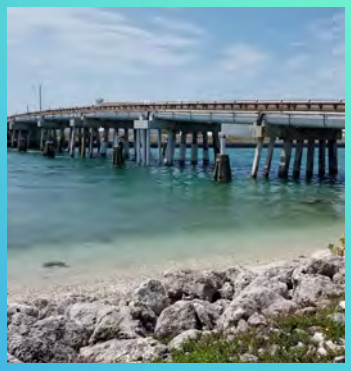
REQUEST FOR QUALIFICATION

# Trenchless Installation of Utilities Across Fleming Channel



City Of Key West

RFQ #22-003

May 11, 2022

Jacobs

Challenging today.
Reinventing tomorrow.

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# 1. Cover Letter

Jacobs

3150 SW 38th Avenue
Suite 700
Miami, FL 33146
T (205) 201-3765
www.jacobs.com

May 11, 2022

City Clerk
City of Key West
1300 White Street
Key West, Florida 33040

**Subject: RFQ #22-003, Trenchless Installation of Utilities Across Fleming Channel**

Dear Members of the Selection Committee:

The Jacobs team is excited to continue our partnership with the **City of Key West** on this important project. **Having worked closely with City staff on the planning and preliminary design of the trenchless installation of utilities across this challenging site,** we are uniquely and keenly familiar with the entire backdrop of opportunities and challenges inherent with relocating critical utilities across Fleming Channel. Unlike any other consultant or contractor team, our team has absolutely no learning curve for moving this project forward. Because of this, **we are confident that we can deliver a successful project using the traditional design, bid, build delivery approach in the same timeframe, if not faster, than any design-build team can.** Not only does this **protect the project's funding, but also it enables the City to move forward immediately** using a tried-and-true contract vehicle and **delivery model that protects the City from additional risks.** What's more, selecting the Jacobs team provides the City with a proven delivery partner and demonstrated commitment to serving your best interests for more than 35 years.

As **Florida's leading design-build water firm, the nation's No. 1 Trenchless Engineering Firm (*Trenchless Technology*, 2022) and No. 1 Design Firm (*Engineering News-Record*, 2022),** we have brought our best technical as well as traditional and alternative delivery experts to bear on this project to develop a solution that will fully achieve the City's goals. **Should the City decide to pursue design-build delivery for this project, the Jacobs team stands ready to serve as your Owner's Representative under our Master Services Agreement** to ensure design-build procurement and contract documents that best protect the City and support successful project execution.

**The Jacobs team understands the importance of moving this project forward quickly, and we have assembled our best talent and team that has a long history of working together to ensure project success.** We are humbled by our decades of partnership with the City to improve critical infrastructure and facilities across Key West, and look forward to the prospect of serving you on this project. Please do not hesitate to contact our Project Manager **Mr. Mike Stickley, PE,** at (205) 201-3765 or mike.stickley@jacobs.com or our Manager of Projects, **Ms. Sirpa H. Hall, PE, ENV, SP,** at (954) 299-8577 or sirpa.hall@jacobs.com if you have any questions or require additional information.

Sincerely,

Jacobs Engineering Group Inc.

Mike Stickley, PE
Project Manager

Sirpa H. Hall, PE, ENV, SP
Manager of Projects

# 2. Information Page

# 2. Information Page

## Trenchless Installation of Utilities Across Fleming Channel

## RFQ #22-003

### Consulting Firm Information

Jacobs

**Jacobs Engineering Group Inc.**
Mike Stickley, PE – *Project Manager*
(Interim Location)
One Perimeter Park South, Suite 100N
Room 136
Birmingham, AL 35243
mike.stickley@jacobs.com
PH: (205) 201-3765

**Jacobs Engineering Group Inc.**
Sirpa H. Hall, PE, ENV SP – *Manager of Projects*
550 W. Cypress Creek Road
Suite 400
Fort Lauderdale, FL 33309
sirpa.hall@jacobs.com
PH: (954) 299-8577

www.jacobs.com

# 3. Organization Chart

# 3. Organization Chart

## Jacobs' Team Structure.

We have carefully selected our key team and supporting staff based on their qualifications and experience in delivering projects of similar size, scope, and geography, as well as their attention to detail and understanding of performing field work in the Florida Keys. Each key team member has in-depth understanding of this project, and many have worked on the prior phase of this project. Their knowledge will allow us to immediately start work on the project without any delay and the extended learning curve other teams would face.

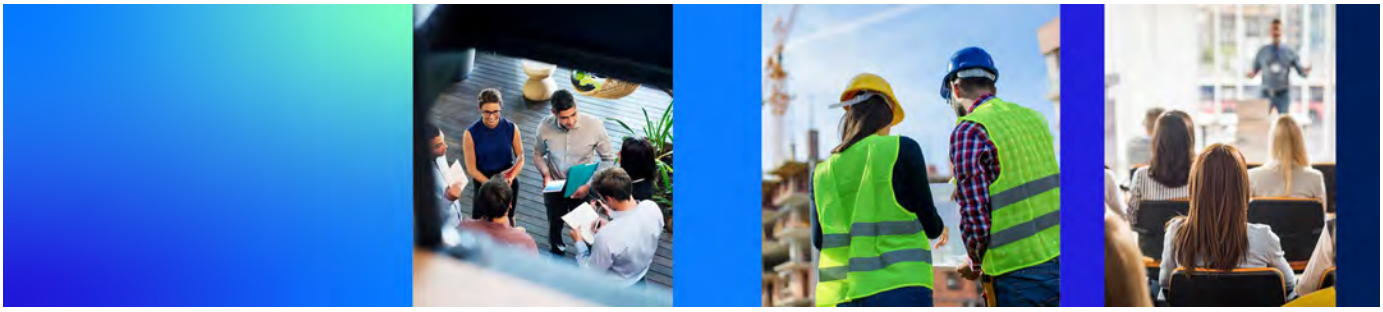
Our team will provide seamless integration and collaboration between the City's staff, reduce complicated processes, communication and delays responding to critical matters. Our organizational chart demonstrates an uncomplicated management structure and an easily identifiable chain of command. We provide a single point of contact with full accountability, and immediate responsiveness, to ensure a streamlined project approach to meet your needs.

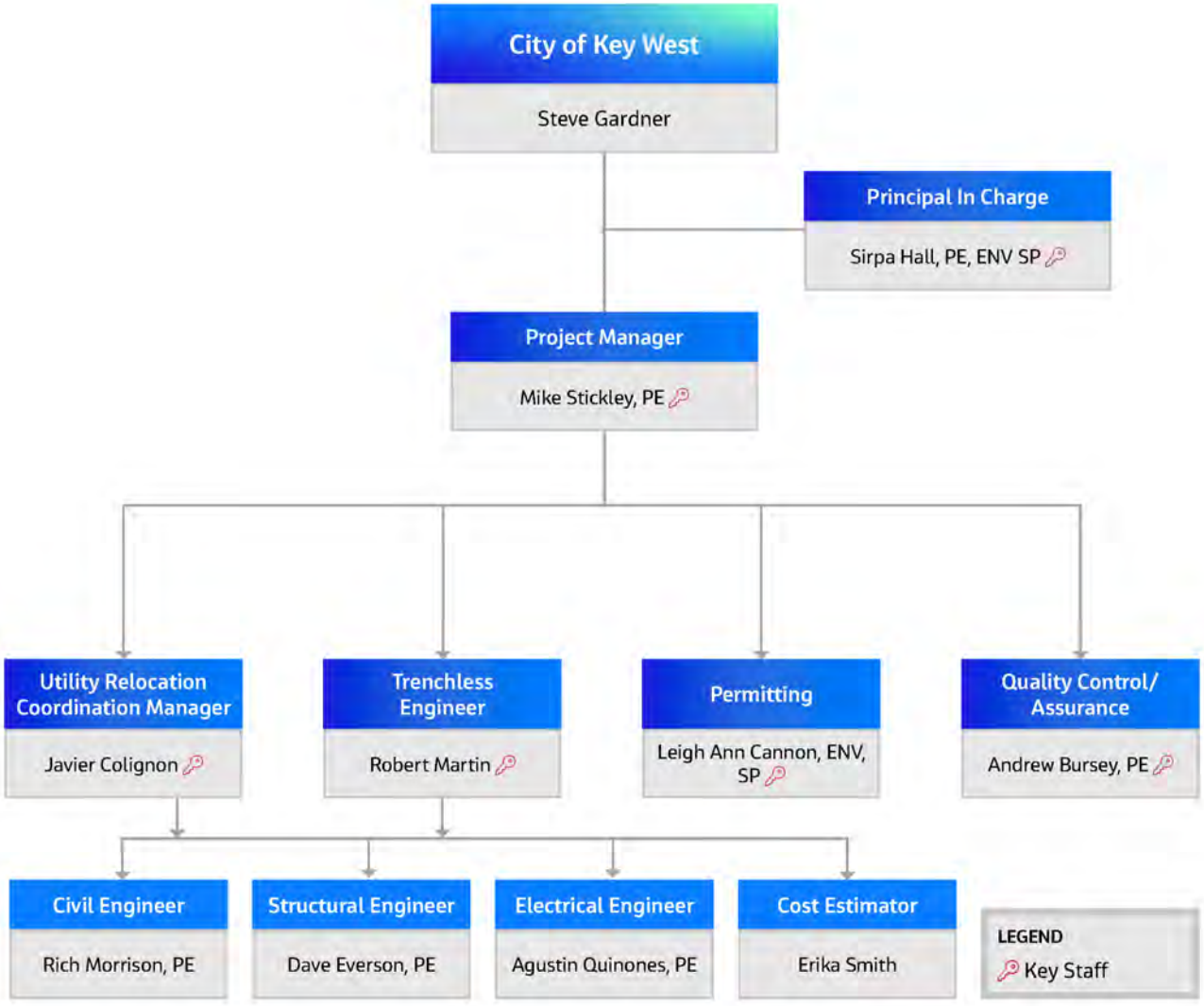
We have assembled a highly qualified team to deliver to your project. Our proposed team includes our **Project Manager, Mike Stickley, PE,** who excels in effective leadership, has an in-depth understanding of your investment in this project and will work collaboratively with you to confirm that your priorities and goals are being met. **Principal in Charge, Sirpa Hall, PE, ENV SP,** will provide project delivery oversight to ensure the team is meeting your expectations, **Utility Relocation Coordination Manager, Javier Colignon** will continue to provide detailed knowledge of your utilities as he has provided in the previous phase, **Trenchless Engineer, Robert Martin** will continue to provide overall design as he did during the feasibility study phase of this project, **Permitting Lead, Leigh Ann Cannon, ENV SP** will continue the permitting effort she has already significantly advanced to make sure the permitting is completed for the project without issues, **Quality Control/Assurance, Andrew Bursey, PE** will provide continuous review of each design deliverable step in the process of the workflow throughout this contract.

The City can be assured of a collaborative, timely, and a cost-conscious approach to your trenchless utilities program. We have found the key to successful contracts is a proactive management team to handle planned activities, which include flexibility and the capacity to address any unexpected events the City encounters.

We are excited to offer you this team for this contract. **Our organizational chart illustrates how our team configuration and collaborative set up meet your requirements to perform the scope of work outlined in the RFQ.**

Our organizational chart demonstrates an uncomplicated management structure and an easily identifiable chain of command. We provide a single point of contact with full accountability, and immediate responsiveness, to ensure a streamlined project approach to meet your needs.




City of Key West
Steve Gardner
Principal In Charge
Sirpa Hall, PE, ENV SP
Project Manager
Mike Stickley, PE
Utility Relocation Coordination Manager
Javier Colignon
Trenchless Engineer
Robert Martin
Permitting
Leigh Ann Cannon, ENV, SP
Quality Control/ Assurance
Andrew Bursey, PE
Civil Engineer
Rich Morrison, PE
Structural Engineer
Dave Everson, PE
Electrical Engineer
Agustin Quinones, PE
Cost Estimator
Erika Smith
LEGEND
Key Staff

# 4. Company Information

# 4. Company Information

| 70+ Years of Providing Innovative Solutions | 60+ Years of Service in Florida | 40+ Years of Trenchless Services | 35+ Years Working with the City of Key West |
|---|---|---|---|

| | |
|---|---|
| **Business Entity:** | Jacobs Engineering Group Inc. |
| **Business Structure:** | Corporation, registered as a legal entity in the State of Florida.<br>Federal Tax ID: 95-4081636<br>publicly traded (NYSE: J) |
| **Background:** | The business was founded by Dr. Joseph J. Jacobs in 1947 and was originally incorporated in the State of California in 1974. It reincorporated in Delaware using the same name in 1987 and changed name from JEG Acquisition Company to Jacobs Engineering Group Inc. Corporate office location, 1999 Bryan Street, Suite 1200, Dallas, TX 75201. CH2M became part of Jacobs in 2017. |
| **Project Manager:** | Mike Stickley, PE<br>Phone: (205) 201-3765, Email: mike.stickley@jacobs.com |
| **Name and Title of Authorized Representative:** | Sirpa H. Hall, PE, ENV SP, Manager of Projects<br>Phone: (954) 299-8577, Email: sirpa.hall@jacobs.com |
| **Website:** | www.jacobs.com |
| **Size of the Firm:** | 55,000+ employees globally, 17,000 employees in the US,<br>1,400+ employees in Florida |

## Jacobs is One of the World's Largest Providers of Professional and Technical Services.

Jacobs is one of the world's largest and most diverse providers of a full spectrum of engineering, design, program management, construction management, environmental, operations and construction services for government, business, industrial, commercial, and infrastructure sectors worldwide.

We bring the City of Key West over four decades of global experience in tunneling and conveyance design. With nearly **900 tunneling and ground engineers worldwide**, our team comprises one of the largest global providers of tunnel and trenchless engineering, geotechnical engineering, and geosciences and engineering geology, bringing you the latest and most innovative approaches to tunneling and trenchless design and construction.

Jacobs is a leader in trenchless engineering, having been ranked **#1 in the US-market by *Trenchless Technology Magazine* for 10 of the last 12 years**. We bring full in-house services, including planning, design, construction management, operations, resident engineering, program management and DDB services. The challenges you are facing, we have successfully solved for clients in the US and globally, including ground stability, environmental, resiliency, and geotechnical.

Jacobs completed the feasibility assessment for this project. No other firm brings this knowledge to the table; through this experience, we know the scope of work, permitting requirements, and the challenges of working in this highly sensitive area and will work with you to develop methods and approaches that are timely, cost-efficient, and meet regulatory requirements, setting your project up for long-term success.

## Jacobs Trenchless Engineering.

***Trenchless Technology*'s** list is developed by comparing firms based on their trenchless billings in the North American market, as well as numbers of trenchless professionals, completed trenchless projects (or subsurface construction projects requiring minimal or no continuous trenches) and a breakdown of what trenchless components made up the projects reported.


We reported more than **$253 million in trenchless revenue** – marking only the second time any company exceeded $200 million in *Trenchless Technology*'s ranking. This revenue includes more than **1,500 projects during the last 5 years**. We have experience tunneling in soft ground, rock, and mixed ground, over a range of tunnel diameters and curve radii, deploying an array of trenchless technologies including micro-tunneling and preparing geotechnical baseline reports (GBRs) at the forefront of industry standards.

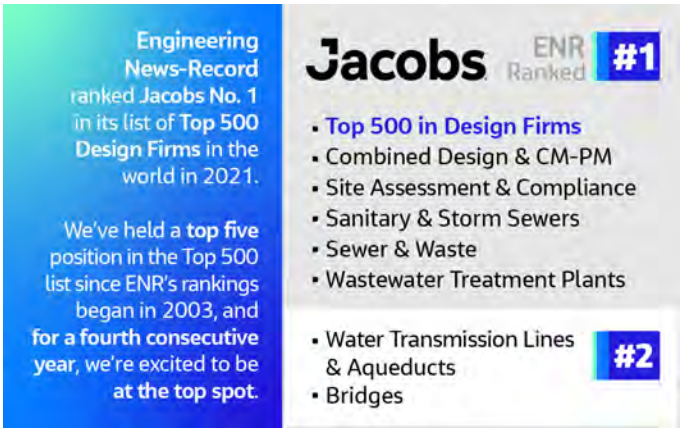
In addition to our trenchless services and utility coordination, we provide all required state and federal regulatory requirements to get the job done. We are fully committed to providing all levels of support needed for the relocation of utilities currently installed on the bridge. Jacobs' proposed Project Manager, **Mike Stickley, PE**, brings the City a collaborative, talented team with relevant specialization working in the Florida Keys to achieve a successful outcome.

## Geotechnical Engineering.

The management of ground risk is a critical component of many of Jacobs projects, and our in-house capabilities in this area are second-to-none. Our geotechnical engineering team provided input as part of the preliminary design and will continue as the project advances into final design. They are fully qualified and experienced with design-build and asset management.

## Jacobs Brings Recognized Expertise to the City of Key West.

In addition to our expertise and industry leadership on trenchless and conveyance projects, Jacobs has enjoyed regular recognition from industry publications and organizations. The *Engineering News-Record* has honored **Jacobs as #1** in its list of Top 500 Design Firms for the fourth consecutive year. This means that our work and specialization outpace our competition. You will receive the benefit of our expertise and proven knowledge base that will provide an innovative vision for your project. In addition, Jacobs has been recognized by the American Society of Civil Engineers (ASCE) as one of the best-managed consulting engineering firms in the country, and we have been ranked on **Fortune's 2021 World's Most Admired Companies List** and **Forbes Best Employers for Diversity 2020.** As our company has grown, so has our reputation for stability, trust, and management, with full in-house capabilities to meet each project's need.




Our philosophy of *boundarylessness* is not limited by internal organizational boundaries, by resource-type or by technical capabilities. In every case, we do whatever it takes to achieve the best solution for our client. Jacobs' extensive network of offices enables us to customize services to meet client needs by drawing on our resources and nationally recognized specialists. Our network technology is sophisticated and state-of-the-art. **We have perfected the art of successful remote team collaboration, via Microsoft Teams and Skype, giving the City of Key West immediate access to our key team.** The extended Jacobs team includes approximately **460 in South Florida, and 4,000 staff in Florida.** We offer capabilities in all disciplines required by the City; our capabilities and bench strength will provide expertise in any technical discipline throughout the duration of your project.

# 5. Methodology and Approach

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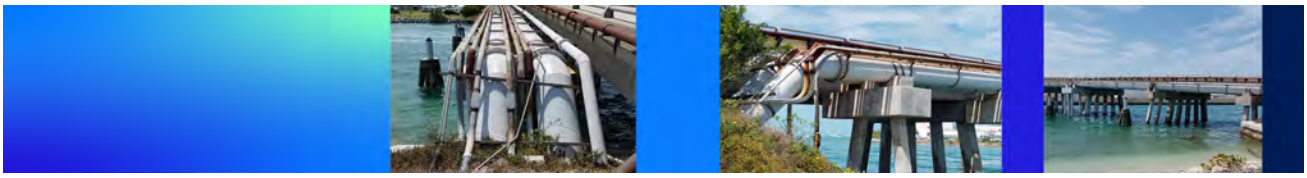


## 5.1 Project Understanding and Background.

**Jacobs completed the Feasibility Study and Evaluation for the Trenchless Installation of the Existing Utilities Across the Fleming Channel.** Robert Martin, our Trenchless Engineer, has intimate knowledge of the project and will be able to pick up the design quickly, allowing us to advance the design to meet the tight schedule. **Robert has a thorough understanding of the project challenges and opportunities.** We understand the geology and its impacts on tunneling, the key issues and challenges associated with the utility relocation and understand it will be critical in the initial stages of design to gain the input and buy in from the major stakeholders. These stakeholders include the City of Key West, the US Navy, US Coast Guard, Keys Energy, and the Florida Keys Aqueduct Authority.

**Our history and background will allow our team to complete this project more efficiently than any other firm ensuring that the City's condensed design and construction schedule is achieved for the relocation aerial utilities from the Fleming Key bridge.** Jacobs has prepared the permitting documents and has advanced the trenchless design to a level where only we understand the numerous challenges this project faces. This institutional knowledge along with the qualifications of our team put us in a unique position and sets us apart from any other design firm, to complete the design in four (4) months, allowing for a full year for construction required to meet the conditions the grant requirements. Maintaining this year for construction is critical to allow this work to be scheduled by the trenchless contractors and to afford time to obtain materials. Due to current and projected market conditions steel casing, pipe and other required components necessary to complete this relocation project commonly take over six (6) months from order to delivery so early identification of required materials and prepurchase could be necessary to ensure success.

The major work items required for this project includes the design and construction of two (2) secant pile shafts that will be used for a launching and receiving pit to install a 72-inch steel casing utilizing a microtunnel boring machine (MTBM). **Additional design and construction elements include relocation of existing utilities installed along the bridge that run between Trumbo Point and Fleming Key into the new steel casing.** These utilities consist of a 30-inch sanitary sewer force main, a 12-inch reclaimed water line, an 8-inch domestic water line, along with four 4-inch electrical conduits. Jacobs has verified that installation of the installation of the domestic water line, reclaimed water line and the sanitary sewer force main can be permitted under Florida Administrative Code. Rule 62-555.314. This would be accomplished by either using all welded steel pipe (jointless pipe) or by placing the domestic water line and reclaimed water main in a 24-inch and 18-inch casing respectively.

Javier Colignon, our Utility Relocation Coordination Manager, will work closely with the City and **stakeholders to ensure that connection points are clearly defined in the design documents**. Since the water and wastewater pipes are both connected to upstream facilities that could be impacted by hydraulic changes in the vertical profile of the pipes, we will work closely with the City to determine what those impacts are and how to mitigate them. Additionally, we will work with the US Navy and US Coast Guard to determine the best routing for the utilities on their property to align the utilities between Fleming Key Road and the junction chamber before dropping into the shaft and crossing beneath the Fleming Key channel.

**The relocation of the utilities off the Fleming Key Bridge and into the casing below the Fleming Channel will ensure that they are protected from any potential future damage or accidental strikes.** The existing utilities along the bridge could be maintained for redundancy if desired by the City. Valving disconnects and other appurtenance would be included in the project to allow for an easy transfer between the two sets of utilities if desired.

**Jacobs has already identified the key issues and challenges that the project faces and several the major ones are graphically shown in Exhibit 5-1 on the following page.** These issues and challenges are all well understood by Jacobs and we will ensure that they are fully addressed and mitigated as the design advances with the input from all the stakeholders.

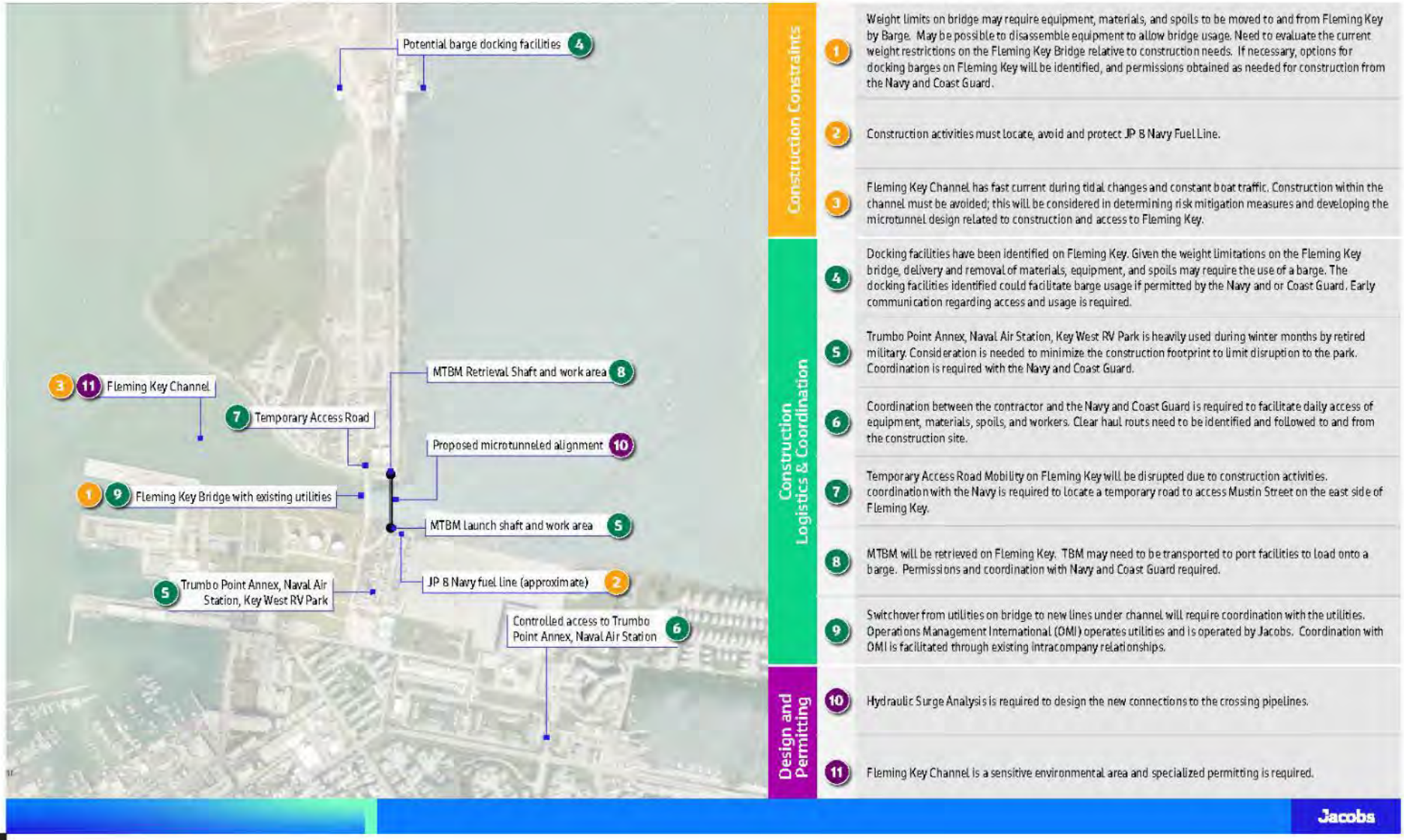



*Exhibit 5-1. Map of Project Showing Key Challenges*

The following bulleted points further detail the project's **issues and challenges,** along with some considerations.

## Construction Constraints

### 1 Key West Mainland and Fleming Key Bridge Weight Limit

*Exhibit 5-2. Weight Limit Sign on Bridge to Fleming Channel*

The bridge on which equipment would have to travel between Trumbo Point Annex and Fleming Key has a weight limit of 37 tons for a double tractor trailer truck, **as shown in Exhibit 5-2.** The weight of the microtunneling equipment along with the drill rig that will be required to construct the two secant pile shafts could greatly exceeds these limits and therefore would not be able to utilize the bridge for access to Fleming Key. We will review weight requirements and assess alternative for getting the equipment onto and off of the Key to include disassembly and reassembly of the equipment . Additionally, we will evaluate alternatives for moving materials and equipment by barge. **Fleming Key has two potential receiving locations, which will allow the equipment to be successfully transferred in a timely fashion. These will be further reviewed and explored during design to identify the best location that will minimize impact to the stakeholders.**

### 2 Critical US Navy and US Coast Guard Infrastructure

Within the vicinity of where the access shaft will be constructed along with the areas that will be used for equipment staging and laydown there is infrastructure that is critical to the missions of the US Navy and US Coast. Mapping of these utilities prior to the mobilization of any equipment will be a requirement within the contract documents. The contractor will be required to install warnings along with barriers as required to prevent these utilities from being damaged or impacted by the work associated microtunneling operation and realignment of the existing four utilities into the 72-inch casing.

### 3 Fleming Key Channel

Fleming Key Channel presents challenges due to the fast-moving currents from channelizing of the tidal flows between Fleming Key and the mainland. This channel is also a very active throughfare for boat traffic to go in and out of the marinas. It is important to always keep this channel clear for traffic and any barges utilized by the contractor will need to be properly secured and well marked to include lighting and other markers to minimize the potential for an accident.

## Construction Logistics and Coordination

### 4 Material and Equipment Delivery and Spoils Removal

The MTBM and drill rig along with materials such as the 72-inch casing will need to be delivered to the site. Additionally, a significant amount of spoils will be generated from the construction of the shafts along with tunneling operation. A combination of approaches will likely be required and will be reviewed as part of design with the alternatives detailed in the contract documents for implementation by the contractor. Approaches include use of barges and existing docking facilities or transporting using trucks. Alternatives will also be reviewed for use of the excavated material within other areas of the Florida Keys. Reuse of this material will be explored with local agencies along with DEP to ensure that it is managed and disposed of in accordance with all regulations.

### 5 Mainland Impacts

The Key West Campground/recreational vehicle (RV) park located along Fleming Key Road within the Naval Air Station will be temporarily impacted during construction of the access shaft, microtunneling operations and relocation of the utilities. It is known that this campground is a prized asset for active and retired military. We will coordinate with managers of the RV park along with the US Navy and US Coast Guard very early during the design to establish construction approaches, work areas, laydown sites and a schedule to minimize disruption and use of this valuable resource along with other key facilities where access must be always maintained.

### 6 Controlled Site

**The project is located on a secure US Navy and US Coast Guard base**. As an initial step in the design process, we will establish a list of key staff/stakeholders within these organizations that should participate in workshops and be afforded the opportunity to review documents as the design develops to solicit their input. This input will be critical to the overall success of the project.

*We have a deep understanding of working on and with military bases with limited or restricted access.*

**We will coordinate with the security personnel to ensure that the contract documents reflect the requirements for the contractor to access and work on the site** so that their work is not delayed. These documents will include detailed communication protocols to ensure that thought construction the key stakeholders remain informed and involved.

Our trenchless lead, **Robert Martin, is a retired military officer**, and has a **deep understanding of working on and with military installations.** He will be able to assist our design team in gaining access for meetings and site visits**. Mike Stickley also has a military background** and has **performed numerous projects on military installations throughout the United States for the U.S. Army Corps of Engineers** that had limited or restricted access.

### 7 Fleming Key Impacts

Similar to above for the mainland, there will be temporary impacts on Fleming Key during construction of the access shaft, microtunneling operations and relocation of the utilities. We will work with the US Navy, US Coast Guard, and other stakeholders to ensure that these impacts are minimized and that access to key facilities are maintained at all times by detailing the requirements and limitations within the contract documents to include temporary access roads.

### 8 MTBM Retrieval

Alternatives will be reviewed for retrieval of the MTBM. Options include barge(s) using existing docking facilities or use of trucks. Due to weight limitations on the Fleming Key bridge, it may be necessary for the contractor to break down the MTBM and other equipment so that the weight limit on the bridge(s) is not exceeded. The approaches that are acceptable to the US Navy, US Coast Guard, City, and other Stakeholders will be included the contract document.

### 9 Utility Transfer and Coordination

Early coordination with the City and utility owners will be critical for the success of the project. Connection locations and methods will need to be defined along with corridors for installation of the utilities from the connection point to the 72-inch casing. We will work with the US Navy and US Coast Guard to determine the best routing for the utilities on their property. We will ensure that the transfer between the existing aerial utilities and new utilities within the tunnel is seamless and does not cause interruption of service.

## Design and Permitting

### 10 Hydraulic and Surge Analysis for Existing System

The existing 8-inch water main and 30-inch force main that cross to Fleming Key via the utility bridge have a relatively flat profile. The new microtunneled carrier pipe will be over 50 feet below grade, which will create a significant drop for both of these pipes, followed by a similarly significant rise on the island side. This change in grade for both the water main and force main will be evaluated for impacts to upstream pump stations as well as potential for surge. **Our hydraulic and surge modeling experts will be able to quickly evaluate the impacts to the existing system and if require develop mitigation approaches.** Mike Stickley, our PM is a conveyance leader within Jacobs and has a deep understanding of hydraulics, surge analysis and mitigation**. See Exhibit 5-3**.

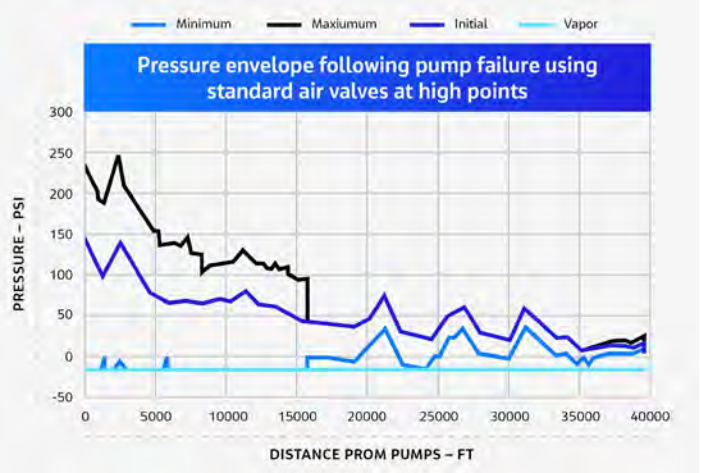



*Exhibit 5-3. Hydraulic Surge Analysis*

### 11 Environmental Concerns and Permitting

**A unique eco-system surrounds the Fleming Channel**; it includes the frequent presence of manatees, sea turtles, corals, seagrass, and other sensitive elements. As wastewater facility operator, we have a permanent presence in the area and understands its relevance in the life of the people of Key West. **We will include specifications and guidance to ensure that the work is performed in a manner that will not have an impact on the eco-system.**

It would be impossible to maintain project schedules and budgets without the understanding and cooperation of local, state, and federal permitting agencies. **Jacobs has a depth and breadth of experience with all the permitting agencies associated with this project to deliver project success.** We maintain strong, positive relationships with each permitting agency; however, we do not rely solely upon these positive relationships. It is important to conduct pre-application meetings with the appropriate agencies so that they understand the project, confirm the proposed permitting approach including the required environmental surveys and studies, and are prepared to review a complete application submittal.

**Jacobs is experienced with the permitting of this type of subaqueous microtunneling project and has previously permitted projects for the City of Key West. These projects include Zero Duval Bulkhead Repair, Fleming Bridge Piling Repair, and Patricia and Ashby Stormwater Improvements.**

We **recently completed permitting services to collect a geotechnical boring in Fleming Channel** by successfully obtaining a South Florida Water Management District (SFWMD) Permit Exemption Verification within one (1) month of application submittal, a US Army Corps of Engineers (USACE) Nationwide Permit within 3.5 months, coordination with the U.S. Coast Guard regarding safety requirements, and **negotiated terms with the Florida Keys National Marine Sanctuary (FKNMS)**. We communicated with the FKNMS to negotiate the proposed methodologies and successfully eliminated the benthic resources survey requirement to collect the geotechnical boring.

This project is located in a **pristine and highly protected environment supporting a variety of endangered and threatened species.** We will **coordinate with the Florida Department of Environmental Protection, to ensure the design adheres to the recommended utility standards**. Per review of state permits, there is the potential for this project to be exempt from permitting, depending upon the final design and associated impacts. **USACE permits were reviewed and there is potential for coverage under the 2021 Nationwide Permit 58 Utility Line Activities for Water and Other Substances and NWP 57 Electric Utility Line and Telecommunications Activities (previously combined under NWP 12 Utility Line Activities).** A pre-construction notification will likely be required due to the permit conditions and Jacksonville Regional Conditions. **We anticipate the project will be designed and constructed according to the National Marine Fisheries Service's Jacksonville District's Programmatic Biological Opinion (JAXBO) (November 2017) category** of in-water activity.

Each agency's requirements will influence the design, construction methods, and impacts where applicable to aid in the review process. We will hold a pre-application and coordination meeting with the applicable agencies to receive cross-agency input early in the schedule (approximately 30% design). Incorporating the agencies' feedback will result in the submittal of a thorough and complete permit application, minimizing permitting delays (agency requests for additional information) and costly re-work.

## 5.2 Technical Approach.

**Schedule is the primary driver for this project,** with construction completion required by January 2024 to meet the requirements of the available grant funding. **The project schedule, while tight, can be met with a design-bid-build process.** Our proposed schedule is **shown below in Exhibit 5-4**, on the following page, will meet the City's needs with a design and construction process with which the City is most familiar. With notice-to-proceed anticipated in May 2022, **we will complete the bid package by September 2022, including stakeholder coordination**. By finishing the bid package earlier than the schedule outlined in the RFQ, the construction contract be one (1) full year for completion of the work, which we recommend, since construction of the secant pile shafts alone can take approximately six (6) months to construct.


*Exhibit 5-4. Proposed Schedule*

### 5.2.1 Project Management to Meet the Deadline

Our project management process involves an enhanced traditional delivery approach that places advanced risk management at the forefront to meet all project delivery, technical delivery, and stakeholder and community metrics. We developed our own standard Project Delivery System with a vision to provide world-class project delivery, on time and on budget. **Exhibit 5-5 illustrates five (5) key steps in our Project Delivery System.** Use of this standardized approach is established in the Project Management Plan (PMP), which defines roles and responsibilities and provide clear communication to the team on alignment of scope, schedule, budget, and quality requirements. The following sections detail key management procedures and present the practices, processes, and capabilities that enable us to successfully deliver the project objectives.


*Exhibit 5-5. Project Delivery Approach*

### 5.2.2 Schedule Goals

**This project's accelerated schedule requires the expertise of a Project Manager who understands how to accomplish all the required goals**, while also managing the many nuances and surprises that inevitably arise due to changing market conditions (affecting contractors, equipment, and pricing), constantly evolving legislation (affecting permitting agencies) and incorporation of all stakeholder groups. **Mike Stickley (Project Manager) and Robert Martin (Trenchless Engineer) are unmatched in their combined 50 years of experience, delivering successful pipeline projects, especially those with complex and challenging trenchless installations.**

Mike Stickley understands that early and often communication is necessary for success of the project and will work closely with the City and stakeholders to ensure that the project stays on track and meets all goals while meeting the budget. Our project management tools will allow Mike to closely follow the schedule and immediately mitigate schedule slippage and find opportunities to advance work.

Examples of tools we will use include; a **Risk Register, ProjectWise, SharePoint, and Bluebeam** for **continuous quality control**. These tools will allow the City and other stakeholders access to the project design documents to allow accelerated and collaborative reviews.

### 5.2.3 Risk and Opportunity Management

We will develop and utilize a risk and opportunity management strategy to describe the concepts and processes that will guide design activities for the project. **The strategy will provide a complete and uniform approach for identifying, analyzing, developing appropriate responses for, monitoring, and managing project risks throughout the life of the project.** This process will be incorporated into our work and will be continuously updated to identify key work activities that acts as a proactive management tool to control of risks and opportunities, keeping the design on track so that we meet the project goals and objectives. The risk management strategy will include the following processes that are built upon industry-established best practices for risk management and control:

- ✓ **Risk Identification**

  The initial risk and opportunity register will be established in a workshop collaborative forum with all stakeholders and will be added to and adjusted in subsequent risk meetings and risk workshops. The identification of risks does not end with the preparation of the initial risk registers. As the project is executed, some identified risk elements will be retired from the risk register while other risk elements will be added as the project evolves over time. The risk and opportunity register will be the primary presentation tool for project risk and opportunities. The identification of risk events, issues, and opportunities is to be built on the knowledge and experience of the extended project team, including subject matter experts (SMEs) who have extensive experience with the scopes of work to be executed and the risks facing the project. Risks are sub-divided by category typically according to phases of the work on the risk register. **Exhibit 5-6 shows the draft risk management plan/risk register** that the Jacobs team has developed based on our deep knowledge of the project and its risks. We will work quickly with City staff and stakeholders to further develop this risk and opportunity register at the onset of the project.

- ✓ **Risk Assessment**

  Risk assessment involves a determination of the likelihood that an identified risk will occur and an evaluation of the impact of such risk to completion of project goal and objectives.

- ✓ **Risk Treatment**

  Risk treatment defines when and how each risk element on the risk register will be managed and controlled. Depending on the level of each risk, those will be avoided, mitigated, when possible, transferred to the project party more suitable to mitigate and handle the risk or carried if it cannot be eliminated, mitigated, or transferred.

- ✓ **Risk Monitoring and Control**

  Active monitoring and forecasting of the project using the risk register keeps the risk management plan valid, which in turn helps the management and control teams actively control the threats and use opportunities that arise during project execution to accelerate the schedule, reduce cost, etc.

## Project Risk Management Plan

**Task Order:** Trenchless Utility Relocation

| # | Risk Category | Risk Statement | | Status | Risk Treatment | Contingency | Triggers | Assignee |
|---|---|---|---|---|---|---|---|---|
| | | Condition | Consequence | | | | | |
| Unique Risk ID | Risk Category | Capture the "likely cause" of the risk. Be detailed enough so that you can start forming mitigation plans. | Capture the result of the risk, should it happen. If the consequences cannot be mitigated, you will have to deal with them in a contingency plan. | Active or Inactive? | Document plans to lower the probability or to lower the impact ahead of time. It may require a more detailed plan written up separately. | Identify what would have to be done if the risk were to become reality. This may require a more detailed plan documented separately. | Identify what would prompt you to execute the contingency plan. | Identify who is responsible for tracking this risk and its changes in probability and impact. The assignee is not necessarily the person responsible for solving the problem, as risks often require escalation outside the team. |
| 1 | Schedule | Failure to complete the design by September 2022 | Consequences Include: (1) Compressed construction schedule, (2) Increased construction cost (3) Loss of funding | Active | (1) Development of a work plan that documents the detailed approach for delivery of the project. (2) Utilization of an experienced, integrated design team, (3) Active monitoring | Work plan will include a recovery plan. Initial step will be to meet with the full design team to confirm the work plan, milestones, and recovery approach and obtain buy in. | Any time a milestone established in the work plan is not met. | Mike Stickley |
| 2 | Coordination | Project work was not properly coordinated with all stakeholders (City, Coast Guard, Navy, Utility Owners, etc) and/or the input from the stakeholders was not captured in the design documents. | Consequences include (1) Project delays, (2) increased construction cost/change orders, (3) loss of stakeholder support and project buy in | Active | (1) Early workshop will be conducted to identify and develop a list of all stakeholders,including contacts and key decision makers at each (2) stakeholders will be involved throughout the design and review process | Immediately contact the stakeholder for development of resolution; inform the Project Manager and affected team principals, to enable proactive response and adaptations if needed. | Failure to receive comments or comformation from a stakeholder that they agree with the design concepts | Javier Colignon |
| 3 | Communication | Failure to keep the stakeholders (City, Coast Guard, Navy, Utility Owners, etc) informed as to the project status or failure to notify stakeholders of critical information needs or events. | Consequences include (1) Project delays, (2) increased construction cost/change orders, (3) loss of stakeholder support and project buy in | Active | Establish routine calls (weekly, at a minimum) with all stakeholders to ensure that they are actively involved and understand the status of the project. | Immediately contact the stakeholder to determine if there is an issue and to reestablish communication related to the project. | A stakeholder does not actively participate in the calls or is not providing comments/ feedback. | Javier Colignon |
| 4 | Materials | Suppliers were not contacted during design to inform them of the project and identify lead times on critical materials (casing, pipe, etc.) | (1) Project construction delays (2) Increased project cost/change orders | Active | Contact suppliers every three weeks during design to determine market conditions and material availability. | Be prepared to quickly change materials of construction in the event something is identified that will not be available within the required schedule. | Supplier identifies that there has been a change in availability or significant change in cost. | Mike Stickley and Robert Martin |
| 5 | Construction | Unanticipated subsurface conditions are found by the contractor during construction. | (1) Project construction delays (2) Increased project cost/change orders | Active | Ensure that the contract documents are complete and baseline report and other contract documents present a representative summary of anticipated subsurface conditions. | Include provisions in the work planning and construction documents for such conditions to avoid the contractor building risk cost into his bid. Be prepared to rapidly resolve issues identified during construction to avoid construction delays and cost increases due to delays. | During contractor utility locates or construction at construction site an unmapped buried utility is identified. | Javier Colignon and Robert Martin |



*Exhibit 5-6. Risk Management Plan*

### 5.2.4 Quality Assurance/Quality Control

Andrew Bursey (Quality Control/Assurance) and Mike Stickley (Project Manager) will see that the continuous QC processes are followed. Quality is a key component to the success of any project. Following a structured Quality Management Plan helps define expectations for project work, as well as deliver work that consistently meets or exceeds those expectations. **Our Quality Assurance/Quality Control process, illustrated in Exhibit 5-7, provides an accurate, measurable system of checks and balances**, and operates on the principle that each individual task output, no matter how small, is reviewed and validated by designated members of the review team before being incorporated into the work. The Quality Control/Assurance Manager will be the keeper of a list of critical aspects of the project, including identified risks and project milestones, and will assist the Project Manager to establish measures for all items that need to be addressed.

**Quality is viewed as a complete process, not just the result of reviews, tests, and inspections.** It means seeing that that all materials and workmanship meet or exceed expected levels. We will manage the design project so that project standards are met the first time, because we are aware that repetitive attempts and rework adversely affect project cost, schedule, and team morale.


*Exhibit 5-7. Three Level Quality Check Process*

### 5.2.5 Industry-Leading Cost Estimating

Jacobs' estimating system is time tested and provides budget guidance at the planning level down to quantity-price takeoff levels, allowing managers to make decisions on future activities based on accurate estimates and cost information. We have the proven ability to estimate work scope at any stage of design or construction, and we have the local strength and capability to engage our cost estimating teams for both early and final design estimates. **Our proven record of cost estimating experience in the Florida Keys, South Florida, and throughout the U.S. for similar projects of all sizes demonstrates that the estimating tools we use result in accurate pre-bid estimates.**

Our **Lead Cost Estimator, Erika Smith,** will be supported by experts from Jacobs' in-house construction group who contribute contractor and market perspectives when necessary. The availability of hard dollar cost estimators results in a more accurate reflection of current market pricing. **These professionals use sophisticated estimating tools and perform more than $1.5 billion in alternative and at-risk project delivery annually.**

**Tools available to our estimators include:**

- A continuously updated cost database developed exclusively for our water and wastewater infrastructure projects.
- A risk management tool that is used to determine risk and contingency at various points in the estimate.
- An escalation calculation module that forecasts construction cost escalation. In fact, we are the only firm with an escalation forecast tool that has 17 project specific indexes.
- Access to commercial forecasting groups that provide current price and trending. Access to this data confirms the latest trends in material escalations that have a significant impact on project delivery and price fluctuations. These impacts have also been shown to affect the availability and/or delivery of specific commodities.
- Jacobs has a close relationship with major equipment suppliers along with tunneling contractors that will be leveraged to ensure all costs are captured.

In addition to the robust process described above, our estimators will leverage their network of contractor contacts to survey other contractors performing work in the South Florida area to determine the bidding environment—abundance of work, availability of labor, subcontractor activity, commodity pricing, or any other factors affecting pricing. Our experience, tools, and organization allow us to prepare accurate cost opinions that reflect the volatile construction market of today.

## 5.3 Project Approach.

### 5.3.1 Design Processes

Jacobs' hallmark is applying integrated design into all our projects. While integrated design is essential to sustainable design, we have traditionally built design teams that work integrally from concept to completion, building our design teams around our customers. **Client stakeholders, regulatory/permitting staff, and engineers are all part of one integrated design team.** The **collaborative involvement of key team members ensures that ideas and concepts are considered, evaluated, and implemented**. Client satisfaction is priority one to Jacobs. In design, client satisfaction is directly related to project understanding and communication.

To deliver full understanding and compliance with client requirements, we have developed a detailed process for design that can be tailored to the needs of each project. Because of the tight schedule requirements of this project, we will submit one set of detailed design documents for review prior to completing the construction documents. **The basis of the design has been set in the feasibility study, so we can use the feasibility study as the conceptual design and move straight into detailed (90%) design.** Therefore, our design process will involve two phases of design. We also will perform constructability reviews, which are crucial to a project in which utilities are being relocated with connections being made in tight spaces.

*The basis of the design has been established in the feasibility study.*

*We can use the study as the conceptual design and move straight into detailed (90%) design.*

### 5.3.2 Design Development Phase

The design development phase will build on the basis of design to develop detailed drawing and specifications. Our engineers use design software that has the ability to produce detailed 3D design models of the pipeline/tunnel route to ensure that conflicts and issues are identified and resolves. **Our team working with the City, will provide continuing input during the design development phase, evaluating drawings and layouts to resolve potential roadblocks**. **Collaborative workshops between Jacobs and the City will play a key role in the design development phase.** Session participants will review all designs developed to date in relation to the project goals while ensuring all risks are mitigated. Following review, comment, and consensus final bid documents will be developed.

### 5.3.3 Bid Package Preparation Phase

The bid package preparation phase consists of producing the final drawings and specifications for the project. Based on all previous work, each design discipline can proceed with production. If warranted, drawing production will consist of completing the 3D models and extracting the plan and profile views to assemble for the contract documents. **Each engineering discipline will also produce the final specifications for the project, including all schedules and scope of work details.** A final constructability review will be performed of the engineering and procurement documents for accuracy and overall completeness. **Before any construction documents are released for bidding, we will conduct a thorough review to ensure that documents are complete and correct.**

### 5.3.4 Constructability Reviews

Our QA/QC team will work closely with City staff, contractors, and other relevant team members throughout design development to **deliver executable designs and specifications tailored to meet the City's requirements for schedule and budget**. As part of these efforts, we will review construction contract documents to verify they are of **adequate quality for bidding and construction to eliminate ambiguities in the documents** that could lead to claims and disputes, **to integrate construction knowledge and experience into the design process, and to minimize disruptions to utility operations**. These reviews also measure the extent to which contractors comply with the drawings, specifications, construction schedule, QA/QC requirements, and budget restraints as set forth in our project documents.

# 6. Personnel

# 6. Personnel

## Expert Local Management and Support Team.

We offer you a team of specialists with a key leader at the helm who has experience in **Trenchless Utilities**. Jacobs is fully committed to the City of Key West. The team we have proposed will be the team that works on your project. We are pleased to propose **Mike Stickley, PE as our Project Manager**. He is well respected and highly qualified to manage this diverse team and your project.

**Integrated, High-Performing Team**

"A high-functioning, integrated team with a strong sense of purpose and unity is essential to delivering your trenchless utilities project."

Our team brings unique skills to complement each other and together they will collectively meet and strive to exceed your expectations. We have local key staff who are fully dedicated to managing and coordinating all project meetings, workshops, and key field investigations.

We have partnered with the City of Key West for more than 35 years. We are both committed and invested in the City's, long term future. We have served as your reliable partner; we know your expectations and challenges.

We are dedicated to providing highly responsive, quality work tailoring our activities and integrating lessons learned to meet your unique project needs and objectives. For this project, we are committing our foremost thought leaders. These leaders will provide a fresh perspective on your trenchless utilities project.

You will receive the benefit of our specialized team's demonstrated expertise that will elevate the quality and functionality of your project. In addition to our planning and design expertise, we bring a unique perspective in having knowledge of safety protocols, security measures, regulatory permits, and the sensitivity of the local environment.

## Why Jacobs? We Are the Team Who Can Deliver This Project.

The **Trenchless Installation of Existing Utilities Across the Fleming Channel** project requires resources who demonstrate excellence in project management and technical accuracy to realize performance needs and strategies to minimize environmental impacts and effectively manage project challenges.

Jacobs team members have been engaged in similar work for many years. Our history and understanding of detailed engineering design combined with our record of delivery and innovation ensures that the City will receive services that balance creative solutions with cost-effectiveness and practicality.

We welcome the opportunity to serve the City and provide comprehensive engineering design services for the **trenchless installation of utilities** beneath Fleming Channel, from the Trumbo Point Annex to the Fleming Key.

We know the **critical issues in Fleming Channel** that must be addressed and have begun to brainstorm ideas to approach them. Our key staff who **recently performed** the ***Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel*** will also work on the next phase, ensuring continuity and that critical knowledge of key project constraints will be considered and incorporated. We will be productive from day one – **no learning curve is required.**

- **No Learning Curve.** We know this project like no other
- **A Team You Know.** Several of our key team members have served and supported the City
- **A Trusted Team Partner.** Our 35-year history performing successfully for the City is a testament of our capabilities
- **In-depth understanding** of state and federal agencies and permitting requirements
- **Sensitivity** to activities that would alter the balance of the ecosystem
- **Extensive knowledge** working on projects with similar challenges
- **Extensive experience** in both **DBB and DB project delivery** for underground projects

Through the feasibility assessment, we explored options to relocate the wastewater lines supplying the wastewater treatment plant, which are currently affixed to the bridge structure. The bridge spans approximately 460 feet across the channel from Trumbo Point to Fleming Key. There are currently seven (7) utilities suspended from the bridge structure, which include one (1) 8-inch potable water line, two (2) 30-inch sanitary force mains, and four (4) 4-inch electrical conduits. The lines are exposed and vulnerable to damage or failure. We know a bridge failure would potentially impact the City's ability to treat wastewater and it would severely impair recovery efforts.

## Mike Stickley, PE | Project Manager

**Mike will serve as Project Manager.** He brings direction with highly effective leadership supported by almost three decades of experience in Project Management. He is well respected and demonstrates the unique capabilities required to lead and manage this diverse team. His is highly specialized and experienced in serving in roles as lead designer, design manager, construction manager, and senior technical consultant for civil works projects, including water and wastewater treatment plants, conveyance, and storage projects. He has worked on conveyance projects throughout Florida, **totaling hundreds of miles in length, and challenging trenchless technology installation methods**. Mike serves as a leader in Jacobs' conveyance design and rehabilitation groups and has served as the lead designer or senior technical consultant for more than **50 pump station, force main, manhole, and gravity sewer rehabilitation projects**. His trenchless experience along with his experience with Jacobs' design process will ensure a design that meets your goals and expectations, is delivered on time, and meets high-quality standards. Mike is skilled at leading design teams to develop innovative solutions for the most challenging projects and will do the same for the City.

He is qualified and specialized in managing challenging infrastructure projects, leading design teams in the development of innovative solutions. Mike has a demonstrated record of successfully delivering projects throughout Florida including projects within the Florida Keys. **He was also closely involved in the Cudjoe Regional Wastewater Transmission System, FKAA, Florida Keys,** serving as a senior technical consultant. His projects are consistently on budget and on schedule, meeting, and exceeding client expectations.

### Mike has successfully managed complex, multi-disciplinary projects through an approach built on:

- A unique balance of technical expertise, big-picture perspective, anticipating and successfully mitigating issues, and effectively managing his team to deliver projects safely and efficiently
- Experience in process management—from initiation and planning to design and construction
- Collaborative management style that fosters synergy
- Establishing defined roles and responsibilities
- Communicating clear instructions and decisions to team members
- Proactive and frequent team coordination with project team and client staff, applying an "open door" approach to foster ideas and solutions
- Utilizing project controls tools to keep team focused on scope, schedule and budget ensuring delivery on-time and within budget
- Proactive monitoring of change and risk

### As Project Manager, Mike will be responsible for:

- Bringing best practices through his history of delivering high-quality work
- Supporting the City and developing an in-depth understanding of the requirements and challenges of this project
- Directing technical and administrative requirements and assigning experienced personnel to the team
- Maintaining communication channels with team members through weekly meetings
- Including the City on all **key decisions** that will affect the project
- Maintaining a **collaborative relationship** with the City to ensure project goals are clearly understood and met
- Resolving conflicts that may arise in a swift manner
- Maintaining the project schedule and budget by establishing a timeline that meets the City's satisfaction

**Mike Stickley, PE**
*Project Manager*

Mike is a **Project Manager** and a **serves as a Senior Conveyance Technologist** for Jacobs, working on the most challenging projects throughout the United States.

He has served in leadership roles for design teams most recently in the design and permitting of a rapid infiltration basin project for Holley Navarre that included multiple trenchless crossings of water bodies and wetland.

In Florida, he has completed numerous complex and challenging projects to include design of pumping systems associated with deep injection well disposal of water that operate at pressures of up to 500 psi.

**100+ Projects Completed on Schedule**

**100+ Infrastructure Projects Completed**

**27+ Yrs. of Engineering Expertise**

**25+ Trenchless Technology Projects Completed**

**20+ Yrs. of Project Management Expertise**

**20+ Florida Conveyance Projects Completed**

## Overview of Key Team Members.

We carefully evaluated the scope of work and have assembled a top-ranked team to deliver every service to meet or exceed your requirements for quality, efficiency, and timeliness. **We structured our key team** to provide the City of Key West with **highly qualified experts** who are **recognized leaders in their field** and have demonstrated experience in their respective areas of specialization.

**Sirpa Hall, PE, ENV SP**

Principal-In-Charge

Sirpa will serve as **Principal-in-Charge.** She brings more than **36 years** of unmatched technical, financial and leadership expertise. Her extensive project work for the City of Key West has included engineering services for the **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel**; engineering services for design, permitting and bid phase services for the rehabilitation of two pump stations; design and permitting assistance for the abandonment of several stormwater gravity wells in the **Patricia and Ashby Neighborhoods;** and engineering services for the design of mooring Improvements for the **Mallory Square cruise berth**. She is highly specialized in financial performance and oversight of project delivery. She is currently delivering nine task orders, that are managed by four project managers. She will oversee our project delivery to meet the City's expectations and your long-term interests.

- 36 Years of Experience
- BS, Civil Engineering, Technical College of Lappeenranta, Finland
- Professional Engineer:
  - FL (No. 80609)
  - IA (No. P15616)
  - CA (No. 52329)
- Envision Sustainability Professional:
  - ENV SP (No. 24809)

**Robert Martin**

Trenchless Engineer

Robert will serve as **Trenchless Engineer.** He brings more than 23 years of comprehensive underground engineering experience on complex, diverse, and multi-discipline projects. He also brings extensive tunneling and underground construction experience.

Robert provides analysis of soft ground and rock tunneling, rock slope protection design, tunnel inspection and rehabilitation design, preparation of contract documents, geotechnical data reports, and baseline reports for underground and trenchless construction.

- 23 Years of Experience
- BS, Civil Engineering, University of Minnesota
- Professional Engineer:
  - MN (No. 44195)
  - WI (No. 41607)
  - OH (No. 77811)
  - TX (No. 118092)
  - NM (No. 26748)

**Andrew Bursey, PE**

Quality Control/ Assurance

Andrew will serve as **Quality Control/Assurance.** He has extensive experience with geotechnical site characterization; design of excavation support and permanent tunnel linings; ground improvement; risk management; construction planning and estimating; and preparation of construction contract documents.

Andrew also leads the design of tunnels and underground facilities and provides engineering services for underground construction projects. He has had design and construction management roles on rock tunnel boring machine (TBM) tunneling projects on a routine basis for over 20 years.

- 27 Years of Experience
- MS, Geotechnical Engineering, Virginia Tech
- BSc.E, Geotechnical Engineering Option, Queen's University
- Professional Engineer:
  - FL (No. 76855)
  - GA (No. 034596)
  - NC (No. 038205)
  - MO (No. 2016022871)
  - NV (No. 025501)
  - TX (No. 135084)

**Javier Colignon**
Utility Relocation Coordination Manager

Javier will serve as **Utility Relocation Coordination Manager**. He has provided leadership for the **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel** and **Combined Sewer Overflow Project, Puerto Rico Aqueduct and Sewer Authority (PRASA) projects.** He is the local quality leader for Jacobs' Water Business in the South Region, and he knows the City of Key West's trenchless utilities project like no other.

Javier has successfully managed water resources and sewer management projects that achieved client, community, and regulatory agency acceptance, and is adept at coordinating with multiple utilities.

- 30 Years of Experience
- MS/BA (Combined), Hydrology & Water Resources Science, Litoral National College, Argentina
- BS, Water Resources Engineering, Regionally Accredited Institution of High Education (U.S. Educational Equivalency)
- Professional Engineer:
  - TX (No. 139736)
  - PR (No. 28345)

**Leigh Ann Cannon, ENV SP**
Permitting Lead

Leigh Ann will serve as **Permitting Lead.** She brings more than18 years of experience permitting construction impacts to uplands, wetlands, benthic resources, and stormwater and 6 years implementing ISI's Envision sustainable rating system to infrastructure projects and obtaining certification awards.

Other tasks involve benthic resource inspections and mapping, wetland assessment, mitigation permitting and monitoring, National Pollutant Discharge Elimination System (NPDES) industrial stormwater permitting and compliance.

- 18 Years of Experience
- MS, Biology, University of South Florida
- BS, Biology, University of South Florida
- Institute for Sustainable Infrastructure (ISI), Envision Sustainability Professional (ENV SP)

## Our Team is Available to Start Work.

The City of Key West can rely on Jacobs' experienced team to collaborate with City staff, key stakeholders, and government agencies to deliver a high-quality, cost-effective, and successful project. The City remains a top priority in our business plan for the foreseeable future and as such, our key personnel and team will continue to be available and committed to support you.

We commit to the City that our proposed **Project Manager** and all staff represented on our organizational chart have the capacity to serve in the roles to which they have been assigned. Also, as a client-focused consultant, we offer a significant depth of staff resources throughout our Florida offices and across the country. All elements of your project will receive the necessary resources to fulfill your schedule and technical requirements efficiently and we will deliver maximum productivity throughout the work. We will continue to provide outstanding customer service and technical expertise with a commitment to the long-term success of your project.

*"Our key team members are 100% committed to working with the City of Key West and are readily available to respond to your requests and deliver your project components, executing our contract efficiently, within budget, and on schedule."*

**Mike Stickley, PE**
**Project Manager**

**The resumes of our proposed team are provided on the following pages.**

# Mike Stickley, PE

PROJECT MANAGER

## Education:

ME, Civil Engineering, University of Virginia

BS, Civil Engineering, University of Virginia

## Registrations/Certifications:

**Professional Engineer:**
Florida, No. 85960
**Professional Engineer:**
Alabama, No. 24947
**Professional Engineer:**
Georgia, No. 030617
**Professional Engineer:**
Louisiana, No. 0040620
**Professional Engineer:**
North Carolina, No. 044268
**Professional Engineer:**
Tennessee, No. 124929
**Professional Engineer:**
Virginia, No. 026082

## Years of Experience:

27

## Distinguishing Qualifications:

- Extensive experience in design of ductile iron, fiberglass, and HDPE pressure and gravity systems
- Leads Jacobs' conveyance and rehabilitation groups and is specialized in pump station, force main, manhole and gravity sewer rehabilitation projects
- Experienced lead designer and design manager for hundreds of miles of conveyance projects including trenchless technology installation methods

Mike has 27 years of experience serving as lead designer, design manager, construction manager, and senior technical consultant for civil works projects, including water and wastewater treatment plants, conveyance, and storage projects. Throughout **Florida** and Alabama, he has **worked on conveyance projects, totaling hundreds of miles in length, and included challenging trenchless technology installation methods.** Mike serves as a leader in Jacobs' conveyance design and rehabilitation groups and has completed numerous pump station, force main, manhole, and gravity sewer rehabilitation projects. He has firsthand experience working on the Regional Reuse System serving as a design manager and **senior technical lead on Phase I**. His trenchless experience, along with his experience with Jacobs' design process, will result in a design that **meets your goals and expectations, is delivered on time, and meets high-quality standards**. Mike is skilled at leading design teams to develop innovative solutions for the most challenging projects and will do the same for the City.

## Relevant Project Experience

### Cudjoe Regional Wastewater Transmission System, Florida Keys Aqueduct Authority (FKAA), Florida Keys, FL

**Senior Reviewer |** Project provided for the sizing and design of pump station and transmission mains to sewer seven of the islands that make up the Florida Keys. Project involved construction of nine major lift stations along with14 miles of transmission mains. Existing bridges were used for support of the force main between pump stations and islands.

### South Mainland Pipeline Project, City of Cocoa, Cocoa, FL

**Technical Lead & Senior Reviewer |** Project consisted of approximately 35,000 lineal feet of 42" ductile iron pipe. Project included four sub surface micro tunnels, one aerial crossing, and five sub aqueous crossings. Project traversed through several jurisdictions including Brevard County and the Florida Department of Transportation.

### Regional Reuse Phase I, Holley-Navarre, FL

**Design Manager/Senior Technical Lead |** Phase I provided for the design, bidding, and construction of a project that included approximately 5 miles of 18-inch transmission main, a 4,200 LF directional drill across the eastern end of East Bay, two trenchless crossings of SR-87, a pump station at the Holley-Navarre Wastewater Treatment Plant site, maintenance shed, and the development of 1.5 mgd RIBs on Eglin AFB. Project also included environmental and Department of Transportation permitting.

### Plant Lansing Smith Pump Station & Transmission Main System, Gulf Power, Panama City, FL

**Design Manager/Lead Mechanical Designer |** Project consisted of a temporary pump station and transmission main system to inject ash pond water and reuse water into three wells. Two of the wells are approximately 2,000 feet deep and have an operating pressure of approximately 130 psi. The third well is approximately 7,000 feet deep and has an operating pressure of approximately 250 psi. The design flow rate is 500 gpm. The system includes filters, acid feed system, and surge protection. The purpose of the system is to dewater the ash ponds to allow their closure and to collect operational data on the wells for design of a future, permanent system.

Completed the basis of design for the permanent injection well system that will have a capacity of 2,800 gallons per minute and will potentially operate at a pressure in excess of 400 psi.

### Brooks Bridge Water Main Replacement, Okaloosa County, FL

**Senior Technical Lead |** Served as the senior technical lead for the installation of a 20-inch HDPE water line under Santa Rosa Sound to provide a long-term, reliable source of potable water and fire protection to Okaloosa Island. Work included a detailed route analysis to determine the best alignment for the crossing.

### Pensacola Bay Water Main Alternatives & Emergency Response Plan, Emerald Cost Utility Authority, Pensacola, FL

**Technical Lead |** Led the evaluation the water main that supplies water from Pensacola to Gulf Breeze by a 24-inch HDPE pipe main installed along the floor (or invert) of Pensacola Bay, parallel to the Pensacola Bay Bridge (State Highway 98). The main was installed by sinking the HDPE pipe with concrete anchors (or collars) weighing 3,000 pounds, at 10-foot spacings; based upon inspections, there was concern of the main failing its remaining service life. Conceptual plans and cost estimates were developed for replacement of the main. In addition, an emergency response plan was developed of alternatives to meet the water demand in the event the 24-inch main should fail.

### Halls Mills Eslava Force Main Evaluation, Mobile Area Water & Sewer System, Mobile, AL

**Mechanical Engineer |** Provided assessment of secondary raw water supply pump stations, reservoirs, canals, and pipeline as well as condition assessment and alternatives analysis for resiliency of the 13-mile prestressed concrete cylinder pipe (PCCP) force main conveying ~66% of wastewater flow in the City of Mobile. Work as part of this included a both an on-site and desktop review of the full 48-inch PCCP main and collection of operational data to allow calibration of a dynamic model to review the operating conditions within the main. A surge model of the system was also developed to determine the range of conditions the pipe has been subjected to since it was placed into operation. Preliminary alternatives for rehabilitation and replacement of the PCCP main were also prepared.

### South Interceptor Forcemain Microtunneling Segment, Omaha CSO Program Management, Omaha, NE

**Design Manager/Lead Designer |** This is a complex project that involves installation of eight miles of HDPE primarily installed by a combination of technologies to include horizontal directional drilling (HDD), open cut, auger boring, and microtunneling under highways, through a major shopping center, residential, and commercial areas. The project also included the selection and specifications of pumps to convey the sludge through the main along with design of a ferric chloride system to dose the chemical into the gravity sewer where the sludge will be discharged to prevent the formation of hydrogen sulfide.

### Leeds Parkway Drive Pump Station Sanitary Sewer Overflow Elimination Project, Jefferson County, AL

**Lead Designer |** This challenging project provides for the relocation of an existing raw water pump station from within an EPA Superfund site. The existing station is not sized to convey the current peak flow. Increasing the size of the station at the current site is not possible due to the heavy metal contaminate soils. The new station will have a 1 mgd firm capacity and a100,000-gallon peak storage tank to reduce the potential for downstream sanitary sewer overflows. Additional work as part of this project includes realigning and/or replacing and upsizing existing sewers to provide the required capacity and where possible move sewers out of contaminated soils. The project includes four trenchless road and railroad crossings. Additional work included permitting, wetland delineation, detailed site survey, and geotechnical investigation to identify areas that are appropriate for installation of the new sewer in areas not contaminated by heavy metals.

### Chapel Lane Sewer Relocation Project, Jefferson County, AL

**Lead Designer |** The work involved relocation of a 48-inch ductile iron gravity main and several smaller diameter ductile iron gravity sewers, a ductile iron force main along with a flow control structure in direct conflict with a planned road extension by the Alabama Department of Transportation. The project was complex due to the 48-inch sewer being 50-feet below grade and mostly in hard rock. Approximately 600 feet of the small diameter mains along with a force main were relocated by microtunneling due to the requirement to cross under a creek and a six-lane interstate. The smaller gravity sewers were also in rock and extend to depths of 25 feet below grade. The lines were adjacent to an active interstate and in an environmentally sensitive area.

## Education:

BS, Civil Engineering, Technical College of Lappeenranta, Finland

## Registrations/Certifications:

**Professional Engineer:**
Florida, No. 80609
**Professional Engineer:**
Iowa, No. P15616
**Professional Engineer:**
California, No. 52329

## Years of Experience:

36

## Distinguishing Qualifications:

- Significant project management experience in large projects requiring multidisciplinary teams and several subconsultants
- Within budget and schedule delivery on all her projects
- Project delivery and portfolio management experience and responsibility for over 20 years, proved improvement in the portfolio performance

# Sirpa Hall, PE SNV, SP

PRINCIPAL-IN-CHARGE

Sirpa is a high energy leader who brings more than **36 years of infrastructure solutions** to the City of Key West. She is highly specialized in financial performance and oversight of project delivery. Her project work for the City has included engineering services for the **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel**; engineering services for design, permitting and bid phase services for the rehabilitation of two pump stations; design and permitting assistance for the abandonment of several stormwater gravity wells in the **Patricia and Ashby Neighborhoods**; and engineering services for the design of mooring Improvements for the **Mallory Square Cruise Berth**. She is a forward-thinking leader who **seeks to improve the efficiency** in everything her team does and will **ensure our project delivery meets your expectations and your long-term interests.**

## Relevant Project Experience

### Key West General Engineering Services, City of Key West, Key West, FL

**Principal-in-Charge / Manager of Projects |** Responsible for financial performance and oversight of the project delivery and project team. Closely working with the project managers to ensure our project delivery meets the client expectations. Review and approval responsibility and authorized signer for the task orders. Project has included multiple work orders in varying size and complexity. Currently delivering nine task orders managed by four project managers.

### Florida Keys Aqueduct Authority (FKAA), General Engineering Services, Key West, FL

**Principal-in-Charge / Manager of Projects |** Responsible for oversight of the project delivery and project team. Project has included SCADA and other support services work orders. Review and approval responsibility and authorized signer for task orders.

### General Wastewater Consultant Professional A/E and Civil Engineering, Services Master Service Agreements, City of Fort Lauderdale, Fort Lauderdale, FL

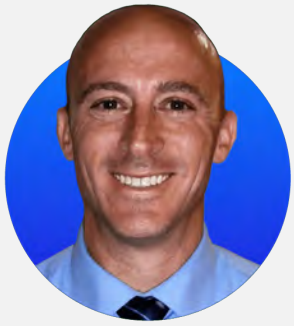
**Principal-in-Charge / Manager of Projects |** Oversight of the project managers performance, delivery, review of the project financial performance, staff allocations, and project managers delivery of the projects. Closely working with the project managers to ensure our project delivery and quality meets the client expectations and is completed following the Jacobs required policies. Review and approval responsibility and authorized signer for each task order. Currently delivering 11 Task orders managed by 4 project managers.

### Non-Exclusive Professional Engineering Services, Miami-Dade County Water and Sewer Department, Miami-Dade County, FL

**Principal-in-Charge / Manager of Projects |** Task order agreement to provide design and construction management services to the Miami-Dade South District wastewater treatment plant and its appurtenant facilities. Oversight of the project managers performance, delivery, review of the project financial performance, staff allocations, and project managers delivery of the projects. Closely working with the project managers to ensure our project delivery and quality meets the client expectations and is completed following the Jacobs required policies.

# Robert W. Martin

TRENCHLESS ENGINEER



## Education:

BS, Civil Engineering, University of Minnesota

## Registrations/Certifications:

**Professional Engineer:**
Minnesota, No. 44195
**Professional Engineer:**
Wisconsin, No. 41607
**Professional Engineer:**
Nebraska, No. 13919
**Professional Engineer:**
Ohio, No. 77811
**Professional Engineer:**
Texas, No. 118092
**Professional Engineer:**
New Mexico, No. 26748

## Years of Experience:

23

## Distinguishing Qualifications:

- Expert knowledge of the City of Key West's engineering, permitting, schedule and overall process for the underground relocation of existing utilities that are currently affixed to the bridge structure.
- Specialized in the analysis of soft ground and rock trenchless installation, rock slope protection design, tunnel inspection and rehabilitation design, preparation of contract documents, geotechnical data reports, and baseline reports for underground construction
- Member of ASCE's Committee developing Auger Boring Manual of Practice (MOP)

Robert has served as Project Manager for the City of Key West's **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel**. He has expert knowledge of the engineering, permitting, schedule and overall process for the underground relocation of the existing utilities that are currently affixed to the bridge structure. He brings more than **23 years of comprehensive underground engineering experience** on projects including those for the rail transit, water supply, wastewater, and mining.

**His experience includes construction feasibility assessments, design of soft ground and rock tunneling** using various methods including drill-and-blast, road header excavations, full-face tunnel boring machines in rock and soil, **micro tunneling, HDD, and other trenchless methods.** He is also specialized in the areas of **tunnel condition assessment, design of tunnel repairs,** rock fall analysis, design of rockfall protection systems, design support and evaluation during construction, and contract documents development, geotechnical data reports and geotechnical baseline reporting.

## Relevant Project Experience

### Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel, Key West, FL

**Project Engineer |** The City of Key West is considering the relocation of wastewater lines supplying the WWTP that are installed on a utility bridge spanning approximately 460 feet, across the channel from Trumbo Point to Fleming Key. A bridge failure would halt the City's ability to treat wastewater and would severely impact any corresponding recovery efforts. The City of Key West requested and evaluation of feasible Trenchless Installation methods beneath Fleming Channel is required to relocate the existing utilities underground that are currently affixed to the bridge structure. There are currently seven utilities suspended from the bridge structure, including an 8-inch potable water line, two 30-inch sanitary force mains, and four 4-inch electrical conduits. This project included the evaluation of tunneling methods to include HDD, microtunneling, pipe material consideration, constructability evaluation, 10% design and cost estimate preparation

### South Interceptor Forcemain Microtunneling Segment, Omaha CSO Program Management, Omaha, NE

**Program Management Tunnel Lead |** The City of Omaha needed to develop an LTCP to identify methods to reduce the occurrence of untreated CSO to the Missouri River and Papillion Creek tributaries. A Consent Order with NDEQ was entered into in 2007 that required the completion of the project by 2024. The City selected a Jacobs-led team as its program management consultant, responsible for providing overall LTCP preparation and implementation of the overall CSO construction program. This project includes the development of construction management protocols and master specifications, preforming technical reviews of projects include the review of sewer separation projects, and other controls such as retention treatment basins and tunnels to include the development, implementation and oversight of the recovery of a rock TBM using an 86-inch microtunnel boring machine and secant pile rescue shaft.

### Mill Road MIS Relief Sewer Project, Milwaukee, WI

**Project Engineer |** The Milwaukee Metropolitan Sewerage District (MMSD) is planning to construct a Mill Road MIS Relief Sewer to supplement the capacity of the 72-inch Relief Sewer to reduce SSO occurrence and basement backup risk. A new 60-inch RCP relief sewer is required with an approximate length of approximately length of 9,000 feet to be installed using microtunneling. This project included the evaluation of trenchless installation methods, develop scope of work for the geotechnical site investigation, geotechnical analysis, geotechnical baseline report, and development of technical specification and drawings related to the trenchless installation.

### Cahaba River WWTP to Valley Creek WWTP Sludge Transfer, Force Main, Jefferson County, AL

**Project Engineer |** As part of this project nearly 13,700 linear feet of 8-inch-high density polyethylene (HDPE) pipe and associated fittings is required using various installation methods to include HDD, microtunneling, and guided auger boring in soil and rock crossing major roadways such as State Highway 150, State Highway 31, and an offramp from Interstate 459. This project included coordination and development of a tunneling specifications, baseline of subsurface conditions summary, evaluation of tunnel liner and installation, and development of the contract drawings.

### Catoma Wet Weather Improvements Program Phases II and III, Montgomery, AL

**Project Engineer |** The project involved the construction of a 13-mile sanitary sewer interceptor to replace an existing, deteriorated and capacity limited interceptor. The $29-million Phase II project involved installation of approximately 6 miles of 30-inch to 78-inch, majority 60-inch and 66-inch, centrifugally cast fiberglass mortar pipe (CCFMP). Phase II included the installation of four microtunnel undercrossing (two 96-inch diameter steel casing, one 66-inch diameter CCFMP direct jack, and one 30-inch-diameter CCFMP direct jack), construction of a three-barrel invert siphon, and crossing numerous environmentally sensitive wetlands and creeks. The $30M Phase III project includes the installation of approximately 7 miles of mostly 78-inch-diameter CCFMP and includes four microtunnel undercrossing (two 96-inch diameter steel casing and two 78-inch diameter CCFMP direct jack) and crossing numerous environmentally sensitive wetlands and creeks. This project included the evaluation of trenchless alternatives for the proposed crossings, trenchless design of crossings, development of contract drawings and specifications, and on site services during construction.

### Barclay/4th/Chase MIS Replacement, Milwaukee, WI

**Project Engineer |** MMSD required an expansion to sanitary tunnel system. The tunnels are located primarily below city streets in residential and industrial areas and crosses below a river and a major interstate highway. Issues include settlement risk, protection of adjacent property, methane gas, drawdown-settlement risk, low cover below the river and boulder and rock ridge obstructions. This project included construction observation and inspection of the approximately 11,000 feet of 48 and 72-inch ID sewer that was constructed by microtunneling at depths ranging from 20 to 70 feet in boulder glacial till, mixed-face and dolomite bedrock ridges.

### Chapel Lane Extension Sewer Relocation, Jefferson County, AL

**Project Engineer |** The Alabama Department of Transportation (ALDOT), in cooperation with the City of Hoover, has undertaken a project to extend Chapel Lane under Highway 459 to the Riverchase Galleria area to help improve traffic flow. It was noted that several sewer lines are in direct conflict with the proposed roadway and will require relocation. Approximately, 800 feet of microtunneling was required for the installation of the 60-inch steel casing in limestone and shale while crossing a buried valley. This project included evaluation of tunneling methods, evaluation of the tunnel liner and casing, geotechnical analysis, construction observation and contract document preparation for tunneling construction.

# Andrew Bursey, PE

QUALITY CONTROL/ASSURANCE

## Education:

MS, Geotechnical Engineering, Virginia Tech

BSc.E., Geological Engineering, Geotechnical Option, Queen's University

## Registrations/Certifications:

**Professional Engineer:** Florida, No. 76855
**Professional Engineer:** Georgia, No. 0345596
**Professional Engineer:** North Carolina, No. 038205
**Professional Engineer:** Maryland, No. 44979
**Professional Engineer:** Missouri, No. 2016022871
**Professional Engineer:** Nevada, No. 025501
**Professional Engineer:** Texas, No. 135084
**Professional Geologist:** Georgia, No. 1917
**Professional Geologist**: North Carolina, No. 2305

## Years of Experience: 27

## Distinguishing Qualifications:

- Leads Jacobs' Atlanta-based tunnel engineering group
- Geotechnical site characterization
- Design of excavation support and permanent tunnel linings
- Risk management
- Construction planning and estimating
- Member of North American Society for Trenchless Technology

Andrew leads Jacobs' Atlanta-based tunnel engineering group and is **Jacobs' Solutions Lead for Tunnels for the US South Region**. He will provide senior engineering review and constructability review for projects.

Andrew has **extensive experience with geotechnical site characterization; design of excavation support and permanent tunnel linings; ground improvement; risk management; construction planning and estimating; and preparation of construction contract documents**. He routinely consults on construction planning, provides constructability reviews, and supports construction management teams during tunnel construction.

## Relevant Project Experience

### Gravity Sewer Inceptors for Master Pump Station No. 3, Miami-Dade Water and Sewer Department, Miami, FL

**Engineer of Record for Microtunnels |** 5,000 LF of 48-in polymer concrete gravity sewer by microtunneling (MTBM) below the water table in soft Miami limestone. Tunneled under urban roads and overhead light rail lines in the heavily developed Brickell financial district. Design engineer for microtunnel and five shafts, 20 to 35 feet deep. Construction-phase engineering services.

### Port of Miami Tunnel, Florida Department of Transportation, Miami, FL

**Senior Tunnel Engineer |** Twin 4,200-LF x 37-ft finished diameter road tunnels by TBM under the main Port Miami shipping channel, through Miami coastal sedimentary deposits, below Biscayne Bay. Geotechnical evaluations for design of open excavation supports. Technical specifications for cutter soil mixing and tension piles and designed open cut segment geotechnical instrumentation. Developed specifications for cross-passage ground support.

### Belmont North Relief Interceptor Section I, City of Indianapolis, Indianapolis, IN

**Microtunnel Design Engineer |** 4,100 LF x 72-in RCP installed by microtunneling under urban roads. Tunnel in glacial soils below the water table alongside the White River. Designed jacking pipe requirements and instrumentation program. Evaluated MTBM requirements and prepared microtunneling, jacking pipe, and shaft specifications. Geotechnical site characterization for design and bid documents.

### Lemay Redundant Force Main, St. Louis Metropolitan Sewer District, St. Louis, MO

**Tunnel Engineer |** 3,200 LF tunnel crossing in limestone under the River Des Peres in St. Louis. Tunnel lined with 96-in PCCP liner constructed by rock TBM. Initial rock support design and geotechnical characterization of limestone.

### JEA Nassau Water Reclamation Facility Outfall/Reclaimed Water & Sewerage Force Main, Jacksonville, FL

**HDD Design Engineer |** Two parallel 3,000 LF x 20-in HDPE pipelines, installed by HDD through sand, marl, and limestone under coastal wetlands and Lofton Creek, an active waterway. Planned and specified barge-based geotechnical exploration. Geotechnical site characterization and design of HDD bore paths based on geological model.

### JEA Glen Kernan to T-Line Transmission Reclaimed Water Main, Jacksonville, FL

**Senior Trenchless Engineer |** 12,000 LF of 8-inch through 30-inch reclaimed water main with 18-inch HDD crossing of I-295 (FDOT ROW) and 18-inch diameter HDD crossing under a creek and wetlands. Geotechnical analysis. Bore design and preparation of bid documents. HDD design and constructability reviewer.

### JEA T-Line to Busch Drive Transmission Force Main, Jacksonville, FL

**HDD Engineer |** 9,900 LF of 30-inch and 36-inch wastewater force main with HDD design and construction along I-95 and open-cut design and construction. The project included four HDDs for 36-inch HDPE pipe totaling approximately 6,800 LF for subaqueous crossings of creeks and wetlands. HDD design reviewer.

### JEA South Shores Second Sub-Aqueous Force Main, Jacksonville, FL

**HDD Engineer |** Design and construction of 5,200 LF of 36-inch force main. The project included a 4,000 LF HDD under the St. Johns River to install a 42-inch steel casing with 36-inch HDPE force main carrier pipe inside. Geotechnical analysis and geotechnical characterization for the design team. Preliminary HDD design including development of the preliminary bore path and preliminary HDD pipe design. HDD design reviewer.

### GRU Lift Station No. 11 Force Main Replacement Phase I, Gainesville, FL

**HDD Design Engineer |** 3,000 LF of 12-inch force main, including HDD crossing of a creek and associated wetlands. Force main alignment parallel to an existing force main and adjacent to an overhead power line. Geotechnical analysis and characterization. HDD design and preparation of related construction documents.

### JEA Southside Blvd Intertie to Deerwood III Water Treatment Plant Water Transmission Main, Southside Integrated Piping System, Jacksonville, FL

**Senior Trenchless Engineer |** Crossings including two bored crossings for 48" casing and senior reviewer for the 36" HDD crossing design and trenchless constructability. Geotechnical site characterization for trenchless designs.

### Fairbank-Silverthorn CSO Tunnel, Drop Shafts, Collector Sewers and Outfall, Toronto, Ontario, CA

**Senior Tunnel Design Reviewer |** Detailed design of a stormwater system consisting of 8200 LF of 14 ft ID soft ground tunnel with multiple shafts. Developed specifications for shafts and grouting and provided Senior QC review for contract drawings and specifications. Led tunnel risk workshop for the City of Toronto.

### Plane Train Tunnel West Extension, Tunnel Engineering Construction Services, Hartsfield-Jackson Atlanta International Airport, Atlanta, GA

**Senior Tunnel Engineer |** Approximately 900 LF of 22 ft high x 20 ft wide (single tube) to 22 ft high x 48 ft wide (twin tube bifurcation) tunnels, constructed in mixed face and rock conditions. The tunnels extend the western ends of the existing automated people mover mainline tunnels (north and south tracks), passing underneath the MARTA and SkyTrain stations and elevated tracks to create a turnback loop. Excavated using SEM techniques with drill/blast and mechanical excavation with lattice girders, crown spiling, rock bolts and shotcrete for initial ground support. Oversight of construction phase services including RPR and field engineering for the Airport. Consulting on blasting and instrumentation.

### Maline Creek CSO Storage Facility, St. Louis MSD, St. Louis, MO

**Senior Tunnel Engineer |** 3,000 LF of 28-ft finished diameter concrete-lined CSO storage cavern in limestone and shale, deaeration chambers, and microtunnel. Design engineer for initial rock support and excavation for pump station shaft, storage cavern, connecting tunnel, chambers. Designer for microtunnel in soft soil below the water table, alongside the Mississippi River. Provided construction-phase support to the CM.

### Uchee Creek Water and Sewer Service Project, Columbus Water Works, Fort Benning, GA

**Lead HDD Design Engineer |** Two 1,200 LF HDD river crossings between Georgia and Alabama under the Chattahoochee River, including a 20-in HDPE water main and a HDPE sewer force main. Developed and specified geotechnical exploration program. Designed the HDD crossing. Evaluation and planning for construction. Prepared HDD and pipe specifications. Construction-phase consulting to the CM team.

## Education:

Post-graduate Studies, Sanitary Engineering, Universidad de Buenos Aires, Argentina; In Progress

MS/BA (combined), Hydrology and Water Resources Science, Litoral National College, Argentina

BS, Water Resources Engineering, regionally accredited Institution of Higher Education (U.S. Educational Equivalency)

## Registrations/Certifications:

**Professional Engineer:**
Texas, No. 139736
**Professional Engineer:**
Puerto Rico, No. 28345

## Years of Experience:

30

## Distinguishing Qualifications:

- Extensive experience in South Florida and with the City of Key West
- 10 Hours OSHA
- Professional License in Argentina and Colombia

# Javier Colignon

UTILITY RELOCATION COORDINATION MANAGER

Javier has extensive experience working in the Florida Keys. He successfully delivered **five Florida Keys projects**. He has served in leadership roles for the **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel and Combined Sewer Overflow Project, Puerto Rico Aqueduct and Sewer Authority (PRASA).** He also participated on the **Ocean Outfall Legislation (OOL), Miami-Dade Water and Sewer Department (WASD), hardening and flood control for mail Pump Stations in WASD projects, Capital Improvement Plan in Puerto Rico Aqueduct and Sewer Authority (PRASA).** He is highly specialized in leading challenging infrastructure projects and complex water and wastewater projects. Javier has experience in all process management groups—from initiation and planning to design and construction—and is adept in coordinating with stakeholders, including clients, communities, and regulatory agencies in achieving acceptance. He is highly specialized in project scoping, feasibility analysis, and regulations and consent decrees with the U.S. EPA related to sanitary and combined sewer overflows.

## Relevant Project Experience

### Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel, City of Key West, FL

**Project Manager |** Responsible for delivering the basis of design. The team evaluated different trenchless installation methods to relocate the existing utilities currently suspended from the Fleming Bridge associated using trenchless installation methods. Reviewed the surface and subsurface conditions that impact the trenchless installation and identified considerations during construction that could impact feasibility of the trenchless installation method.

### Design, Permitting, Bid Phase and Construction Phase Services for the Rehabilitation of Pump Stations "C" and "E" , City of Key West, FL

**Project Manager |** Provided project management services, including team and stakeholder coordination, communication with the City, and cost and schedule management.

### General Engineering Services, Design of the Patricia and Ashby Neighborhood Piping Project, City of Key West, FL

**Project Manager |** Provided project management services, including team and stakeholder coordination, communication with the City, and cost and schedule management.

### Ocean Outfall Legislation (OOL), Miami-Dade Water and Sewer Department (WASD), Miami, FL

**Project Manager |** Planning, design, construction, and operation activities for this $6B program. The OOL Program is one component of the WASD's comprehensive Capital Improvement Plan (CIP). This program aims to meet the service needs, accommodate future growth, and comply with federal, state, and local regulations. Javier identified specific program needs and prepared task orders to address each need. He also supported the improvements to the hydraulic model.

### Combined Sewer Overflow Project, PRASA, San Juan, PR

**Project Manager |** Javier managed this multi-year project, which characterized the Puerto Nuevo Sewer Collection System using GIS, sewer flow monitoring, and hydraulic and hydrologic model. The team also established hydraulic elevation in sewers. The sewer system treats approximately 75 mgd with pipes that measure up to 90 inches in diameter. Javier led the team that developed the project's scope of work, procurement process, contractor selection, and acted as the client's liaison with the contractors who performed field activities. Javier was also responsible for managing the development of annual reports, which were submitted to the U.S. EPA.

### Capital Improvement Plan, PRASA, San Juan, PR

**Consultant |** Javier worked directly with the PRASA Planning Director and advised on the feasibility of including proposed projects in the PRASA CIP. He assessed the projects' impacts on regulatory, technical, operational, financial, and funding aspects. Among others, Javier prepared a feasibility analysis to incorporate the water and wastewater facilities of the former U.S. Naval Station Roosevelt Road to PRASA infrastructure. The analysis included 1,370 acres of land, one water treatment plant, three wastewater treatment plants, and one airport.

### Office of the Planning Director, PRASA, San Juan, PR

**Special Assistant to the Planning Director |** Javier provided daily support to the PRASA Planning Director. He reviewed preliminary engineering reports, feasibility plans, and technical memorandums prepared by external consulting firms and other agencies. Javier managed the following projects on PRASA's behalf:

- **FY 2010 Water and Wastewater Master Plan.** As an update to the CIP, Javier led recommendations for 127 water treatment plants and 59 wastewater treatment plants. He was responsible for water demand estimates; wastewater service expansions; analysis of water supply; estimation of unaccounted-for water; addressing compliance issues with regulatory agencies and addressing climate change impacts.
- **Chapter IX, Sewer System Evaluation and Repairing Plan Consent Decree for EPA.** Javier served as Project Manager for flow monitoring (plan, implementation, and analysis), field investigation, and preparation of a Repair Plan Report for the island-wide program to control the I/I sources for 59 sanitary sewer systems.
- **2008 Clean Watershed Need Survey.** Javier was project manager for the survey, which identified the need to invest $5.1 billion in Puerto Rico's watershed. The assessment was submitted to the EPA.
- **2007 Drinking Water Need Survey.** Javier was project manager for the survey, which identified the need to invest $2.5 billion in Puerto Rico's drinking water. The results were submitted to the EPA.
- **2004 Clean Watershed Need Survey.** Javier was project manager for the survey, which identified the need to invest $3.7 billion in Puerto Rico's watersheds.

### SUEZ-Lyonnaisse des Eaux-Water, Wastewater, and Water Resources Master Plan, ONDEO de Puerto Rico, San Juan, PR

**Project Manager |** As part of ONDEO Water, Wastewater, and Water Resources Master Plan that provided the basis for the PRASA CIP, Javier was project manager for 78 municipalities for the wastewater master plan. ONDEO was the operator for PRASA'S entire water and wastewater system at the time.

### Red River Army Depot (RRAD), U.S. Army Tank-Automotive and Armaments Command, Texarkana, TX

**Water Discipline Engineer |** Javier supported RRAD's effort to minimize energy and water consumption, costs, and reliance on non-renewable energy resources while meeting all operation mission requirements and providing quality work conditions.

### Broadway Corridor Project, San Antonio Water System (SAWS), San Antonio, TX

**Project Manager |** This project is included in the Consent Decree lodged by SAWS and U.S. EPA. Project tasks involve the cured-in-place pipe (CIPP) rehabilitation of trunk sewers from 15 up to 60-inch diameter, 52 and 60-inch diameter tunnel; the construction of a new 36 to 42-inch diameter interceptor along the old area of the city with a restrictive number of utilities; and hydraulic relief structures, restoration of pavement and landscaping. The $20M project includes the design (drawings, specs, cost estimation, public outreach), procurement support, and services during construction.

# Leigh Ann Cannon, ENV SP

PERMITTING LEAD

## Education:

MS, Biology, University of South Florida

BS, Biology, University of South Florida

## Registrations/Certifications:

ISI Envision™ Sustainability Professional (ENV SP)

## Years of Experience:

18

## Distinguishing Qualifications:

- Permitting experience in Key West
- Environmental resource permitting
- Specialized in permitting construction impacts to uplands, wetlands, benthic resources, and stormwater
- Field surveys/monitoring
- Established regulatory relationships

Leigh Ann brings more **than18 years of experience permitting construction impacts to uplands, wetlands, benthic resources, and stormwater and 6 years implementing ISI's Envision sustainable rating system to infrastructure projects** and obtaining certification awards. Her project work involved Environmental Resource **Permitting with local, state, and federal agencies in the Southeast Region of the U.S.,** Puerto Rico, St. Thomas, and Bahamas for marine construction/dredging projects and upland development. Other tasks involve benthic resource inspections and mapping, wetland assessment, mitigation permitting/monitoring, and NPDES industrial stormwater permitting and compliance.

## Relevant Project Experience

### Fleming Bridge Piling Repair, City of Key West, FL

**Permitting Lead |** Received the permit and exemption verification for the installation of a fiber glass jacket around one damaged pile on Fleming Key Bridge. Obtained a DeMinimis Exemption from the South Florida Water Management District approximately 2 weeks after submitting the application and received the USACE Nationwide Permit just over 2 months after submitting the pre-construction notification. To support application processing, the submittal included the U.S. Fish and Wildlife Services' protected resources' construction conditions and Jacobs Benthic Resources Survey results regarding presence of corals and seagrass.

### Fleming Channel Geotechnical Boring, City of Key West, FL

**Permitting Lead |** Permitted the collection of one geotechnical boring in the Fleming Channel in preparation for the utility pipeline replacement. Coordinated with Florida Keys National Marine Sanctuary and, based upon best management practices, eliminated the need for benthic resources survey prior to boring collection and received a Letter of Authorization to supplement the USACE permit. Obtained an Exemption Verification from SFWMD within 3 weeks of application submittal. Received the USACE NWP within 3 months of submitting the pre-construction notification utilizing the Jacksonville District Biological Opinion (JAXBO) superseding. This strategy reduced the consultation commenting period from potentially 6 to 8 months down to approximately 1 month. Application processing also included consultation with the U.S. Coast Guard regarding potential safety and noticing requirements.

### Patricia and Ashby Street Underground Injection Well and Stormwater Retrofit, City of Key West, FL

**Permitting Lead |** Obtained Dewatering and Stormwater Retrofit General Permits from South Florida Water Management District to perform stormwater retrofit and improvements of over half an acre at Patricia and Ashby Streets. A federal permit was not required as the project was located in the uplands and did not impact wetlands or surface waters of the U.S. During the pre-application meeting, the agency believed an Individual Permit would be required; however, my research indicated otherwise. Jacobs submitted documentation supporting coverage under the General Permits which saved on application processing time and reduced the permitting fees.

The Dewatering Permit and the Stormwater Retrofit Permit were issued approximately 2 weeks and 4 week respectively after application submittal. The project was successfully constructed and is operational.

### Multiple Dredge and/or Construction Project Permitting, Miami-Dade Seaport, Miami-Dade County, FL

**Permitting Lead and Project Scientist and Manager |** Performed environmental surveys and obtained permits for over 18 Miami-Dade Seaport projects including **Oleta River State Park**, **Port Miami's Tunnel, Pilot Station** Shoreline Stabilization (riprap repaired due to hurricane damage, performed benthic resources survey and drafted coral relocation plan), **Harbor Widening**, **103 Authorization, Cruise Terminals J and 5**, dredge/fill and construction **Bulkhead and Wharf Projects** involving Berth 56, Wharf 7, Rip Rap Area 2 Bulkhead Extension and Rip Rap Area 3 Bulkhead Extension, and **Maintenance Dredging**. The **Pilot Station Rip Rap Repair Benthic Resources Survey and Permitting** project involved a shoreline stabilization project in which the existing rip rap was replaced to repair hurricane damage. A benthic survey was performed to detect all benthic communities where corals were located and identified requiring a coral relocation plan for the permitting process. The permitting process for all projects included application submittals to local, state, and federal agencies, organizing the benthic resources relocation and creating/handling the mitigation plan.

### Multiple Dredge and/or Construction Project Permitting, Port Tampa Bay (Tampa Port Authority), Hillsborough County, FL

**Permitting Lead and Project Scientist and Manager |** Performed environmental surveys, creation of supporting documentation such as alternative sites analysis and essential fish habitat evaluation and obtained permits for over 20 Port Tampa Bay projects. Example projects include **East Bay Berth Development** (construction of 2,000 linear feet of bulkhead and dredging, upland creation, and off-site wetland creation); **McKay Bay Mitigation Site Monitoring** (5-year monitoring of 19-acre wetland creation mitigation site); **Berth 218 Improvements** (dredged 350,000 cubic yards from 14.59-acre berth and construction of a wharf for 70,000 DWT ships.); **Spoil Island 3D Weir Replacement Permitting and Design** (constructed two weirs on Spoil Island 3D); **Maintenance Dredge** Permit (25-year maintenance dredge permit of over 100 acres in the port); **REK Pier Facility Improvements** (reconstruction of pier facility and bulkhead and State Clearing House Processing.); **Berth 213-214 Improvements (**dredged Port Sutton Entrance Channel (420,590 cubic yards) and constructed marine structures); **Sparkman Channel Widening (**widened 2,998-foot section, 6.35 acres for navigational safety); **Department of Energy (DOE) Energy Efficiency and Conservation Block Grant Application** (preparation of an Environmental Assessment, Green House Gas Equivalence calculations, and preparation of Energy Efficiency & Conservation Strategy (EECS) for cruise terminals 2, 3, and 6 and berths 201-213); **Research for Beneficial Use of Dredged Spoil Material in Tampa Bay**; **Transportation Investment Generating Economic Recovery (TIGER) Grant Application (**narratives to support the TIGER Primary and Secondary Selection Criteria and analysis of long-term sustainability and safety outcomes resulting from alternatives for bulkhead and pier redevelopment for existing liquid bulk storage off-loading facilities).

### National Park Service, Biscayne National Park Rebuild from Hurricane Irma Damage, Miami-Dade County, FL

**Permitting Lead and Project Scientist |** Permitting lead for the National Park Service's hurricane-related repairs at five project locations in Biscayne National Park. Activities involve collecting geotechnical borings, replacing the Adam's Key dock, repair/replacing the boardwalk, footbridge and docking facilities at Convoy Point Visitor's Center and Park Headquarters, and riprap revetment repair at the Black Point Jetty and Park Entrance Road. Permits/Exemptions were received from the Florida Department of Environmental Protection and USACE.

### National Park Service, Fort Jefferson Coral and Seagrass Survey, Monroe County, FL

**Project Scientist |** Fort Jefferson in the Dry Tortugas sustained damage to the outer scarp moat wall from past hurricanes and storms. The National Park Service proposes to repair the areas however a benthic resources survey was required to assess the wall for presence, quantity, and quality of resources such as coral and seagrass species. The project involved performing a benthic survey inside and along the 1,700-foot-long moat wall and the area surrounding the fort. Over 4,000 individuals of coral species were identified and measured and a ground truthing survey for seagrass was performed within a 250-foot radius around the Fort.

## Education:

BS, Civil Engineering

## Registrations/Certifications:

**Professional Engineer:**
Florida, No. 67713

## Years of Experience:

19

## Distinguishing Qualifications:

- Numerous Projects in the Keys including sanitary sewer force mains, lift station rehabilitations, and storm sewer collection and pump stations.
- Numerous Projects with Trenchless Installations

# Rich Morrison, PE

CIVIL ENGINEER

Rich brings almost **two (2) decades of experience** designing a wide range of sites including commercial, residential, solid waste, and water and wastewater treatment plants. He is **fluent in every component of site/civil design including water and wastewater utility design**, site layout, grading, stormwater conveyance and management. He also has extensive experience in the **design of water distribution systems and wastewater collection and transmission systems.** In addition, Rich has managed multiple projects and possesses a profound understanding of each project phase. He is proficient in MicroStation, AutoCad, ICPR, AFT Fathom, StormCAD, and FlowMaster.

## Relevant Project Experience

### Patricia and Ashby Streets Stormwater Improvements, City of Key West, FL

**Lead Civil Engineer |** Design of stormwater collection system improvements. Design includes new inlets and gravity piping and verification of utility locations from record drawings.

### Patricia and Ashby Streets Stormwater Emergency Outfall, City of Key West, FL

**Lead Civil Engineer |** Design of a stormwater force main. Design includes pipe routing and verification of utility locations from record drawings.

### Pump Stations Rehabilitation Phase 2, City of Key West, FL

**Lead Civil Engineer |** Design of several sanitary sewer pump station improvements. Design includes replacement of gravity piping, generator layout, force main replacement, and verification of utility locations from record drawings.

### North Simonton Stormwater Emergency Outfall, City of Key West, FL

**Lead Civil Engineer |** Design of a stormwater force main. Design includes pipe routing and verification of utility locations from record drawings.

### George Street Stormwater Basin Improvements, City of Key West, FL

**Lead Civil Engineer |** Design of stormwater collection system improvements, stormwater pumping station, and a stormwater force main. Design includes new inlets and gravity piping, pump station layout, force main routing, and verification of utility locations from record drawings.

### Cudjoe Regional Wastewater Transmission System, Monroe County, FL

**Lead Civil Engineer |** Provided detailed design for a wastewater conveyance system on three islands in the Florida Keys. Design of force mains includes buried PVC, ductile iron bridge crossings, and sliplining an abandoned water line with HDPE pipe.

### Innisbrook Force Main Improvements Project, Pinellas County, FL

**Lead Design Engineer |** Design of an emergency replacement of an existing 42" sanitary sewer force main. The project included temporary piping bypass, open cut installation of a portion of the new replacement 36" PVC force main, and cleaning of the existing failed 42" force main for sliplining with the new replacement 36" fusible PVC force main.

### SWWRF Upgrades (CMAR) Design Services, City of St. Petersburg, FL

**Lead Civil Engineer |** This project included construction documents, new injection wells and wellhead improvements, piping, temporary pump station, and connections. Design and construction included three new injection and monitoring wells, and four CAR packages: (1) upgraded 16-inch reclaimed water main wellhead infrastructure to 24-inch; (2) temporary 22 mgd pump station using diesel driven skid mounted critically silenced centrifugal pump, and temporary HDPE piping to IW-4; (3) offsite IW-6 temporary connection to 30-inch reclaimed water pipeline; (4) update of 42-inch piping to IW-5 and reclaimed water loop.

### Central Pasco Beneficial Water Reuse Project, The 4G Ranch Wetlands, Pasco County, FL

**Lead Civil Engineer |** Design of a reclaimed water treatment and infiltration wetland system (15 cells, 140 acres total). Design includes site layout, grading, yard piping up to 24-inch diameter (8 miles total) including several HDD crossings.

# Agustín C. Quinoñes, PE

ELECTRICAL ENGINEER

## Education:

BS, Electrical Engineering, Southern Tech

## Registrations/Certifications:

**Professional Engineer:**
Florida, No. 89295
**Professional Engineer:**
North Carolina, No. 050282
**Professional Engineer:**
Puerto Rico, No. 17134

## Years of Experience:

29

## Distinguishing Qualifications:

- Extensive experience designing electrical systems for water and wastewater facilities
- Specialized in power distributions systems, instrumentation and controls, and construction support
- Electrical and I&C expertise on large, multi-disciplined wastewater projects, including two wastewater projects in the past 6 months

Agustín is an Electrical and **Instrumentation and Control (I&C) Engineer** who brings nearly **three (3) decades of expertise** specializing in **electrical design of water and wastewater treatment plants.** His experience includes treatment plants, treatment plant expansions, raw water intakes, and lift stations. His primary responsibilities are power distribution of low and medium voltage systems, motor controls, and support during construction phases of projects. With **extensive electrical design experience in Florida,** Agustín offers knowledge in every phase of design and construction, from Basis of Design reports, to detailed design, production of design building and traditional bid documents, bid phase services, and service during construction, including submittal review, request for information (RFI) response, and startup and testing of electrical systems.

## Relevant Project Experience

### Norwood Water Treatment Plant Phase II Expansion and Upgrade, City of North Miami Beach, FL

**Electrical Engineer |** Provided electrical design services for improvements and expansion of the water treatment plant. The project included upgrading the electrical plant distribution system, new electrical building for north region, new electrical building for south region, new filters, new maintenance building, new chemical building, new Lime silo system, new onsite production well, two new offsite production wells and new reactor clarifier. New switchgear, motor controls, medium voltage step down transformers, standby generators and paralleling system were included as part of the electrical improvements.

### JEA Rivertown Supply Wells #7, JEA, Saint Johns County, FL

**Lead Electrical Engineer/I&C Engineer |** This project involved engineering, design, equipment specification, submittal review, construction supervision, site inspection and project startup for one new JEA supply well. Provided direct client interface and consultation, as well as key submittal reviews, direct client interface and consultation.

### JEA Wellhead Rehabilitations, Fairfax Well 8 Wellhead, Jacksonville, FL

**Electrical Engineer/I&C Engineer |** This project involved engineering, design, equipment specification, submittal review, construction supervision, site inspection and project commissioning/startup for renovated supply well, as well as key submittal reviews, direct client interface and consultation.

### JEA Wellhead Rehabilitations, McDuff Wellhead, Jacksonville, FL

**Electrical Engineer/I&C Engineer |** This project involved engineering, design, equipment specification, submittal review, construction supervision, site inspection and project commissioning/startup for renovated supply well, and also included key submittal reviews, direct client interface and consultation.

### Econchate Water Pollution Control Plant Electrical Improvements, Montgomery Water Works & Sanitary Sewer Board, Montgomery, AL

**Electrical Engineer |** Provided electrical design services for the improvements and upgrading of the plant electrical distribution system. The electrical design included backup generator, paralleling switchgear, motor control centers, lighting and power distribution.

## Education:

BS, Civil Engineering, University of Wisconsin

## Registrations/Certifications:

**Professional Engineer:**
Florida, No. 80180
**Professional Engineer:**
Wisconsin, No. 37456-6
**Professional Engineer:**
Michigan, No. 6201056328
**Professional Engineer:**
Ohio, No. 75030
**Professional Engineer:**
South Dakota, No. 9881
**Professional Engineer:**
Kansas, No. 20441
**Professional Engineer:**
Tennessee, No. 122292
**Structural Engineer:**
Illinois, No. 081.007670
**Structural Engineer:**
Georgia, No. 43558

## Years of Experience:

22

## Distinguishing Qualifications:

- Five years of experience in the design of Metal Building Systems, commonly used in water and wastewater plant design
- **ATC-45 Field Manual:** Safety Evaluation of Buildings after Windstorms and Floods, sponsored by ATC Endowment

# Dave Everson, PE

STRUCTURAL ENGINEER

Dave is a Structural Engineer with more than **22 years of experience who is skilled in all phases of engineering operations**. Dave has **design experience in wastewater treatment plant projects for both private and public clients**. His knowledge of industry standards and capabilities is an asset to this project. His project experience involves reinforced concrete tanks, foundations, structural steel, reinforced concrete and masonry buildings, pile foundations and retaining walls.

## Relevant Project Experience

### Norwood Water Treatment Plant, City of North Miami Beach, FL

**Lead Structural Engineer |** Project involved multiple phases of design. Phase I involved emergency safety repairs to the plant, which were issued in smaller packages to facilitate timely implementation. Phase II (Work Order 3) addressed updates and expansion to the existing RO/NF process. The main phase (Work Order 4) involved many new structures including new Chemical Building, High Service Pump Station, Maintenance and Lab Building, Backwash Reclaim tanks, Lime Softening Clarifiers, and potential new Filter structures.

### BSU RO WTP and Wellfield Phase II Expansion and Lime Softening WTP Improvements, Bonita Springs Utilities, Inc., Bonita Springs, FL

**Lead Structural Engineer |** Project included new foundation design for Lime system and site wells. A new metal building was designed to be installed over an existing concrete filter structure. Detailed coordination required with General Contractor and Metal Building manufacturer to meet restrictions of installing on an existing structure.

### Lake Worth Drainage District, City of Lake Worth, FL

**Lead Structural Engineer |** Project provides SCADA and Control Structure Electrical Improvements. Structural design included 20 new elevated walkways for channel level monitoring. Design also included foundation design for communication towers.

### Turkey Creek Wastewater Treatment Plant 2019 Improvements, First Utility District of Knox County, TN

**Lead Structural Engineer |** Project included cast in place junction boxes, modifications and additions to existing headworks structure, UV disinfection facility with canopy structure, utility water pump structure, sludge dewatering building, modification to existing sludge bin facility including support for new conveyors.

### Ebenezer Basin Improvements, First Utility District of Knox County, TN

**Lead Structural Engineer |** Project included a new 5.8 mgd below grade wastewater pump station, 1 MG wastewater equalization tank, electrical buildings, generator foundation, and surge tank foundation.

### Oak Ridge Water Treatment Plant, City of Oak Ridge, TN

**Lead Structural Engineer |** Project included a new 16 mgd water treatment plant at the existing raw water intake site. New water treatment building consisted of a partially buried foundation and second floor office and mezzanine area constructed of cast in place concrete utilizing pan formed concrete joists. The building superstructure consisted of a steel framed building including an exterior tank farm under canopy. Other structures included dual cell concrete flocculation basins, 1 MG clearwell tank, and residual tanks.

# Erika Smith

COST ESTIMATOR

Erika brings more than **23 years of experience in cost estimating on water and wastewater treatment facilities, solid waste facilities, and commercial construction projects**. She is **highly specialized in working with design and planning teams developing conceptual, budget, and definitive construction costs.**

## Education:

BS, Building Construction, University of Florida

BS, Design, Architecture, University of Florida

## Registrations/Certifications:

N/A

## Years of Experience:

23

## Office Location:

Gainesville, FL

## Distinguishing Qualifications:

- Specialized in water and wastewater treatment cost estimating
- Experience with conceptual, budget, and definitive estimates

## Relevant Project Experience

### Cahaba River WWTP to Valley Creek WWTP Sludge Transfer - Force Main, Jefferson County, AL

**Cost Estimator |** Provided construction cost estimates for the force main. This project involved the design, bidding, and construction services of a force main that conveys waste activated sludge from the Cahaba River WWTP to a large diameter gravity sewer where the flow would be discharged in another treatment plant. Part of the design work included performance of a detailed route analysis.

### JEA Blacks Ford WRF, JEA, Jacksonville, FL

**Lead Estimator |** Provided estimated construction costs for the expansion and re-purposing of existing plant systems and structures. The 3-mgd AADF expansion included a new headworks, process bioreactors, secondary clarifiers, effluent filters, and an expanded UV disinfection facility. Additional upgrades included a new biosolids processing facility, additional pumping and storage capacity for reclaimed water, and the repurposing of existing SBR for sludge digestion and reject storage. The completed work will provide JEA with a fully functional, operational, expanded and upgraded 6-mgd AADF Water Reclamation Facility.

### JEA Northwest Regional WTP, JEA, Jacksonville, FL

**Estimator |** Provided estimated construction costs for two (2) wells, a ground storage tank, high service pump building w/ pumps, chemical feed, site work, raw water pipeline and a finish water pipeline.

### Southwest WTP Rehabilitation Improvements, City of Sunrise, Davie, FL

**Estimator |** Provided estimated construction costs for the refurbishment of the existing reactor/clarifier, including replacement of existing cascading tray aerator, lime sludge sump pump, gravity filters, backwash pumps, high service pump hydrofluosilicic acid storage tank and metering pumps, transfer pumps; cleaning and restoration of concrete clearwell, new corrosion inhibitor solutionizing tank and metering pumps, new ammonium hydroxide storage tank and metering pumps; new liquid carbon dioxide storage tank and feed system; upgrading existing chemical building; new chemical building; demolition of existing sodium hypochlorite tank and canopy; including hydrofluosilicic acid tank, pumps, concrete vault, ammonia storage facility and hydro-pneumatic tank; new concrete chemical storage area with secondary containment for chemicals; yard piping; instrumentation and controls upgrades; electrical improvements including switchgear, adjustable frequency drives MCCs, duct bank, conduit, site lighting; resurfacing of asphalt areas; new asphalt pavement; and rehabilitation of two (2) ground storage tanks.

### Water and Wastewater Capital Improvement Program, PRASA, PR

**Lead Cost Estimator |** Provided cost estimates for the water and wastewater capital improvement program involving $1.8B in improvements to Puerto Rico's water and wastewater systems. Program included the following facilities: water and wastewater treatment facilities, pump station modifications and conveyance.

### Turkey Creek WWTP Improvements, First Utility District of Knox County, Knoxville, TN

**Lead Estimator |** Provided estimated construction costs for improvements of existing plant systems and structures. The project consisted of demolition of existing equipment and facilities, installation of new wastewater treatment equipment and facilities; fine screening and grit removal, ultraviolet disinfection, and post-aeration; thickened sludge pumping; centrifuge dewatering and dewatered sludge conveyance; site improvements, yard piping, and miscellaneous structures; and I&C and electrical improvements. The project also included new metal building with HVAC for sludge dewatering and a metal canopy to cover the new disinfection facility.

### Wilson Creek RWWTP Advanced Treatment & Headworks Improvement, North Texas Municipal Water District, TX

**Estimator |** Provided estimated construction costs for improvements to the existing Wastewater Treatment Plant with future increase to 224 mgd. The Project consisted of the following work Headworks, Odor Control, Flowmeter Downstream Of Headworks, 32 mgd HRC2 System, Biocontact Tank Expansion, HRC Chemical Feed System Expansion, 30 MGD UV Disinfection For Plant 1, Secondary Effluent Splitter Box FOR Plant 2 and New Lift Station, Outfall Expansion, Interceptor Junction Structure, New Polymer Building, New Electrical Building, New High Rate Sludge Pump Station, HRC2 Indluent Junction Box, SRS Meter Vault, Primary Influent Meter Vault, Plant Effluent Connection Structure, UV Influent Meter Box.

### Rowlett Creek RWWTP, North Texas Municipal Water District, Dallas, TX

**Estimator |** Provided estimates for construction costs for improvements to the existing Wastewater Treatment Plant. The scope of work involved improvements to existing WWTP by adding 17.5 mgd of for a total 77.5-mgd and scope included the following improvements: Improvements to the influent flow control structures, piping and pumping (sized for the Phase 3 120-mgd P2HF), new combined headworks with 6-millimeter (mm) screening, two (2) trains of grit removal, and flow splitting new wet-weather pump station (60 mgd), new MBR basin (17.7 mgd), new in-line ultraviolet (UV) disinfection (20 mgd), improvements to the effluent junction structure and effluent piping (sized for the Phase 3, 120 mgd P2HF).

# 7. Qualifications

# 7. Qualifications

## Summary of Our Qualifications.

As an island community, Key West is spectacular and unique because of its island geography and ecosystem, rich cultural history, and economy driven by a mix of tourism, the fishing industry, U.S. Coast Guard, and the U.S. Navy. It is also exceptional because of its location within the Florida Keys National Marine Sanctuary with special resources such as coral reefs, seagrass beds and fisheries.

This project requires an exceptional team—**the Jacobs team—to balance the project's environmental, geotechnical, security and safety challenges which present unique challenges**. To ensure success in addressing the City of Key West's unique challenges, and to deliver your Trenchless Installation of Utilities Across Fleming Channel project and associated tasks identified by the City, we have developed a highly qualified team that includes the best of the best with technical experience in South Florida and trenchless installation methods for the relocation of the existing utilities suspended from the Fleming Bridge, surface and subsurface conditions, design and permitting, who understand expediting schedules and meeting deadlines.

Our team offers extensive knowledge of your existing utilities, a keen understanding of your project goals, along with in-depth knowledge of the many challenges that must be addressed and resolved. We are familiar with the most complex projects that must be completed under strict deadlines that involve coordination with the Navy and their security protocols, neighboring residential communities, and regulatory agencies.

### The Jacobs Team, The Only Team:

- We require **no learning curve** and will begin work immediately
- We have over three **(3) decades** of work history as a **trusted team partner** of the City of Key West
- We have been delivering **trenchless utility services** for **over 40 years**
- We bring our **decades** of **experience in tunnelling and conveyance design** to the City
- We will not rest on our reputation and **will seek new innovations to exceed your expectations**
- We have the demonstrated qualifications to accelerate your schedule, **stay on budget and complete your project on time**

Our leadership, in collaboration with the City, will take this project from concept to completion. The City will benefit from our accessible regional and global experts who are experienced in working on challenging design and microtunnel engineering projects with similar scopes, permitting, safety and environmental conditions, across various geographies. Our proposed **Project Manager, Mike Stickley** will work closely with each discipline leader throughout the duration of your project who will identify and resolve issues through innovative processes and cost-effective implementation strategies that offer a long-term superior value.

This section highlights **Jacobs' qualifications**, including our project understanding, projects our team has collectively and successfully performed on, along with our Florida and Keys experience.

## Experience of Team Members Working Successfully Together on Other Similar Projects.

**Jacobs trenchless team are experts in subaqueous trenchless design and construction** and have unrivalled experience performing geotechnical characterization for coastal Florida trenchless installations and tunnels.

Our team's qualifications include our unrivaled experience working on the **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel**. That knowledge it is an essential part of the future success of the **Trenchless Installation of Utilities Across Fleming Channel** project. We bring a multidisciplinary team that understands microtunneling and knows that microtunneling aspect of the project is not the only challenge. Logistics such as permitting, safety and environmental sensitivity can create their own complexities and challenges.

Mike Stickley has a well-tailored strategy to anticipate, address and swiftly resolve any challenges that may arise and jeopardize meeting the City's project schedule.

The projects below demonstrate our **team's qualifications and capabilities to perform well together** on other similar projects and provide a successful outcome for our clients. Our core team consisting of **Mike Stickley** (Project Manager), **Robert Martin** (Trenchless Engineer), **Javier Colignon** (Utility Relocation Coordination Manager), **Leigh Ann Cannon** (Permitting Lead), and **Andrew Bursey** (Quality Control/Assurance) have worked on following projects, in various capacities, in their respective areas of specialization.

The specific team members proposed for this project have worked on design, construction, and geotechnical characterization for numerous high-profile projects in Florida, including:

**Multiple large subaqueous trenchless installations near or on the coast,** including the large diameter horizontal directional drilling (HDD) St. John's River crossings for TWWMP and South Shores Projects in Jacksonville, for which Jacobs' team accurately characterized the critical subsurface conditions.

**The Port of Miami Tunnel, the largest underground installation ever built in Florida,** with Jacobs serving as the Engineer-of-Record (EOR), working for the Design/Build (D/B) contractor; the first tunnel constructed by an alternative delivery team in the USA. The tunnel has a combined total length of 8,400 ft. excavated using an Earth Pressure Tunnel Boring Machine (EPBM) in predominately soft, high porous and unstable ground that required extensive ground modification.

**The Miami Brickell Microtunnel,** one of the most logistically challenging microtunnels ever built in Florida, where Jacobs' team served as the Engineer-of-Record (EOR) for the microtunnels similar in configuration and in similar ground conditions to those at Fleming Key. The team's **Miami Brickell Microtunnel experience is particularly relevant to the Project.** Jacobs was the Engineer of Record (EOR) for the Design/Build (D/B) Contractor. Our team built on the D/B bridging documents prepared by others, to develop the designs for the permanent works, and for the secant pile shafts like those required for this Project. The **Miami Brickell Microtunnel project was constructed in very similar ground conditions as will be encountered, near the coast,** below the water table in highly porous limestone and sand.

The most **critical experience that Jacobs' team provides is our understanding of constructability considerations; these will drive the Project's schedule** and **present some of the major risks that must be addressed.** Our team drew on our extensive practical construction experience to work hand-in-hand with the Contractor, to not just prepare designs, but **to manage and orchestrate all of the various technical work** elements required for construction success, including:

- Site planning for construction staging and logistics.
- Coordination of a diverse technical team, as will be required for this Project, including traffic planning and control, FDOT coordination and agreements, utility relocations and protection, public engagement, and construction scheduling.
- Management of construction risks, including potential risks of disruption to the public and damage to critical infrastructure. Our team developed and oversaw a geo/structural instrumentation program for critical infrastructure including overhead people movers.

*"As an industry leader in developing and deploying trenchless and tunneling technologies, either on their own merit or as part of larger conveyance projects, Jacobs brings innovative and cost-effective approaches for buried infrastructure assessment, rehabilitation, replacement and new installations for our clients' specific water, wastewater and energy conveyance projects."*

**Susan Moisio, Jacobs Global Water Market Director**

## Experience of Team Members Working Successfully Together on Previous Key West Projects.

**Our team knows the City of Key West.** As a trusted partner of the City for more than 35 years, we know your systems, processes, and your critical issues. Some of our recent services provided to the City include multiple in-water projects that required state, federal, and local environmental permits as well as agency coordination.

- **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel**

The Jacobs team delivered the *Basis of Design* for this project. An assessment was conducted to evaluate different trenchless installation methods for the relocation of the existing utilities suspended from the Fleming Bridge. The evaluation included a review of the surface and subsurface conditions that impact the trenchless installation and identifies considerations during construction that could impact feasibility of the trenchless installation method. A unit-based cost estimate was included for each feasible trenchless installation method.

- **General Engineering Services Contract**

Since 1985, Jacobs has been working with the City of Key West to provide a variety of planning, engineering, and construction services projects under a **General Engineering Service Contract, and is currently delivering nine (9) task orders managed by four (4) Jacobs project managers**. Projects include the repair of the **Fleming Bridge Pile,** the geotechnical boring collection for the (proposed) utility pipeline replacement under **Fleming Channel** and stormwater retrofit and improvements **Patricia and Ashby Streets**.

☑ **Fleming Bridge Piling Repair**

Our team received the permit and exemption verification for the installation of a fiberglass jacket around one damaged pile on Fleming Key Bridge. We obtained a DeMinimis Exemption from the South Florida Water Management District approximately two (2) weeks after submitting the application and received the USACE Nationwide Permit just over two (2) months after submitting the pre-construction notification. To support application processing, the submittal included the U.S. Fish and Wildlife Services' protected resources' construction conditions and Jacobs Benthic Resources Survey results regarding presence of corals and seagrass.

☑ **Fleming Channel Geotechnical Boring**

Our team permitted the collection of one geotechnical boring in the Fleming Channel in preparation of the utility pipeline replacement. We coordinated with Florida Keys National Marine Sanctuary and eliminated the need for a benthic resources survey prior to boring collection and received a Letter of Authorization to supplement the U.S. Army Corps of Engineers (USACE) permit. We obtained an Exemption Verification from South Florida Water Management District (SFWMD) within three (3) weeks of application submittal, and we received the USACE NWP within three (3) months of submitting the pre-construction notification utilizing the Jacksonville District Biological Opinion (JAXBO) superseding. The application process included a consultation with the U.S. Coast Guard regarding potential safety and noticing requirements. Our strategy helped to save time by reducing the consultation commenting period.

☑ **Patricia/Ashby Street Underground Injection Well and Stormwater Retrofit**

We obtained Dewatering and Stormwater Retrofit General Permits from South Florida Water Management District to perform stormwater retrofit and improvements of over half an acre at Patricia and Ashby Streets. A federal permit was not required, as the project was located in the uplands, and did not impact wetlands or surface waters of the U.S. Jacobs submitted documentation supporting coverage under the General Permits which saved on application processing time and reduced the permitting fees. The Dewatering Permit and the Stormwater Retrofit Permit were issued two (2) weeks and four (4) weeks respectively after application submittal. The project was successfully constructed and is operational.

- **Cudjoe Regional Wastewater Transmission System, Florida Keys Aqueduct Authority (FKAA)**

The Jacobs team provided for the sizing and design of pump station and transmission mains to seven (7) of the islands that make up the Florida Keys. This project involved construction of nine (9) major lift stations along with14 miles of transmission mains. The existing bridges were used for support of the force main between pump stations and islands.

# 8. Representative Projects and Client References

# 8. Representative Projects and Client References

With more than **40 years of tunnel and trenchless project planning, management, design and construction management experience,** Jacobs' trenchless experts have worked on complex projects locally, regionally and around the globe to manage and extend the useful service life of existing infrastructure, as well as install new drinking water, wastewater, and energy conveyance systems without disrupting the surrounding environmentally sensitive areas or communities. **Our similar projects completed within the last five (5) years are located on page 3 of this section.**

We are proud of the innovative and collaborative work we provide to our clients. The best measure of our technical and management performance is the opinion of our clients. Therefore, **client references offer a valuable assessment of Jacobs' capabilities, commitment, and reliability.** Jacobs is uniquely qualified to provide the City of Key West with design engineering services to successfully deliver your project. Per the RFQ, this section provides client references who have used the services proposed to the City. We encourage you to contact the references provided to verify the quality of our work, confirm our qualifications and experience relevant to managing similar projects, as well as our ability to deliver projects on time and within budget.

## Jacobs' Project References.

References for projects completed within the last five (5) years.

| Project Owner/Title | Contact Name/ Title | Phone Number | Email Address |
|---|---|---|---|
| **City of Omaha** | | | |
| **South Interceptor Forcemain Microtunneling Segment, Omaha CSO Program Management** | Jim Theiler, Public Works, Assistant Director for Environmental Services | (402) 444-5225 | james.theiler@cityofomaha.org |
| This project included the development, implementation and oversight of the recovery of a rock TBM using an 86-inch microtunnel boring machine and secant pile rescue shaft. Jacobs provided the development of construction management protocols and master specifications, technical reviews of projects include sewer separation projects, and other controls such as retention treatment basins and tunnels | | | |
| **Jefferson County** | | | |
| **Cahaba River WWTP to Valley Creek WWTP Sludge Transfer - Force Main** | Daniel White, Jefferson County Environmental Services Department, Deputy Director | (205) 281-8931 | whited@jccal.org |
| Jacobs' analysis found the highway/Galleria alignment was most cost effective. The design developed provided for the installation of 13,700 linear feet of 8-inch-high density polyethylene (HDPE) pipe and associated fittings by **various methods** to include open cut, installation methods to include horizontal directional drilling (HDD), **microtunneling,** and guided auger boring in soil and rock crossing major roadways. | | | |
| **City of Ontario** | | | |
| **Fairbank-Silverthorn Storm Trunk Sewer System (FSSTSS)** | Bashir Ahmed, Sr. Project Manager, Water Treatment & Solid Waste Facilities | (416) 394-8440 | bashir.ahmed@toronto.ca |
| FSSTSS project is part of the City of Toronto's basement flooding program to relieve properties from flooding caused through surcharged storm, combined and sanitary sewers and overland flow. This was a comprehensive project and design delivery for a major tunnel. The project includes several miles of microtunneling and associated shafts in soft ground conditions. | | | |
| **The Regional Municipality of Peel** | | | |
| **Coordination of Water & Wastewater Infrastructure Works with MTD's Highway 401 Expansion Project** | Frank Pugliese, Manager, Contract Administration & Oversight, Public Works, Peel Region | (905) 791-7800 ext. 5943 (905) 867-6437 | frank.pugliese@peelregion.ca |
| The Region tasked Jacobs with design of utility upgrades and crossings for 10 water mains and a wastewater sewer. Three crossings were microtunneled: Crossing 4, 60-in steel casing, 500 LF; Crossing 7, 48-in direct jacked pipe,1000 LF; Crossing 8, 48-in casing, 1300 LF. | | | |

| Project Owner/Title | Contact Name/ Title | Phone Number | Email Address |
|---|---|---|---|
| **Athens-Clarke County United Government Public Utilities Department** | | | |
| **Upper North Oconee (UNO) Phase 2B Trunk Replacement** | Hollis Terry, United Government of Athens-Clarke County, Director of Public Utilities | (706) 613-3470 | hollis.terry@accgov.com |
| This project includes 1,400 feet of new 36-inch diameter ductile iron pipe gravity sewer. The new sewer is being installed using a combination of microtunnel boring machine (MTBM), traditional tunnel boring machine (TBM), and hand-mined tunneling methods. Approximately 1,200 feet of the new sewer is in a 72-inch diameter TBM tunnel and 100 feet is in a 60-inch diameter MTBM tunnel with steel casing pipe. The project also includes 70 feet of 42-inch RCP storm sewer installed under a railroad by auger boring. | | | |
| **City of Key West** | | | |
| **Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel** | John Paul Castro, (Former) City of Key West, Utilities Director | (305) 896-4244 | Email: N/A |
| Jacobs provided the City of Key West with an evaluation of feasible trenchless Installation methods beneath Fleming Channel to relocate the existing utilities underground, which are currently affixed to the bridge structure. The City of Key West is considering the relocation of wastewater lines supplying the WWTP that are installed on a utility bridge, spanning approximately 460 feet across the channel, from Trumbo Point to Fleming Key. A bridge failure would halt the City's ability to treat wastewater and would severely impact any corresponding recovery efforts. | | | |



## Jacobs' Similar Projects Completed Within the Last Five (5) Years.

We apply this **global experience and vast lessons learned locally for the City of Key West.** With more than 35 years of successful project delivery for the City (formerly under CH2M, now Jacobs), **we know the challenges you face**, and we **bring established relationships to you and your stakeholders**, allowing us to **bring you innovative solutions** that are **cost effective, efficient, and offer lasting results**. Our **similar projects completed within the last five (5) years** follow on pages three (3) through eight (8).

*"As trenchless technologies continue improving, more of our clients will look to companies like ours to help repair or replace their aging underground infrastructure or install new buried infrastructure, and that's another honor we're most excited about - bringing these excellent solutions to our client partners."*

**Jacobs Global Tunnel and Ground Engineering Director Mark Johnson**

# South Interceptor Force Main Microtunneling Segment, Omaha CSO Program Management

## Omaha, NE

**CLIENT NAME:**

City of Omaha

**PROJECT DURATION:**

Design Start Date: 06/2016

Design End Date: 01/2017

Construction Start Date: 02/2017

Construction End Date: 11/2017

**TOTAL PROJECT COST:**

$4.2 Million

**ROLE ON THE PROJECT:**

Program Manager of the City's CSO Program

**KEY PERSONNEL:**

Robert Martin, PE, Program Tunnel Lead

**REFERENCE/CONTACT:**

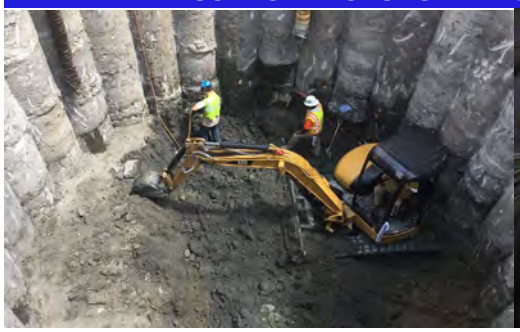
Jim Theiler, Public Works, Assistant Director for Environmental Services
City of Omaha
(402) 444-5225
james.theiler@cityofomaha.org

**RELEVANCY:**

- The upcoming project for the City will have the same diameter, casing material, and shaft construction as this project
- Similar installation length and geology

✓ **COMPLETED ON TIME AND ON BUDGET**

**86 INCH MICROTUNNEL BORING PROJECT**



### Project Description

This project included the development, implementation, and oversight of the recovery of a rock TBM using an 86-inch microtunnel boring machine and secant pile rescue shaft.

The City of Omaha had to develop a Long-Term Control Plan (LTCP) to identify methods to reduce the occurrence of untreated combined sewer overflow (CSO) to the Missouri River and Papillion Creek tributaries. A Consent Order with Nebraska Department of Environment and Energy (NDEE) was entered into in 2007 that required the completion of the project by 2024. The City selected Jacobs (formerly CH2M Hill) to lead the team as its program management consultant, responsible for providing overall LTCP preparation and implementation of the overall CSO construction program. This project included the development of construction management protocols and master specifications, performing technical reviews of projects including the review of sewer separation projects, and other controls such as retention treatment basins and tunnels.

### Challenges and Solutions

**Challenge:** Soil overlying rock with high groundwater where dewatering was not feasible.

**Solution:** Required secant pile shafts socketed into the rock.

**Challenge:** Tunnel exited out of rock into saturated soils with high groundwater.

**Solution:** Required microtunneling having a mixed face cutting head with face access to enable tool changes to suit changing ground conditions.

### Key Achievements

- Completed the installation and recovery of the TBM without issue.

# Cahaba River WWTP to Valley Creek WWTP Sludge Transfer - Force Main

## Jefferson County, AL

**CLIENT NAME:**

Jefferson County

**PROJECT DURATION:**

Design Start Date: 07/2012

Design End Date: 05/2015

Construction Start Date: 02/2019

Construction End Date: 09/2020

**TOTAL PROJECT COST:**

$7.2 Million

**ROLE ON THE PROJECT:**

Design, Bidding & Full Construction Services

**KEY PERSONNEL:**

Robert Martin, PE, Project Engineer

Mike Stickley, PE, Design Manager/Lead Designer

Erika Smith, Cost Estimator

**REFERENCE/CONTACT:**

Daniel White, Deputy Director
Jefferson County Environmental Services Department
(205) 281-8931
whited@jccal.org

**RELEVANCY:**

- Challenging construction conditions-crossing under numerous existing utilities (large diameter high pressure gas lines and buried electrical duct bank)
- Development of a tunneling specifications
- Evaluation of tunnel liner and installation
- Development of the contract drawings
- Coordination with tunneling contractors during design
- On site construction inspection
- Permitting to include DOT and Performance of Environmental Survey for wetlands and endangered species

✓ **COMPLETED ON TIME AND UNDER BUDGET**

**SLUDGE TRANSFER PROJECT/MICROTUNNELING**

## Project Description

Jacobs provided design, bidding and construction services of a force main that conveys waste activated sludge from the Cahaba River Wastewater Treatment Plant to a large diameter gravity sewer where the flow would be discharged in another treatment plant. Part of the design work included performance of a detailed route analysis. The alignments available either paralleled or crossed through environmental sensitive areas/watersheds or followed/crossed major highways and crossed through the parking lots and roads of one of the major shopping centers (Galleria) in the Birmingham area.

The analysis found that the highway/Galleria alignment was the most cost effective with the least potential for environmental impacts. The design developed provided for the installation of 13,700 linear feet of 8-inch-high density polyethylene (HDPE) pipe and associated fittings by various methods to include open cut, installation methods to include horizontal directional drilling (HDD), two segments installed by microtunneling, and guided auger boring in soil and rock crossing major roadways such as State Highway 150, State Highway 31 and an off ramp from Interstate 459. The design was completed in 2015 but construction was delayed until 2019 due to easement acquisition.

The variety of installation methods were necessary to adapt to the subsurface conditions, minimize the impacts of traffic for residences and businesses, and meet the requirement of the Alabama Department of Transportation and other property owners. This project included hot tapping of a 48-inch ductile iron pipe where the flow from the 8-inch HDPE main is discharged, design assistance for the pump station (to include pump selection) that will convey the sludge through the main and preparation of a detailed traffic control plan.

## Challenges and Solutions

**Challenge:** Subsurface Conditions. Crossing through fill with boulders that could present obstacles to trenchless boring methods.
**Solution:** Preparation of the baseline report detailed the potential crossing issues for the contractor and microtunneling was required based upon the conditions.
**Challenge:** Permitting and Coordination with Property Owners
**Solution:** Early review and coordination with DOT minimized permitting delays. Numerous meetings were held with the property owners along the alignment to ensure that the work approaches and schedule would not restrict property access or impact their businesses.

## Key Achievements

- The detailed design resulted in the project being completed under the bid price providing a cost savings for the Owner.
- Property owners were not impacted by the work and expressed their appreciation.

# Fairbank Silverthorn Storm Trunk Sewer System (FSSTSS)

## Toronto, Ontario, CA

**CLIENT NAME:**

City of Toronto

**PROJECT DURATION:**

Design Start Date: 02/2019

Design End Date: 01/2021 (Main Tunnel Design)

Est. 06/2022 (Remainder of Design)

Construction Start Date: 10/2021

Construction End Date: Est. 2025

**TOTAL PROJECT COST:**

$380 Million (Canadian Dollars)

**ROLE ON THE PROJECT:**

Program Management

**KEY PERSONNEL:**

Andrew Bursey, PE, Senior Tunnel QC Reviewer and Construction Risk Management Consultant

**REFERENCE/CONTACT:**

Bashir Ahmed, Senior Project Manager
City of Toronto
(416) 394-8440
bashir.ahmed@toronto.ca

**RELEVANCY:**

- Microtunnel design
- Tunnel design
- Deep shafts
- Heavily developed areas
- Planning and permitting
- Risk management

✓ **COMPLETED MAIN TUNNEL DESIGN**

**MICROTUNNELS AND SHAFTS IN DEVELOPED AREAS**

### Project Description

Fairbank Silverthorn Storm Trunk Sewer System (FSSTSS) project is part of the City of Toronto's basement flooding program to relieve developed areas from flooding. The main FSSTS tunnel is 15-foot-diameter and approximately 1.8 miles long, 22 to 150 feet deep.

Project and Design Delivery for a Major Tunnel with Microtunneled Segments. Jacobs' scope includes program management, detailed design, geotechnical analysis, preparation of GBRs, risk management, contract administration, and construction management.

**The project has over 1.1 miles of microtunnels in soil including sand and silt below the water table.** The microtunnel pipe inside diameter is approximately 71 inches. 14 shafts are required for microtunneling; 4 shafts will have drop structures connecting microtunnels to the main tunnel, up to 130 feet deep. Microtunneling will be performed in a heavily developed part of Toronto with extensive utilities, construction access challenges, and tight staging areas.

### Challenges and Solutions

**Challenge:** Extensive utilities at sites and along alignment.

**Solution:** SUE level B surveys for all streets for screening then Level A campaign to daylight targeted utilities of concern. 1600 utilities evaluated using Jacobs' TUNDRA software for risk analysis and mitigation planning.

**Challenge:** Logistical challenges of site constraints and access limitations.

**Solution:** Proactive construction planning including road closure and MOT coordination with multiple City work zone coordinators. Haul route planning to limit impacts to major urban arteries. Detailed planning for pedestrian traffic.

**Challenge:** Tight schedule constraints due to federal funding allocations.

**Solutions:** Situated main shafts in parks to limit utility diversion work impacts to critical path.

**Challenge:** Extensive permitting and easement requirements.

**Solutions:** Proactive engagement and coordination with multiple agencies and 3rd part stakeholders, including tunnel crossings under a transit rail lines and a light rail tunnel on a project currently under construction.

### Key Achievements

- Incorporating a change from 13-foot to 15-foot-diameter at the 90% stage within minimal impact to the overall design delivery schedule.
- Developed construction sequencing that will allow downstream segments to take inflows before overall completion, providing benefits to the public as early as possible.
- Proactive public engagement by Jacobs' own dedicated Field Ambassador

# Coordination of Water & Wastewater Infrastructure Works with MTO's Highway 401 Expansion Project

## Regional Municipality of Peel, Ontario, CA

**CLIENT NAME:**

The Regional Municipality of Peel

**PROJECT DURATION:**

Design Start Date: 10/2018

Design End Date: 04/2022, (02/2022 Crossings 4, 7, and 8)

**TOTAL PROJECT COST:**

$64 Million

**ROLE ON THE PROJECT:**

Design of Major Highway Crossings by Microtunneling

**KEY PERSONNEL:**

Andrew Bursey, PEng, Geotechnical and Spec. Reviewer for Crossing 7 Microtunnel

**REFERENCE/CONTACT:**

Frank Pugliese, PEng
Manager, Contract Administration & Oversight
Public Works, Peel Region
Work: (905) 791-7800, ext. 5943
Cell: (905) 867-6437
frank.pugliese@peelregion.ca

**RELEVANCY:**

- Design for microtunneling in silty soil below the water table
- Relocation of existing utilities using microtunneling
- Permitting and coordination with transportation and environmental agencies, coordination with 3rd party utilities

✓ **COMPLETED ON TIME AND ON BUDGET**

**TRENCHLESS CROSSINGS FOR A MAJOR HIGHWAY AND CREEK**

### Project Description

This project was required due to widening of Highway 401, a major multi lane highway, by the Ministry of Transportation of Ontario (MTO, the Ontario DOT equivalent). The project required modification of multiple existing utilities owned by the Region of Peel that cross under Highway 401, including relocation of existing valves, chambers, and maintenance holes to outside the new Right-Of-Way. The MTO required trenchless installations with pressurized lines to be within steel casing capable of withstanding the same operation pressures as the watermains.

The Region tasked Jacobs with design of utility upgrades and crossings for 10 water mains and a wastewater sewer. Three crossings were microtunneled: Crossing 4, 60-in steel casing, 500 LF; Crossing 7, 48-in direct jacked pipe,1000 LF; Crossing 8, 48-in casing, 1300 LF. Jacobs' scope of work included:

- Microtunnel design, including geotechnical and hydrogeological investigation scoping, characterization, and Geotechnical Baseline Reports.
- Construction planning and permitting.
- Coordination and permitting with multiple agencies and utility companies (MTO, TRCA, CVC, MNR, MECP, Alectra, Enbridge).

Ground conditions at these crossings varies including silty clay tills, gravely till, shale and granular alluvial deposits and bedrock consisting of shale with hard layers of interbedded siltstone and limestone. All crossings are below the water table. The Crossing 7 microtunnel was bored under a creek and an extra high pressure (vital) gas line with limited clearance.

Jacobs provided alternative solutions for crossings one to six, and the two remaining crossings will go out for bid in fall of 2022.

### Challenges and Solutions

**Challenge:** Tight design schedule to suit MOT construction schedule.

**Solution:** Designs fast tracked with early involvement of the microtunneling contractor to integrate the contractor's expertise with design.

Jacobs facilitated coordination for some of the crossings with the Highway Project DB contractor to avoid construction schedule impacts.

### Key Achievements

- Microtunnels completed without construction delays or claims, due to comprehensive Geotechnical Baseline Reports.

# Upper North Oconee (UNO) Phase 2B Trunk Replacement

## Athens-Clarke County, GA

**CLIENT NAME:**

Athens-Clarke County Unified Government Public Utilities Department

**PROJECT DURATION:**

Design Start Date: 05/2018

Design End Date: 11/2018

Construction Start Date: 03/2019 (Bidding Started), 08/2019 (Bids Received)

Noticed to Proceed: 05/2020

Construction End Date: 04/2022 (Substantial), 05/2022 (Final)

**TOTAL PROJECT COST:**

$12.7 Million

Planning, Design, and Construction Phase Services ($1.7 Million)

Construction ($11 Million)

**ROLE ON THE PROJECT:**

Design, Permitting, Bid Phase, and Construction Management Services

**KEY PERSONNEL:**

Andrew Bursey, PE, Lead Tunnel Engineer, Construction Phase

Colin Sessions, PE, Senior Tunnel Engineer

**REFERENCE/CONTACT:**

Hollis Terry, Director of Public Utilities
Unified Government of Athens-Clarke County, Georgia
(706) 613-3470
hollis.terry@accgov.com

**RELEVANCY:**

- Microtunnel design for wastewater lines
- Procurement Support and Construction Management for Trenchless Installation

✓ COMPLETED

**TRUNK REPLACEMENT/ HAND MINING LINER PLATE**

### Project Description

The UNO Phase 2B Trunk Replacement project eliminates several hundred feet of existing aerial gravity sewer spans in deteriorating condition and eliminates a reach of gravity sewer along the North Oconee River. Jacobs provided concept planning, detailed design and bidding services, and construction management services. The scope of work included:

- Geotechnical investigation, geotechnical baseline report.
- Approximately 1,370 linear feet of 36-inch diameter ductile iron restrained joint gravity sewer pipe, with 1,260 linear feet of 60-inch diameter steel casing pipe, designed to be installed by microtunneling.
- Trenchless crossings under GA SR 10 Loop, and a railroad.
- Aerial crossing design.
- Various pipe connections and appurtenances.
- Demolition of above-ground pipe and concrete pier pipe supports and manholes; plug, abandon, and remove buried sewer pipe.

### Challenges and Solutions

**Challenge:** Develop option to remove deteriorating segments of gravity sewer. Replacement options would cross difficult terrain, highway, river, and a railroad. Open cut replacement would be difficult, open cut option infeasible.

**Solution:** Trenchless technology construction of replacement sewer using tunneling.

### Key Achievements

- Collaborated with the County's treatment plant staff throughout construction to ensure minimal disruptions to operations.
- A tie-in was required in a popular park. Jacobs coordinated with the park department to mitigate tie-in impacts on park users.
- Geotechnical instrumentation program helped protect a railroad, highway, and nearby warehouse.
- Facilitated seamless adoption of a contractor proposed VE alternative to use a specialized TBM with ribs and lagging in lieu of casing for much of the bore. Jacobs' tunnel team drew on extensive tunnel contracting experience to quickly review the proposal and quickly develop modified specifications to suit.
- The trenchless installations were completed with no claims for changed ground conditions.
- Developed project concept including an analysis of the existing wastewater collection system in the area by conducting a condition assessment of the gravity sewers and collection system modeling for capacity evaluation. Analyzed options for replacement of deteriorating and failing gravity sewer segments.
- Provided detailed design and bidding for selected gravity sewer replacement option including development of the geotechnical investigation plan for tunnel design.

# Trenchless Installation Feasibility Evaluation of Existing Utilities Across the Fleming Channel

## Key West, FL

**CLIENT NAME:**

City of Key West

**PROJECT DURATION:**

Start Date: 05/2018

End Date: 01/2021

**Feasibility Analysis - Predesign*

**TOTAL PROJECT COST:**

$5 Million

**ROLE ON THE PROJECT:**

Trenchless Designer

**KEY PERSONNEL:**

Robert Martin, PE, Project Engineer

Javier Colignon, Project Manager

Dean Garcia, PE, Design Manager

**REFERENCE/CONTACT:**

John Paul Castro, (Former) Utilities Director
City of Key West
(305) 896-4244
Email: N/A

**RELEVANCY:**

- This project provided the engineering and permitting requirements to set the scope of work for the project the City is now bidding
- This project gave us an understanding of the challenges and allowed us to connect with the key players
- The knowledge acquired in this referenced project will allow us to skip the learning curve while maximizing the efficiency in schedule and costs

✓ **COMPLETED**

**UTILITY RELOCATION PROJECT**

## Project Description

The City of Key West is considering the relocation of wastewater lines supplying the WWTP that are installed on a utility bridge spanning approximately 460 feet, across the channel from Trumbo Point to Fleming Key. A bridge failure would halt the City's ability to treat wastewater and would severely impact any corresponding recovery efforts. The City of Key West requested and evaluation of feasible Trenchless Installation methods beneath Fleming Channel is required to relocate the existing utilities underground that are currently affixed to the bridge structure.

There are currently seven (7) utilities suspended from the bridge structure which include one (1) 8-inch potable water line, two (2) 30-inch sanitary force mains, and four (4) 4-inch electrical conduits. The project included: Evaluation of tunneling methods to include HDD, microtunneling, pipe material consideration, constructability evaluation, 10% design and cost estimate preparation.

## Challenges and Solutions

**Challenge:** Subsurface Conditions.

**Solution:** Completed a desk top study and geotechnical site investigation to determine actual subsurface conditions to evaluate feasible trenchless installation methods.

**Challenge:** Site Access / Remote Location.

**Solution:** Evaluated site access and limitations associated with accessing the island. Determined that the existing bridge would not be able to accommodate tunneling or shaft construction equipment and worked with contractors to determine methods for getting required equipment on to the island.

## Key Achievements

- Alternative Evaluation
- Preliminary Design
- Cost Estimate

## Jacobs' Tunnel and Trenchless Technology Projects.

We have highlighted additional projects on the following pages that **spotlight Jacobs' local, regional, national, and Canadian projects** focused on a range of trenchless technology services. We understand the significant impact that **various geographical locations and geological conditions** have on overall projects.

# Port of Miami Tunnel

## Miami, FL

**CLIENT:**

Florida Department of Transportation

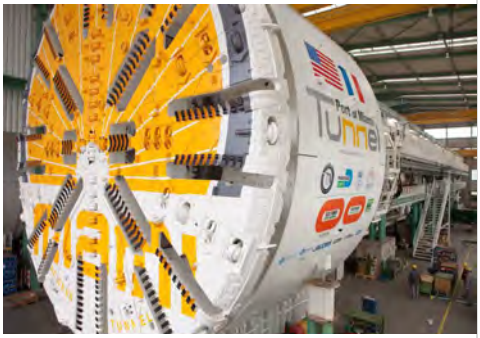
**JACOBS' ROLE:**

Lead Designer/Tunnel Engineering and Inspection

**RELEVANCY:**

- ✓ Geotechnical and tunnel engineering
- ✓ Environmental protection
- ✓ Expedited design
- ✓ Utility relocation
- ✓ Permitting

### Tunnels and Trenchless Technologies



Jacobs was the lead designer for the Port of Miami Tunnel, a twin 37-foot inside diameter (41-foot outside diameter) road tunnel constructed under the Port's shipping channel between Watson Island and Dodge Island. The goal was to divert port traffic away from downtown Miami and onto a dedicated connection to the Interstate Highway System via I-395 and the MacArthur Causeway Bridge to reduce congestion and improve safety in the downtown area.

The tunnel has a combined total length of 8,400 ft. excavated using an Earth Pressure Tunnel Boring Machine (EPBM) in predominately soft, high porous and unstable ground that required extensive ground modification. The project also included widening the MacArthur Causeway Bridge, temporary and permanent roadways.

# Dogue Creek Force Main Replacement

## Fairfax, VA

**CLIENT:**

Fairfax County

**JACOBS' ROLE:**

Final Design and Services During Construction

**RELEVANCY:**

- ✓ Final design
- ✓ Construction shafts
- ✓ Trenchless techniques for microtunnel drives

### Tunnels and Trenchless Technologies

Jacobs performed final design work for the Dogue Creek Force Main Replacement project. Located on the Fort Belvoir Military Reservation, this project includes replacing an existing force main with construction of 4,400 feet of 36-inch transmission main, a ductile iron pipe, six construction shafts, and one permanent manhole. The force main carries sewage from the Dogue Creek Pump Station to the junction chamber and gravity sewer connection. The replacement force main consists of five sections that were installed using trenchless techniques. Two short sections, connecting to the pump station and junction chamber were installed in trench excavations. Six work shafts are required for the five microtunnel drives.

# Belmont North Relief Interceptor

## Indianapolis, IN

**CLIENT:**

Citizens Energy Group

**JACOBS' ROLE:**

Microtunnel Design Engineer

**RELEVANCY:**

- ✓ Geotechnical site investigation
- ✓ Pump testing programs
- ✓ Detailed analyses to evaluate groundwater pressures

### Tunnels and Trenchless Technologies

The Belmont North project included construction of 5,250 LF of 72-inch diameter RCP gravity sewer. 4,000 LF of the alignment was constructed by **microtunneling, using a slurry TBM (MTBM).** The microtunnel segment had three active sewer tie-ins ranging in diameter from 42- to 78-inches, with flumes. Jacobs provided design and engineering for the microtunnel segments. Our scope of work included microtunnel design, and engineering consulting for the geotechnical exploration program. We prepared design drawings and specifications for microtunneling and performed geotechnical analysis and prepared the project Geotechnical Baseline Report (GBR). This project was constructed in a developed area of Indianapolis, and microtunneling was employed in order to limit surface disruption. Microtunnel alignments were located primarily below city streets, including several major traffic arteries for the city and the project had to minimize disruptions to existing neighbors and utilities and allow adequate space for economical tunnel construction. This microtunnel project has been recognized by the city as a successful project, and was completed on schedule and budget.

# Steve Lake Intake

## Abbotsford/Mission, BC

**CLIENT:**

Abbotsford/Mission Water and Sewer Services

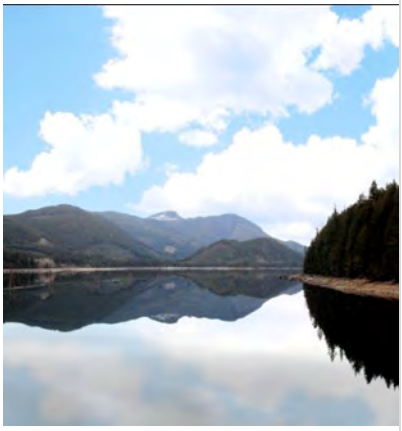
**JACOBS' ROLE:**

Alternatives Analysis and Preliminary Design

**RELEVANCY:**

- ✓ Intake tunnel microtunneling
- ✓ Tunneling below water

### Tunnels and Trenchless Technologies



This program included **developing Stave Lake as a new water supply to expand its drinking water system.** Jacobs evaluated intake alternatives, completed preliminary design of raw water intake in Stave Lake Reservoir in British Columbia. Ten alternative design concepts for the water supply intake and pump station were developed in a workshop setting and evaluated based on life-cycle costs and non-economic criteria. The intake tunnel involved rock microtunneling in hard igneous rock. The machine was equipped for underwater recovery in the reservoir. Critical tunneling issues included the risk of blasting damage to adjacent structures and a nearby dam, tunneling below water with low cover construction of an in-reservoir bench on which to perform a wet recovery of the rock microtunnel boring and construction of the intake screens, structure, and access bridge. The best option was selected that minimized construction and disturbance in the lake and had the least impact on the environment, archaeological site, and the community.

# Ute Reservoir Intake Tunnel and Screens

## Logan, NM

**CLIENT:**

Eastern New Mexico Water Utility Authority

**JACOBS' ROLE:**

Design and Services During Construction

**RELEVANCY:**

- ✓ Trenchless design and construction
- ✓ Microtunneling and shaft construction

### Tunnels and Trenchless Technologies

Jacobs evaluated intake alternatives, completed final design, prepared tender documents, and managed construction of a 39 mgd raw water intake in Ute Reservoir. The intake was the first stage of construction of a larger system that includes 150 miles of raw and finished water conveyance pipelines; a 28 mgd raw water booster pump station; a 140,000 ft3 storage tank; a water treatment plant with a finished water booster pump station to **service downstream municipalities including Cannon Air Force Base. The intake involved rock microtunneling to jack 54-inch inside diameter steel pipe at 40 ft below the reservoir surface in fractured sandstone rock with UCS up to 9 ksi**. The microtunnel boring machine (MTBM) had rock disc cutters to fracture the native rock. The machine was equipped for underwater recovery in the reservoir. The project included construction of an intake with cylindrical fish screens located on a semi-circular bench excavated into the rock bluff at the reservoir edge. Critical tunneling issues included risk from blasting damage to adjacent homes and a nearby dam, tunneling and associated shaft construction in fractured sedimentary rock in direct hydraulic connection to the reservoir, construction of an in-reservoir bench to allow a wet recovery of the rock MTBM, and construction of the intake screens, structure, and access bridge.

# Barclay/4th/Chase MIS Replacement

## Milwaukee, WI

**CLIENT:**

Metropolitan Interceptor Sewer (MIS)

**JACOBS' ROLE:**

Design Consultant and Services During Construction

**RELEVANCY:**

- ✓ Final design
- ✓ Construction support
- ✓ Subsurface investigation and geotechnical baseline report (GBR)
- ✓ Hydraulic analysis
- ✓ Permitting

### Tunnels and Trenchless Technologies

Jacobs completed final design and provided construction support for the MIS replacement project. This project involved the design of improvements to an older urban sewer system. Improvements were needed to provide additional capacity to accommodate projected growth in wastewater flows from the service area and to rehabilitate deteriorating parts of the old Basin "A" MIS. The project's elements included:

The project involved the construction of approximately 10,700 linear feet of new 48-inch and 72-inch diameter sewers in a dense urban area by microtunneling at depths ranging from 20 to 70 feet in bouldery glacial till, mixed-face, and dolomite bedrock ridges. The team made value engineering improvements to alignment alternatives selected by the preliminary engineering design firm, managed permitting issues with the City of Milwaukee, Wisconsin DOT, Wisconsin DNR and utilities, and prepared a design report and contract documents for bidding.

# Mill Road MIS Relief Sewer Project

## Milwaukee, WI

**CLIENT:**

Milwaukee Metropolitan Sewerage District (MMSD)

**JACOBS' ROLE:**

Tunnel Designer and Services During Construction

**RELEVANCY:**

- ✓ Evaluation of trenchless installation methods
- ✓ Developed scope for geotechnical site investigation
- ✓ Geotechnical analysis and baseline report

### Tunnels and Trenchless Technologies

The MMSD is planning to construct a Mill Road MIS Relief Sewer to supplement the capacity of the 72-inch Relief Sewer to reduce sanitary sewer overflow occurrence and basement backup risk. A new 60-inch reinforced concrete pipe relief sewer is required with an approximate length of approximately length of 9,000 feet to be installed using microtunneling. There were several significant challenges-one included the glacial till with cobbles and boulder and rock ridges. The solution included an extensive geotechnical investigation to determine subsurface conditions using geotechnical borings, and geophysics. The other significant challenge included a residential and commercial area requiring rock excavation. The solution was to limit ground vibrations to avoid damage to existing infrastructure. This project also included the evaluation of trenchless installation methods, development of scope of work for the geotechnical site investigation, geotechnical analysis, a geotechnical baseline report, and the development of technical specifications and drawings related to the trenchless installation.

# Catoma Wet Weather Improvements Program Phase II and III

## Montgomery, AL

**CLIENT:**

Montgomery Water Works and Sanitary Sewer Board (MWWSSB)

**JACOBS' ROLE:**

Trenchless Designer and Services During Construction

**RELEVANCY:**

- ✓ Trenchless design of crossings
- ✓ Evaluation of trenchless alternatives
- ✓ Conditions assessments
- ✓ Survey coordination
- ✓ Permitting

### Tunnels and Trenchless Technologies

This program involved multiple studies to identify the most cost-effective solution to address MWWSSB's conditions and capacity limitation for their Catoma Water Pollution Control Plant (WPCP) conveyance system. A phased approach was used that allowed MWWSSB to address their most pressing needs first while delaying less critical phases until additional funding could be secured.

**Phase I.** Construction of a 45-mgd pump station and 48-inch force main to convey raw sewage to the Catoma WPCP. The existing pump station was kept online and combined with the new pump station to convey wet-weather flows to the treatment facilities.

**Phases II and III.** Construction of a 13-mile sanitary sewer interceptor to replace an existing deteriorated and capacity limited interceptor. The $29-million Phase II project involved installation of approximately 6 miles of 30-inch to 78-inch, majority 60-inch and 66-inch, centrifugally cast fiberglass mortar pipe (CCFMP). Phase II included the installation of four microtunnel undercrossing (two 96-inch diameter steel casing, one 66-inch diameter CCFMP direct jack, and one 30-inch-diameter CCFMP direct jack), construction of a three-barrel invert siphon, and crossing numerous environmentally sensitive wetlands and creeks. The $30-million Phase III project included the installation of 7 miles of 78-inch-diameter CCFMP and included four microtunnel undercrossings environmentally sensitive wetlands and creeks.

# 9. Sworn Statements and Affidavits

# 9. Sworn Statements and Affidavits

## Exhibit A.

1. **Anti-Kickback Affidavit**
2. **Non-collusion Affidavit/Declaration and Compliance**
3. **Florida Statutes, on Public Entity Crimes**
4. **Equal Benefits for Domestic Partners Affidavit**
5. **Cone of Silence Affidavit**
6. **City of Key West Indemnification Form**
   - **Attachment A**-Supplemental Response to Indemnification Form
7. **Suspension and Debarment Certification**
   - **Attachment A1**-Supplemental Response to Debarment Form 2c
8. **Disclosure of Lobbying Activities**
9. **Prohibited Interests Form and Notice**
10. **Vendor Certification Regarding Scrutinized Companies Lists**

## Other Required Documents.

- Certificate of Liability Insurance and Supplement to Certificate of Insurance
- Secretary Certificate/Certificate of Authority
- State of Florida Certificate of Good Standing
- State of Florida Firm License

## ANTI-KICKBACK AFFIDAVIT

STATE OF Florida )
: SS
COUNTY OF Broward )

I, the undersigned hereby duly sworn, depose and say that no portion of the sum herein bid will be paid to any employees of the City of Key West as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By: _____

Sirpa H. Hall, P.E., ENV SP | Manager of Projects, South Florida

Sworn and subscribed before me this 5 day of April 2022 .

NOTARY PUBLIC, State of Florida , at Large

My Commission Expires:

STACEY ROBIN LESSER
Notary Public - State of Florida
Commission # GG 303592
My Comm. Expires Apr 1, 2023
Bonded through National Notary Assn.

* * * * * *

## NON-COLLUSION AFFIDAVIT

STATE OF Florida )

: SS

COUNTY OF Broward )

I, the undersigned hereby declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

By: _____
Sirpa H. Hall, P.E., ENV SP
Manager of Projects, South Florida

Sworn and subscribed before me this

5 day of April 2022

Sirpa H. Hall Jacobs Engineering Group Inc

NOTARY PUBLIC, State of Florida at Large

My Commission Expires: Stacey Robin Lesser

STACEY ROBIN LESSER
Notary Public - State of Florida
Commission # GG 303592
My Comm. Expires Apr 1, 2023
Bonded through National Notary Assn.

SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

**THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.**

1. This sworn statement is submitted with Bid or Proposal for Trenchless Installation of Utilities Across Fleming Channel | City of Key West RFQ #22-003

2. This sworn statement is submitted by Jacobs Engineering Group Inc.
(Name of entity submitting sworn statement)
whose business address is 1999 Bryan Street, Suite 1200 | Dallas, TX 75201
Local: 3150 SW 38th Avenue, Suite 700, Miami, FL 33146 and (if applicable) its Federal Employer Identification Number (FEIN) is 95-4081636
(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement N/A

3. My name is Sirpa H. Hall, P.E., ENV SP
(Please print name of individual signing)
and my relationship to the entity named above is Manager of Projects, South Florida

4. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, 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 or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.

5. 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 guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

6. I understand that an "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 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.

7. I understand that a "person" as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or 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 for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

8. 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 this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

_____There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

_____The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

_____The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

_____
(Signature)

April 5, 2022
(Date)

STATE OF Florida

COUNTY OF Broward

PERSONALLY, APPEARED BEFORE ME, the undersigned authority,

Sirpa H. Hall, P.E., ENV SP Who, after first being sworn by me, affixed his/her
(Name of individual signing)

Signature in the space provided above on this 5 day of April, 20 22.

My commission expires:

STACEY ROBIN LESSER
Notary Public - State of Florida
Commission # GG 303592
My Comm. Expires Apr 1, 2023
Bonded through National Notary Assn.

Stacey Robin Lesser
NOTARY PUBLIC

## EQUAL BENEFITS FOR DOMESTIC PARTNERS AFFIDAVIT

STATE OF FLORIDA )
: SS
COUNTY OF MONROE )

I, the undersigned hereby duly sworn, depose and say that the firm of _____

Jacobs Engineering Group Inc.

provides benefits to domestic partners of its employees on the same basis as it provides benefits to employees' spouses, per City of Key West Code of Ordinances Sec. 2-799.

By: _____

Sirpa H. Hall, P.E., ENV SP | Manager of Projects, South Florida

Sworn and subscribed before me this 5 day of April 2022

NOTARY PUBLIC, State of Florida, at Large

My Commission Expires:

STACEY ROBIN LESSER
Notary Public - State of Florida
Commission # GG 303592
My Comm. Expires Apr 1, 2023
Bonded through National Notary Assn.

## CONE OF SILENCE AFFIDAVIT

STATE OF Florida )

: SS

COUNTY OF Broward )

I, the undersigned hereby duly sworn, depose and say that all owner(s), partners, officers, directors, employees and agents representing the firm of Jacobs Engineering Group Inc. have read and understand the limitations and procedures regarding communications concerning City of Key West Code of Ordinances Sec. 2-773 Cone of Silence.

By: _____
Sirpa H. Hall, P.E., ENV SP | Manager of Projects, South Florida

Sworn and subscribed before me this 5th day of April 2022

NOTARY PUBLIC, State of Florida, at Large

My Commission Expires:

STACEY ROBIN LESSER
Notary Public - State of Florida
Commission # GG 303592
My Comm. Expires Apr 1, 2023
Bonded through National Notary Assn.

## CITY OF KEY WEST INDEMNIFICATION FORM

PROPOSER agrees to protect, defend, indemnify, save and hold harmless The City of Key West, all its Departments, Agencies, Boards, Commissions, officers, City's Consultant, agents, servants and employees, including volunteers, from and against any and all claims, debts, demands, expense and liability arising out of injury or death to any person or the damage, loss of destruction of any property which may occur or in any way grow out of any act or omission of the PROPOSER, its agents, servants, and employees, or any and all costs, expense and/or attorney fees incurred by the City as a result of any claim, demands, and/or causes of action except of those claims, demands, and/or causes of action arising out of the negligence of The City of Key West, all its Departments, Agencies, Boards, Commissions, officers, agents, servants and employees. The PROPOSER agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent. The City of Key West does not waive any of its sovereign immunity rights, including but not limited to, those expressed in Section 768.28, Florida Statutes.

These indemnifications shall survive the term of this agreement. In the event that any action or proceeding is brought against the City of Key West by reason of such claim or demand, PROPOSER shall, upon written notice from the City of Key West, resist and defend such action or proceeding by counsel satisfactory to the City of Key West.

The indemnification provided above shall obligate PROPOSER to defend at its own expense to and through appellate, supplemental or bankruptcy proceeding, or to provide for such defense, at the City of Key West's option, any and all claims of liability and all suits and actions of every name and description covered above which may be brought against the City of Key West whether performed by PROPOSER, or persons employed or utilized by PROPOSER.

The PROPOSER's obligation under this provision shall not be limited in any way by the agreed upon Contract Price as shown in this agreement, or the PROPOSER's limit of or lack of sufficient insurance protection.

*Refer to Attachment A for Supplemental Response

COMPANY SEAL

PROPOSER: Jacobs Engineering Group Inc.

Address 1999 Bryan Street, Suite 1200, Dallas, TX 75201

Local: 3150 SW 38th Avenue, Suite 700 Miami, FL 33146

Signature

Sirpa H. Hall, P.E., ENV SP
Print Name

4/5/22
Date

Manager of Projects, South Florida
Title

NOTARY FOR THE PROPOSER

STATE OF Florida

COUNTY OF Broward

The foregoing instrument was acknowledged before me this 5 day of April, 2022
By Sirpa H. Hall, of Jacobs Engineering Group Inc
(Name of officer or agent, title of officer or agent) (Name of corporation acknowledging)
or has produced Is personally known to me as identification.

STACEY ROBIN LESSER
Notary Public - State of Florida
Commission # GG 303592
My Comm. Expires Apr 1, 2023
Bonded through National Notary Assn.

Stacey Robin Lesser
Signature of Notary

Print, Type or Stamp Name of Notary

## Attachment A

## Supplemental Response to Indemnification Form

Jacobs would like to propose the following Indemnification language that was previously signed for the 2017 City of Key West RFQ No. 17-002 General Engineering Services pursuit and if selected, Jacobs requests that this language be made part of a final contract agreed to by both parties.

To the fullest extent permitted by law, the CONSULTANT expressly agrees to indemnify and hold harmless the City of Key West, their officers, directors, agents, and employees (herein called the "indemnitees") from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees and court costs, such legal expenses to include costs incurred in establishing the indemnification and other rights agreed to in this Paragraph, to persons or property, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONSUL TANT, its Sub-consultants or persons employed or utilized by them in the performance of the Contract. Claims by indemnitees for indemnification shall be limited to the amount of CONSULTANT's insurance or $1 million per occurrence, whichever is greater. The parties acknowledge that the amount of the indemnity required hereunder bears a reasonable commercial relationship to the Contract and it is part of the project specifications or the bid documents, if any.

The indemnification obligations under the Contract shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the CONSULT ANT under workers' compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the CONSUL TANT or of any third party to whom CONSUL TANT may subcontract a part or all of the Work. This indemnification shall continue beyond the date of completion of the work.

## SUSPENSION AND DEBARMENT CERTIFICATION

CERTIFICATION REGARDING DEBARMENTS, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER FEDERALLY FUNDED TRANSACTIONS

1. The undersigned hereby certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. The undersigned also certifies that it and its principals:
   a. Have not within a three-year period preceding this certification 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 anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
   b. 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 2.(a.) of this Certification; and
   c. Have not within a three-year period preceding this certification had one or more public transactions (Federal, State or local) terminated for cause or default.
      *Refer to Attachment A1 for Supplemental Response
3. Where the undersigned is unable to certify to any of the statements in this certification, an explanation shall be attached to this certification.

Dated this 5 day of April, 2022.

By: _____
Authorized Signature/Contractor

Sirpa H. Hall, P.E., ENV SP | Manager of Projects, South Florida
Name/Title

Jacobs Engineering Group Inc.
Contractor's Firm Name

1999 Bryan Street, Suite 1200 | Dallas, TX 75201
Address

Local: 3150 SW 38th Avenue, Suite 700 Miami, FL 33146

## Attachment A1

## Supplemental Response to Debarment Form 2c

In August 2020, the Procurement Office of the Arizona Department of Transportation ('ADOT') notified Jacobs Engineering Group Inc. ('Jacobs') of its intent to terminate an On-Call Acquisition and Relocation Services contract (CTR049970 and CTR049971) for default due to a disputed real estate brokerage licensing requirement. Jacobs has been in the process with ADOT of correcting this administrative default and to secure rescission of the notice. No task orders had been requested or issued under the subject On-Call.

Jacobs has delivered world-class engineering services with ADOT for over 30 years. Jacobs continues to win new contracts and deliver many projects with ADOT. This termination is not expected to have a material adverse effect on Jacobs Engineering Group Inc., or upon the business, financial condition, results of operations, or cash flows for the company.

# DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

| 1. Type of Federal Action: | 2. Status of Federal Action: | 3. Report Type: |
|---|---|---|
| [a.]<br>a. contract<br>b. grant<br>c. cooperative agreement<br>d. loan<br>e. loan guarantee<br>f. loan insurance | [a.]<br>a. bid/offer/application<br>b. initial award<br>c. post-award | [a.]<br>a. initial filing<br>b. material change<br>**For Material Change Only:**<br>year_____ quarter_____<br>date of last report_____ |

| 4. Name and Address of Reporting Entity: | 5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: |
|---|---|
| ☑ Prime ☐ Subawardee<br>Tier _____, *if known:*<br><br>**Congressional District,** *if known:* | N/A<br><br>**Congressional District,** *if known:* |
| **6. Federal Department/Agency:**<br>City of Key West | **7. Federal Program Name/Description:**<br>City of Key West, Installation of Utilities Across Fleming Channel |
| **8. Federal Action Number,** *if known:*<br>Unknown | **9. Award Amount,** *if known:*<br>s Unknown |
| **10. a. Name and Address of Lobbying Entity** *(if individual, last name, first name, MI):*<br>N/A | **b. Individuals Performing Services** *(including address if different from No. 10a) (last name, first name, MI):*<br>N/A |
| *(attach Continuation Sheet(s) SF-LLLA, if necessary)* | |

| 11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure. | **Signature:**  <br>**Print Name:** Sirpa H. Hall, P.E., ENV SP<br>**Title:** Manager of Projects, South Florida<br>**Telephone No.:** (954) 299-8577 **Date:** 4/5/22 |
|---|---|

| **Federal Use Only:** | Authorized for Local Reproduction<br>Standard Form – LLL (Rev 7 – 97) |
|---|---|

## PROHIBITED INTERESTS FORM AND NOTICE

I, Sirpa H. Hall, P.E., ENV SP (Printed Name), Manager of Projects, South Florida (Title), certify that neither Jacobs Engineering Group Inc. (Company Name), Local: 3150 SW 38th Avenue, Suite 700 Miami, FL 33146 1999 Bryan Street, Suite 1200 | Dallas, TX 75201 (Company Address)

nor any of its subcontractors shall enter into any contract, subcontract or arrangement in connection with the project or any property included or planned to be included in the project in which any member, officer or employee of the agency or the locality during tenure or for 2 years thereafter has any interest, direct or indirect. If any such present or former member, officer or employee involuntarily acquires or had acquired prior to the beginning of tenure any such interest, and if such interests is immediately disclosed to the City of Key West, the City of Key West with prior approval of the Division of Emergency Management and the Department of Economic Opportunity, may waive the prohibition contained in this paragraph provided that any such present member, officer or employee shall not participate in any action by the City of Key West or the locality relating to such contract, subcontract or arrangement

NOTICE: The state requires the City of Key West to insert in all contracts entered into in connection with the project or any property included or planned to be included in any project, and shall require its contractors to insert in each of their subcontracts, the following provision:

> "No member, officer or employee of the Agency or of the locality during this tenure or for 2 years thereafter shall have any interest, direct or indirect, in this contract or the proceeds thereof."

The provisions of this paragraph shall not be applicable to any agreement between the Agency and its fiscal depositories or to any agreement for utility services the rates for which are fixed or controlled by a government agency.

Signature

## VENDOR CERTIFICATION REGARDING SCRUTINIZED COMPANIES LISTS

Respondent Vendor Name: Jacobs Engineering Group Inc.

Vendor FEIN: 95-4081636

Vendor's Authorized Representative Name and Title: Sirpa H. Hall, P.E., ENV SP, Manager of Projects, South Florida

Address: 3150 SW 38th Avenue, Suite 700

City: Miami State: FL Zip: 33146

Phone Number: (954) 299-8577

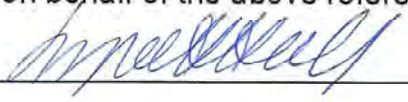
Email Address: sirpa.hall@jacobs.com

Section 287.135(2)(a), Florida Statutes, prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services of any amount if, at the time of contracting or renewal, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to section 215.4725, Florida Statutes, or is engaged in a boycott of Israel. Section 287.135(2)(b), Florida Statutes, further prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services over one million dollars ($1,000,000) if, at the time of contracting or renewal, the company is on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, both created pursuant to section 215.473, Florida Statutes, or the company is engaged in business operations in Cuba or Syria.

As the person authorized to sign on behalf of Respondent, I hereby certify that the company identified above in the section entitled "Respondent Vendor Name" is not listed on either the Scrutinized Companies that Boycott Israel List, Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject such company to civil penalties, attorney's fees, and/or costs and termination of the contract at the option of the awarding governmental entity.

Certified By: Sirpa H. Hall, P.E., ENV SP (*Print Name*) Manager of Projects, South Florida (*Print Title*),

who is authorized to sign on behalf of the above referenced company.

Authorized Signature:  .

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 03/04/2022

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 LIC #0437153 1-212-948-1306<br>Marsh Risk & Insurance Services<br>CIRTS_Support@jacobs.com<br>633 W. Fifth Street<br><br>Los Angeles, CA 90071 | CONTACT NAME:<br>PHONE (A/C, No, Ext):<br>FAX (A/C, No): 1-212-948-1306<br>E-MAIL ADDRESS: |
| INSURED<br>Jacobs Engineering Group Inc.<br><br>C/O Global Risk Management<br>1000 Wilshire Blvd., Suite 1140<br>Los Angeles, CA 90017 | INSURER(S) AFFORDING COVERAGE — NAIC #<br>INSURER A : ACE AMER INS CO — 22667<br>INSURER B :<br>INSURER C :<br>INSURER D :<br>INSURER E :<br>INSURER F : |

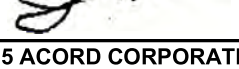
**COVERAGES** **CERTIFICATE NUMBER:** 64673128 **REVISION NUMBER:**

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.

| 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 | | | HDO G72493503 | 07/01/21 | 07/01/22 | EACH OCCURRENCE | $ 1,000,000 |
| | CLAIMS-MADE X OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ 300,000 |
| | X CONTRACTUAL LIABILITY | | | | | | MED EXP (Any one person) | $ 5,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | PERSONAL & ADV INJURY | $ 1,000,000 |
| | X POLICY PRO-JECT LOC | | | | | | GENERAL AGGREGATE | $ 2,000,000 |
| | OTHER: | | | | | | PRODUCTS - COMP/OP AGG | $ 1,000,000 |
| | | | | | | | | $ |
| A | AUTOMOBILE LIABILITY | | | ISA H25545631 | 07/01/21 | 07/01/22 | COMBINED SINGLE LIMIT (Ea accident) | $ 1,000,000 |
| | X ANY AUTO | | | | | | BODILY INJURY (Per person) | $ |
| | OWNED AUTOS ONLY / SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | $ |
| | HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| | UMBRELLA LIAB OCCUR | | | | | | EACH OCCURRENCE | $ |
| | EXCESS LIAB CLAIMS-MADE | | | | | | AGGREGATE | $ |
| | DED RETENTION $ | | | | | | | $ |
| A | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY | | | WLR C67817540 (AOS) | 07/01/21 | 07/01/22 | X PER STATUTE OTH-ER | |
| A | ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N | N / A | | SCF C6781762A (WI) | 07/01/21 | 07/01/22 | E.L. EACH ACCIDENT | $ 1,000,000 |
| A | (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below | | | WCU C67817588 (OH)* | 07/01/21 | 07/01/22 | E.L. DISEASE - EA EMPLOYEE | $ 1,000,000 |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ 1,000,000 |
| A | PROFESSIONAL LIABILITY | | | EON G21655065 012 | 07/01/21 | 07/01/22 | PER CLAIM/PER AGG | 1,000,000 |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: CITY OF KEY WEST REQUEST FOR QUALIFICATIONS RFQ 22-003 TRENCHLESS INSTALLATION OF UTILITIES ACROSS FLEMING CHANNEL. PROPOSAL NUMBER: RFQ 22-003. SECTOR: Public. City of Key West is added as an additional insured for general liability & auto liability as respects the negligence of the insured in the performance of insured's services to cert holder under contract for captioned work. Coverage is primary and certificate holder's insurance is excess and non-contributory. Waiver of subrogation is hereby granted in favor of cert holder for GL, AL and WC. Coverage includes U.S. Longshore and Harbor Workers Compensation Act Coverage and Outer Continental Shelf Lands Act Coverage. *THIS IS A SAMPLE CERTIFICATE ONLY*. THE ACTUAL CERTIFICATE FOR THE PROPOSED PROJECT WILL COMPLY WITH THE TERMS AND CONDITIONS NEGOTIATED IN THE FINAL

| CERTIFICATE HOLDER | CANCELLATION |
|---|---|
| City of Key West<br><br>1300 White Street<br><br>Key West, FL 33040 USA | SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.<br><br>AUTHORIZED REPRESENTATIVE  |

# SUPPLEMENT TO CERTIFICATE OF INSURANCE

**DATE** 03/04/2022

**NAME OF INSURED:** Jacobs Engineering Group Inc.

Additional Description of Operations/Remarks from Page 1:

CONTRACT, CONSISTENT WITH POLICY TERMS AND CONDITIONS.

Additional Information:

*$2,000,000 SIR FOR STATE OF: OHIO

Jacobs

# SECRETARY CERTIFICATE

I, Justin Johnson, Secretary of Jacobs Engineering Group Inc. (the “Company”), hereby certify that:

Sirpa Hall is Manager of Projects and has been granted authority, by the board of directors to execute documents on behalf of the Company.

Dated this 15th day of March 2022.

_____

Justin Johnson, Secretary

# *State of Florida*
## *Department of State*

I certify from the records of this office that JACOBS ENGINEERING GROUP INC. is a Delaware corporation authorized to transact business in the State of Florida, qualified on February 12, 1987.

The document number of this corporation is P13217.

I further certify that said corporation has paid all fees due this office through December 31, 2022, that its most recent annual report/uniform business report was filed on January 13, 2022, 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 Thirteenth day of January, 2022***

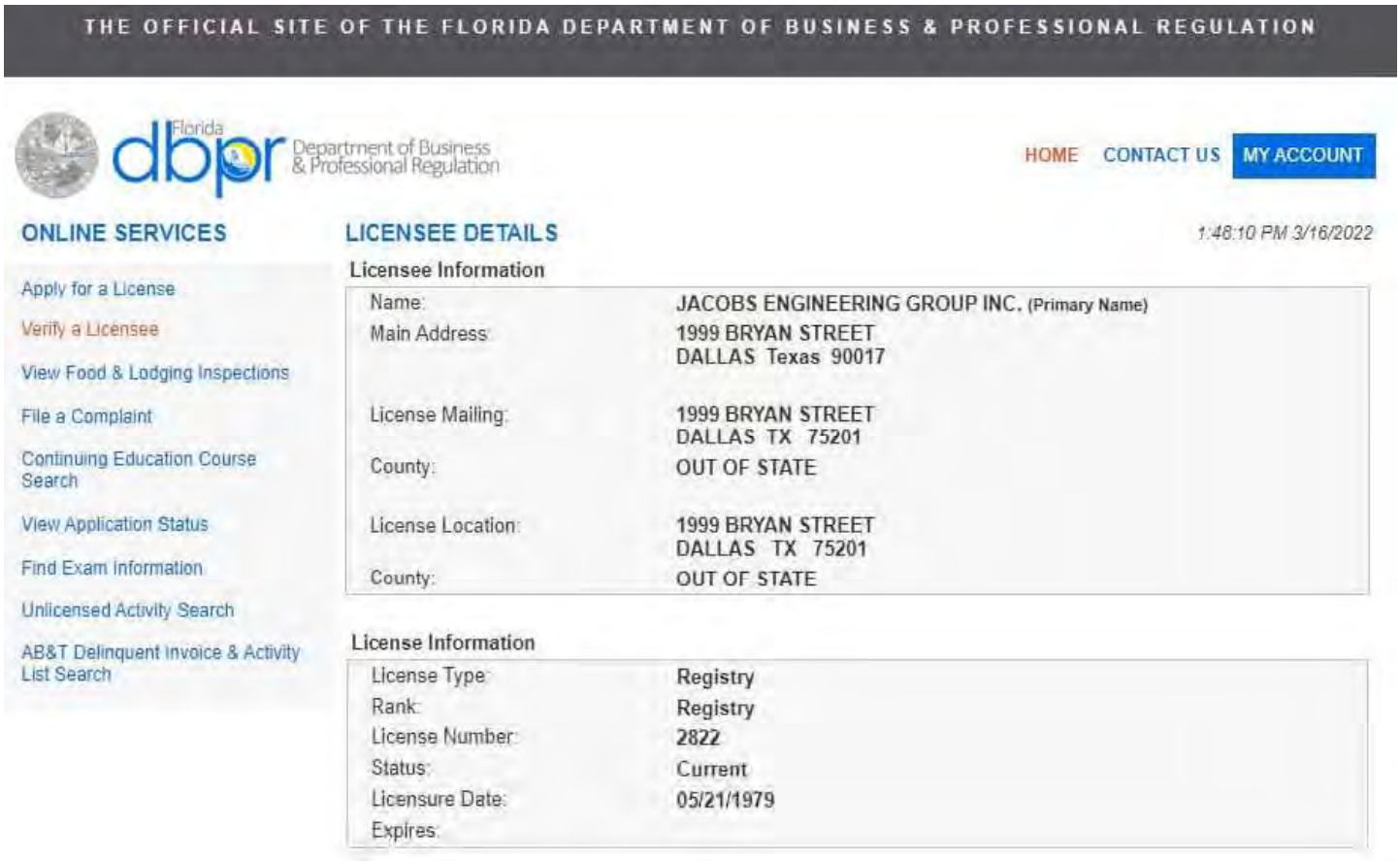

*Secretary of State*

**Tracking Number: 9012666043CC**

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

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

"Florida no longer issues licenses/Certificates of Authorization to businesses, only individuals. JEG is authorized to and offers its engineering services by and under the supervision of its Florida licensed engineers."



THE OFFICIAL SITE OF THE FLORIDA DEPARTMENT OF BUSINESS & PROFESSIONAL REGULATION

Florida dbpr Department of Business & Professional Regulation

HOME CONTACT US MY ACCOUNT

ONLINE SERVICES

- Apply for a License
- Verify a Licensee
- View Food & Lodging Inspections
- File a Complaint
- Continuing Education Course Search
- View Application Status
- Find Exam Information
- Unlicensed Activity Search
- AB&T Delinquent Invoice & Activity List Search

LICENSEE DETAILS

1:48:10 PM 3/16/2022

Licensee Information

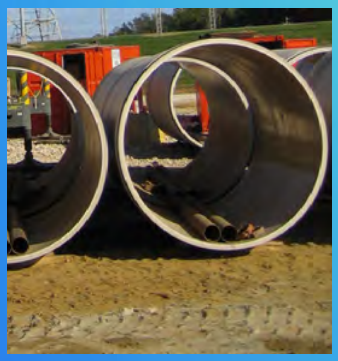
| | |
|---|---|
| Name: | JACOBS ENGINEERING GROUP INC. (Primary Name) |
| Main Address: | 1999 BRYAN STREET<br>DALLAS Texas 90017 |
| License Mailing: | 1999 BRYAN STREET<br>DALLAS TX 75201 |
| County: | OUT OF STATE |
| License Location: | 1999 BRYAN STREET<br>DALLAS TX 75201 |
| County: | OUT OF STATE |

License Information

| | |
|---|---|
| License Type: | Registry |
| Rank: | Registry |
| License Number: | 2822 |
| Status: | Current |
| Licensure Date: | 05/21/1979 |
| Expires: | |







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