Title:
Civil Engineer

Education:
MSE, Civil Engineering, University of Michigan

BSE, Civil Engineering, University of Michigan

Registrations/Certifications:
Professional Engineer:
Florida #87245

Professional Affiliations:
N/A

Office:
East Lansing, MI

Percentage of Time to be Assigned Full-Time to this Project::
50%

Years of Experience:
18

Years with Tetra Tech:
18

North 2 UEP Irrigation Connection Strategy, City of Cape Coral, FL. Hydraulic Engineer. Used City's irrigation recently updated model with recently designed infrastructure to develop a plan to connect irrigation services in North 2 prior to the completion of the North 2 Canal Pump Station. A recommendation of up to 2,500 of the available 3,500 connections could be made while maintaining 40 psi in the system, giving the City the reassurance they needed to begin connecting customers.

Cypress Lake Hydraulic Transient Evaluation, Toho Water Authority, FL. Project Engineer. Developed a hydraulic transient model to match the design of a new well field, which included alternatives for twelve bladder surge tanks or a system of air vacuum valves to protect the system against waterhammer. Transmission system included 12 wells for a total pumping capacity of 38.5 MGD. Waterhammer mitigation had to work with minimal air entry into the pipeline because of the water chemistry at the well site that would lead to precipitation of a solid in the water column if mixed with air causing major fouling of the treatment filters.

South Beach Booster Station Improvements, Fort Myers Beach, FL. Quality Reviewer. Provided technical guidance and quality review for hydraulic modeling and conceptual design of dedicated tank filling and pumping water mains to optimize operation of the 1.0-MG South Beach Storage and Booster Station. It was found that the dedicated lines proposed by the contractor would not increase pressures without other improvements, which were identified for the City's consideration.

North 1 Utilities Extension Program, City of Cape Coral, FL. Lead Hydraulic Engineer. Utilized City's InfoWater drinking water and irrigation models to evaluate and provide a basis for proposed designs of two distribution networks for the more than 4 square miles North 1 UEP area for current/projected future buildout conditions. Potable water modeling included an evaluation of pressures and available fire flow for the area and design impacts on customers. Irrigation modeling included an evaluation of pressures in North 1 and planning for additional system-wide supply capacity and storage. Drinking water model includes 1,480 miles of water main and three treatment plants in a single pressure zone for the 190,000-person service area. Irrigation model includes 1,420 miles of pipe and ten supply sources in a single pressure zone.

Ground Storage Tank Design, Charlotte Harbor Water Association, FL. Hydraulics QAQC. Reviewed hydraulic model used as hydraulic basis of design for a new 0.5-MG ground storage tank and booster station to replace elevated storage.

Water Treatment

JON BUNDY, PE

Mr. Bundy has over 22 years of extensive experience in the analysis, design, and permitting of water and wastewater treatment facilities, including the analysis of treatment processes and treatment alternatives, and the design of chemical feed and storage systems, pumping stations, membrane processes, and wastewater treatment processes. He also has experience in the development of utility master plans and hydraulic modeling of potable water, reclaimed water, and manifolded wastewater pumping systems.

Name of FIrm:
Tetra Tech, Inc.

Title:
Project Manager

Education:
MS, Environmental Engineering
Georgia Institute of Technology,

BS, Environmental Engineering,
University of Central Florida, Suma Cum Laude

Registrations/Certifications:
Professional Engineer:
Florida #62561

Professional Affiliations:
American Water Works Association

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
22

Years with Tetra Tech:
16

Lakeland-Bartow-Polk County Utilities Potable Water Interconnect Evaluation, City of Lakeland, FL. Project Manager. Evaluation of a proposed interconnect between the City of Lakeland, City of Bartow, and Polk County Utilities for emergency water transfers between each system for enhanced reliability. The evaluation included a hydraulic review of each utility's potable water hydraulic model and the development of a combined hydraulic model to evaluate the amount of water that can be transferred between systems and determine the infrastructure requirements for providing an emergency interconnect. The project also included a water quality evaluation to determine if the compatibility of the water sources. The water quality evaluation included the review of historical water quality from each utility as well as the development of a sampling plan for sampling key parameters in each system near the proposed interconnect site. Evaluated available parcels for potential sites for the interconnect in the vicinity of where three water systems service areas converge. The project included a report summarizing the results with a conceptual site plan and engineer's opinion or probable construction cost.

Waverly Water System Evaluation, Polk County Utilities, FL. Project Manager. Responsible for investigating alternative strategies for controlling disinfection by product formation in the County's Waverly water system. The Waverly Water system includes two water production facilities, each utilizing sodium hypochlorite injection for disinfection and poly-orthophosphate addition for corrosion control to treat groundwater before it is stored in a hydropneumatic tank. The County currently employs a flushing program and uses one of the water production facilities as a standby in order to meet DBP regulations. The evaluation included a desktop analysis with cost opinions for multiple operational scenarios, including treatment at one or both facilities. Technologies evaluated included granular activated carbon, ion exchange, aeration, and chloramines.

Malcolm Road Water Supply Facility, Orange County Utilities, FL. Project Engineer. The project included final design, permitting, and construction management services for a new 8.64 MGD potable water supply facility in west Orange County. The treatment facility consists of six lower Floridan aquifer supply wells and vertical turbine well pumps enclosed in well houses, raw water main piping, two 2.0 MG ground storage tanks, high service pumping within a treatment facility building, and sodium hypochlorite and fluoride storage and feed systems. The project also included 2,400 feet of 36-inch water main to connect to the County's water distribution system.

Edgewood Irrigation Well Improvements, City of Lakeland, FL. Project Manager responsible for the design of improvements to the City-owned irrigation well that supplies water to the City-owned Cleveland Heights golf course. The improvements included demolition of the existing well/electrical building, replacement of the existing vertical turbine well pump and motor, replacement of the discharge piping, and construction of a new well building to house the vertical turbine well pump and electrical/control equipment. The project also included a new electrical service. The old electrical service included power supply to the 4160 volt pump motor. The new well pump motor was furnished with a 480 volt motor. Services provided included a preliminary design technical memorandum, design services, permitting, bidding and construction administration services.

Wastewater Treatment

KEVIN FRIEDMAN, PE

Mr. Friedman specializes in environmental engineering projects throughout central Florida. His expertise includes the design, permitting, and construction administration of water, wastewater, and reclaimed water facilities and infrastructure. His wide range of experience includes water and wastewater treatment facilities, residuals processing, wastewater collection, pump stations, transmission mains, water supply, and utility master planning.

Name of FIrm:
Tetra Tech, Inc.

Title:
Senior Engineer

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #69852

Professional Affiliations:
Florida Water Environment Association
Engineers Without Borders: South Central Florida Chapter

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
20

Years with Tetra Tech:
8

Golden Gate Wastewater Engineer of Record, Collier County, FL. Senior Engineer. Tetra Tech was selected as the wastewater Engineer of Record for Golden Gate City within Collier County, FL. This project consists of several tasks, including conversion of an existing extended air wastewater plant to high-level disinfection; preparation of a 20-year wastewater master plan; design of a new 8.0 MGD Membrane Bioreactor (MBR) wastewater treatment plant; and collection and transmission system improvements, including rehabilitation of over 36 miles of sewer mains, 28 lift stations, and 437 manholes.

Donax Water Reclamation Facility Expansion & Improvements, City of Sanibel, FL. Project Engineer. Evaluation of alternatives to assist with nutrient removal (nitrogen and phosphorous) as well as to address the need for replacement of the existing flow equalization basin and ultimately the expansion of the facility from 2.375 to 3.0 MGD. The evaluation included the use of the modified Ludzack-Ettinger (MLE) process, denitrification filters and the change to a five-stage Bardenpho process with use of membrane bioreactors (MBR). The five-stage process with MBR was selected for design and implementation.

160 Acre Site RIB Valve and Flow Meter Automation Rehabilitation, Toho Water Authority, FL. Project Manager. Professional engineering services for design and construction to automate operation of the remote RIB valve/meter assemblies at the 160-acre Rapid Infiltration Basin (RIB) sites. The 160-acre site consists of 16-RIBs fed from the Imperial Pump Station with a set of two (2) RIBs equipped with a manually operated isolation valve, flow meter, and control valve for a total of 8-meter/control valve assemblies. Modifications include the replacement of the existing 10-inch control valves with a butterfly valve and motorized actuator for open/close operation via SCADA, upgrade the existing flow meter with a 4-20ma transmitter for remote flow monitoring, and install a new pressure transducer upstream of the butterfly valve. Additionally, each assembly will be connected via fiber optic to an existing remote telemetry unit (RTU) located at the existing tower on site and the 24-inch influent transmission main will be equipped with a magnetic flow meter located below grade in a precast concrete "dog house type" vault and composite sampler housed in a metal shed.

Integrated Water Supply Plan, Toho Water Authority, Liquid Solutions Group, Osceola County, FL. Project Engineer. As-needed engineering services to Liquid Solutions Group for 50-year water supply planning of Toho Water Authority's operational and implementation planning, treatment processes at their water, wastewater, and reclaimed water plants, addressing various plant hydraulic equipment and process-related, coordinating with regional water supply project partners, and assisting with funding applications.

Wastewater Treatment

BRENDA KEENAN, PE

Ms. Keenan has 19 years of experience in a wide range of municipal wastewater treatment plant design and construction projects. Specific experience includes process alternatives and hydraulic evaluations, preliminary and final design and construction phase services. Ms. Keenan is experienced in the preparation of engineering drawings and specifications and permitting for wastewater plant modifications.

Name of FIrm:
Tetra Tech, Inc.

Title:
Environmental Engineer

Education:
BS, Environmental Engineering, University of Central Florida

Registrations/Certifications:
Professional Engineer: Florida #69271

Professional Affiliations:
N/A

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project::
25%

Years of Experience:
19

Years with Tetra Tech:
9

Golden Gate Wastewater Engineer of Record, Collier County, FL. Project Engineer. Tetra Tech was selected as the wastewater Engineer of Record for Golden Gate City within Collier County, FL. This project consists of several tasks, including conversion of an existing extended air wastewater plant to high-level disinfection; preparation of a 20-year wastewater master plan; design of a new 8.0 MGD Membrane Bioreactor (MBR) wastewater treatment plant; and collection and transmission system improvements, including rehabilitation of over 36 miles of sewer mains, 28 lift stations, and 437 manholes.

Iron Bridge RWRF Aeration System Replacement, City of Orlando, FL. Project Manager. Led the process evaluation update, preliminary and final design, bidding and construction of replacement aeration facilities at the existing aeration basins. Alternate diffuser types and materials were evaluated based on cost and longevity to replace the existing diffusers. The project included concrete repair, replacement of the diffusers and drop legs, and installation of temperature transmitter for monitoring purposes.

Water Conserv I WRF Expansion Design Criteria Package, Procurement and SRF Facilities Plan, City of Orlando, FL. Project Engineer. Provided assistance to the City in developing a design criteria package as part of an overall request for proposal (RFP) for the Water Conserv I WRF Expansion from 7.5 MGD to 10 MGD including evaluation of the conditions and capacity of the existing facilities, development of basic design criteria, reliability requirement, material and equipment manufacturer selections, and develop budgetary costs for construction of the project.

Water Conserv I WRF Biosolids Handling Evaluation, City of Orlando, FL. Project Engineer. The Water Conserv I Water Reclamation Facility (WRF) is currently rated for 7.5 MGD with a current average influent flow of 5.2 MGD. The plant is scheduled to be upgraded to treat an influent flow of 10 MGD. Currently, WAS is directed to a single gravity belt thickener (GBT), pumped to a truck and hauled to the City's collection system where it is transmitted to the Iron Bridge RWRF for retreatment. With the Expansion, increased flow at the WRF will produce additional sludge. Based on recommendations in the study, the City intends to continue sending thickened sludge to the Iron Bridge RWRF with a future plan to implement sludge holding and dewatering improvements to increase reliability and operator flexibility.

Lift Stations 16, 17, 52, and 57 Improvements, City of Orlando, FL. Project Manager. Ms. Keenan oversaw the construction phase of the Lift Station 16, 17, 52 and 57 Improvements. Project included gravity sewer rehabilitation and replacement, wetwell rehabilitation, and electrical upgrades. Ms. Keenan was responsible for shop drawing review, responding to Contractor requests for information, and assist the City to monitor the Contractor's general conformance with the Contract Documents.

Construction Management Administration

TRAVIS LISZAK

Mr. Liszak has over 14 years of construction engineering and inspection experience ranging from oversight of roadway improvement for new and replacement projects. In addition, Mr. Liszak's experience includes oversight of utility infrastructure improvements.

Name of FIrm:
Tetra Tech, Inc.

Title:
Environmental Engineer

Education:
General Coursework, Florida Atlanta University

Registrations/Certifications:
Tin No. L220818830940

Advanced Maintenance of Traffic Asphalt Paving Technician Level I & II

Concrete Field Technician Level I Earthwork Construction, ACI Inspection Level I & II

Final Estimates Level I&II

Florida Department of Environmental Protection Stormwater Management Inspector

IMSA Fiber Optics Tech Level I
IMSA Traffic Signal Tech Level I

Professional Affiliations:
N/A

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project:
30%

Years of Experience:
14

Years with Tetra Tech:
6

FGUA Transmission Main Project, City of Cape Coral, FL. Lead Senior Inspector. Provided CEI services to the City of Cape Coral during Irrigation main installation throughout the populous Del Prado Corridor. Scope of work includes open cut installation of 24" ductile iron pipe, directional boring of 30" HDPE, pump station updates and associated restoration efforts. Construction Cost $8.7 million.

SR 45A (U.S 41) (Venice Bypass) from Gulf Coast Boulevard North approximately 1.138 miles to North of Bird Bay Dr. W, City of Venice, Sarasota County. FDOT District One, Sarasota County, FL. Lead Senior Inspector. Provided full service CEI on this roadway improvement project consisting of widening U.S 41 from 4 lanes to a 6-lane roadway, from Gulf Coast Boulevard to Bird Bay Drive, improving roadway drainage, installing retention ponds, constructing 7-footbicycle lanes, and adding concrete sidewalks. The project includes upgrades to lighting, signalization, and bus pads. In addition, relocate/ replace water and sewer lines, milling and resurfacing, curb and gutter and landscaping for the city of Venice. FM NO. 198017-4-52-01, Construction Cost: $16.6 million.

Sarasota Automatic Traffic Management System (ATMS) Phase IV, Sarasota County, Sarasota, FL. Senior Inspector. CEI for Design build project that includes 52 signalized intersections throughout Sarasota County, City of Sarasota and the City of North Port will have the existing traffic controllers and signal equipment upgraded. The improvements will consist of installing, integrating and testing the ATMS field elements, including traffic controllers and cabinets, Closed-Circuit Television (CCTV) cameras, and fiber optic communications cable and transmission equipment along the roadways. As part of this project, up to 10 intersections will receive full Americans with Disability Act (ADA) upgrades to meet current standards.

US 17 (SR 35) Widening from 0.4 Miles South of Southwest Collins Street to South of CR 760A (FPID: 417876-1-62-01), Nocatee, FL. FDOT District One. Senior Inspector for this project that will widen approximately5.7 miles of US 17 (SR 35) from the existing two-lane roadway to a proposed four-lane divided roadway with a depressed median and roadside ditch. The proposed roadway will include two 12-foot travel lanes in each direction along with four and five-foot paved outside shoulders. Some of the unique project elements include a vast amount of excavation and drainage, extensive utility coordination including a Joint Project Agreement with DeSoto County Utilities and maintenance of traffic. Drainage work consists of new drainage pipe, nine ponds and two floodplain compensation sites. An active Seminole Gulf Railway corridor aligns the project to the west and many environmental concerns are present within the corridor. Mr. Liszak's responsibilities include inspecting the utilities, earthwork and maintenance of traffic for this project.

Grants

ALLISON MCLEARLY

Ms. McLeary is an experienced emergency response and recovery executive with a demonstrated history of building meaningful relationships across all levels of government. As former Recovery Bureau Chief of the Florida Division of Emergency Management, she offers more than 3 years of direct experience administering grant programming throughout the State of Florida.

Name of FIrm:
Tetra Tech, Inc.

Title:
Deputy Program Manager

Education:
Auburn University, Bachelor of Arts

Louisiana State University- Paul M. Hebert Law Center, Juris Doctorate

Louisiana State University- Paul M. Hebert Law Center, Bachelor of Civil Law

Registrations/Certifications:
N/A

Grant Experience:
FEMA Public Assistance

CARES Act

USDA Agriculture Recovery Block Grants

HUD CDBG

ARPA

Professional Affiliations:
Recovery Council for the Louisiana Governor's Office of Homeland Security and Emergency Preparedness

Office:
Orlando, FL

Percentage of Time to be Assigned Full-Time to this Project:
25%

Years of Experience:
18

Years with Tetra Tech:
1

Disaster Recovery Programs, Tetra Tech, Inc, Orlando, FL. Director. Ms. McLeary serves as Director of Disaster Recovery Programs, providing policy guidance and program support. Ms. McLeary is an expert in FEMA policies, building and maintaining relationships with FEMA representatives. She analyzes policy and provides policy guidance to clients. She supports the Tetra Tech team to build programs that align with federal expectations and comply with client/federal requirements. She maximizes operational efficiencies by analyzing individual projects with a holistic lens, leveraging best practices from Tetra Tech debris management operations throughout the Nation. Additionally, Ms. McLeary coordinates relationships with funding agencies and local partners to streamline project operations.

Florida Division of Emergency Management, Statewide, FL. Recovery Bureau Chief, Compliance and Appeals Officer. Tasks included:

- Administered all FEMA Stafford Act programs for the State of Florida ($9.8+ Billion over 26 federally declared events under management)
- Validated and Paid through FDEM an unprecedented $4.1 Billion in Recovery funds in the period January 2019-February 2021, including $2.7 Billion in PA and over$300 Million in USDA Agriculture Recovery Block Grants
- Developed and implemented the State strategy for $1.275 Billion in CARES-Coronavirus Relief Fund payments to 55 medium and small counties. ($1.07 Billion validated and paid June 2020-February 2021)
- Served as Alternate Governor's Authorized Representative and Deputy State Coordinating Officer for all FEMA declared events in Florida
- Created a comprehensive FEMA PA Compliance program, including risk assessments, monitoring, and technical assistance and programmatic guidance tailored to address specific compliance risks

Louisiana Governor's Office of Homeland Security and Emergency Preparedness, Statewide, LA. Recovery Legal Council. Served as Recovery counsel- advising on all matters of emergency management and whole community Recovery.

TAB E

Innovation is Key

APPROACH TO SCOPE OF WORK

QUALIFICATIONS AND EXPERIENCE OF THE FIRM

Tetra Tech has a range of services, capabilities, and strengths to take on the projects under this contract. We support clients through the entire project life cycle by providing consulting, preliminary engineering, final design, permitting, bidding procurement, and construction phase services. These services are offered individually or as part of our full-service approach. Tetra Tech has worked on hundreds of projects over the past 30 years under continuing services contracts. Our professionals have worked as an extension of our client's staff providing similar engineering services on an as-needed basis for more than 55 clients across the state. This repeat work demonstrates our ability to foster and preserve relationships with clients and our dedication to client service and quality of work.

CONTINUING ENGINEERING CONTRACT EXPERIENCE

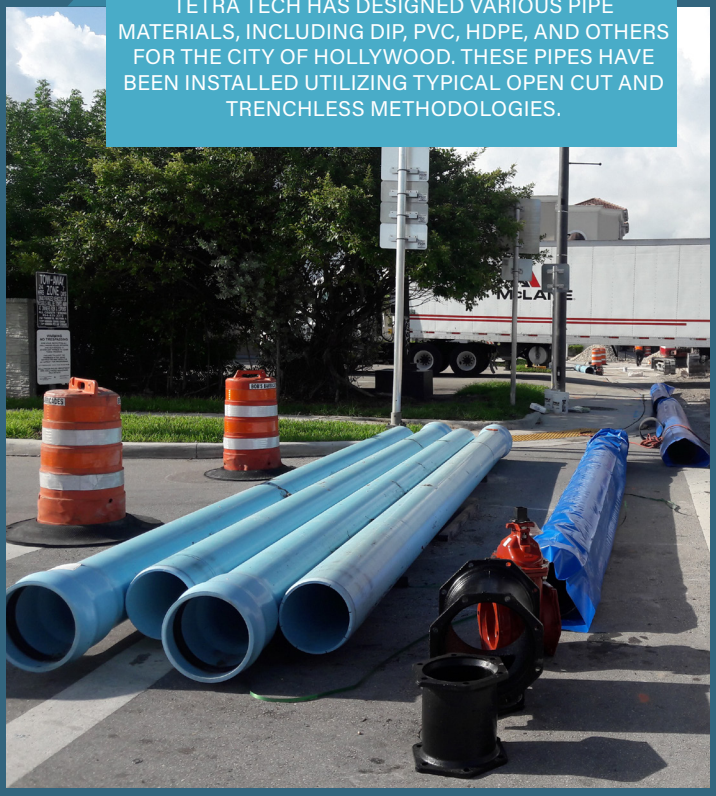
Since continuing engineering services contracts include multiple and varied tasks, Tetra Tech begins planning early in the project to provide the correct skilled staff and appropriate resources to complete all assigned tasks on time and within established budgets. During our review of assigned tasks, we actively integrate lessons learned from previous projects, which increases efficiency and reduces the potential of schedule delays due to unanticipated issues. Most importantly, our standard approach is to work as an extension of our client's staff, allowing Tetra Tech to develop a deeper understanding of client operations, processes and procedures, and develop customized solutions.

We understand that each client and project is different, and we are committed to developing customized solutions to meet the unique needs of the City of Hollywood. Our portfolio with the City includes several projects including studies, design, permitting, bidding, and construction administration services from wastewater collection, transmission, and treatment facilities to expansion of the City's reclaimed water system in the southwest service area and water distribution system.

CONTRACT UNDERSTANDING

A sound management plan must begin with a thorough understanding of the systems and infrastructure being improved, rehabilitated, or replaced. This Request for Statements of Qualifications for general engineering consultant services is for the City's water, sewer, reuse, and stormwater infrastructure. Consultant services will include studies, evaluations, conceptual, preliminary and final designs, permitting, construction administration and management, reviews, and other services necessary to implement the City's proposed $50 million Capital Improvement Program (CIP). The CIP includes water, sewer, reuse and stormwater infrastructure projects. These services would generally include projects for the:

- Potable Water Conveyance
- Wastewater/Reclaimed/Stormwater Conveyance
- Pumping and Storage Facilities



TETRA TECH HAS DESIGNED VARIOUS PIPE MATERIALS, INCLUDING DIP, PVC, HDPE, AND OTHERS FOR THE CITY OF HOLLYWOOD. THESE PIPES HAVE BEEN INSTALLED UTILIZING TYPICAL OPEN CUT AND TRENCHLESS METHODOLOGIES.

PROJECT MANAGEMENT PLAN

Tetra Tech has developed a management plan to demonstrate to the City of Hollywood that our team of experienced and qualified professionals has the organizational framework and management structure needed to effectively and efficiently coordinate staff efforts, resources, and procedures for each task assigned. Our approach is based on two key principles: responsiveness and responsibility. Our mission is to have each and every task order executed efficiently and provide the City with maximum value. Additionally, our management plan embodies sustainability, quality, safety, and a true commitment to working with the City as basic core principles for our daily operations.

Our mission to serve the City is woven with integrity and fortitude to provide a balance of quality, time, and costs that meet the goals and objectives of each project while providing the City with strong, sustainable infrastructure.

Since general engineering services contracts are comprised of multiple and varied tasks, Tetra Tech begins planning early in the project to provide the correct skilled staff and appropriate resources to complete assigned tasks on time and within established budgets so that valuable time is not lost. In addition, during our review of assigned tasks, we actively integrate lessons learned from previous projects to anticipate and remedy major problems, increase efficiency and reduce the potential of schedule delays due to unanticipated issues. Importantly, our standard approach is to work as an extension of our clients' staff, allowing Tetra Tech to develop a deeper understanding of client operations, processes, and procedures, as well developing customized solutions.

As a long-standing client of Tetra Tech, City of Hollywood projects are prioritized over, representative of the value we place on our relationship with the City. Tetra Tech is able to prioritize projects and allocate the necessary resources to the City, utilizing the tools described in the subsequent sections of this management plan. Some current projects and their project time frames are provided within this Statement of Qualifications.

OVERVIEW OF OUR PROCESS FOR MANAGING EACH PROJECT FROM START TO FINISH

1 Meet with City Staff

START

Our Client Services Manager, Ken Caban, will sit down with the City of Hollywood project manager and other key staff to understand the project needs, including complexity, schedule, funding, and other critical elements.

2 Establish Project Team Organization

After the project initiation meeting, Mr. Caban will check that the ideal Task Manager, Lead Design Engineer, and technical staff are assigned to the project based on subject matter knowledge, experience and availability.

3 Prepare a Management Plan & Scope of Services

A Project Management Plan will be developed for each task assignment. Mr. Caban will supervise the implementation of this process from beginning to end.

4 Execute & Deliver the Project

Using the unique project management plan, Mr. Caban will guide the team to deliver high-quality work on time and within budget.

5 Close Out the Project

FINISH

At the end of each task assignment, Mr. Caban will work with the City to provide all the required files and will also request feedback on the City's satisfaction with the project.

TIME CRITICAL PROJECTS

For time critical projects, Steps 3 and 4 will occur concurrently to expedite the process and start work sooner.

1 Meet with City Staff

A project initiation meeting will be held at the beginning of the project to establish project team organization and lines of communication. The project scope, schedule, and budget will be discussed, specifically the initial and critical path tasks, in order to set in motion the initiation of these tasks.

Discussions at this meeting will assist Mr. Caban and the designated Project Manager in establishing the right project team for the job and developing the Project Management Plan (PMP).

2 Establish Project Team Organization

Proven Team Leadership

Tetra Tech understands the unique nature of continuing contracts and the necessity to provide timely responses while maintaining progress on multiple task orders each with their own tight schedule and budget. Our team has a dedicated local management team and a local core design team to deliver this contract.

Mr. Caban will serve as the Project / Client Services Manager to the City. Mr. Caban is a Vice President with over two decades of experience successfully serving clients. He is in charge of Tetra Tech's Southeast Florida offices, with the ability to execute contracts locally, dedicate resources, bring in national level subject matter experts and create project budgets locally.

Tetra Tech empowers our Vice Presidents and Regional Managers with making local decisions because we understand that every client is different and therefore we need to be able to have the autonomy to adjust budgets, resources, and contracts accordingly. Mr. Caban will oversee that the City's needs are met and our team has the resources it needs.

Mr. Caban will be aided in project implementation with the appropriate Engineer of Record, which is dependent on the type of utility project assigned. The Engineer of Record and Mr. Caban will serve the City with excellent communication and successful product delivery. Mr. Caban and the Engineer of Record will ensure that each work order under this continuing contract is executed on time, on budget, and that the project delivery exceeds the City's expectations for the duration of the contract.

Subconsultant Integration

Our team includes two City of Hollywood based companies that will assist us with the performance of surveying and geotechnical exploration activities. Once Tetra Tech receives an assignment, the project manager will assemble a team with the most competent professionals to perform each required activity. Should the assignment include either surveying or geotechnical work, the project manager will contact the respective subconsultant, explain the project, and provide a written detailed scope of work. The subconsultant will then provide a proposal incorporating its ideas and recommendations. This proposal will be included in Tetra Tech's proposal to the City. Throughout the project's performance, Tetra Tech will work with its subconsultants as one team. We will address any questions or comments and review and confirm their work, so the City always receives the best possible product. The information provided by our sub-consultants is an integral part of the project and Tetra Tech understands this. Tetra Tech and its subconsultants will operate in an integrated fashion to service the city.

Bringing our Best People to Each Project

Mr. Caban and the selected Engineer of Record will work together at the start of each task order to commit that the ideal staff are assigned to the project based on subject matter knowledge, experience and availability. Continuing services contracts require the team to provide a wide array of services with the required depth of knowledge in each area.

In order to accomplish this, Mr. Caban will meet with the City to understand each project's requirements and then select the proper staff. Our organization chart (located on page 38) is organized to reflect the range of services we can provide and the designated Project Manager/Engineer of Record and staff for each service. The majority of the designated Project Managers/Engineers of Record are local and readily available to the City.

Our Southeast Florida offices have the technical staff to execute the work locally. The team is built around subject matter knowledge. The City will benefit from national level expertise and local staff that are subject matter experts. The next criteria for selecting the Team is experience. The ideal team has experience delivering this type of project, experience working together as a team, experience with the client, and the client's systems.

Successful programs are the result of a combination of strategic planning, quality work, and effective communication. Our team is staffed with numerous qualified professionals with extensive expertise and experience in all of the areas required for this contract.

As the team is formed, we ensure the availability of the staff to the City using our Labor Projection Worksheet Tool (discussed below).

3 Prepare Project Management Plan (PMP)

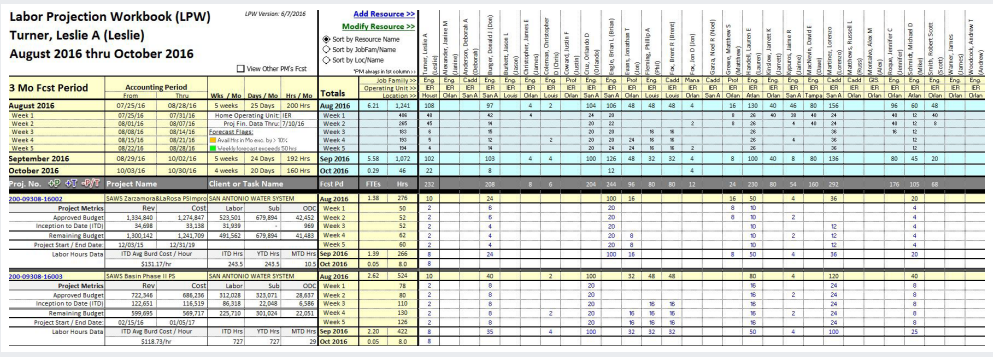
A Project Management Plan (PMP) will be developed for each task assignment. Included in this effort is the development and maintenance of a project schedule and related cash flow projections; the preparation of monthly status reports; and coordination with other City capital projects, as appropriate. Typically, an electronic and hard copy version of the plan will be submitted to the City at the beginning of the project and updated versions will be submitted as requested. Our standard Project Management Plan includes the following information:

- Basic Project Information
- Project Summary
- Identification of "Hot Button" Issues
- Project Team
- Contract Information
- Milestone Schedule Key Elements of the Project Deliverable
- Quality Control/Quality Assurance Plan
- Communication Plan
- Project Standards
- Preliminary Drawing List
- Health and Safety Plan (HASP)
- Project Financial Plan

The City can be confident that Tetra Tech will manage and administer this project with proven project control tools and techniques, high-quality assurance, collaboration, flexibility, and excellence.

Technology Used to Deliver this General Engineering Services Contract

Labor Projection Worksheet Tool



Mr. Caban and Project Managers will utilize the LPW to provide resources for City projects. The LPW is a Tetra Tech tool that reserves staff across the company and projects their workload for the next three months. Project Managers will automatically receive a new LPW each month to populate. It will come loaded with all of City of Hollywood's task orders; showing remaining budget, hours required to complete the project, and then PMs reserves staff for each project. Each LPW across the company rolls up into a company-wide labor projection so that staff that are over or under-booked can be identified proactively. Project Managers will then work with other project managers to allocate resources.
As a Vice President, Mr. Caban has the necessary authority to prioritize the City of Hollywood.

Our Tetra Linx E-business suite and online project management portal provide up-to-the-minute project management data regarding hours, expenses, and subcontractor fees. We have a proven track record of on-time, in-budget project delivery. We will provide project management services for administration of the project and submit monthly invoices acceptable to the City.

Communication Management

A major component of the Project Management Plan will be a Communications Plan, which will support responsive and thorough attention to detail and project progress. This will include a project team and an authority/assignment matrix. The Communications Plan will also include standards for written and verbal documentation of meetings, telephone calls, e-mail, as well as technology standards for this project.

Our management approach was specifically developed to provide proper communication and coordination among team members and City staff. Communication within our team will be led from the top down, repeated from the bottom up and structured to provide a full circle of communication internally and externally.

Located within the City, Mr. Caban is committed to providing the highest level of service to the City and responding immediately to any needs that may arise under this contract, as he has done for several years already.

Design Team Coordination for Project Success

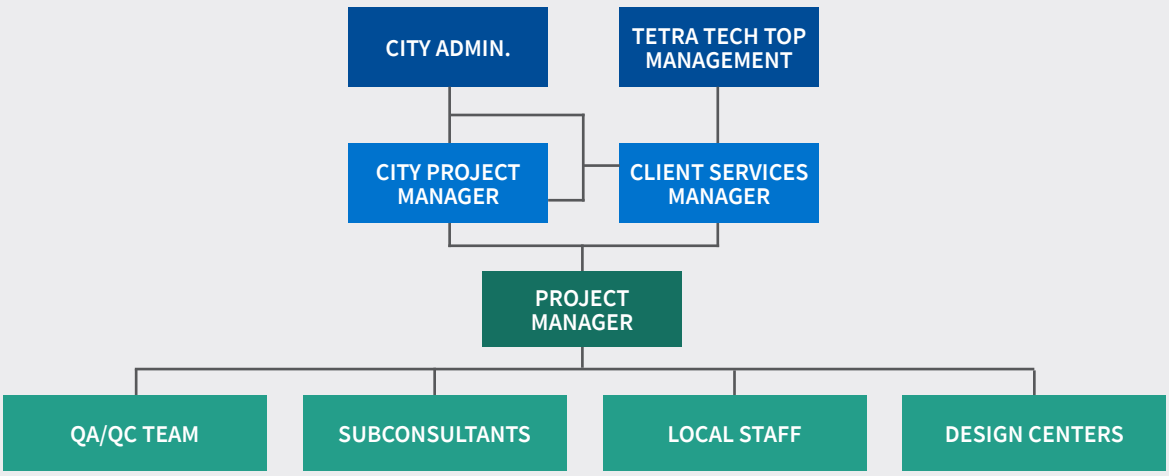
Strict and streamlined procedures for internal coordination between disciplines, sub-consultants (if used based on project), and other offices reduces confusion, maximizes deliverable quality, and minimizes potential cost increases and lost time over the length of the project.

Tetra Tech is focused on coordination, and as such, will perform our duties as an integrated team with integrated services.

For each project there will be an internal kickoff meeting with the entire design staff led by the Project Manager and include all of the technical disciplines leads. Our approach includes assigning a lead CADD coordinator to each design project to coordinate the product delivery effort during the final design, bidding, and construction phases. Before the design effort has started, a project management plan (PMP) specific to the project will be distributed to the team and the appropriate City personnel, clearly defining the scope, schedule, budget, and all individual milestones. Project and task level budgets will be continually monitored daily by the individual task order project managers, as well as on a monthly basis by the Tetra Tech management team.

The PMP provides the controls structure for product delivery to ensure seamless coordination between a multi-discipline team.

Lines of Communication and Authority



Once the project has started, weekly meetings are set up for the production staff to review any coordination issues that need to be addressed. During the design phase, a schedule is set up for external sub-consultants, as needed, to receive and upload the required information for their components of the specific project.

It is our standard practice to set up a SharePoint site at the beginning of each project for external subconsultants and internal disciplines to upload and download base files for coordination purposes. Files from this SharePoint site, are then copied daily to a central network so that each discipline is viewing the most up-to-date information. Closer to each submittal, extra time is set aside for engineering review of the plans as well as a plan set review by the CADD coordinator. Coordination issues are resolved during this review period reducing submittal review time by the City, which keeps the project on time and budget.

Effective Communication with the City and Stakeholders

Communication with the City, as well as internally within the Tetra Tech team, will be led by the designated Project Manager. They will be the primary point of contact for City with regards to the coordination and delivery of the various projects, as well as the lead contact internally within our team.

As projects are identified, Mr. Caban will bring key staff to meet with the City's Project Manager to ensure a complete understanding of the project amongst the delivery team. We want the City's Project Manager to have direct access and communication with our knowledgeable staff with specific expertise related to their assignments, while maintaining the leadership of Mr. Caban as the background support structure. In addition to the day-to-day communication, the following key elements will be implemented:

Project Websites. A project website or SharePoint site, accessible to all project team members, is a valuable tool for project coordination. The website will make project information, such as a project calendar, meeting minutes, and other pertinent documents or information, available immediately to team members.

A website will provide a forum for rapid and secure transfer of data and information between the project team and the City. Access can be restricted to only project team members or can be open to all relevant stakeholders and even the general public depending on the type of project and needs of the City.

Project Meetings. Project meetings will be held at least monthly and "on-call" by the City. Tetra Tech will prepare meeting minutes for all meetings with the City. Our goal is to provide draft copies of the minutes to the City within three business days of the meeting. We will then prepare final meeting minutes within three business days of receiving comments and suggested edits.

The following types of meetings will foster interaction and open communication between the design team and the City:

- **Kickoff Meeting.** The kick-off meeting is an important point in the project in which the Tetra Tech team will confirm and clarify the detailed understanding of the City's objectives and establish communication channels and methods. Verifying the scope of implementation for achieving the identified goals and reviewing the project work plan will be the key focus of this meeting between the design team and the City.
- **Presentations to City Management** will be made to provide updates regarding the direction, schedule, and costs of the project as needed upon request.
- **Project Workshops** will be conducted to enhance communications during planning and detailed design phases. For each workshop, we will submit an agenda that defines the workshop goals and that describes issues of concern. This approach allows for timely input from all team members as the project progresses, rather than being overwhelmed by a large single document submitted at the end of the project.
- **Additional Progress Meetings** will be held as appropriate so that at least one meeting per month is held. During these meetings, progress made since the last meeting as well as other timely issues will be discussed. It is not intended to cover the entire project or make all-inclusive submittals at these meetings.

- **Submittal Milestone Meetings** will be held to review formal submittals such as the completion of the preliminary Design Report and at 60% and 90% final design stages.
- **Site Visits.** We can schedule site visits to facilities or locations that have similar aspects to those being considered for projects under this contract. During these visits, the City and consultant staff will have the opportunity to observe process or equipment operation firsthand as well as to obtain candid input from operations and maintenance personnel regarding the process or equipment performance.

4 Execute & Deliver the Project

Our goal is to deliver successful, completed projects, which exceed our clients' expectations and fulfill the project objectives, and our team has consistently demonstrated an ability to meet our clients' expectations, which requires project management as well as technical expertise. As professionals serving many repeat clients, the ability to complete quality work within a timely fashion has long been an ingredient in building our strong reputation in the industry. Our management approach is to assign weekly scheduling and budget management to the designated Project Manager, with oversight and management from Mr. Caban, who is ultimately responsible for the schedule and budget. The designated Project Manager will have the day-today, week-to-week primary responsibility of monitoring scope, schedule and budget of each assignment.

Additional information relating to executing and delivering the projects can be found in Management Plan **Attachment A,** which details a typical project scope of work and design considerations for a utility infrastructure project.

Proven Approach to Project Solutions

Tetra Tech always strives to provide excellent service and the most qualified professionals to perform the required work. At Tetra Tech we pride ourselves in on-time and on-budget delivery of projects. Our proven record of project excellence have provided our clients with products that eliminate or reduce to the minimum the amount of design and construction problems. However, should a problem arise, we will perform a thorough evaluation of the existing project information including drawings, technical specifications, utility, geotechnical and environmental evaluations, as well as any other pertinent reports. This will help us determine the causes of the problem as well as if additional information is required to expeditiously resolve it. Any information needed, will be collected immediately. With the all the information on hand, the project team will have an internal meeting to establish the fastest and most cost efficient solution. A meeting will then be scheduled with the City where the solutions will be presented including execution time and implementation cost. Once a solution is selected, the team will proceed to immediate implementation. Throughout this process, we will always maintain constant communication with the City using tools such as cell phones, phones, e-mails, Skype, project websites, SharePoint, and of course face to face meetings.

Controls to Manage Schedule and Budget

Due to Tetra Tech's vast experience with projects under a fixed term or continuing consulting contracts, Tetra Tech has learned how to successfully manage projects and is experienced in the scheduling requirements, coordination and organization required to maintain the schedule. As previously discussed, Tetra Tech will prepare a Project Management Plan that contains a description of the project, identifies submittals, lists various tasks, and presents a schedule and a detailed work plan for the elements of each task with project team members responsible for that task. This plan serves as a baseline for establishing milestones and measuring the progress of the project team versus the schedule. The Project Management Plan closely coordinates the schedule and the budget so that as the project progresses, the project manager can monitor the billings versus the anticipated budget. The plan is enhanced by our computer-based accounting system which is tied directly to employee time sheets and billing information and is kept up to date on a weekly basis.

Additional schedule and budget controls are outlined on the following three pages. In addition, a typical bar chart is included on page 30 of this section for an example project, with a comparison of how well Tetra Tech's performance against that bar chart actually was.

Schedule Controls

Due to Tetra Tech's vast experience with projects under a fixed term or continuing consulting contract, Tetra Tech knows how to successfully manage projects and is experienced in the scheduling requirements, coordination, and organization required to maintain the schedule. Schedules often have overlapping tasks, which utilize various personnel and require experience in coordinating subconsultants, if used, so that multiple critical paths are preserved. Below are some of the controls Tetra Tech uses to management schedule:

Computer-Based Project Management

Our ability to meet the project schedule is enhanced by our computer based project management systems. Tetra Tech currently utilizes **Microsoft Project** for preparation of detailed project schedules. This software program tracks progress for the established schedule, delineates deliverables, logs project milestones, and visibly reflects the relationship of various tasks. Depending on the project complexity, more advanced schedules can be prepared in **Primavera P6** (reference image ❶ below). Schedules can also be resource loaded to ensure resource balancing and integrated with our Labor Projection Worksheet tool. **30-Day Look Ahead Schedules** can be provided with monthly reports. **Cost curves** (reference image ❸ below) can be developed as the project progresses to show earned value versus budget as the schedule progresses.

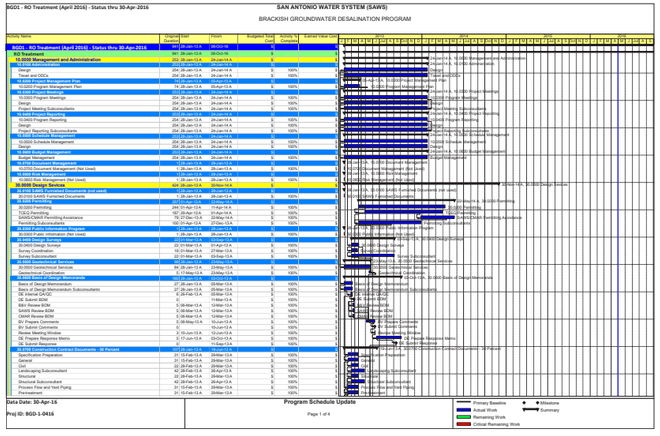
Open Communication

Tetra Tech believes in open communication during all phases of every project. By dedicating time in the schedule to meet with the City to fully understand the requirements of the project, Tetra Tech will minimize project re-design. Likewise, during permitting, Tetra Tech has an established philosophy of arranging pre-application meetings with all applicable permitting agencies as a means to facilitate a more streamlined permitting review process. We have permitted numerous projects without receiving any requests for additional information based on our commitment to working with the permitting agency and our ability to incorporate their comments into the design before it is finalized.

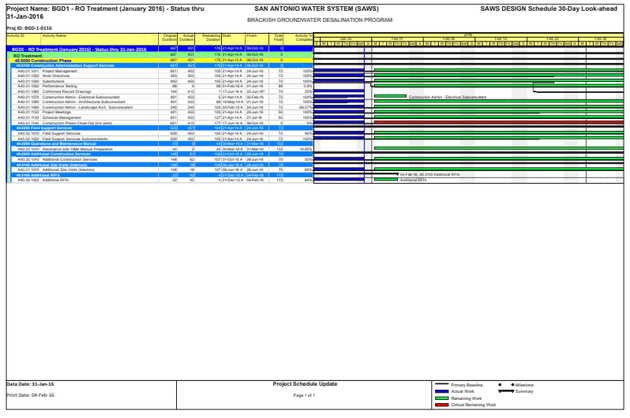
Close Coordination During Construction

During the construction phase, Tetra Tech's project manager will identify key items that may affect the schedule, such as critical shop drawings for long lead items. Where such long lead items exist, Tetra Tech will encourage the contractor(s) to submit those critical shop drawings as soon as possible, while Tetra Tech will dedicate and commit the time to returning those shop drawings as soon as possible in advance of the allotted time for contract review. Our field inspectors will also continually review work progress and inform the project manager when progress is slipping, either for the entire project, or for individual project components.

❶ Primavera P6 Schedule



❷ 30-Day Look Ahead Schedule



Proven Results

SUCCESS STORY #1

East Las Olas Blvd. Force Main Project, City of Ft. Lauderdale:

Tetra Tech expedited the design of this force main located within an FDOT ROW in order to replace existing infrastructure that was in disrepair and creating a regulatory enforcement action.

The existing force main had sections that were repaired or replaced previously and had failed several times sending wastewater to surface water. The timing for design, permitting and construction of the new force main was critical and expedited very effectively by Tetra Tech, to the satisfaction of the City and the regulatory agencies.

Engineering Cost Controls

Tetra Tech's PMP also includes the overall budget, the budget for each task, and anticipated billings. The PMP closely coordinates the schedule and the budget so that as the project progresses, the project manager can easily monitor the billings versus the budget. Below are some of the controls Tetra Tech uses to manage engineering costs:

Computer-Based Accounting System

The Project Management Plan is enhanced by our computer-based Oracle accounting system, **TetraLinx**. The TetraLinx system is tied directly to employee time sheets and billing information and is kept up to date on a weekly basis. This electronic system reduces delays in getting the project manager budget information. Timesheets are entered every Friday and on Monday morning the Project Manager receives an automated **Project Summary Report** in their email showing a snapshot of the budget used since the last invoice and the remaining budget. Tetra Tech also uses a **Portfolio Review Workbook** (reference image ❶ on the right), allowing the Project Manager to have a dashboard of all project performance metrics.

Cost Price Model

Cost control begins with establishing a realistic budget. Tetra Tech has experienced Project Managers and Lead Design Engineers as well as a vast catalog of similar projects to use as a basis of estimating project budgets. Lead Design Engineers create the staffing plan and estimate hours per project milestone or deliverable. The Project Manager then uses our custom pricing tool called the **Cost Price Model** (reference image ❸ on the right) to create the overall pricing plan with all direct and indirect costs, employee billing rates, overhead rates, and multipliers. The Cost Price Model generates the Project Labor Plan and Pricing Plan. This tool follows the project from inception to close out and is updated quarterly for project reviews.

Proactive Communication

Controlling costs also requires proactive coordination to get it right the first time and avoid costly redesigns. Engaging the design team with Fayette County and proactively coordinating progress, focusing on inter-discipline coordination, communicating questions, and using experienced staff helps cost control.

Project Manager Portal

Tetra Tech has developed custom Project Management Tools to help control costs from the big picture level to the granular level per hour billed. Each Project Manager has a **PM Portal** (reference image ❷ on the right) with a dashboard that shows a quick snapshot of all project performance. Custom reports can be generated ranging from Work Breakdown Structures, Staff Billing report, Weekly Project Transaction Reports and Accounts Receivable reports.

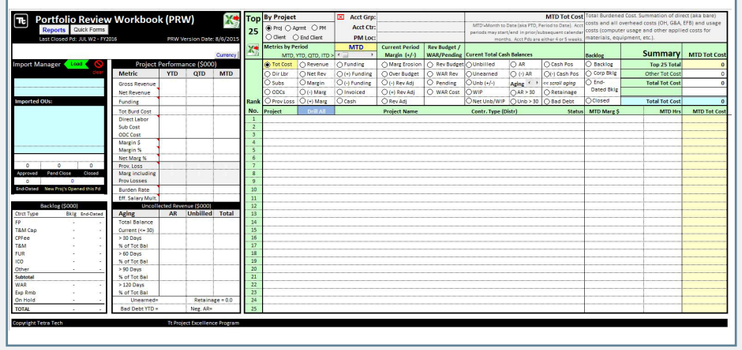
Quarterly Project Reviews

Cost control relies on actively monitoring and assessing projects. Tetra Tech requires quarterly reviews of all projects by management called Operations Managers. Projects over $100,000 budgets get more in-depth reviews and go thru the Project Evaluation & Estimate at Completion (PEEAC) review process. Project Managers update the project Cost Price Model by meeting with the Lead Design Engineer from each discipline and updating their estimates to complete the project versus the schedule and deliverable requirements. The estimate to complete is compared to the remaining budget and corrective actions are implemented if the project is projecting over budget. The project is also evaluated for risks, health and safety, schedule delays, and subcontractor performance issues.

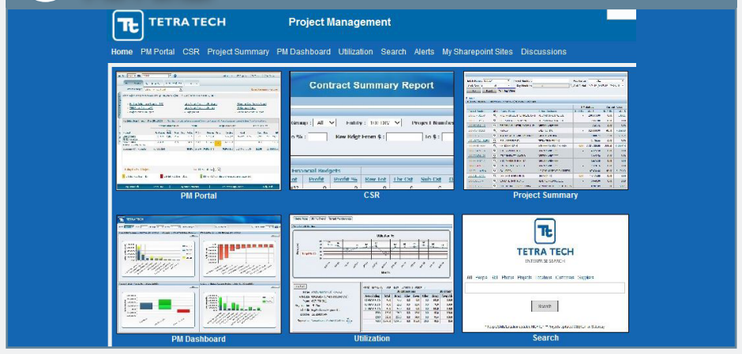
Utilize Technical Oversight

Our team's vast national resources enable us to provide expert technical development and review of the project, and also allows independent oversight. Checking quality at intermediate stages will help avoid time-consuming changes later in the final design.

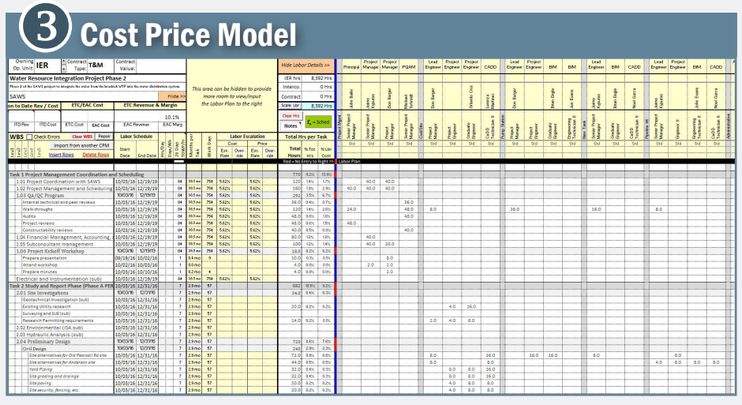
❶ Portfolio Review Workbook



❷ PM Portal



❸ Cost Price Model



Proven Results

SUCCESS STORY #2

Hollywood Blvd. JPA WM Project, City of Hollywood:

Tetra Tech was able to modify their final design plans and expedite design and permitting of an initially unanticipated crossing of the Florida East Coast (FEC) Railroad which was originally to be included in an adjacent project. This project was scheduled to be bid by FDOT and the timing for securing the permitting was critical in order to meet the bid date. Tetra Tech performed additional coordination with FEC in advance of permitting and was able to secure the FEC permit to meet the FDOT letting date because of the advanced coordination and not receiving any comments from FEC on the permit submittal.

Construction Cost Controls

Below are some of the controls Tetra Tech uses to manage construction costs:

Quality Documents

A major factor of Tetra Tech's excellent performance record is the ability to provide thorough and complete documents with which to estimate and control construction costs. One of the lessons learned in the firm's years of experience is that good planning and good quality deliverables are the best insurance for successful completion of a construction project. Because we pay close attention to each detail and make sure that all aspects of the project are covered in the design or plan development, our clients are assured that when projects are released for construction, budgets will be maintained.

Opinion of Probable Construction Cost (OPCC)

During the preliminary and design phases, Tetra Tech will develop an itemized list of quantities using a bid form template. We will then use recent bid data, coupled with escalators to project bids to current date, and anticipated material cost increases based on manufacturer discussions. These OPCCs will begin during the preliminary design phases and as the design progresses and quantities are refined, the estimates will be indicative of the estimated costs.

Cost Estimating Software

In addition to our own internal bid tabs, Tetra Tech also uses **RS Means** and **CostWorks** software for project construction cost estimating.

Value Engineering

If requested by the City, value engineering (VE) can be used to evaluate ways to reduce the construction cost while still meeting the intent of the design. Using a VE approach allows the team to arrive at the best possible operational system for any project. The VE team members performing the review, all have construction experience directly related to the needs of the City. The VE team further consists of members that have years of general contracting and construction management experience.

Risk Management

Below are some of the controls Tetra Tech uses to manage risks:

Requirements Gathering

Our ability to meet the project schedule At project inception, the Project Manager will meet with the City Project Manager and begin to develop the scope outline, understand project objectives and agree on deliverables. Fully understanding the project requirements and capturing them is the best way to control the scope as the project progresses.

Experienced Project Teams

Involving experienced project team members in the scope preparation and project execution brings lessons learned from past projects to benefit the City to help define the project scope and ensure the level of effort is fully understood up front. The experience also pays off as the project progresses because the team is efficient at delivering the scope and knowledgeable about what is expected. If the team members get bogged down at any point or begin to stray from the intent of the scope, they can recognize it early and course correct.

Defined Scope of Work

The Project Manager will present a clearly defined scope to the City. Each task and deliverable will be identified and matched up to the task level budget so the City can review and refine the level of effort per task until everyone is on the same page.

Scope Reviews

At project milestones and during quarterly project reviews, the scope will be reviewed by management with the Project Manager to ensure the City requirements are met. Any necessary course corrections can be made to control scope creep.

Proven Results

SUCCESS STORY #3

NE 6th Avenue WM Project, City of N. Miami:

Tetra Tech was contracted to assist the City of North Miami with inspection services during construction of this 12-inch water main within FDOT's ROW limits. Due to the project being located on a congested roadway, and adjacent to a school, the day time work hours were limited by FDOT permitting restrictions. The City had an aggressive construction schedule and the limited work hours would greatly impact it. As such, non-peak evening hours were approved by FDOT for construction. Tetra Tech agreed to provide supplemental construction administration services at night in order to keep the project on schedule and meet the City's needs, helping the City and the Contractor to successfully construct the project.

Quality, Accuracy, and Integrity

Tetra Tech will implement a detailed documents quality assurance/quality control process where all deliverables, whether draft or final, undergo a formal review process prior to submittal to the City. The QA/QC process will be managed by Jon Fox, James Christopher, and John Toomey, each technical experts in their fields.

Our rigorous quality program will apply to all members of our team. We understand that it is critical that our deliverables and services fully meet the City's goals and expectations in a cost-effective manner.

Tetra Tech Quality Management System (QMS) is an internal set of practices and associated organizational structure established for planning and executing services that not only meet, but will also exceed the quality requirements of the City. These practices are implemented on all projects to provide deliverables that are technically sound, error-free, and cost-effective.

While standardized, our QMS procedures are also flexible, allowing a level of customization to suit a wide variety of projects. We understand the need to balance innovation and creativity with the implementation of systematic processes for performance valuation as well as planning and design reviews.

Our quality plan will be included in our deliverables at the 30-, 60-, 90- and the 100 percent design submittals. Tetra Tech's quality system approach applies the fundamental principles of the Plan-Do-Check-Act model of continuous improvement, highlighted in the below graphic. QA/QC activities are identified during project planning and applied throughout the project life. QA activities help guide the project work based on professional and regulatory standards. QC activities occur at key milestones to confirm project quality. Continuous improvement is achieved on the project by applying these QA/QC activities and on future projects by applying lessons learned.

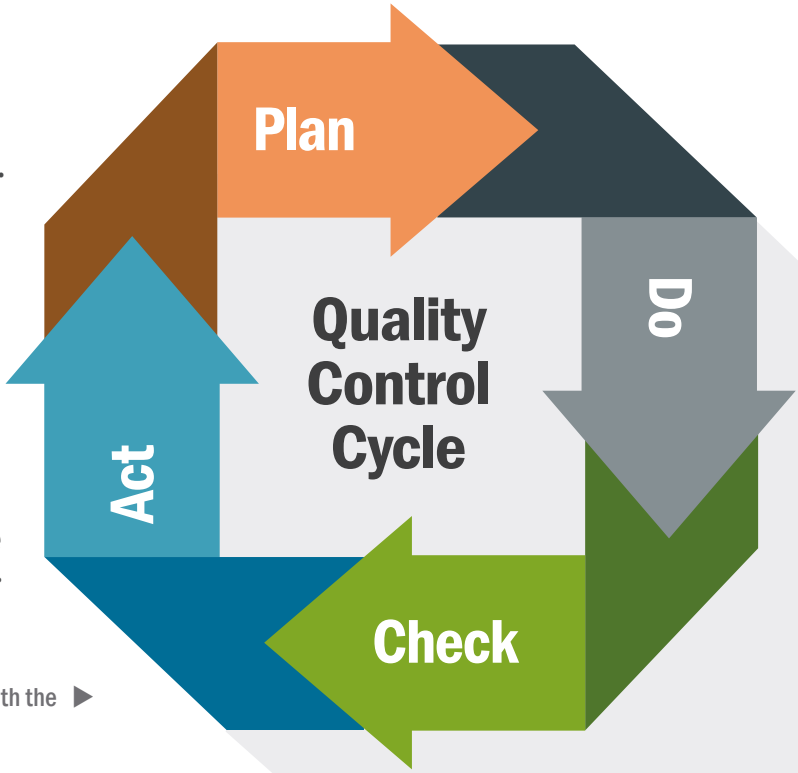
Our stringent quality approach allows our team to identify issues early and implement a corrective action plan to resolve discrepancies with minimal impact to the project. During the 30-, 60-, and 90-percent submittal reviews if an issue arises we will work with the City to develop a solution, implement the solution and then follow-up to ensure the issue is resolved and provide closure so the project and continue to progress forward. If requested, QA/QC documentation will be provided to the City after each milestone so there is a record of all activities and buy in from each discipline as well as from the City.

PLAN
Be specific to what you are trying to accomplish. Create performance measures.

DO
Prioritize and implement changes.

ACT
Implement structured change objectives to address challenges and opportunities for improvement. Standardize policies and procedures.

CHECK
Test and record changes. Create structured change objectives.



Improving Quality Control with the Plan-Do-Check-Act Model

Equipment, Software, Tools, and Technology for this General Engineering Services Contract

Tetra Tech is committed to maintaining and updating its computers, equipment, software, and library to provide the most up-to- date resources. This approach not only supports our staff in completing high-quality work on time, but also adds value to every project we undertake.

Tetra Tech maintains updated computer equipment and software as needed by various departments within the organization. Our suite of programs includes resources for utility rate structure analysis, financial analysis, asset evaluation, and capital planning. Our GIS department has the necessary hardware and software to generate billing determinants and evaluate customer characteristics.

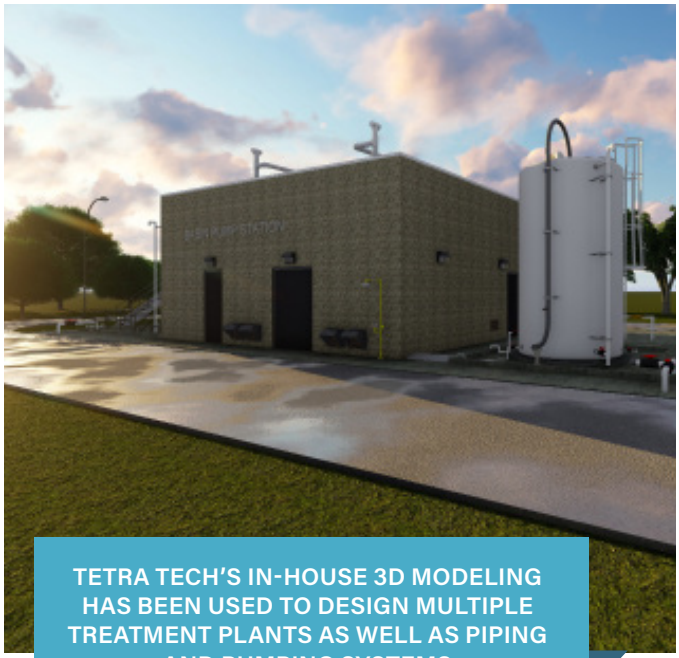
Throughout this section we have discussed tools and technologies used in project management. Below we will discuss additional equipment, software, tools, and technology for this demand services contract.

Bringing Our Projects to Life with 3D Designs

Tetra Tech sets the industry standard for utilizing a three dimensional (3D) design environment, and 3D design is our standard practice on projects. Our projects are designed utilizing Autodesk Revit® for pump stations or other structures and their elements and Autodesk Civil 3D for various water, wastewater, reuse, and stormwater pipelines. Our Revit and Civil 3D designs greatly improve design and construction efficiency by:

- reducing construction document generation time
- automating updates to profiles and sections
- visually identifying utility or other conflicts
- considers constructability issues,
- providing for better design and construction change management,
- coordinating the design which is built in a single model shared by all disciplines,
- reflecting design changes automatically throughout the model, and
- creating accurate construction quantities.

By providing the highest level of design quality via 3D integration, our designs result in lower construction costs and shorter construction times by reducing errors, reviews, and changes during construction.



TETRA TECH'S IN-HOUSE 3D MODELING HAS BEEN USED TO DESIGN MULTIPLE TREATMENT PLANTS AS WELL AS PIPING AND PUMPING SYSTEMS

Leveraging Technology: Additional Equipment and Software Resources

In addition to our use of Microsoft Office Professional, a universal standard, we have access to and knowledge of the following software and equipment:

Water and Wastewater Hydraulic Modeling Software

- RTW, AWWA Model for Water Process & Corrosion Chemistry (developed by Tetra Tech)
- Bentley/Haestad – All products in standalone, AutoCAD/ MicroStation and GEMS format including WaterCAD/GEMS and SewerCAD/GEMS
- Innovyze– All products standalone or AutoCAD format including InfoWater, H2OMapWater, InfoWorks, H2ONET
- Wastewater process modeling software: BioWin and GPS-X

Stormwater, Watershed, and Receiving Water Modeling Software

- Advanced ICPR (Interconnected Pond Routing Model) Version 3.02
- XPSWMM Stormwater Management Model
- Ponds Version 3.2 Continuous Model
- InfoSWMM 2D- Stormwater Water Management Model Version 12.0 and 13.0; Extensions, Calibrator, Designer, Conduit Storage Synthesizer, Subcatchment Manager, Risk Assessment Manager
- HEC-GeoRAS and HEC-RASSurface Water Profile Model, Version 4.62 (ACOE)
- Bently/Haestad - All products in standalone or AutoCAD including StormCAD, CulvertMaster and FlowMaster
- HYDRAIN- Hydrological and Hydraulic Analyses and Designs: Includes WSPRO (HY7) - Water Surface Profiles, HY-8 - Culvert Analysis, HYDRO, HYDRA and more
- GIS ArcHydro – BASIN Delineation and Surface Flow
- TR-20 Project Formulation Hydrology (SCS)
- TR-55- Urban Hydrology for Small Watersheds
- SUSTAIN – System for Urban Stormwater Treatment and Analysis Integration – BMP cost and size optimization, runoff and pollutant load reductions
- HSPF, LSPC, and SWAT – watershed models, surface runoff, land management impacts, water quality modeling
- EFDC and WASP – 3-D hydrodynamic and water quality modeling
- CORMIX – water quality mixing, plume simulation, mixing zone and zone of initial dilution
- FLOW-3D – computational fluid dynamic model, plume mixing, velocity vectors, flood analysis AD/ GIS Hardware and Software
- ARC GIS Server
- GIS Workstations; Intel Pentium QuadCore Duo 2.7 Ghz, 16GB Ram
- ESRI ArcMAP 10.2 (ArcInfo, ArcEditor, and ArcView)
- ESRI Extensions; Spatial Analyst, 3D Analyst; ArcHydro
- Arc2Earth – Google Earth Export extension.
- AutoCAD Workstations; Intel Pentium QuadCore Duo 2.7 Ghz, 16GB Ram
- Autodesk AutoCAD Civil 3D
- Autodesk Extensions; Map 3D
- Revit 2013 and 2015 Miscellaneous Utility Software
- PCTools, Version 8.0
- Microsoft Basic PDS
- Microsoft Turbo Pascal
- Mathcad 7 Professional
- MATLAB 2008
- StatMost for Windows, Version 2.01

5 Close Out the Project

Final closeout for a project involves procedural issues and phase-out administrative procedures, transfer of responsibilities, financial closeout activities, and preparation of appropriate documentation. The purpose of a project closeout effort is to ensure a timely, orderly, and cost-effective project termination. If the closeout is complex and may take substantial time, a closeout plan should be issued prior to full project demobilization.

To provide an orderly closeout of a project, the Project Manager should, once all costs are incurred against the project with invoices and contracts are closed—prepare a project closeout report. The following items should be addressed in the closeout report:

- Technical, scope, cost, and schedule baseline accomplishments
- Financial closeout, including a final cost report with details as required
- Closeout approvals
- Permits, licenses, and/or environmental documentation
- Construction substantial and final completion verification
- Contract closeout status
- Adjustments to obligations and costs
- Photographic documentation
- Baseline change control log
- As-builts and record drawing production

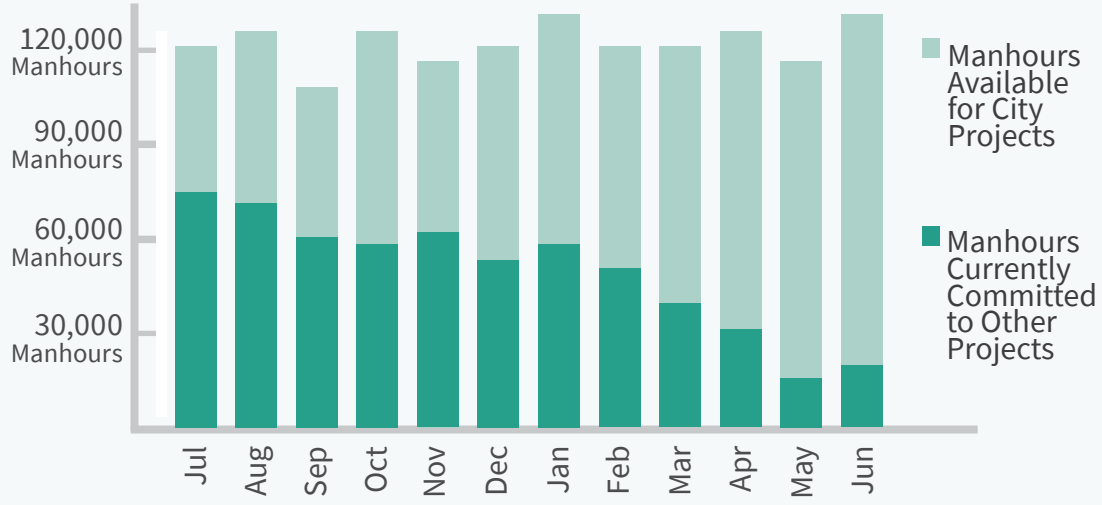
Current & Projected Workload

The Tetra Tech team is available and fully committed to providing general engineering services to the City of Hollywood. The staff assigned to the project in the organization chart have immediate availability to implement projects upon receipt of a Notice to Proceed. Our team's resources are deep enough to successfully tackle all of the City's needs. If additional staff beyond those team members identified within this SOQ is necessary, our team has the resources available to commit additional team members. We have approximately 27,000 employees located in more than 540 offices worldwide.

We have all the resources and staff necessary to quickly execute the work assignments and complete the project correctly. This is one of the advantages of a large firm that has specialized in serving municipalities of the size and resources of a community like Hollywood. We bring large firm capabilities and people with an understanding of local municipal needs. We also have experience working with local subconsultants and will coordinate with Gibbs Land Surveyors, Hillers, and NV5 in their local offices.

The figure below includes a summary of our current projects over the next year to demonstrate the availability of our team for this contract. Commitment of resources is the most critical factor in completing a project in a timely manner, and our workload projections indicate that there will be an abundance of resources available to execute the City's projects.

▼ Figure 1.1: Tetra Tech's Summary of Current Projects and Project Timeframes over the Next Year (Florida resources only)



Asset Management

Asset management is a systematic process to cost-effectively maintain, upgrade, and operate an organization's infrastructure by inventorying assets, such as roads, bridges, utilities, equipment, and buildings, and evaluating specific data, such as condition, value, capacity, and vulnerability, to make critical infrastructure decisions based on fact rather than assumption.

Asset management services support NPDES-mandated stormwater management plans; vulnerability assessments, emergency response plans, and security plans; FEMA reimbursement submissions regarding catastrophic events; GASB34 asset evaluation and expense summaries; capacity, management, operation, and maintenance (CMOM) proposed requirements; and state-specific requirements for transportation asset management. Our asset management services include:

- Service strategy
- Asset inventory and assessment, maintenance, and replacement
- Homeland security and risk management
- Asset renewal investment planning
- Life cycle planning

Project Initiation

Tetra Tech will work with the City of Hollywood to establish the framework and goals for the assets management plan (AMP) specific to the City of Hollywood's needs for the infrastructure projects. We will host meetings and planning sessions to establish the following:

- Develop an organization chart of staff involved and stakeholders
- Begin engagement of employees, management, and/or the public in the planning and decision-making to develop a culture that includes a shared, common purpose
- Schedule meetings with staff and stakeholders
- Determine Level of Service (LOS) expectations and Key Performance Indicators (KPIs) (This effort will include meetings with the following key stakeholders: City staff; City officials; and major residential, commercial, and institutional users)

Asset Management Software, Hardware, and Training

The AMP will be developed using a Computerized Maintenance and Management System (CMMS) for asset inventory, condition tracking, risk analysis, financial tracking, and cost evaluation. Activities related to this item include:

- Purchase software and hardware for CMMS integration and begin implementation.
- Purchase additional hardware to assist with data collection of assets for incorporation into the City's existing Geographic Information System (GIS)
- Staff training in the new CMMS software, National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) and Manhole Assessment and Certification Program (MACP) and use of the new GIS hardware

Condition Assessment

Tetra Tech is unique among consultants in that we employ a broad range of experts to assess the condition of wastewater and stormwater assets.

Using the framework established under the "Project Initiation" phase, we will perform a planning level assessment of each asset's condition. The level of analysis will depend on the criticality and likelihood of failure of the individual asset.

For the "horizontal assets," condition assessment will focus on cleaning and televising of sewers that are deemed critical and/or have not been assessed previously. Additional sewers and/or siphons and force mains may also be included if budget allows.

For the "vertical assets," we will use record information and staff knowledge to make an estimate of the condition, or visual examination and/or review of maintenance history, failure history, remaining useful life, and staff knowledge. Condition assessments may be performed such as an electrical short-circuit study, transformer load tests, vibration analysis of equipment, concrete and steel structural analysis, mechanical testing and energy usage.

After completing the condition assessment, we will rate the probability of failure of each asset on a typical scale of 1-5 (low to high) based on the observed condition, and this data will be entered into the AMP database for risk evaluation. The estimated current (depreciated) value and estimated replacement cost of the asset will also be entered into the AMP database.

Asset Criticality Factors

The team will determine asset criticality factors by multiplying the probability of failure of the asset times the consequence of failure of the asset (again on a typical 1 to 5 scale). Asset redundancy will also be incorporated into this calculation. Asset criticality factors will be used to determine replacement needs and prioritize future maintenance and capital improvements.

Future Planning

The AMP produced will be considered a "living document" that is reviewed and updated regularly and is consulted as part of planning for any future investments. It is anticipated that the document will be reviewed once every three years for the following items:

- Additional development of key performance indicator (KPIs) and/or system for regularly monitoring and reporting metrics
- Update condition assessment and system needs
- Update O&M Process and Workflow Diagrams
- Refine operating budget
- Re-evaluate system costs and investment versus funding structures

Our Tetra Tech staff will assist communities with evaluating asset management software to aid in future work order development and asset management. This software also assists in evaluating scenarios to develop an implementable final CIP.

Grant and Loan Administration

Tetra Tech has and continues to administer existing grants and loans for multiple clients in Florida. Grant/loan management and administration services provided include:

- Project scoping
- Review of application timelines and requirements
- Scheduling
- Coordination with the client and the agency awarding the grant/loan
- Assistance with workflow
- Engineering support and plan execution for the grant application
- Monitoring
- Reporting

The grant/loan opportunity identification and project eligibility process begins by first gathering information on the client's infrastructure needs and future capital improvements projects. Next, we evaluate and discuss projects with the client to determine eligibility, matching funds, and grant/loan opportunities.

Once projects are identified, our grant specialist prepares the narratives and supporting documentation inclusive of GIS maps, exhibits, and budget cost analysis for submittal of the grant/loan's applications to the appropriate agency. Tetra Tech's staff then monitor the grant/loan awarded projects by preparing monthly/quarterly reports, verify compliance with requirements, and administer the grant/loan throughout project completion on behalf of the client.

Summary

Tetra Tech is a full-service engineering with proven experience and recognized excellence in water, wastewater, reuse, and stormwater utilities. We understand the City's needs because of our successful work with the City on multiple projects on the Water Main Replacement Program.

Tetra Tech's established Project Management Plan ensure compliance with project and stakeholder goals, through continuous meeting and coordination with the City and various stakeholders throughout the projects' durations.

We have a proven leadership team and offer the best people for each project. Tetra Tech utilizes tools and developed programs to manage projects and staff. Some of the tools we have developed are used by others in the industry.

Ultimately, project goals are developed and adhered to provide effective, efficient, safe, and reliable utilities and Tetra Tech is a proven leader in this respect.

Management Plan Attachment A – Typical Project Tasks and Schedule

Our team understands the complexity and importance of Multi-Year Capital projects, the necessary timing to design, permit and construct the various projects, and the significance of effectively maintaining project schedules and costs. The piping included in the CIP project listings include rehabilitation and new water, wastewater, and reclaimed water piping, for which more specialized routing and design may be necessary. Considerations which should be reviewed and addressed to include:

- Health and safety programs during all phases of the projects,
- minimizing utility conflicts,
- conflict avoidance and relocation potential,
- dewatering and areas of contamination requiring more costly dewatering and disposal,
- jurisdictional ROW use permitting requirements and permitting timelines,
- land and easement acquisitions and encroachments with associated costs and timelines,
- canal and subaqueous crossings,
- major intersections and railway crossings,
- environmentally sensitive or wetland areas and required permitting,
- trenchless methods of construction and piping considerations for the various methods of construction,
- vehicular and pedestrian maintenance of traffic,
- public involvement and minimizing disruptions to businesses and residents with in the project limits,
- reconstruction and restoration efforts and costs,
- value engineering,
- maintaining project timelines,
- project startup and operation.

Tetra Tech will have a scope preparation meeting and discussions with the City to identify the project goals, objectives, special constraints and permitting requirements of the project.

Emphasis will be placed on ensuring that all efforts required to meet the City's needs and standards are identified. The draft scope, schedule and budget will be submitted to the City for review and feedback. We would then meet with City staff to finalize these documents to the City's satisfaction.

Tetra Tech's overall project approach is unique because we perform more detailed due diligence during the planning phase of a project and prior to the 60 percent design development phase.

Almost immediately after project initiation, Tetra Tech performs data acquisition and secures existing utility agency facility information, requests GIS and as-built files, geocodes, and locates existing utility markers and above ground features such as manhole lids, valves, fire hydrants, stormwater piping infrastructure, fiber optic markers, transmission and distribution power poles and other corridor features during a detailed field review, which also includes photo documentation for routing purposes.

Due diligence early on is also performed with respect to stakeholders. Because the pipelines and other infrastructure included in this project span many miles and areas, many stakeholders. Early coordination with stakeholders has proven to be invaluable.

Understanding stakeholder projects and how they will impact City projects is critical. Highway and roadway expansion, roadway resurfacing, and other utility projects can severely impact the scope of work on the infrastructure projects and will have implications to costs and schedules, which should be understood prior to design and construction. Relationships are established early on with the stakeholders to get project "buy-in". Pre-application meetings are also scheduled such that moratoriums,

project specific restoration requirements, permit or regulatory timelines and fees are identified prior to the design phase. Timelines and costs therefore are also evaluated in advance of final design efforts. By performing these preliminary design efforts, initial recommendations often lead to less critical changes and often ends up more effectively designed, permitted, and constructed. Tetra Tech understands the importance of this and recently implemented this due diligence on multiple City projects to reduce the amount of proposed infrastructure and its corresponding capital, operation and maintenance, and stakeholder costs.

Additional considerations that impact construction of the project, but that should be made during planning and design include:

- constructability analysis,
- piping layout and staging areas,
- work areas,
- maintaining access to residents and businesses,
- evaluating high risk areas such as work near high pressure gas mains or electrical ducts,
- communication duct banks or other utilities of major significance that would require additional protection, and
- support or further separation distances to be provided to minimize impacts during construction efforts, such as pipelines along exfiltration trenches.

The following tasks are typical to infrastructure pipeline and pump station projects.

Task 1 - Data Collection and Review

Tetra Tech has worked with the City on various projects, including various infrastructure projects along major corridors throughout the City.

We understand that having all of the available information is essential to being able to make good decisions and sound designs. All of our projects begin with obtaining information from the City and the stakeholders that are directly or indirectly involved with the project. Existing utilities are as important as other planned projects. Major stakeholders on projects with the City typically include FPL, FDOT, the adjacent cities, and others. Knowing what is going on and the existing conditions on a project are critical.

Some key data that is readily available from the City, Broward County, and other sources includes known environmental sites. These sites include environmentally sensitive areas such as wetlands and mangroves and also identifies known contamination sites. Understanding the locations of these sites, how they will impact the project, and how to mitigate their impacts is crucial to understand early in the project. Tetra Tech is one of only a few true “full service” firms that can complete every aspect of this project, including environmental and contamination assessment and mitigation.

Task 2 - Routing Analysis and Basis of Design Report (BODR)

Routing Analyses are typically performed for major pipelines to confirm and/or determine the Best Available Route predicated on a “Benefit to Cost Ratio “. Preliminary routes are evaluated based on the establishment of a design matrix that contains constructability reviews to determine the shortest and most feasible pipeline routing, evaluating and avoiding potential significant utility conflicts via review of as-builts and record drawings and performing initial subsurface utility excavations for conflict avoidance, identifying and understanding the various regulatory jurisdictional agencies and their restoration requirements for areas of impact, establishing permitting timelines and permitting costs and preparation of preliminary opinions of probable cost for selection of the recommended alternative routing. All due diligence efforts, data collection and key stakeholder information is compiled into the BODR for review and presentation to the City for selection of the recommended alternative routing. The recommended alternative will then be discussed with the City and will be finalized prior to proceeding into the design phase.

Public information meetings and stakeholder meetings can take place during this phase and/or during a later design phase, as determined by the City. Tetra Tech’s designers can work with the City Public Relations staff to prepare any necessary exhibits, handouts, or assist with information to be placed onto the City’s website to keep residents

and businesses within the project limits informed. Tetra Tech can also schedule and conduct a meeting with the City to present the project status to the stakeholders, regulatory agency staff and jurisdictional authorities.

Identifying stakeholder concerns as well as other planned projects in the area of a project is critically important to identifying the infrastructure required for a project, as well as its scheduling requirements. Tetra Tech recently completed a water and wastewater systems BODR for a commercial corridor in southeastern Florida. Through our due diligence and coordination with stakeholders, we were able to identify portions of the planned project, which were no longer feasible to continue due to planned highway and intermodal center improvements. These impacts were previously unknown prior to our BODR process and this resulted in the client saving design and construction costs for those improvements.

Hydraulic modeling during the planning stage of the project is also very important. The pipelines being planned for this project will carry large quantities of water. Understanding the hydraulics involved with moving or diverting large quantities of water is especially critical. Tetra Tech is familiar with the hydraulic models utilized and has conducted surge analyses, water hammer evaluations, and diversion hydraulics for numerous large, similarly complex water systems throughout the United States, including in South Florida.

A BODR for a pipeline project is typically completed at the start of the project, if deemed necessary, and includes:

- Flow Generation including existing and future projected flows
- Hydraulic Analysis for pressures and pipe sizing
- Description or preliminary design of pumping facilities (if they are part of the scope)
- Flow Control facilities to meter and control the flow
- Detailed Surge Analysis
- Pipe Material Selections
- Pipe Design Criteria and Preliminary Design
- Geotechnical Report including tunnel analysis
- Preliminary Tunnel Design
- Alignment Study to determine best alignment
- Right of Way Requirements
- Traffic Control Issues
- Permit Requirements and Jurisdictional reviews

Task 3 - Utility Coordination

Tetra Tech will have performed preliminary utility coordination in the due-diligence phase of the project however, many utility agency owners do not provide detailed facility information until they know that the project is under the design phase. As such, Tetra Tech follows up with the utility agency owners multiple times to secure their facility information, review potential conflicts, and perform conflict avoidance and minimization. At the 30 percent design completion level, Tetra Tech will provide the alternative routing to all utility agency owners and request their facility information. The data will be confirmed at a utility coordination meeting with these utilities to verify the location of their facilities and resolve conflicts. Subsurface utility engineering (SUE) will be used if required to supplement this information.

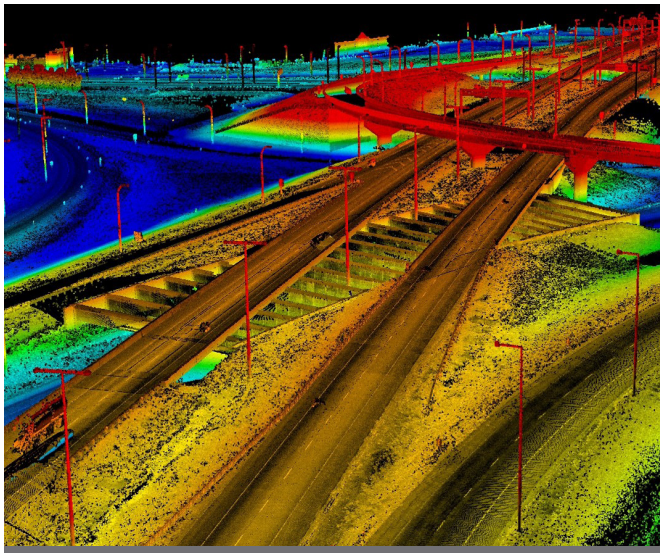
Task 4 - Surveying

To initiate design, our surveyors will review available topographical, boundary, and state plane coordinate system survey data and obtain any additional survey information required for the design including boundary surveys, rights-of-way surveys and jurisdictional surveys. The survey information will be cross-referenced with the geo-coding previously performed by Tetra Tech as the geo-coding features can be overlaid onto the survey drawing. Depending on the City's preference, aerials can be flown for the pipeline plan and profile drawings or the required data can be collected by full ground survey. We recommend that the drawing scale be no greater than 40' per inch. For additional conflict avoidance and minimization, once surveying has been performed and reviewed, the locations of existing utilities will be verified using subsurface utility engineering equipment.

In order to be cost effective during the design phase of the project, Tetra Tech will initiate several tasks

concurrently. First we release our survey crews, depending on the size of the project, to commence with the route survey topographic and boundary components relating to existing easements (whether dedicated by plat or by legal instruments), identify right-of-way widths, and encroachments through latest survey equipment technology (such as Total Stations, EDM devices, etc.) and locate all visible improvements along the proposed route. During this same time, any additional as built information for existing utilities is obtained and reviewed, and all utility providers are contacted again with the alternative routing being submitted to them for their more detailed utility information.

Once the route survey is completed, then we shall proceed with either ground penetrating radar (GPR) and/ or " soft digs " to further fine tune any other utility which may present a future potential conflict during construction. Also at this time we arrange for a formal pre-application meeting with the particular governmental authority having jurisdiction over the existing right-of-ways and to update them of the selected routing alternative. Once the route survey is completed, we commence the actual production drawings design phase. Existing key features are identified such as paved roads, canal crossings, areas requiring more specialized MOT to be performed by the Contractor, curb and gutter versus swales, arterial versus residential. We also confirm the pavement restoration width and resurfacing limits of traveled lanes according to the Agency having jurisdiction over the ROW limits and to adjust cost estimates as applicable for restoration efforts. We will compile and review existing geotechnical information and identify appropriate areas where additional geotechnical information is needed. Based on this information, we will arrange for field acquisition of the required subsurface information (borings) and will review the geotechnical information and coordinate a geotechnical report for use in the development of the design.



Tetra Tech is a full service firm and provides highly specialized surveying services such as the LIDAR mapping shown above.

Task 5 - Design

The design phase will consist of the development of drawings and specifications that will be used for permitting, bidding and constructing the project. It is anticipated these documents will include the following:

- Technical Specifications and front-end, contractual documents, using the City's standard documents where applicable;
- Subsurface investigation/geotechnical reports.
- Drawings including:
  - Plan and profile sheets showing, as a minimum, property lines, easements, existing utilities, above ground facilities, wetland boundaries, proposed pipeline alignment, points of connection, required fittings, valves, meters, vaults and other appurtenances, conflict resolutions and special crossing details.
  - Miscellaneous details including City standard details, erosion control requirements, general notes and legends and Maintenance of Traffic requirements.

At this time we develop the Specifications for the pipe material, via discussions with the City, vendors, evaluating the selected method of construction and performing a cost analysis. We also evaluate isolation locations for valve placements, locations for air release valves, and other in-line features such as stub-outs for the future or tie-in locations.

The documents will be submitted for the City review at agreed upon intervals (typically at the 30, 60, 90 and 100% complete levels) along with Opinions of

Probable Construction Cost. All comments from the City, as well as internal review comments, will be addressed and incorporated into the final design as required.

Design Considerations

Tetra Tech has successfully implemented large diameter pipelines and has developed special typical design considerations for pipeline projects.

Electography

Tetra Tech suggests performing electography on the pipeline route. Electography is an above-ground visual record of the pipeline route. A preconstruction video records existing conditions before any materials are delivered and before any work begins. This record includes driveways, foundations, sidewalks, landscaping, utilities, manholes, existing conditions in ditches, ponding in adjacent properties, curbs and road surfaces. Postconstruction video provides a record of the site after all work and restoration have been completed.

Trenchless Installation

Because of the size, routes, and construction barriers of the pipelines associated with the CIP, typical open-cut installation may not be feasible. Many of the pipelines cross water bodies, major highways, major intersections, railways, and other obstacles. Consideration should be given to utilizing horizontal directional drilling, tunneling, microtunneling, and/or jack and bores.

The City has utilized these methods on many projects already. Tetra Tech is also well-experienced in these installation methods and when best they are used.

Subsurface Utility Evaluation and Ground Penetrating Radar

Subsurface Utility Evaluation (SUE) and Ground Penetrating Radar (GPR) services will be undertaken at key locations in the project. Critical underground utility locations will be identified in the early stages of the design process to allow designers to identify potential utility interferences and design solutions. As-built information and record drawings will be reviewed against the field information to identify and resolve potential utility discrepancies.

A cost saving measure related to SUE is to inquire with FDOT and other agencies for any recent SUE information that may be available. Oftentimes, information is available, which reduces the quantity of SUEs required.

Constructability

Another consideration in large pipeline projects is constructability, including accommodating contractor storage and lay down areas as well as excavations and shafts that would be necessary for trenchless installation of pipes. We will typically evaluate this issue during design, since it can have an important impact on cost and can result in the need to secure Temporary Construction Easements.

Our Team has specific expertise in right-of-way acquisition and Temporary Construction Easements.

Temporary Construction Easements are often required for pipeline projects to give the Contractor additional working room during the installation process. It is important that all conditions negotiated with the property owner are properly conveyed to the Contractor during the bidding so they can be accurately accounted for in the bid price. It is advisable in the initial stages of design to evaluate any temporary construction easements that may be required. With any tunneling type operation, microtunneling, jack & bore, or trenchless, accounting for adequate space for jacking and receiving pits is important. If temporary construction easements are required, they will be identified early in the design process to maintain project schedules. In addition, sheeting, shoring, and bracing, trench stabilization and dewatering are required to be evaluated.

Cathodic Protection

Where necessary, a corrosion control engineering evaluation of the pipeline route should be conducted to determine if cathodic protection is required in addition to standard polyethylene wrap. Ductile iron pipe can be subject to corrosion related failures. Tetra Tech recommends obtaining soil samples to a depth of the approximate pipe invert at approximately 1,000 foot spacing and test the samples for moisture content, pH, resistivity, chloride ion concentration, sulfide ion concentration, sulfate ion concentration and Redox potential. Tetra Tech may recommends that we perform in-situ soil resistivity measurements to determine average soil resistivity conditions from grade to the approximate pipe invert and performing electrical measurements at select locations to determine if stray current control measures are warranted. Also, it should be considered that corrosion control impacts that may be caused by nearby high-voltage AC transmission lines, cathodically protected pipelines, and other potential sources of stray current corrosion.

AC Power Mitigation

Based on our knowledge of the City, some of the pipelines that are part of the CIP are near a high voltage AC power corridors. There are considerable safety hazards created by both the induced AC from the overhead conductors and from possible ground fault conditions. Tetra Tech will consider the need to install insulating flanges to isolate a transmission main into segments and bonding the pipe joints within each section. This allows corrosion rates to be monitored using test stations installed on each segment of the transmission main. Should transmission main corrosion be found to occur resulting from, say, the future co-location of another pipeline with its cathodic protection system, a cathodic protection system can be readily installed on that small segment of the transmission main in a cost effective manner.

It may be warranted to conduct an AC Mitigation Study to evaluate and design the appropriate mitigation measures necessary for worker safety, including zinc ribbon mats in the vicinity of above ground pipeline appurtenances such as valve operators, air release valves and meter assemblies.

Further, Tetra Tech can prepare a Safety Plan for High Voltage Construction in high voltage power corridors.

Subaqueous Crossings

From time to time, particularly in South Florida, pipeline projects require a crossing of an open body of water, such as the Bay, or more likely within these project corridors, canals or the Intracoastal Waterway, which will require utilizing a subaqueous installation technique.

- The Subaqueous canal crossing uses special joints, such as Ball and Socket, where both a large pulling force and considerable angle deflection, upwards to 15 degrees are required in order to assemble the pipeline crossing on the ground and then “ pull “ across the canal.
- Another very critical task is to determine the cover of the subaqueous pipe itself below canal bottom. This depth is established by researching the hydraulic design canal bottom elevation of the water crossing and providing sufficient cover above the pipe to the bottom of the water body to minimize impacts to the piping with future operation and maintenance of the canal, dredging, etc.

Geotechnical

The foundation of any new trenchless construction work is a thorough understanding of the subsurface conditions. Without accurate knowledge of the conditions to be encountered, one cannot properly prepare a design that will minimize construction risk and potential construction claims. Further, insufficient or inaccurate geotechnical information hinders contractors’ abilities to prepare responsible, competitive bids. A contractor must consider risk due to unknown or difficult conditions when preparing a bid. If inadequate geotechnical information is available, the contractor is forced to make the difficult decision of either adding significant additional cost to his bid (likely making his bid uncompetitive) or making optimistic assumptions and then having to pursue claims during construction if more challenging conditions are encountered.

We feel that at a minimum borings should be spaced at 500 feet or less. Additionally, borings

should always be performed at planned shaft locations. Such borings not only allow for a good understanding of the conditions to be encountered when building the shaft, but the findings of the borings can be compared to the conditions encountered in the larger excavation during shaft construction. This allows the contractor to better prepare for conditions that may not have been possible to capture in a small-diameter boring.

Tetra Tech is one of only a few true full service firms. Shown above is one of our drilling rigs.

It is important to obtain borings even in hard to access locations. Many times trenchless construction is used to avoid disturbance to surface features such as highways, railways, or waterways and it is tempting to avoid borings in these locations to further minimize disruption. However, doing so may create a significant data gap.

This is especially true of long river crossings. Borings located only near the shaft locations can fail to uncover significantly different geotechnical conditions that have been affected by the watercourse or activities of man over time.

Installation Methods

MICROTUNNELING

Tetra Tech is very experienced in Microtunneling. Microtunneling is a trenchless construction method used to install pipelines beneath highways, railroads, runways, harbors, rivers, and environmentally sensitive areas. Microtunneling is defined as a remotely-controlled, guided, pipe-jacking operation that provides continuous support to the excavation face by applying mechanical or fluid pressure to balance groundwater and earth pressures. Support at the excavation face is a key feature of microtunneling, distinguishing it from traditional open-shield pipejacking.

Microtunneling requires jacking and reception shafts at the opposite ends of each drive. A microtunnel boring machine (MTBM) is pushed into the earth by hydraulic jacks mounted and aligned in the jacking shaft. The jacks are then retracted and the slurry lines and control cables are disconnected. A product pipe or casing is lowered into the shaft and inserted between the jacking frame and the MTBM or previously jacked pipe. Slurry lines and power and control cable connections are made, and the pipe and MTBM are advanced another drive stroke. This process is repeated until the MTBM reaches the reception shaft. Upon drive completion, the MTBM and trailing equipment are retrieved and all equipment removed from the pipeline.

Most microtunneling operations include a hydraulic jacking system to advance the MTBM and pipe string, a closed loop slurry system to transport the excavated spoils, a slurry cleaning system to remove the spoil from the slurry water, a lubrication system to lubricate the exterior of the pipe string during installation, a guidance system to provide line and grade control, an electrical supply and distribution system to power equipment, a crane to hoist pipe sections into the jacking shaft, and various trucks and loaders to transport spoil off site.

MTBMs have a rotating cutting head to excavate the ground material, a crushing cone to crush larger particles into smaller sizes for transport through the

slurry lines, a hydraulic or electric motor to turn the cutting head, a pressurized slurry mixing chamber behind the cutter head to maintain face stability, an articulated steering unit with steering jacks for steering corrections, various control valves, pressure gauges, flow meters, and a data acquisition system.

Additionally, the MTBM has in-line cameras to relay information to the operator and a target system for guidance control. Precise control of line and grade is accomplished using the guidance system and steering jacks to locate and steer the MTBM during a microtunneling drive. The guidance system usually consists of a reference laser mounted in the jacking shaft, which transmits a beam onto a target mounted inside the articulated section of the MTBM. This and other operational information is transmitted through wire cables to a control cabin located on the surface.

Microtunneling machines are capable of independently counterbalancing earth and hydrostatic pressures. Earth pressure is counterbalanced by careful control of advance rates and excavation rates of spoil materials. Groundwater pressure is counter-balanced by using pressurized slurry in the soilmixing chamber of the MTBM.

There are some additional requirements related to plans and specifications for a microtunneling project. The plans should include basic design information including bore length, depth, invert elevations, and slope.

Vertical excavations or shafts are a requirement for almost all microtunneled crossings. However, the design of microtunneling shafts is almost always the responsibility of the general contractor, as they are typically temporary features. However, the approximate locations of shafts should be shown on the drawings. Despite the contractor being ultimately responsible for design and construction of the shafts, the designer still needs to take into account the space and logistical needs. A basic shaft outline should be included on the drawings that captures the reasonable maximum outside dimensions of the support system that will be constructed. This is an important consideration during the design phase to ensure that adequate space is available to construct the shaft, considering utilities, traffic control, and easements/ rights-of-way.

Adequate work areas for shaft construction and tunneling operations is required and should be included in the design plans. Microtunneling equipment layout is very flexible, allowing for many varied layouts to fit available space. However, while the shape of the area can be flexible, the minimum area needed is about 7,000 square feet for installing pipe of approximately 24 to 48 inches. As the installed pipe size increases to the high end of microtunneling capabilities at 72 to 96 inches, the minimum jacking shaft work area increases to 10,000 square feet.

Project specifications for a microtunneling project need to be prepared to address the various aspects and components of the project. Performance criteria can be included in the specifications to ensure design of critical elements such as the shafts and shaft bottoms, to ensure stability, avoid boiling and flooding, and to ensure line and grades for successful tunnelling.

Guidance and Steering

One of the advantages of microtunneling is the high level of accuracy with which pipe can be installed. A reference laser and active target system combined with a fully-articulated steering head are typically used, and allow a microtunneled pipeline can be installed to within plus or minus one inch of design line and grade. Laser guidance remains by far the most common system used for microtunneling in the United States. Another item that is important with regard to steering of the MTBM is sufficient radial overcut. All MTBM's are set up to create a bore diameter that is larger than the maximum outside diameter of the jacking pipe to be installed. The machine overcut creates an annular space around the advancing MTBM and jacking pipe that provides several benefits including reducing skin friction, allowing for the injection of lubricant, and providing space for the front section of the MTBM to articulate, and facilitating steering.

Annular Space Grouting

For grouting to be effective; it must be undertaken very soon after completion of the bore, before the ground has closed in around the pipe. It is also important to specify appropriate materials to obtain a flowable mix that can achieve good filling of the annular space.

Intermediate Jacking Stations (IJSs)

Intermediate Jacking Stations (IJS's) are good insurance for long drives and high jacking forces, especially where there is no convenient access for a rescue shaft. A reasonable strategy for IJS's is to specify that one or more fully assembled IJS's be on-site for drives exceeding a certain length, and their use be specified when jacking forces reach a certain level.

HORIZONTAL DIRECTIONAL DRILLING (HDD)

Tetra Tech has performed over 500 individual HDD as part of numerous projects throughout Florida. Tetra Tech designed and successfully installed a 920-foot long, 36-inch subaqueous crossing that was, at the time, the longest ductile iron horizontal directional drilling ever installed. HDD is perhaps the fastest-growing technology in the trenchless industry. The horizontal-directional drilling process represents a significant improvement over traditional cut-and cover methods for installing pipelines beneath obstructions, such as roadways, driveways, historical areas, landscaped areas, rivers, streams, and shorelines, which warrant specialized construction attention.

The tools and techniques used in the HDD process are an outgrowth of the oil-well-drilling industry. The first use of directional wells in oil fields was motivated by economics. The oil fields off the California coast were the spawning grounds for directional drilling practices and equipment. Later oil and gas discoveries in the Gulf of Mexico and other countries promoted the expansion of directional drilling technology and practices. The horizontal drilling rigs used for utility and pipeline construction are similar to the oil-well-drilling rigs with the major exception that a horizontal drilling rig is equipped with an inclined ramp as opposed to a vertical mast.

This rapid growth of HDD technology is attributed to:

- The increasing traffic-control and restoration costs involved in the installation of utility conduits and pipes in congested urban areas and the need to dig around existing utilities.
- The increased awareness of social costs such as traffic delays, disruption of business activities, and disruption to residential neighborhoods.
- The increasing environmental regulations for the placement of pipelines across rivers, wetlands, and other environmentally sensitive areas.
- Several factors make directional drilling more appropriate for water and wastewater pipelines than in the past:
- Current HDD equipment can install pipe in large diameters.
- Directional drills are perfectly suited for installing the types of pipe used in water and sewer systems. HDD crews are experienced in the installation of fused lengths of HDPE pipe. Restrained-joint PVC pipe and ductile iron products are ideally suited for installation by HDD equipment; couplings quickly lock sections of pipe together, holding them firmly while pipe is pulled into place by a directional drilling unit.
- Today's HDD equipment can operate effectively in most soil conditions, including loose and solid rock.
- Directional drilling often requires less support equipment than other methods.
- HDD is a viable construction alternative that has become very competitive cost- wise in areas where there is limited access and in high-traffic locations, where it eliminates most surface repairs.

HDD Systems

The basic components of a horizontal directional drilling system include:

- Drill unit
- Guidance system
- Drilling fluid system
- Drill pipe and downhole tools, including bits and back reamers
- Drilling fluid mixing or recycling system

The HDD rig is connected to the cutting bit by the drill string, which is made up individual joints of pipe. Back reamers are used to increase the diameter of the pilot hole to the required size to accommodate the diameter of the pipe to be installed. The drilling fluid, commonly known as mud, plays an essential role in drilling, back reaming, and product pullback.

The fluid mixing system is separate from the drilling rig. Fluid recirculating systems often are employed on long bores to install large-diameter pipe.

After offloading the HDD rig, it is positioned over the bore path centerline at an adequate distance from the drill entry point to allow the drill bit to enter the ground at the desired location and angle. The HDD rig is often tied down using the powered rotating screws located on the front of the drill rig.

The HDD drill rig is used to drill and ream the pilot hole and pull the pipe back through the hole. HDD drill rigs provide torque, thrust, and pullback to the drill string. The drill drive assembly resides on a carriage that travels under hydraulic power along the frame of the drill rig. The thrust mechanism for the carriage can be a cable, chain, screw, or rack-and-pinion system. In addition to the drilling rig, a variety of support equipment may be required. Depending on the HDD project, a drilling fluid or mud cleaning and recirculation unit, drill-pipe trailer, water truck, and pump and hoses may be required. An excavator is needed to dig the entry, exit, and recirculation pits. In urban or environmentally sensitive areas a vacuum truck may be required to handle the fluid in the return pits or inadvertent returns. The physical size of the HDD equipment is also important because the available setup space at many project locations is often limited. HDD units come in a wide range of sizes, with the units most often employed for utility work yielding between 5,000 and 90,000 pounds of pullback.

Pipe Installation

Installation of a pipe by HDD is usually accomplished in three stages. The first stage involves directionally drilling a small-diameter pilot hole along a designed directional path. The second stage consists of enlarging (reaming) the pilot hole to a diameter that will support the pipeline, and the third stage consists of pulling the pipeline back into the enlarged hole. In some cases the second and third stages are combined into one step.

Pilot Hole

The first step in a HDD installation is to drill a carefully guided pilot hole that delivers the drill bit and bore head to the surface at the specified exit point. The bore is launched from the surface, and the pilot bore proceeds downward at an angle until the necessary depth is reached. A small-diameter drill string penetrates the ground at a prescribed entry point and the design entry angle, normally between 8 and 16 degrees. To help prevent the drill rod from deflecting upward or to the side, the pilot hole is usually started with the slanted drill head at the 6 o'clock position. At a prescribed depth or point the drill pipe is bent to follow the proposed drill path and the designed bending radius. Then the path of the bore is gradually brought to the horizontal, followed by another bend before the bore head is steered to the designated exit point, where it is brought to the surface.

During the drilling process the bore path is traced by interpreting electronic signals sent by a monitoring device located near the head of the drilling string. At any stage along the drilling path the operator receives information regarding the position, depth and orientation of the drilling tool, allowing him or her to navigate the drill head to its target. The drill path may also be tracked with a wire line or a wireless non-walk-over system. Regardless of the jacking system used, the objective is to locate the actual position of the drill head as it progresses along the pilot bore path. After the pilot string breaks the surface at the exit location, the bit is removed from the drill string and replaced with a back reamer. The bore path is made up of straight tangents and long radius arcs.

Reaming

Once the pilot hole is successfully drilled, the hole is often enlarged to a suitable diameter for the pipeline. For instance, if the pipeline to be installed is 8 inches in diameter, the hole may be enlarged to 12 inches or more. This is accomplished by reaming the hole to successively larger diameters. Generally the reamer is attached to the drill string on the bank opposite the drilling rig, rotated, and pulled (pushed in some instances) back through the pilot hole. Joints of drill pipe are added as the reamer makes its way back to the drilling rig. Large quantities of slurry are pumped into the hole to maintain its integrity and to flush out cuttings. While soil conditions do have an impact, the required number of reaming runs is mainly dependent on the diameter of the product pipe and the diameter of the pilot hole. It may vary from no reaming runs to several for large diameter product pipes.

One method, typically called a continuous bore hole, involves enlarging the pilot hole to the desired diameter while simultaneously pulling back the line product behind the reamer. In some situations with small-diameter product pipe or conduit, the pipe can be pulled straight into the pilot hole after the drill is completed. However, in most HDD operations the bore hole has to be reamed to enlarge the hole to accommodate pulling in the product pipe. Generally the bore hole is reamed to 1-1/2 times the outside diameter of the product pipe. This provides an annular void between the product pipe and the drill hole for the drilling fluids and spoils and for the bending radius of the product pipe.

Pullback

Once the drilled hole is enlarged, the pipeline can be pulled through it. The pipeline is prefabricated and usually tested on the bank opposite the drilling rig. A reamer is attached to the drill string and then connected to the pipeline pull head via a swivel. The swivel prevents any translation of the reamer's rotation into the pipeline string, allowing for a smooth pull into the drilled hole. The product pipe has to be supported for the pullback operation. This is usually accomplished on rollers or with some type of crane or backhoe. Caution has to be exercised during the pullback to ensure that the product pipe or its coating is not damaged.

Tracking

In HDD applications tracking is the ability to locate the position, depth, and orientation of the drilling head during the drilling process. The ability to accurately track the drill is essential to the completion of a successful bore. The drill path is tracked by taking periodic readings of the inclination and azimuth of the leading edge of the drill string. Readings are recorded with a probe that is inserted in the drill collar as close as possible to the drill bit.

Any pipeline design completed by our team will be based on City and County regulations. First we will look at the local mining regulations as well as historical data to determine if blast stresses/loads are within the regulatory limits. Seismic design criteria will be developed and applied based on available monitoring data. Our in-house geophysical expertise can be used to conduct forensic analyses as well as develop alternative technologies for managing ground movement whatever the cause. Operations monitoring typically includes the installation of seismographic monitors as well as telemetry to monitor ground movement. In addition, access ports can be designed and constructed to allow for pipeline inspection if blast related damage is suspected.

One important aspect of protecting utility assets which are subject to ground movement stresses is real-time monitoring of ground movement. For many clients through-out the United States and internationally, URS provides real-time internet based monitoring of pipelines, dams and other assets. Our monitoring services include seismic, and vibration data logging.

Vibration Monitoring/ Seismographic Services

Pile driving, installation of sheeting, drilled shaft casings, earthwork, pavement placement, and demolition activities may result in vibration and, depending upon its magnitude, impacts ranging from unpleasant annoyance to structural damage. Special consideration and monitoring is often necessary to protect the structures that are very close to construction activities. Vibration monitoring services include pre- and post-construction surveys of existing structures. For the pre-construction survey, vibrations are monitored in the beginning of the project to establish a baseline vibration level. Then during various vibration producing construction activities.

JACK & BORE

Jack and bore is a trenchless method for installation of steel pipes and casings. Distances of 150 feet or more and over 60 inches in diameter are common, although the method can be used for much longer and larger installations. The method is useful for pipe and casing installations under railway lines and roads, where other trenchless methods could cause surface settling or heaving. The majority of installations are horizontal, although the method can be used for vertical installations.

The method uses pneumatic percussive blows to drive the pipe through the ground. The leading edge of the pipe is almost always open, and is typically closed only when smaller pipes are being installed. Its shape allows a small overcut (to reduce

friction between the pipe and soil and improve load conditions on the pipe) and to direct the soil into the pipe interior instead of compacting it outside the pipe. These objectives are usually achieved by attaching a soil-cutting shoe or special bands to the pipe.

Further reduction of friction is typically achieved with lubrication, and different types of bentonite and/or polymers can be used for this purpose. Spoil removal from the pipe can be done after the entire pipe is in place (shorter installations). If the pipe containing the spoil becomes too heavy before the installation is complete, the ramming can be interrupted and the pipe cleaned (longer installations). Spoil can be removed by auger, compressed air or water jetting.

Jacking and receiving pits are required. Sufficient space for these pits should be included in the design plans and specific performance requirements of the structural design of these pits, which is typically performed by the contractor.

Task 6 - Permitting

After initial contact with Permitting Agencies during the development of the BODR, the Tetra Tech team will continue coordinating with these agencies and attend pre-application meetings at approximately the 30% complete level. The necessary permit applications and required backup data will be ready for submittal at the 90% complete level.

Some of the key permitting issues include:

- Traffic interruption, dust, possible service interruption, and interruptions that impact residents and businesses within the corridor due to the pipeline installation activities;
- OSHA requirements
- Right-of-way Ownership and the permit ability of the proposed pipelines along and within certain agencies' jurisdictional authority. We must identify the rightful ability to install and maintain the proposed pipeline and its relationship to other utilities within.
- Public interests and Environmental Quality preservation are permitted under the following agencies; foremost is the Municipal Utility as Owner of the proposed pipeline, Broward County, State Board of Health (DOH) and the Public Works Department having jurisdiction over the remaining right-of-way limits.

With our Team's extensive history and background in Broward County and the City of Hollywood, we have successfully dealt with all of the permitting agencies engaged with in the design and installation of pipeline projects. Some additional agencies may be involved for some specific Permit conditions which would be triggered depending on whether a State or a Federal Permit would be required. Typically these are for pipelines involving the crossing of either Federal or State waters such as USACE, Florida Department of Transportation (FDOT) for all State Roadways, the South Florida Water Management District (SFWMD) for canal crossings and impacts to the existing canal system during construction, and Water Control Division, if either a County Canal ROW is involved or a Dewatering Permit Class V is required.

These Permits require a long lead time so it is imperative that these are identified as early as possible and include in the Pre Application process. Tetra Tech schedules pre-application meetings and coordinates with all stakeholders prior to routing alternatives analyses to minimize surprises that can often occur during the design phase of the project due to lack of communication.

Task 7 - Bid and Award Phase

During this phase, Tetra Tech will attend the pre-bid meeting and place great importance on responding to Contractors' questions adequately and thoroughly through Addenda. It is our opinion that Contractors will more accurately bid the project if they have a thorough understanding of the plans and specifications and have any initial questions addressed. Our previous experience with projects in the area should minimize Contractors' questions and provide the City with competitive bids. Once the bids are received, Tetra Tech will review the bids for completeness and accuracy and will verify references for the apparent low bidder. We will then make recommendation of award to the City. Upon the City's direction, we will prepare the Contract Documents for execution.

Task 8 - Construction Phase Administration/Management

The best design can become an unsuccessful project if the construction effort is not carefully controlled. The Tetra Tech team will utilize the same individuals for review of Contractor submittals (shop drawings, schedules, phasing plans, etc.) as performed the design. This maximizes compliance with the design intent and minimizes review time. Upon award by the City of the construction contract, Tetra Tech will provide construction administration phase services.

These services will typically include the following tasks and activities:

- Attend a pre-construction conference
- Process, review and distribute shop drawings and samples.
- Respond to contractor Requests for Information (RFIs).Interpret the Contract Documents.
- Review and comment on the Contractor's construction schedule.
- Report whenever it is believed that any work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, has been damaged, or does not meet the requirements of any test or approval required, and advise the City of work that should be corrected or rejected or should be uncovered for observation, or requires special testing, review or approval. Properly document any deficiencies.
- Resolve differing site/field conditions.
- Maintain orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders or Directives, additional Drawings issued subsequent to the execution of the Contract, RFIs and interpretations of the Contract Documents, Progress reports, and other Project related documents.
- Record names, addresses and telephone numbers of all Contractors', subcontractors and major suppliers of materials and equipment.
- Conduct and administer monthly on-site progress meetings and keep and distribute minutes.
- Review contractor proposals and change order requests.
- Review Contractor pay requests.
- Respond in a timely manner to all RFIs with supplemental drawings, specifications, etc.
- Assist the City with responding to resident complaints and maintain records of such.
- Provide substantial and final completion site visits, develop punchlists and make recommendations to the City regarding acceptance.
- Provide startup assistance.
- Review Operation & Maintenance (O&M) manuals.
- Tetra Tech can also provide O&M training, if required.
- Evaluate testing results and make recommendations to the City.
- Verify that test, equipment and systems startups and operating and maintenance training are conducted in the presence of the appropriate personnel and that Contractor maintains adequate records thereof; and observe, record and report appropriate details relative to the test procedures and startups.
- Review the Contractor's as-builts and prepare Record Drawings.
- Prepare and submit certifications to the permitting agencies.
- Assist the City as required to close out the construction contract.

Task 9 – Start Up, Testing, and Preliminary Operations

Our approach to start-up is to make sure that your staff has been properly trained by the individual equipment manufacturer's representatives on the operational components and maintenance. It is recommended that City operations staff be involved as observers during start-up testing. This is another opportunity for the staff to become familiar with the equipment as it undergoes testing and start-up procedures.

We will check that the Contractor provides video recordings of all training sessions for future reference and future training of new personnel. As the design team, we fully understand the facility systems and operation processes. We are dedicated to training the City staff to make certain the facility is operated at its full potential to meet the City's needs.

Our approach to start-up and training will be based on pacing with completion of construction. Normally, plant training is scheduled for the end of the project and is crammed into a few days or weeks. This approach can be overwhelming and non-effective. Our approach is to sufficiently spread the start-up and training for the various unit processes and equipment to match completion of the respective improvements as opposed to all at once. We will capture training via video and edit the final product to serve as a tool for future training. Our use of Revit and other associated building information management (BIM) design software will provide the City with a final product that is beneficial for future equipment management as well as for use along with the video documentation in the training of future staff.

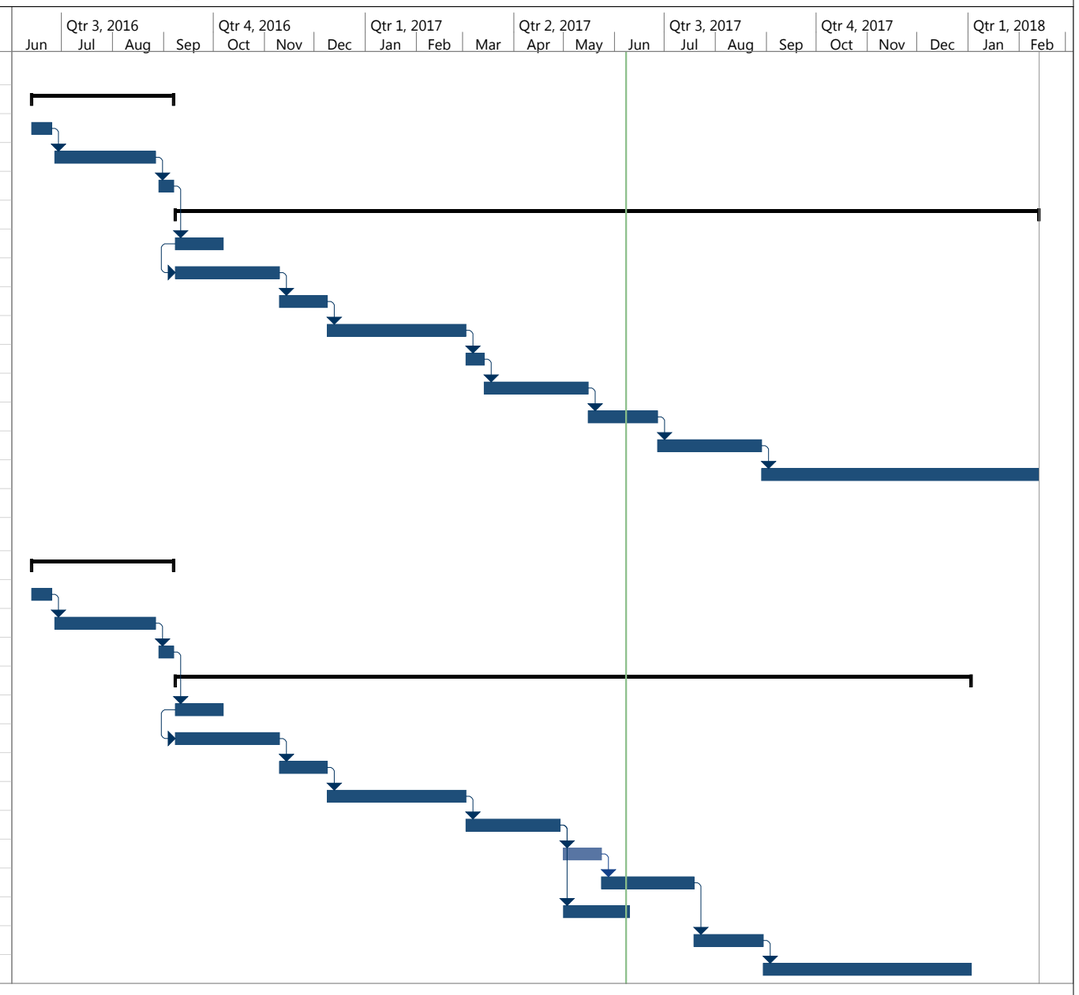
One of the key deliverables for this phase will be the operations and maintenance (O&M) manuals. Having been involved in this process for many years, Tetra Tech has learned that the standard O&M manuals provided by the equipment suppliers often fall short on usefulness and actual application. Most of these manuals provide excellent information related to maintenance and repair, but often fall short on assisting in the day-to-day operations of the equipment. Further, the O&M manuals provided by the contractor and equipment manufacturers do not address unit process operations. As such, our approach is to provide the City of Hollywood staff with custom written manuals that provide summaries of the unit process operations and include the details of the design that are simply just absent from stock equipment catalogs. Again, our approach is to leverage technology.

Our 3-D CADD renderings of the proposed facilities can be creatively used in the O & M manuals to provide realistic views for use in future operations and maintenance in the field.

Attachment B – Typical Bar Chart for an Example Project and Comparison of Performance

City of Fort Lauderdale PS Nos. D-10 & D-11
Wastewater System Evaluation and Redesign

ID	Task Name	Duration	Start	Finish
1	**Original Schedule**			
2	**Wastewater System Evaluation Memorandum**	**62 days**	**Mon 6/13/16**	**Tue 9/6/16**
3	Kick-off Meeting, Data Collection and Review	10 days	Mon 6/13/16	Fri 6/24/16
4	Existing and Future Wastewater Flow and Pump Station Capacity Evaluation	45 days	Mon 6/27/16	Fri 8/26/16
5	City Review of Memo	7 days	Mon 8/29/16	Tue 9/6/16
6	**Final Design, Permitting, Bidding and Construction Administration Services**	**373 days**	**Thu 9/8/16**	**Mon 2/12/18**
7	Surveying	21 days	Thu 9/8/16	Thu 10/6/16
8	Utilities Evaluation and Subsurface Utility Evaluations	45 days	Thu 9/8/16	Wed 11/9/16
9	Geotechnical Investigation	21 days	Thu 11/10/16	Thu 12/8/16
10	60% Design Plans and Specifications	60 days	Fri 12/9/16	Thu 3/2/17
11	City Review of 60% Plans	7 days	Fri 3/3/17	Mon 3/13/17
12	Permitting	45 days	Tue 3/14/17	Mon 5/15/17
13	100% Design Plans and Specifications	30 days	Tue 5/16/17	Mon 6/26/17
14	Bidding and Award	45 days	Tue 6/27/17	Mon 8/28/17
15	Construction Administration	120 days	Tue 8/29/17	Mon 2/12/18
16				
17	**Actual Schedule**			
18	**Wastewater System Evaluation Memorandum**	**62 days**	**Mon 6/13/16**	**Tue 9/6/16**
19	Kick-off Meeting, Data Collection and Review	10 days	Mon 6/13/16	Fri 6/24/16
20	Existing and Future Wastewater Flow and Pump Station Capacity Evaluation	45 days	Mon 6/27/16	Fri 8/26/16
21	City Review of Memo	7 days	Mon 8/29/16	Tue 9/6/16
22	**Final Design, Permitting, Bidding and Construction Administration Services**	**344 days**	**Thu 9/8/16**	**Tue 1/2/18**
23	Surveying	21 days	Thu 9/8/16	Thu 10/6/16
24	Utilities Evaluation and Subsurface Utility Evaluations	45 days	Thu 9/8/16	Wed 11/9/16
25	Geotechnical Investigation	21 days	Thu 11/10/16	Thu 12/8/16
26	60% Design Plans and Specifications	60 days	Fri 12/9/16	Thu 3/2/17
27	City Review of 60% Plans	41 days	Fri 3/3/17	Fri 4/28/17
28	90% Design Plans and Specifications	17 days	Mon 5/1/17	Tue 5/23/17
29	Permitting	40 days	Wed 5/24/17	Tue 7/18/17
30	100% Design Plans and Specifications	30 days	Mon 5/1/17	Fri 6/9/17
31	Bidding and Award	30 days	Wed 7/19/17	Tue 8/29/17
32	Construction Administration	90 days	Wed 8/30/17	Tue 1/2/18



Project: 12202 - Schedule
Date: Thu 6/8/17

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	Slippage

TAB F

REFERENCES - VENDOR REFERENCE FORM

Three references are included on the requested Vendor References Forms.

Each reference is for projects of similar size, scope, and complexity that have been completed by Tetra Tech, Inc. within the last five years. Each reference demonstrates the experince of our firm and our team that is proposed to provide services as required and outlined in this proposal.

REFERENCE #1

THE CITY OF POMPANO BEACH

VENDOR REFERENCE FOR

City of Hollywood Solicitation #: RFQ-042-23-JJ
Reference for: TETRA TECH

Organization/Firm Name providing reference: City of Pompano Beach
Organization/Firm Contact Name: Christopher R. Schlageter, CGC
Email: Christopher.Schlageter@copbfl.com
Name of Referenced Project: WTP Hurricane Hardening
Date Services were provided: 2016 - 2023
Contract No: RLI L-40-15
Project Amount: $487,703.49
Referenced Vendor's role in Project: ☒ Prime Vendor ☐ Subcontractor/
Would you use the Vendor again? ☒ Yes ☐ No. Please specify in

Description of services provided by Vendor (provide additional sheet if necessary): Design, permitting, bidding, and co
Engineering Services

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent
Vendor's Quality of Service			
a. Responsive	☐	☐	☒

REFERENCE #2

THE CITY OF NORTH MIAMI

VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-042-23-JJ
Reference for: TETRA TECH

Organization/Firm Name providing reference: CITY OF NORTH MIAMI PUB
Organization/Firm Contact Name: WISLER PIERRE LOUIS
Email: PWISLER@NORTHMIAMIFL.GOV
Name of Referenced Project: NE 6 AVENUE WATER MAIN
Date Services were provided: SEPT 2015 TO FEB 2018
Contract No: N/A
Project Amount: $120,000
Referenced Vendor's role in Project: ☒ Prime Vendor ☐ Subcontractor/ Sub
Would you use the Vendor again? ☐ Yes ☐ No. Please specify in addi

Description of services provided by Vendor (provide additional sheet if necessary): DESIGN, PERMITTING, BIDDING, A
TION PHASE ENGINEERING SERVICES.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent
Vendor's Quality of Service			
a. Responsive	☐	☐	☑

REFERENCE #3

MIAMI-DADE COUNTY - PORTMIAMI

VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-042-23-JJ
Reference for: TETRA TECH

Organization/Firm Name providing reference: MIAMI-DADE COUNTY POR
Organization/Firm Contact Name: Victor M. Guitierrez, P.E., PMP
Email: Victor.Gutierrez@miamidade.gov
Name of Referenced Project: Cargo Gate Modifications and Process Improvements
Date Services were provided: 2015-Current
Contract No: E12-SEA-01
Project Amount: $2,475,000
Referenced Vendor's role in Project: ☒ Prime Vendor ☐ Subcontractor/
Would you use the Vendor again? ☐ Yes ☐ No. Please specify in

Description of services provided by Vendor (provide additional sheet if necessary): Design, permitting, bidding, and co
phase engineering services for new cargo gates and additional infrastructure in connection with them.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent
Vendor's Quality of Service			

VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-042-23-JJ

Reference for: TETRA TECH

Organization/Firm Name providing reference: City of Pompano Beach

Organization/Firm Contact Name: Christopher R. Schlageter, CGC **Title:** Engineering Project Manager

Email: Christopher.Schlageter@copbfl.com **Phone:** (954) 786-4022

Name of Referenced Project: WTP Hurricane Hardening **Contract No:** RLI L-40-15

Date Services were provided: 2016 - 2023 **Project Amount:** $487,703.49

Referenced Vendor's role in Project: ☒ **Prime Vendor** ☐ **Subcontractor/ Subconsultant**

Would you use the Vendor again? ☒ **Yes** ☐ **No.** **Please specify in additional comments**

Description of services provided by Vendor (provide additional sheet if necessary): Design, permitting, bidding, and construction phase
Engineering Services

Please rate your experience with the Vendor	**Need Improvement**	**Satisfactory**	**Excellent**	**Not Applicable**
Vendor's Quality of Service				
a. Responsive	☐	☐	☒	☐
b. Accuracy	☐	☐	☒	☐
c. Deliverables	☐	☐	☒	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☒	☐
b. Professionalism	☐	☐	☒	☐
c. Staff turnover	☐	☐	☒	☐
Timeliness/Cost Control of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments (provide additional sheet if necessary):
Excellent firm and professional staff. Tetra Tech has provided full service engineering from design development thru construction
administration services for years to the City of Pompano Water Treatment Facility. We are very happy with this firm.

******THIS SECTION FOR CITY USE ONLY******						
Verified via:	**Email:**	☐	**Verbal:**	☐	**Mail:**	☐
Verified by:	**Name:**				**Title:**	
	Department:				**Date:**	

VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-042-23-JJ

Reference for: TETRA TECH

Organization/Firm Name providing reference: CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT

Organization/Firm Contact Name: WISLER PIERRE LOUIS Title: DIRECTOR

Email: PWISLER@NORTHMIAMIFL.GOV Phone: 305-893-6511 EXT 12501

Name of Referenced Project: NE 6 AVENUE WATER MAIN Contract No: N/A

Date Services were provided: SEPT 2015 TO FEB 2018 Project Amount: $120,000

Referenced Vendor's role in Project: ☒ Prime Vendor ☐ Subcontractor/ Subconsultant

Would you use the Vendor again? ☐ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary): DESIGN, PERMITTING, BIDDING, AND CONSTRUC
TION PHASE ENGINEERING SERVICES.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Staff turnover	☐	☐	☐	☑
Timeliness/Cost Control of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐

Additional Comments (provide additional sheet if necessary):
Tetra Tech provided great customer service.

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-042-23-JJ
Reference for: TETRA TECH

Organization/Firm Name providing reference: MIAMI-DADE COUNTY PORTMIAMI - CAPITAL DEVELOPMENT
Organization/Firm Contact Name: Victor M. Gutierrez, P.E., PMP **Title:** Sr. Professional Engineer
Email: Victor.Gutierrez@miamidade.gov **Phone:** 305-347-4802
Name of Referenced Project: Cargo Gate Modifications and Process Improvements **Contract No:** E12-SEA-01
Date Services were provided: 2015-Current **Project Amount:** $2,475,000
Referenced Vendor's role in Project: ☒ **Prime Vendor** ☐ **Subcontractor/ Subconsultant**
Would you use the Vendor again? ☒ **Yes** ☐ **No.** Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary): Design, permitting, bidding, and construction phase engineering services for new cargo gates and additional infrastructure in connection with them.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Staff turnover	☐	☐	☑	☐
Timeliness/Cost Control of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐

Additional Comments (provide additional sheet if necessary):
Tetra tech has performed an excellent service to the Port for the above referenced project. Tetra tech has been very responsive, efficient and reliable.

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	**Email:**	☐	**Verbal:**	☐	**Mail:**	☐
Verified by:	**Name:**				**Title:**	
	Department:				**Date:**	

TAB H

SUBCONSULTANT INFORMATION

Our team includes three City of Hollywood-based companies that will assist our team with the performance of electrical engineering, surveying, and geotechnical exploration activities.

NV5

NV5 is a leading provider of professional and technical engineering and consulting solutions to public and private sector clients in the infrastructure, energy, construction, real estate and environmental markets. NV5 primarily focuses on five business verticals: Construction Quality Assurance (CQA), Infrastructure, Energy, Program Management, And Environmental Solutions. It operates over 100 offices worldwide with more than 3,000 staff. The firm helps its clients build cost-effective, sustainable projects that serve the needs of the communities where we live and work.

NV5 offers comprehensive CQA services for some of the industry's most complex projects. Its team evaluates construction sites, building plans, and designs to confirm compliance with the approved construction documents. They also provides continuous quality control, as well as forensic consulting services, upon project completion or for existing properties.

NV5's CQA vertical specializes in foundation engineering, geotechnical engineering, engineering geology and hydrogeology, construction observation, and materials testing. NV5 has been a sub consultant to Tetra Tech for 24 years and has worked on more than 100 projects together.

NV5 HAS BEEN A SUB-CONSULTANT TO TETRA TECH FOR 24 YEARS AND HAS WORKED ON MORE THAN 100 PROJECTS TOGETHER.

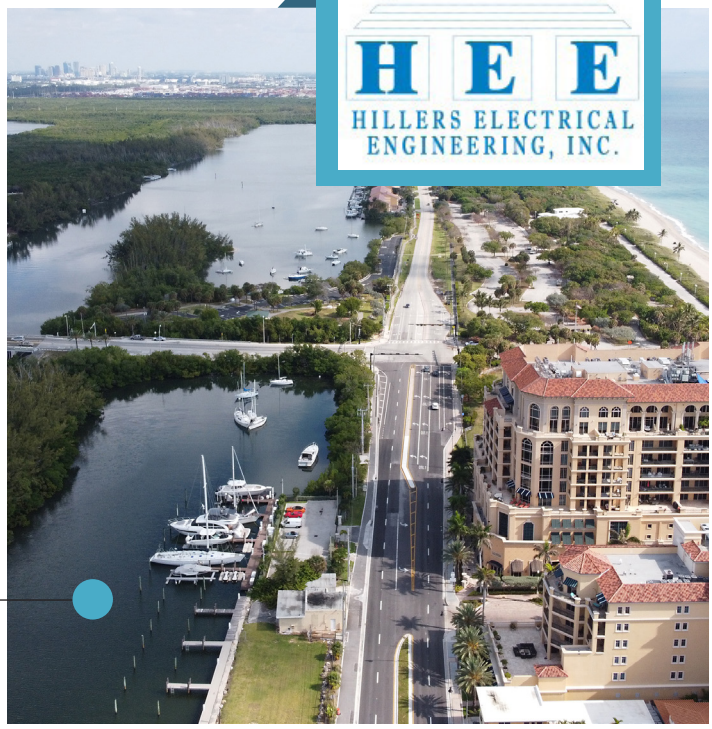
HILLERS ELECTRICAL ENGINEERING, INC.

Hillers Electrical Engineering, Inc.(HEE), located in Boca Raton, Florida, has been in business since 1994. HEE has provided electrical engineering services to the City of Hollywood over the past 25 years. HEE staff offers unsurpassed experience, expertise, and personalized service in electrical engineering design, control application programming, and construction management. HEE electrical design services include power, control, instrumentation, telemetry, start-up assistance, construction management services, and PLC/computer programming for County and State municipal agencies as well as private industry. HEE is an SBE/MBE-certified firm in several of the surrounding municipalities including the State of Florida.

The HEE office is fully equipped with state-of-the-art computer systems and engineering software to help ensure a quality and cost-effective product. Software programs include AutoCAD SKM fault current/coordination/arc flash program, generator sizing programs, and 3-Dimensional lighting calculations program.

HEE design staff brings vast electrical, instrumentation, and telemetry design and project management experience in supervisory control and data acquisition (SCADA) systems; water/waste treatment plants, stormwater pumping stations, lift stations, state-of-the-art distributed control systems, variable frequency speed drive analysis for facility efficiency improvements, ASR wells; implementation of commercial industrial load control program systems for large industrial power users, value engineering, master planning, energy audits, cost estimates, testing, start-ups, all types of security systems, fire alarm; low, medium and high voltage distribution systems, normal and stand by generation, short circuit calculations, fault current calculations, protective device coordination; professional and amateur sports complex lighting systems; power, control, instrumentation for major fuel storage and refining facilities in the U.S. and internationally.

The nature of Consulting is such that responsiveness is the key to maintaining a long-term relationship. HEE takes great pride in checking that we are immediately accessible and responsive to our client's needs. This is demonstrated in the excellent relationship they have established over the last 29 years with many municipalities and environmental consulting firms.



HEE HAS PROVIDED ELECTRICAL ENGINEERING SERVICES TO THE CITY OF HOLLYWOOD OVER THE PAST 25 YEARS

HEE provides a variety of electrical, instrumentation, and telemetry design and construction management tasks including:

- Low, Medium, and High Voltage Power Distribution Systems
- Motor Control Centers (MCCs)
- Distribution Panels
- Voltage Drop Calculations
- Variable Frequency Drive (VFD) Application
- Luminaire Calculations
- Short-Circuit Calculations, Protective Device Coordination & Arc Flash
- Standby Generator Systems
- Fire Alarm and Security Systems
- Instrumentation & Control Systems
- Telemetry Systems
- Supervisory Control and Data Acquisition (SCADA) Systems
- Shop Drawing Review
- Energy Audits
- Cost Estimates, Testing, and Start-Up

GIBBS LAND SURVEYORS

GIBBS LAND SURVEYORS (GLS) has been doing business from the same location for over 30 years.

They are sole owners of our office in the Landmark Building at 2131 Hollywood Boulevard, Suite 204.

Part of the GLS commitment to the community is their location. From this office, GLS has provided a wide range of services related to this discipline: Boundary, Topographic, Hydrographic, As-Built and Utility locations, Construction Staking, Vertical and Horizontal Control Surveys, ALTA/ NSPS Land Title Surveys, Plat Recordation, Condominium Document preparation, Legal Descriptions and Expert Witness Testimony.

TEAM FOCUS: GLS is involved with assisting each other, throughout the life of the project, because it requires everyone to be involved to make it a successful survey.

OUR STAFF: GLS considers the presence of a licensed professional to be of significant value to their work, and most importantly that a Professional Surveyor and Mapper is always involved in day-to-day operations and decision-making.

One of their team members has 25 years of experience as a field surveyor with an expertise in utility locations.

While preparing the deliverable through the CAD drafting portion of their surveys, GLS enlists the experience of their field personnel to perform accurate surveying of above-ground improvements and visible evidence of subsurface improvements (utilities) from markings, signage, valves, cuts, patching and trenching.

GIBBS LAND SURVEYORS HAS BEEN IN BUSINESS FROM THE SAME LOCATION IN THE CITY OF HOLLYWOOD FOR OVER 30 YEARS

TAB I

LEGAL PROCEEDINGS AND PERFORMANCE

This section includes a letter on Tetra Tech letterhead indicating if our firm has paid liquidated damages and/or if Tetra Tech, Inc. has been terminated for default. This letter includes confirmation that Tetra Tech, Inc. has not paid liquidated damages or been terminated for default.

In the normal course of business, Tetra Tech, Inc. is subject to certain claims and lawsuits typically filed against the engineering and consulting professions, including contractual disagreements, workers' compensation, personal injury and other similar lawsuits. Tetra Tech maintains insurance coverage for its business and operations, subject to certain deductibles and policy limits against such claims. As described in Tetra Tech's most recent quarterly and annual reports filed with the U.S. Securities and Exchange Commission, Tetra Tech believes that the resolution of any such claims will not have a material effect on its financial position or results of operations. Included below are all construction-related lawsuits within the last five years.

PC00027 | Urban Oaks Builders. v. Ardaman & Associates, Inc.
Date Opened: 10/19/2017
Plaintiff: Cottington Road TIC, LLC
Defendant: Ardaman & Associates, Inc.
Case Number: 2020-CA-1499
Date Filed: 06/05/2020
Court: Circuit Court, Ninth Judicial Circuit, Osceola County
Cause of Action: Negligence Alleged
Disposition of Case: Closed

C00430 | Gillespie Residence/Pentail Circle, Tampa v. Ardaman & Associates, Inc.
Date Opened: 7/12/2016
Plaintiff: Universal Property & Casualty Insurance Company a/s/o Jesse Aaron Gillespie and Cathleena Marie Gillespie
Defendant: Ardaman & Associates, Inc.
Case Number: 20-CA-006767
Date Filed: 07/12/2016
Court: Hillsborough County
Cause of Action: Negligence Allegations
Disposition of Case: Closed

2021-00227 | Fortress 2020 Landco v. Ardaman & Associates
Date Opened: 11/25/2020
Plaintiff: Fortress 2020 Landco, LLC
Defendant: Ardaman & Associates, Inc.
Case Number: 2020-CA-004459-AX
Date Filed: 11/17/2020
Court: Manatee County
Cause of Action: Mortgage Foreclosure
Disposition of Case: Open

2021-00100 | Grande Oaks at Heathrow Association, Inc. v. Ardaman & Associates, Inc.
Date Opened: 01/19/2021
Plaintiff: Grande Oaks at Heathrow Association, Inc.
Defendant: Ardaman & Associates, Inc.
Case Number: 2020-CA-003188
Date Filed: 12/31/2020
Court: Seminole County
Cause of Action: Construction Defect Action
Disposition of Case: Closed

2020-00306 | 1370 S. Ocean, LLC v. Ardaman & Associates, Inc.

Date Opened: 03/13/2019
Plaintiff: 1370 S. Ocean, LLC et al.
Defendant: Ardaman & Associates, Inc.
Case Number: 502021CA002592XXXXMB
Date Filed: 02/25/2021
Court: Palm Beach County
Cause of Action: Breach of Contract Action
Disposition of Case: Closed

2021-00009 | Concrete Services Unlimited v. Ardaman & Associates, Inc.

Date Opened: 07/20/2021
Plaintiff: Concrete Services Unlimited Inc.
Defendant: Ardaman & Associates, Inc.
Case Number: 21000460CAA
Date Filed: 07/8/2021
Court: Gadsden County
Cause of Action: Negligence Allegations
Disposition of Case: Closed

2020-00329 | Kinley (FLA), L.L.C. v. Ardaman & Associates, Inc.

Date Opened: 06/06/2019
Plaintiff: Vitas Healthcare Corporation of Florida [Kinley (FLA), L.L.C. is a Third-Party Plaintiff] Defendant: Ardaman & Associates, Inc.
Case Number: 05-2021-CA-024693
Date Filed: 12/14/2021
Court: Brevard County
Cause of Action: Defective Design and Construction Allegations
Disposition of Case: Closed

2022-00207 | Kim Thompson/Horse Creek Park Project v. Ardaman & Associates, Inc.

Date Opened: 05/20/2022
Plaintiff: Kim Thompson
Defendant: Ardaman & Associates, Inc.
Case Number: 05-2019-CA-044372
Date Filed: 03/31/2022
Court: Brevard County
Cause of Action: Negligence Alleged
Disposition of Case: Open

L00508 | Prieto Brother's Corporation/Medly, Florida Warehouse v. Ardaman & Associates, Inc.

Date Opened: 09/28/2022
Plaintiff: Prieto Brother's Corporation Defendant: Ardaman & Associates, Inc.
Case Number: 2022-017772-CA-01
Date Filed: 09/14/2022
Court: Miami-Dade County
Cause of Action: Breach of Contract Alleged
Disposition of Case: Open

FEBRUARY 28, 2023

TETRA TECH

City of Hollywood
Department of Public Utilities
c/o City Clerk
2600 Hollywood Blvd
Hollywood, FL 33022-9045

SUBJECT: RFQ-042-23-JJ - LIQUIDATED DAMAGES AND TERMINATION BY DEFAULT

To our knowledge, Tetra Tech, Inc. has not paid liquidated damages and/or been terminated for default.

Sincerely,
Tetra Tech

Ken Caban, PE, LEED AP
Vice President

4601 Sheridan Street, Suite 212, Hollywood, FL33021
TEL: 954.364.1752 | www.tetratech.com

TAB J

REQUIRED FORMS

- **Form 1 -** Vendor Questionnaire
- **Form 2 -** Vendor Reference Forms (3)
- **Form 3 -** Sworn Statement Public Entity Crimes

8. VENDOR QUESTIONNAIRE

8.1. Submissions Requirements*

Please Upload your COMPLETE response, including any and all required forms listed in the solicitation and the corresponding attachments.

The following information and documents are required to be provided with Consultants' responses to this RFQ. Failure to do so may deem your PROPOSAL non-responsive.

The City deems certain documentation and information important in the determination of responsiveness and for the purpose of evaluating responses. Responses should seek to avoid information in excess of that requested, must be concise, and must specifically address the issues of this RFQ.

PROPOSALS must have a front cover that contains the following information;

Company Name

Project Number and Title of the Request for Proposals

Due Date of PROPOSAL

All firms responding to this RFQ, in order to be considered, must demonstrate and submit as part of the RFQ submittal the following requirements stated within this section. The responses shall be organized and divided into the sections indicated herein. These are not inclusive of all the information that may be necessary to properly evaluate the response and meet the requirements of the Scope of Services and/or specifications. Additional documents and information should be provided as deemed appropriate by the Consultant in response to specific requirements stated herein or through the RFQ.

Submittal sections should be organized using the format of the following section.

Tab A: Table of Contents Tab

B: Executive Summary Tab

C: Firm Qualifications and Experience Tab

D: Organizational Profile and Project Team Qualifications

Tab E: Approach to Scope of Work Tab

G: References – Vendor Reference Form Tab

H: Sub Consultant Information

Tab J: Legal Proceedings and Performance

*Response required

8.2. Vendor Reference Form* (attached)

Please download the below document and upload three (3) or more completed forms.

- Vendor_Reference_Form_(1).pdf

*Response required

8.3. Hold Harmless and Indemnity Clause *

I, an authorized representative, the contractor, shall indemnify, defend and hold harmless the City of Hollywood, its elected and appointed officials, employees and agents for any and all suits, actions, legal or administrative proceedings, claims, damage, liabilities, interest, attorney' s fees, costs of any kind whether arising prior to the start of activities or following the completion or acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the contractor, or anyone acting under its direction, control, or on its behalf in connection with or incident to its performance of the contract.

☒ Please confirm

*Response required

8.4. Non-Collusion Statement*

I, being first duly sworn, depose that:

A. He/she is an authorized representative of the Company, the Proposer that has submitted the attached Proposal.

B. He/she has been fully informed regarding the preparation and contents of the attached Proposal and of all pertinent circumstances regarding such Proposal;

C. Such Proposal is genuine and is not a collusion or sham Proposal;

D. Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Proposer, firm or person to submit a collusive or sham Proposal in connection with the contractor for which the attached Proposal has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm or person to fix the price or prices, profit or cost element of the Proposal price or the Proposal price of any other Proposer, or to secure an advantage against the City of Hollywood or any person interested in the proposed Contract; and

E. The price or prices quoted in the attached Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

☒ Please confirm

*Response required

8.5. Sworn Statement Public Entity Crimes*

Please download the below documents, complete, and upload.

- Sworn_Statement_Public_Enti...

*Response required

8.6. Certifications Regarding Debarment, Suspension and Other Responsibility Matters*

The applicant certifies that it and its principals:

Are not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of Federal benefits by a State or Federal court, or voluntarily excluded from covered transactions by any Federal department or agency;

Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction, violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

Have not within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause or default.

☒ Please confirm

*Response required

8.7. Drug-Free Workplace Program*

A. IDENTICAL TIE PROPOSALS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie proposals will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employee that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program (if such is available in the employee's community) by, any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of these requirements.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

☒ Please confirm

*Response required

8.8. Solicitation, Giving, and Acceptance of Gifts Policy*

Florida Statute 112.313 prohibits the solicitation or acceptance of Gifts. "No Public officer, employee of an agency, local government attorney, or candidate for nomination or election shall solicit or accept anything of value to the recipient, including a gift, loan, reward, promise of future employment, favor, or service, based upon any understanding that the vote, official action, or judgment of the public officer, employee, local government attorney, or candidate would be influenced thereby." The term "public officer" includes "any person elected or appointed to hold office in any agency, including any person serving on an advisory body."

The City of Hollywood/Hollywood CRA policy prohibits all public officers, elected or appointed, all employees, and their families from accepting any gifts of any value, either directly or indirectly, from any contractor, vendor, consultant, or business with whom the City/CRA does business.

The State of Florida definition of "gifts" includes the following:

- Real property or its use,
- Tangible or intangible personal property, or its use,
- A preferential rate or terms on a debt, loan, goods, or services,

- Forgiveness of indebtedness,
- Transportation, lodging, or parking,
- Food or beverage,
- Membership dues,
- Entrance fees, admission fees, or tickets to events, performances, or facilities,
- Plants, flowers or floral arrangements
- Services provided by persons pursuant to a professional license or certificate.
- Other personal services for which a fee is normally charged by the person providing the services.
- Any other similar service or thing having an attributable value not already provided for in this section.

Any contractor, vendor, consultant, or business found to have given a gift to a public officer or employee, or his/her family, will be subject to dismissal or revocation of contract.

As the person authorized to sign the statement, I certify that this firm will comply fully with this policy.

☒ Please confirm

*Response required

8.9. W-9 (Request for Taxpayer Identification)*

Please download the below documents, complete, and upload.

- W-9.pdf (attached)

*Response required

8.10. Certificate of Insurance*

See requirements in the #SPECIAL TERMS AND CONDITIONS section. (attached)

*Response required

8.11. Proof of Sunbiz Registration*

Enter company FEIN to be verified in Sunbiz (attached)

*Response required

8.12. ACKNOWLEDGMENT AND SIGNATURE PAGE (attached)

*8.12.1. If Corporation - Date Incorporated/Organized:**

*Response required

*8.12.2. State Incorporated/Organized:**

*Response required

*8.12.3. Remittance Address**

*Response required

*8.12.4. Bidder/Proposer's Authorized Representative's Typed Full Name**

*Response required

*8.12.5. IT IS HEREBY CERTIFIED AND AFFIRMED THAT THE BIDDER/PROPOSER CERTIFIES ACCEPTANCE OF THE TERMS, CONDITIONS, SPECIFICATIONS, ATTACHMENTS AND ANY ADDENDA. THE BIDDER/PROPOSER SHALL ACCEPT ANY AWARDS MADE AS A RESULT OF THIS SOLICITATION. BIDDER/PROPOSER FURTHER AGREES THAT PRICES QUOTED WILL REMAIN FIXED FOR THE PERIOD OF TIME STATED IN THE SOLICITATION.**

☒ Please confirm

*Response required

*8.12.6. THE EXECUTION OF THIS FORM CONSTITUTES THE UNEQUIVOCAL OFFER OF BIDDER/PROPOSER TO BE BOUND BY THE TERMS OF ITS PROPOSAL. FAILURE TO SIGN THIS SOLICITATION WHERE INDICATED BY AN AUTHORIZED REPRESENTATIVE SHALL RENDER THE BID/PROPOSAL NON-RESPONSIVE. THE CITY MAY, HOWEVER, IN ITS SOLE DISCRETION, ACCEPT ANY BID/PROPOSAL THAT INCLUDES AN EXECUTED DOCUMENT WHICH UNEQUIVOCALLY BINDS THE BIDDER/PROPOSER TO THE TERMS OF ITS OFFER.**

☒ Please confirm

*Response required

*8.12.7. Please upload Proposal **

*Response required

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

► Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Tetra Tech, Inc.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☑ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ►

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
17885 Von Karman Suite 500

Requester's name and address (optional)

6 City, state, and ZIP code
Irvine CA 92614

7 List account number(s) here (optional)

Remit to address: Tetra Tech; PO Box 911967; Denver CO 80291-1967

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			–			–				

or

Employer identification number
9	5	–	4	1	4	8	5	1	4

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person** ► Juanita Reyes **Date** ► 1/11/2022

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ **Go to *www.irs.gov/FormW9* for instructions and the latest information.**

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

NV5, Inc.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☑ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

200 S Park Road, Suite 350

6 City, state, and ZIP code

Hollywood, FL 33021

Requester's name and address (optional)

Lockbox Address:
P.O. Box 74008680
Chicago, IL 60674-8680

7 List account number(s) here (optional)

14486 Commerce Way Miami Lakes, FL 33016

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

2	7	–	1	9	7	9	4	8	6

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person ▶** _____ **Date ▶** 01/25/23

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

► Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Hillers Electrical Engineering, Inc.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☒ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner

☐ Other (see instructions) ►

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
23257 State Road 7, Suite 100

Requester's name and address (optional)

6 City, state, and ZIP code
Boca Raton, FL 33428

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			-			-				

or

Employer identification number
6	5	-	0	4	6	9	3	5	6

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person** ► P. Hillers | **Date** ► 2/9/2023

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
STEPHEN H. GIBBS LAND SURVEYORS, INC.

2 Business name/disregarded entity name, if different from above
GIBBS LAND SURVEYORS

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☑ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
2131 HOLLYWOOD BLVD., SUITE 204

Requester's name and address (optional)

6 City, state, and ZIP code
HOLLYWOOD, FL. 33020

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			–			–				

or

Employer identification number
6	5	–	0	0	4	7	9	5	5

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ _____ Date ▶ 11/21/2022

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
09/27/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Aon Risk Insurance Services West, Inc.
Los Angeles CA Office
707 Wilshire Boulevard
Suite 2600
Los Angeles CA 90017-0460 USA

CONTACT NAME:
PHONE (A/C. No. Ext): (866) 283-7122 **FAX (A/C. No.):** (800) 363-0105
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	Zurich American Ins Co	16535
INSURER B:	American International Group UK Ltd	AA1120187
INSURER C:	Allied World Surplus Lines Insurance Co	24319
INSURER D:		
INSURER E:		
INSURER F:		

INSURED
Tetra Tech, Inc.
450 North Park Road, Suite 502
Hollywood FL 33021 USA

COVERAGES **CERTIFICATE NUMBER:** 570095596687 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE [X] OCCUR X X,C,U Coverage GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [X] LOC OTHER:			GL0181740604	10/01/2022	10/01/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $1,000,000 $10,000 $2,000,000 $4,000,000 $4,000,000
A	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			BAP 1857085 04	10/01/2022	10/01/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$5,000,000
B	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $100,000			62785232	10/01/2022	10/01/2023	EACH OCCURRENCE AGGREGATE	$10,000,000 $10,000,000
A A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC254061604 WC185708704	10/01/2022 10/01/2022	10/01/2023 10/01/2023	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	$1,000,000 $1,000,000 $1,000,000
C	Env Contr Prof			03120276 Prof/Poll Liab SIR applies per policy terms & conditions	10/01/2022	10/01/2023	Each Claim Aggregate	$5,000,000 $5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Stop Gap Coverage for the following states: OH, ND, WA, WY.

CERTIFICATE HOLDER

Tetra Tech, Inc.
450 North Park Road, Suite 502
Hollywood FL 33021 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Insurance Services West, Inc.

Holder Identifier :

Certificate No : 570095596687

Detail by Entity Name

Foreign Profit Corporation
TETRA TECH, INC.

Filing Information

Document Number	P19034
FEI/EIN Number	95-4148514
Date Filed	04/28/1988
State	DE
Status	ACTIVE
Last Event	CORPORATE MERGER
Event Date Filed	12/30/2003
Event Effective Date	01/02/2004

Principal Address

3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Changed: 07/14/2003

Mailing Address

3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Changed: 07/14/2003

Registered Agent Name & Address

CT CORPORATION SYSTEM
1200 S. PINE ISLAND ROAD
PLANTATION, FL 33324

Name Changed: 03/18/1992

Address Changed: 03/18/1992

Officer/Director Detail

Name & Address

Title Senior Vice President, Chief Engineer

BROWNLIE, WILLIAM R
3475 E. Foothill Blvd.
Pasadena, CA 91107

Title Senior Vice President, Corporate Administration

LEMMON, RICHARD A
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Executive Vice President, CFO and Assistant Secretary

BURDICK, STEVEN M
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Chairman of the Board, CEO

Batrack, Dan L.
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title EVP, Chief Sustainability and Leadership Development Officer

Shoemaker, Leslie L
3475 E. Foothill Blvd.
Pasadena, CA 91107

Title Senior Vice President, Corporate Controller, Chief Accounting Officer

Carter, Brian N
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Director

Lewis, J. Christopher
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Director

Thompson, J. Kenneth
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Director

Ritrievi, Kimberly E
3475 E FOOTHILL BLVD
PASADENA, CA 91107

Title Director

Volpi, Kirsten M
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title SVP

BIAGI , JAMES Q, Jr.
4967 U.S. Hwy 42
Ste. 210
Louisville, KY 40222

Title Director

Maguire, Joanne M.
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Senior Vice President and President of the Client Account Management Division and Commercial/International Services Group

Amidon, Derek G
4750 W. 2100 South
Ste. 400
Salt Lake City, UT 84120

Title Senior Vice President, President of the Government Services Group and President of the United States Government Division

Argus, Roger R.
1230 Columbia Street
Suite 1000
San Diego, CA 92101

Title Secretary

Hopson, Preston
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title VPFS

JENKINS, LAWRENCE E
201 E. PINE ST.
ORLANDO, FL 32801

Title Director

Birkenbeuel, Gary R.
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title President

Hudkins, Jill
3475 E. FOOTHILL BLVD
PASADENA, CA 91107

Title Treasurer

Wu, Jim
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Director

GANDHI, PRASHANT
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Director

OBIAYA, CHRISTIANA
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Annual Reports

Report Year	Filed Date
2021	01/04/2021
2022	01/03/2022
2023	01/12/2023

Document Images

01/12/2023 -- ANNUAL REPORT	View image in PDF format
01/03/2022 -- ANNUAL REPORT	View image in PDF format
01/04/2021 -- ANNUAL REPORT	View image in PDF format
01/02/2020 -- ANNUAL REPORT	View image in PDF format
01/02/2019 -- ANNUAL REPORT	View image in PDF format
05/18/2018 -- AMENDED ANNUAL REPORT	View image in PDF format
01/03/2018 -- ANNUAL REPORT	View image in PDF format
11/21/2017 -- AMENDED ANNUAL REPORT	View image in PDF format
01/05/2017 -- ANNUAL REPORT	View image in PDF format
01/12/2016 -- ANNUAL REPORT	View image in PDF format
01/07/2015 -- ANNUAL REPORT	View image in PDF format
04/24/2014 -- AMENDED ANNUAL REPORT	View image in PDF format
01/10/2014 -- ANNUAL REPORT	View image in PDF format

01/03/2013 -- ANNUAL REPORT	View image in PDF format
02/09/2012 -- ANNUAL REPORT	View image in PDF format
01/18/2012 -- ANNUAL REPORT	View image in PDF format
02/15/2011 -- ANNUAL REPORT	View image in PDF format
01/29/2011 -- ANNUAL REPORT	View image in PDF format
01/28/2010 -- ANNUAL REPORT	View image in PDF format
01/14/2009 -- ANNUAL REPORT	View image in PDF format
02/15/2008 -- ANNUAL REPORT	View image in PDF format
03/12/2007 -- ANNUAL REPORT	View image in PDF format
02/08/2006 -- ANNUAL REPORT	View image in PDF format
02/23/2005 -- ANNUAL REPORT	View image in PDF format
01/31/2005 -- ANNUAL REPORT	View image in PDF format
05/13/2004 -- ANNUAL REPORT	View image in PDF format
05/05/2004 -- ANNUAL REPORT	View image in PDF format
03/01/2004 -- ANNUAL REPORT	View image in PDF format
12/30/2003 -- Merger	View image in PDF format
07/14/2003 -- ANNUAL REPORT	View image in PDF format
03/03/2002 -- ANNUAL REPORT	View image in PDF format
05/15/2001 -- ANNUAL REPORT	View image in PDF format
05/04/2000 -- ANNUAL REPORT	View image in PDF format
04/07/1999 -- ANNUAL REPORT	View image in PDF format
07/29/1998 -- ANNUAL REPORT	View image in PDF format
04/09/1997 -- ANNUAL REPORT	View image in PDF format
02/09/1996 -- ANNUAL REPORT	View image in PDF format
04/14/1995 -- ANNUAL REPORT	View image in PDF format

STATEMENT OF QUALIFICATION CERTIFICATION

Please Note: All fields below must be completed. If the field does not apply to you, please note N/A in that field.

If you are a foreign corporation, you may be required to obtain a certificate of authority from the department of state, in accordance with Florida Statute §607.1501 (visit http://www.dos.state.fl.us/).

Company: (Legal Registration) Tetra Tech, Inc.

Name/Principal/Project Manager: Ken Caban

Address: 450 N. Park Road, Suite 502

City: Hollywood State: FL Zip: 33201

Telephone No. 305-849-3404 ~~954.364.1752~~ **FEIN/Tax ID No.** 95-4148514 Email: ken.caban@tetratech.com

Does your firm qualify for MBE or WBE status: MBE _____ WBE _____ N/A

ADDENDUM ACKNOWLEDGEMENT - Proposer acknowledges that the following addenda have been received and are included in the proposal:

Addendum No.	Date Issued	Addendum No.	Date Issued
1	01/18/2023	3	01/19/2023
2	01/19/2023	4	01/24/2023
		5	02/21/2023

VARIANCES: State any variations to specifications, terms and conditions in the space provided below or reference in the space provided below all variances contained on other pages of bid, attachments or bid pages. No variations or exceptions by the Proposer will be deemed to be part of the bid submitted unless such variation or exception is listed and contained within the bid documents and referenced in the space provided below. If no statement is contained in the below space, it is hereby implied that your bid/proposal complies with the full scope of this solicitation. If this section does not apply to your bid/proposal, simply mark N/A. **If submitting your response electronically through OPENGOV you must click the exception link if any variation or exception is taken to the specifications, terms and conditions.**

The below signatory hereby agrees to furnish the following article(s) or services at the price(s) and terms stated subject to all instructions, conditions, specifications addenda, legal advertisement, and conditions contained in the bid/proposal. I have read all attachments including the specifications and fully understand what is required. By submitting this signed bid/proposal, I will accept a contract if approved by the City and such acceptance covers all terms, conditions, and specifications of this bid/proposal. The below signatory also hereby agrees, by virtue of submitting or attempting to submit a response, hereby agrees that in no event shall the City's liability for respondent's indirect, incidental, consequential, special or exemplary damages, expenses, or lost profits arising out of this competitive solicitation process, including but not limited to public advertisement, bid conferences, site visits, evaluations, oral presentations, or award proceedings exceed the amount of five hundred dollars ($500.00). This limitation shall not apply to claims arising under any provision of indemnification or the City's protest ordinance contained in this competitive solicitation.

Submitted by:

Ken Caban
Name (printed)

Signature

02/22/2023, Vice President
Date: Title

SWORN STATEMENT PURSUANT TO SECTION 287.133 (3) (a) FLORIDA STATUTES ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS

1. This form statement is submitted to the City of Hollywood by Ken Caban, Vice President for Tetra Tech, Inc.
(Print individual's name and title) (Print name of entity submitting sworn statement) whose business address is 450 N. Park Road, Suite 502, Hollywood, FL 33201
and if applicable its Federal Employer Identification Number (FEIN) is 95-4148514. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement.

---

2. I understand that "public entity crime," as defined in paragraph 287.133(1)(g), Florida Statues, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misinterpretation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in an federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that "Affiliate," as defined in paragraph 287.133(1)(a), Florida Statutes, means:

    1. A predecessor or successor of a person convicted of a public entity crime, or
    2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5 I understand that "person," as defined in Paragraph 287.133(1)(e), Florida Statues, means any natural person or any entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies

to bid on contracts let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies.)

__X__ Neither the entity submitting sworn statement, nor any of its officers, director, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime, but the Final Order entered by the Hearing Officer in a subsequent proceeding before a Hearing Officer of the State of the State of Florida,

Division of Administrative Hearings, determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (attach a copy of the Final Order).

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THAT PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017 FLORIDA STATUTES FOR A CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
(Signature)

Sworn to and subscribed before me this 24th day of February, 2023.

Personally known Kenneth L. Caban

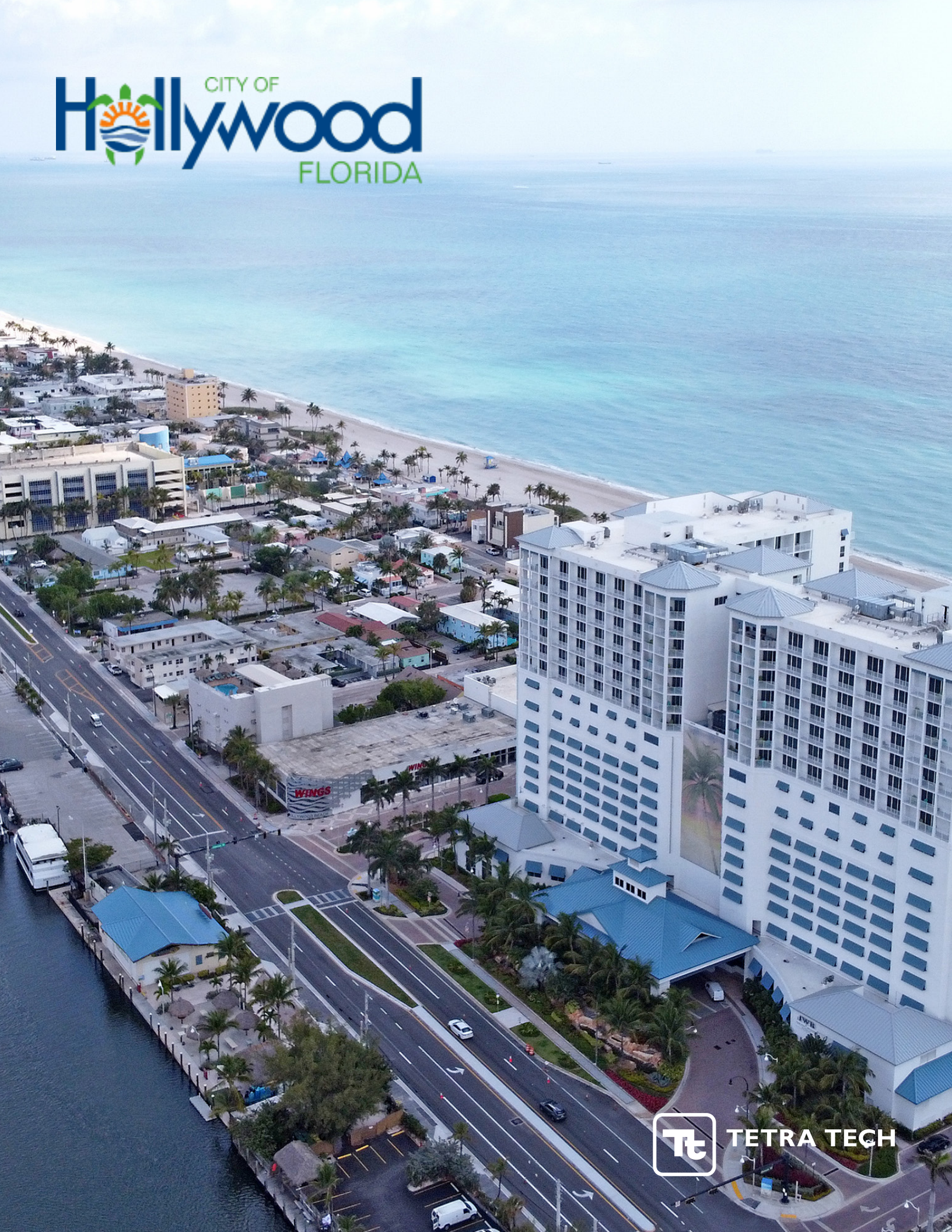
Or produced identification _____ Notary Public-State of Florida

_____ my commission expires April 26, 2026
(Type of identification)

_____
(Printed, typed or stamped commissioned name of notary public)

DANA LUCIA SEVILLA
MY COMMISSION # HH 251596
EXPIRES: April 26, 2026

CITY OF Hollywood FLORIDA



TETRA TECH