Charlotte County

Subsurface Utility Engineering Verification

RFQ NO. 2024000138 | December 12, 2023

Colliers Engineering & Design, Inc.
12821 Commerce Lakes Drive, Units 3-4
Fort Myers, FL 33914
239 935 5959

Proposal Number: 23015105P

Colliers Engineering & Design

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Fort Myers, FL 33914

Colliers Engineering & Design

December 12, 2023

Charlotte County Purchasing Division
18500 Murdock Circle, Suite 344
Port Charlotte, Florida 33948-1094

Ref: Subsurface Utility Engineering Verification
RFQ No. 2024000138

Dear Technical Review Committee,

Colliers Engineering & Design, Inc. (CED) appreciates the opportunity to submit our response for providing Subsurface Utility Engineering (SUE) Verification services to support Charlotte County (County).

CED has been providing SUE, GIS and Survey/Geospatial services identical to those anticipated under this on-call contract for governmental agencies throughout Florida since 2013. We have a thorough understanding of the County's requirements and expectation for this contract. CED brings an excellent reputation for responsive project management, quality deliverables, and extensive experience to perform and carry out all the services identified by the County.

CEDs knowledge and experience includes an extensive understanding of ASCE/UESI/CI 38-22 "Standard Guideline for Investigating and Documenting Existing Utilities", which serves as the guide for performing utility investigations to support the design of project improvements to have minimal impact to existing utilities. Our Team's intimate knowledge of ASCE 38-22 will provide better protection for engineers, project owners, utility owners, and the public from utility related claims.

We understand the importance of data governance and this extends to "ASCE/UESI/CI 75-22, Standard Guideline for Recording and Exchanging Utility Infrastructure Data", as the utility "As-Constructed" or "As-Built" standard, to ensure that new utilities added to a project, or relocated during a project, have accurate and usable records of their location and attributes going forward. CED also realizes the main goal of this contact is to provide QL-A level SUE data for seamless insertion into the Charlotte County Utilities Map Book database, ultimately providing a more complete and accurate inventory of underground assets and vertical utility assets. CED truly has a comprehensive understanding of the County's requirements and goals to provide a successful outcome of all assignments. With our additional in-house service lines, we bring a complete team of services that can support the County as needed.

Nicholas Fewell, CST, will serve as our Project Manager throughout the duration of this contract. Mr. Fewell has proven experience managing similar contracts addressing all the services required for this contract. His focus will be building a strong working relationship with the County Contract Manager, through understanding their needs, utilizing the talent of our staff, teaming partner, and applying a proven contract management approach to bring innovative cost savings and quality project deliverables on all assignments.

Our team includes AIM Engineering and Surveying, Inc. (AIM), for SUE support and full geographic coverage. Both AIM and CED hold on-call SUE contracts with FDOT-D1 which includes all of Charlotte County.

As Principal Associate, I personally commit CEDs priority effort to meet all the County's requirements efficiently and effectively on schedule and within budget. This proposal is made without collusion with any other person or entity regarding this submittal.

Thank you for your consideration and we look forward to working with you as a trusted partner. Should you have any questions, please feel free to contact Nicholas Fewell at nicholas.fewell@collierseng.com, 813.392.8432 or myself at michael.ehrhart@collierseng.com or 813.239.994.5713.

Sincerely,
Colliers Engineering & Design, Inc.

Michael Ehrhart, PSM
Principal Associate

Nicholas Fewell

Nicholas Fewell, CST
Project Manager

PART IV - SUBMITTAL FORMS
PROPOSAL SUBMITTAL SIGNATURE FORM

1.	Project Team Name and Title	Years experience	City of office individual will work out of for this project	City individual's office is normally located	City of individual's residence
	Nicholas Fewell, CST	14	Fort Myers/ Tampa	Fort Myers/ Tampa	Citrus County
	Michael Kriegel	19	Fort Myers/ Boca Raton	Fort Myers/ Boca Raton	Broward County
	Michael Ehrhart, PSM	17	Fort Myers/ Tampa	Fort Myers/ Tampa	Hillsborough County
	Wyatt Altman, PSM	14	Fort Myers/ Tampa	Fort Myers/ Tampa	Pasco County
	CJ Rush, CST III	10	Fort Myers/ Tampa	Fort Myers/ Tampa	Pinellas County
	Grant Fichter, PSM	24	Fort Myers	Fort Myers	Fort Myers
	*All members of project team travel as needed for projects.				

2.	Magnitude of Company Operations	
	A) Total professional services fees received within last 24 months:	$826,738,850.00 | SUE/Survey $165,005,511.00
	B) Number of similar projects started within last 24 months:	2,245
	C) Largest single project to date:	$3,482,197.56

3.	Magnitude of Charlotte County Projects	
	A) Number of current or scheduled County Projects	N/A
	B) Payments received from the County over the past 24 months (based upon executed contracts with the County).	$ 0

4.	Sub-Consultant(s) (if applicable)	Location	% of Work to be Provided	Services to be Provided
	AIM Engineering & Associates	2161 Fowler Street Fort Myers, FL	TBD	SUE support as needed

5.	Disclosure of interest or involvement: List below all private sector clients with whom you have an active pending contract and who have an interest within the areas affected by this project. Also, include any properties or interests held by your firm, or officers of your firm, within the areas affected by this project.	
	Firm	Address
	Phone #	Contact Name
	Start Date	Ending Date
	Project Name/Description	

CED does not have any current private clients that will affect this contract/project. We don't have any interests nor properties that are held by CED within the area.

NAME OF FIRM Colliers Engineering & Design

(This form must be completed and returned)

6. **Minority Business:** Yes _____ No _X_
The County will consider the firm's status as an MBE or a certified MBE, and also the status of any sub-contractors or sub-consultants proposed to be utilized by the firm, within the evaluation process.
Comments or Additional Information:

The undersigned attests to his/her authority to submit this proposal and to bind the firm herein named to perform as per contract, if the firm is awarded the Contract by the County. The undersigned further certifies that he/she has read the Request for Proposal, Terms and Conditions, Insurance Requirements and any other documentation relating to this request and this proposal is submitted with full knowledge and understanding of the requirements and time constraints noted herein.

By signing this form, the proposer hereby declares that this proposal is made without collusion with any other person or entity submitting a proposal pursuant to this RFP.

In accordance with section 287.135, Florida Statutes, the undersigned certifies that the company is not on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and does not have business operations in Cuba or Syria (if applicable) or the Scrutinized Companies that Boycott Israel List, or is not participating in a boycott of Israel.

As Addenda are considered binding as if contained in the original specifications, it is critical that the Consultant acknowledge receipt of same. The submittal may be considered void if receipt of an addendum is not acknowledged.

Addendum No. 1 Dated 12/1/23 Addendum No. 2 Dated 12/4/23 Addendum No._____ Dated_____

Addendum No._____ Dated_____ Addendum No._____ Dated_____ Addendum No._____ Dated_____

Type of Organization (please check one): INDIVIDUAL (_) PARTNERSHIP (_)
CORPORATION (x) JOINT VENTURE (_)

Colliers Engineering & Design — Firm Name
813.207.1061 — Telephone

Fictitious or d/b/a Name
22-2651610 — Federal Employer Identification Number (FEIN)

5471 W Waters Ave, Suite 100 — Home Office Address

Tampa, FL 33634 — City, State, Zip
39+ years — Number of Years in Business

12821 Commerce Lakes Drive, Units 3-4, Fort Myers, FL 33914 — Address: Office Servicing Charlotte County, other than above

Nicholas Fewell | Project Manager — Name/Title of your Charlotte County Rep.
813.392.8432 — Telephone

Colliers Engineering & Design — Name/Title of Individual Binding Firm (Please Print)

Signature of Individual Binding Firm
12/12/23 — Date

michael.ehrhart@collierseng.com — Email Address

(This form must be completed & returned)

DRUG FREE WORKPLACE FORM

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that Colliers Engineering & Design (name of business) does:

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

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

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

Proposer's Signature
Michael Ehrhart, PSM

12/12/23
Date

END OF PART IV

(This form must be completed & returned)

Table of Contents

Tab I

Proposed Team

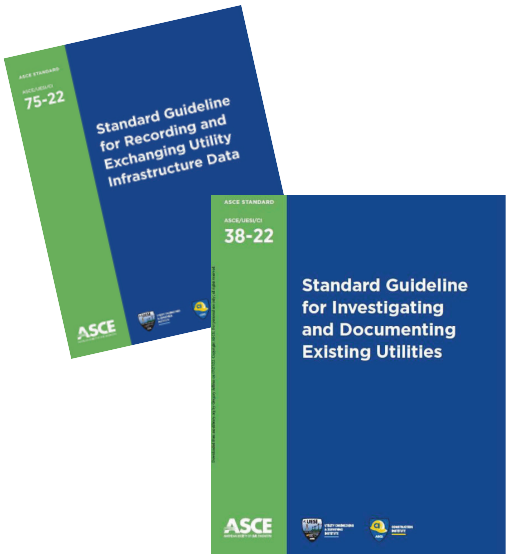
Colliers Engineering & Design

Key Team Members

The CED key staff assigned to this contract have extensive relevant experience within their disciplines and outstanding qualifications with advanced degrees and/or certifications in their specialized fields offering a depth of technological capabilities, as well as additional capacity to provide comprehensive solutions for projects of any size or complexity. CED has the necessary resources and expertise to successfully complete each assignment. Our proposed Team has outstanding credentials and experience on a wide range of similar contracts. While CED provides a large, qualified, and dedicated pool of professionals for this pursuit, we have added AIM Engineering & Survey, Inc. (AIM) as our subconsultant partner to ensure full coverage of the County service area in Charlotte and Lee Counties, a deeper bench of available personnel to ensure redundancy of services, and expanded emergency response capabilities.

Project/Contract Manager

Nicholas (Nick) Fewell, CST will serve as the Project Manager. Nick has over 14 years of SUE experience, responsible for Project Management, leading designating and locating crews to successful completion of assignments. His responsibilities include serving as client liaison, communicating with utility owners, contacting state "One-Call" systems, and ensuring compliance with all CED safety and subsurface utility engineering operations. Nick has worked on various project assignments for numerous departments of transportation and other clients such as FDOT, GDOT, LaDOTD, TxDOT, DUKE Energy, Mosaic, Florida Power & Light, TECO, TECO Peoples Gas, Kinder Morgan, FGT, various state and local governments/municipalities, various contractors, DOD, and Marine and Airport Authorities.



Nick has proven experience managing SUE on-call contracts addressing all the services required for this contract. His focus will be building a strong working relationship with the County Project Manager and staff, through understanding their needs, utilizing the talent of our staff, teaming partners, and applying a proven contract management approach to bring innovative cost savings and quality project deliverables on all assignments. Nick has successfully completed SUE projects in Charlotte County under our FDOT District 1 SUE contract. **Mr. Fewell will remain as project manager for the duration of this contract and will not be substituted for without the express permission of the County.**

Additional Key Staff

Michael Kriegel will serve as the Deputy Project Manager. He has over 17 years of experience and has supervised, performed, and collected valuable SUE data throughout the state and his knowledge and historical data provides a valuable asset. Mike has also assisted in the development and implementation of programs to locate and map subsurface utilities that include numerous facilities, processes and procedures, including integration into GIS systems (i.e.; ARCGIS and Cityworks) for multiple municipalities.

Michael Ehrhart, PSM will serve as the Principal-in-Charge for this contract. His national experience and diverse work history will benefit the County to develop innovative solutions with a focus on time and cost savings. Mike will also leverage lessons learned managing our District 1 Districtwide Subsurface Utility Designate, Locate and Coordination contract to provide oversight, QC review, and administrative expertise. As a principal and owner in the firm, he has the authority and support of our executive team to ensure commitments that are made will be met with accountability.

Mr. Fewell and our key staff are extremely familiar with the ASCE-38-22 Standard Guidelines. Several CED members assisted with the development of these newly implemented guidelines. Updates included the following:

- **Standard Operating Procedures**
- **Updated Precision**
- **QL-A: Vertical 0.1 feet; Horizontal 0.2 feet**
- **QL-B: Horizontal 0.2 feet**
- **QL-C: Horizontal 0.2 feet**
- **Electronic Depths**
- **Vault Dimensions & Depictions**

Daniel Checchia will serve as the QA/QC Manager. He brings a well-established track record of successful SUE on-call contract management as well as expertise in SUE and Utility Coordination for a wide variety of projects. Dan's reputation for being forthright in dealing with daily challenges, suggesting cost effective solutions, and being responsive to communications establishes the framework for a successful partnership with the County. He has an accomplished perspective on what is expected of consultants on work order-based contracts and assignments.

Mr. Checchia is a founding member of the Board of Directors of the National SUE Association along with being involved with updating the ASCE 38-22 Guideline.

- Member: Manatee County Utility Coordinating Committee
- President Elect: SUE Association (National)
- Chair: D7 Utility liaison (Tampa)

Suzanne Zitzman, GISP has over 31 years of extensive GIS/GPS project management, design, and mapping experience in the transportation, and civil engineering fields. She manages the firms national GIS Asset Management Services Division. Her skills include various aspects of utilizing web-based geographic information systems involving utilities, land use, property assessment, environmental and transportation assets.

Wyatt Altman, PSM will serve as the Lead Surveyor and has 15 years of experience. He is an experienced Survey Project Manager with extensive and diversified expertise that includes digital imaging and mapping, geodesy, GIS, GPS, photogrammetry, land tenure and cadastral studies, LiDAR, and remote sensing techniques. Mr. Altman as performed hydrographic, ALTA, full topographic, and boundary surveys; sub-surface utility locating; and construction layout. He also has expertise performing data processing using AutoCAD, CAice, Trimble Business Center, GeoPAK and Starnet.

CJ Ruch, CST III will serve as our 3D Model & BIM Specialist. He is a senior project manager and Laser Scanning Specialist with over 23 years of experience in land surveying and over 13 years of experience with laser scanning systems and methodologies. His area of expertise focuses on utilizing point cloud data from terrestrial and mobile LiDAR technology for creation of standard and non-standard survey deliverables, using a diverse array of software applications. Mr. Ruch is well-versed in the creation of topographic surveys, boundary surveys, ALTA/NSPS land title surveys, boundary analysis, volume calculations, feature extraction, digital terrain models, 3D modeling (including buildings, steel, manufacturing facilities, and electrical substations), and other CAD functions.

Rebecca Green-Valente will serve as our Sr. Utility Coordination Manager. She brings a well-established track record of successful FDOT District Wide and CSC project management as well as expertise in SUE and UC for a wide variety of projects.

Resumes are included in the next Tab Section.

Subconsultant

The CED Team has been assembled with the goal to combine and maximize the strengths of our creative and talented professional and technical staff with the extensive experience of our partner, AIM Engineering & Surveying, Inc. (AIM), who has performed and managed numerous similar on-call SUE contracts.

We have a long-term professional relationship with AIM, including working with them on multiple on-call FDOT contracts. For example, currently both CED and AIM have Districtwide and Continuing Services Contracts on-call SUE contracts with FDOT District 1 providing full complete geographic coverage for the entire County service area. This existing professional relationship allows us to effectively communicate to ensure Work Order requirements are clearly understood and efficiently executed.

AIM Engineering & Surveying, Inc, is a full-service planning, engineering, surveying, and construction management firm providing professional services tailored to the size and complexity of any given project. AIM's experience includes working with many cities, counties, and government agencies on projects and miscellaneous engineering services contracts with the same scope of work elements. They have a comprehensive team of professionals to provide the County with overlap in each discipline to allow for independent reviews and the completion of simultaneous assignments.

Tab II

Proposed Management Plan

Colliers Engineering & Design

Organizational Chart

Principal-in-Charge
Michael Ehrhart, PSM*

Project Manager
Nicholas Fewell, CST*

QA/QC Manager
Daniel Checchia*

Deputy Project Manager
Michael Kriegel*

GIS Services
Suzanne Zitzman, GISP*
Richard Pascoe, GISP

Survey | 3D Modeling

Survey
Wyatt Altman, PSM*
Dave Ferraro, PSM
Stanley Rodriguez
Bob Potter, PSM (AIM)

3D Modeling | Scanning
CJ Ruch, CST III*

SUE Services
Nicholas Fewell, CST*
Michael Kriegel*
Grant Fichter, PSM (AIM)*

Utility Coordination
Rebecca Green-Valente*
Nancy Condemi

Additional In-House Support Services

TTCP/MOT
Luis Costa, PE

Permitting
Ross Einsteder

Emergency Response
CJ Ruch, CST III*

Geotechnical Engineering
Gregory Stevens, PE

Electrical Engineering
William "Lee" Hill, PE

Specialty Contractors

Subaqueous Utility Support
Sea Diversified, Inc.

Trenching and Excavating
Badger Infrastructure Solutions

Crew Resources
7+ Local SUE Crews
5+ Local Survey Crews
6+ Vac Trucks
2+ Utilivac Units

Subconsultant
AIM Engineering and Surveying, Inc. (AIM)

The CED proposed management team has the expertise and experience necessary to effectively manage, coordinate, and provide trusted services to the County. Our team is available and ready to execute this contract.

** All Key staff resumes included*

Firm Background

CED is a multi-disciplinary professional services firm with expertise in providing a wide range of professional services including SUE, GIS, and Survey. We have been serving the Southwest Florida Area since 2013 and have seven offices with over 160 employees in Florida. Locally, we have over 55 staff members in our Fort Myers and Tampa offices to serve the County's needs. Given our staff location and availability, we will meet the County's expectations for responsiveness. CED is prepared to allocate the necessary staff and resources as needed to support this important contract.

We have considerable experience providing the services required by the County, including serving as the prime or lead subconsulant under similar contracts with Pinellas, Hillsborough, Seminole, Broward, Palm Beach, and Miami-Dade Counties, as well as the cities of Tampa, St. Petersburg, Oldsmar, Sanford, Pompano Beach, Ft. Lauderdale, Miami, and Miami Beach. We also hold SUE/Survey contracts with FDOT Districts 1, 4, 5, 6, and 7. **CED can provide the County with a true turn-key team with each of our service lines working together to provide a high-quality client experience**.

Team Approach

This contract will be managed from our Fort Myers office with additional support from our Tampa office, as needed, to ensure full geographic coverage of the County's services area. We have locally based SUE and survey staff with the necessary equipment and technology available to perform all SUE (QL-B and QL-A) and utility mapping services required for the County's Map Book updates. We manage our projects through a coordinated team effort combining skilled management, experienced/trained personnel, and the latest technological instrumentation.

While CED provides a large, qualified, and dedicated pool of professionals for this pursuit, we have also added AIM as our subconsultant partner to ensure full coverage of the County's service area in Charlotte and Lee Counties from their Fort Myers and Lakewood Ranch offices. The combined CED/AIM forces provide a deep bench of available personnel to ensure redundancy of services, and expanded emergency response capabilities for the County.

SUE & ASCE 38-22 Capabilities

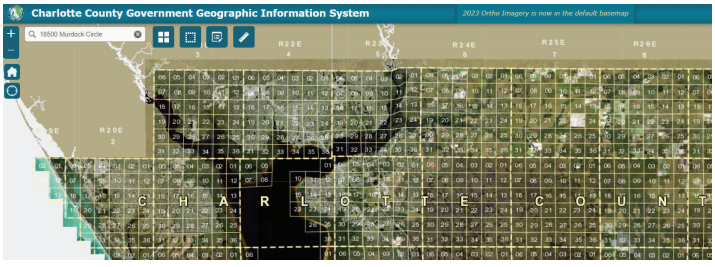
Our qualified professional and technical staff continue to follow the American Society of Civil Engineers (ASCE) Standard 38-02 "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data", for previously contracted projects and currently implement and follow the ASCE/UESI/CI 38-22 "Standard Guideline for Investigating and Documenting Existing Utilities". We utilize electromagnetic utility location scanning technology to accurately locate and identify conductive underground utilities (electric, gas, and telecommunication lines) and metallic pipes and Ground Penetrating Radar (GPR) to confirm designation results from the electromagnetic utility locators and locate hard-to-find metallic and non-metallic utilities such as plastic conduits, fiber optics, water, and wastewater lines.

Locally, CED has 3 vacuum excavation trucks and 3 Utilivac units, 4 Hybrid Designation and Mapping crews available to dedicate to this contract. In addition, the CED team consists of a combined 12 SUE/Survey Field Crews, and 6 vacuum excavation trucks ensuring redundant resources are available to respond to emergency requests within hours; utility designating assignments within 24 hours of NTP; and any physical locating task within 72 hours of NTP after clearance of the Sunshine 811 excavation ticket.

We have equipped and trained our crews for hybrid SUE and survey capabilities, through cross training on all project phases. Having utility data surveyed by the same crew provides efficiencies and instantaneous quality control checks. Our crews are equipped with the latest survey robotic equipment and designating technology. Examples include single/multiple radio frequency, GPS enabled pipe and cable locators, sondes, traceable rodders, and both single and multiple channel ground penetrating radar (GPR) systems having "hyper-stacking" technology which provides greater penetration and clearer results for shallow and deeper utilities than standard models.

GIS Capabilities

CED is a certified ESRI Bronze Partner, and our team of experts has been providing GIS asset management services to municipalities, counties, and authorities since 2001. We have provided GIS services for over 100 government clients that own and operate utility infrastructure systems. Our certified GISPs provide services from the initial GIS needs assessment, through development, implementation, and training. We have extensive experience with existing database migration and asset inventory experience for a wide range of subsurface and vertical utilities, water and wastewater, transportation (airports, railways, roadways & ports) and energy facilities - each requiring strict data governance protocols for this type of critical infrastructure.



Nicholas Fewell, CST

Project Management | Subsurface Utility Engineering Lead

Education
Geomatics Certificate, University of Florida, in progress

BA, University of South Florida, 2021

AA, Hillsborough Community College, 2011

Professional Certifications
CCS

OSHA 10 Hr Certification

PowerSafe (Duke Energy)

IMOT

First Aid/CPR

Mr. Fewell has over 14 years of field and management experience. He is one of CED's lead SUE managers, responsible for leading designating and locating crews to successful completion of assignments. His responsibilities include assisting project managers, serving as client liaison, communicating with utility owners, contacting state "One-Call" systems, and ensuring compliance with all CED safety and subsurface utility engineering operations.

As a subsurface utility engineering investigator, Mr. Fewell has worked on various project assignments for numerous departments of transportation and other clients such as FDOT, GDOT, LaDOTD, TxDOT, DUKE Energy, Mosaic, Florida Power & Light, TECO Electric, TECO Peoples Gas, Kinder Morgan, Florida Gas Transmission, various state and local governments/municipalities, various contractors, DOD, and Marine and Airport Authorities.

Key Projects

Evergreen & SR 50 Casings, *Hernando County, FL*
CED provided QL-A and QL-B services in support of roadway design. CED was tasked with locating the ends of casings for a water main, force main and gravity sewer. CED utilized QL-D through QL-A services to successfully locate the end of the casings to verify that their lengths were sufficient for roadway expansion along SR 50 in Hernando County.

Grace World Church Addition, *Brooksville, FL*
Provided QLA & QLB services associated with expansion of development on the Church campus on an approximately 13.3 acre property. The development consists of an approximate 5,200 SF two-story building addition and an approximate 8,500 SF gathering building area.

TECO Master Services Survey Contract, *Various Counties, FL*
CED has successfully located gas pipelines, in multiple locations, that TECO locators determined were unlocatable. CED used survey-grade data to update TECO People's Gas GIS system for multiple projects to enable future accurate locates. CED used as-built records, historical aerials, utility designation, test holes and air lance probing to locate undetectable high priority gas mains. CED was also able to repair the tracer wire in some instances to allow ease for future locates.

District Wide SUE Designate, Locate and Coordination, FDOT District 1, *FL*
Manage task work orders to provide Quality Level A and B subsurface utility investigations. Quality Level A involves the use of the use of nondestructive digging equipment at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics. Quality Level B involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities.

Reclaimed Water Transmission Main Design, *Braden River, FL*
Provided designating (CI/ASCE 38-02 Quality Level B) and locating (CI/ASCE 38-02 Quality Level A) subsurface utility engineering and supporting survey services to map the underground utilities within the project limits to support design efforts for the reclaimed water transmission.

Education
BS, Geomatics, University of Florida, 2007

Professional Registrations
Professional Surveyor and Mapper (PSM), FL

Affiliations & Memberships
Florida Surveying & Mapping Society Member

Michael Ehrhart, PSM

Principal-In-Charge| Geospatial Regional Manager, Survey/SUE

Mr. Ehrhart is a Geospatial Regional Manager in Tampa, FL with over 17 years of experience with a wide array of survey projects, including topographic and tunnel verification surveys; GIS based structure inventory; property line restoration, public records research; and department of transportation (DOT) surveys. Mr. Ehrhart is responsible for implementing and leveraging advanced technologies into current survey operations to control cost, reduce scheduling, and increase safety in all survey operations. He specifically utilizes this technology in 3D Hi-Definition Laser Scanning (HDS) and Mobile LiDAR technologies for infrastructure analysis, design survey, and 3D modeling.

Key Projects

City of Tampa Professional Engineering Services for Survey and Subsurface Utility Engineering (SUE), *City of Tampa, FL*
Provided Quality Level A and B subsurface utility investigations. Quality Level A involves the use of nondestructive digging equipment at critical points to allow for survey of the horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics. Quality Level B involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities.

District Wide SUE Designate, Locate and Coordination, FDOT District 1, *Districtwide, FL*
Performed task work orders to provide Quality Level A and B subsurface utility investigations. Quality Level A involves the use of the use of nondestructive digging equipment at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics. Quality Level B involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities

FDOT District 1, Continuing Services Contract-Legacy Trail Bridge, *Venice, FL*
CED acted as a subconsultant to Horizon Engineering Group, Inc. in support of the design of highway widening and various other improvements along State Route 417 from Landstar Boulevard to Boggy Creek Road. The survey scope of work included planimetric mapping and digital terrain modeling of the entire project corridor, from Right of Way to Right of Way for over four miles of highway and cross streets. CED provided underground utility designates and locates, Mobile LiDAR, and UAS LiDAR, which were used to locate and document existing ground features along the roadway. Areas not visible for LIDAR collection, such as drainage ditches and wooded areas, were collected conventionally by RTK GPS or Total station. The resulting datasets were merged to create a highly detailed and comprehensive final design survey deliverable. Mr. Ehrhart was the lead for CEDs design survey and LiDAR services for this contract.

Push Button Design-Build Contract, FDOT District 7, *Various Counties, FL*
Currently under contract with WSP/Parsons Brinkerhoff and Cone & Graham to support various design and construction projects for the FDOT including lighting, signing, and traffic signalization throughout District 7. Duties include providing all survey-related services in the design phase as task orders are released.

Michael Kriegel

Geographic Discipline Leader | SUE

Education

Pompano Beach High School, 2004

Florida Atlantic University, Coursework, 2005-2006

Technical Skills

Total Stations (Topcon, Leica, and Trimble)

GPS (Leica, Trimble, and Spectra)

Scanners (Leica BLK360)

GPR (Sensors and Software, Mala, and GSSI)

Concrete Scanners (Mala and GSSI)

Electromagnetic Locators (Radiodetection, Vivax, Pipehorn, Metrotech, and Ridgid)

RT GPR Scanners (IDS Stream C and IDS Stream X)

ESRI ArcGIS

Microstation

Autocad Civil 3D

Excel

Digital Sketching Software (Field Measure, Google Earth, ArcGIS Collector)

Mr. Kriegel is a Geographic Discipline Leader for Subsurface Utility Engineering Services (SUE) for Colliers Engineering & Design. He has over 19 years of Survey and SUE experience, throughout Florida. His high level of expertise and understanding of mapping utilities while utilizing Quality Levels defined by the ASCE Guideline 38, "Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data", enables him to manage projects with a high level of efficiency, allowing him to resolve issues in both a cost effective and timely manner.

He has experience working with multiple SUE field crews to complete projects safely, on schedule, and within the designated scope of work as directed by Project Engineers/Surveyors. He has overseen the day to day operations on multiple District Wide FDOT contracts. He has trained staff and overseen proposals and field reviews. He can collect and read roadway plans, as-builts and utility company markups, adhere to safety standards, including proper operation of both electronic and mechanical equipment. Mr. Kriegel has lead SUE Crew Chiefs on maintaining truck and electronic equipment including supporting Crew Chiefs with key daily activities such as fluid levels, filters, and pneumatic/hand tools. He maintained and operated a total station and/or GPS Unit, including the data collector associated with this survey equipment.

Mr. Kriegel has experience with a vast array of geophysical prospecting equipment used to accurately designate complex underground utility layouts. Including extensive experience with multi-frequency pipe and cable locators, ground penetrating radar, sondes, rodders, and other geophysical equipment. He also trains SUE staff as needed in performing vacuum excavation based on staked location, marked plans, and field investigations.. He has assisted in the development and implementation of Locator/Designator training programs to directly increase productivity and quality of locators/designators.

Key Projects

2019 Ibis Bridge FM, FDOT D4, *Districtwide, FL*
A Broward County owned, unlocatable High Density Polyethylene Section of Force Main was causing delays to FDOT planned bridge improvements in Lighthouse Point, FL. Michael Kriegel was charged by FDOT to plan and coordinate with Steve Almyda, from Broward County Water and Sewer, to determine the location of the Force Main crossing the canal and allow installation of new bridge piles by FDOT. Approach was developed to shut down the Force Main and access the pipe at a nearby pigging station. Utilizing multiple Sonde's with differing frequencies, attached to a Flexrod, the Force Main was found and verified at depths up to 35'.

2017-2023 Manager for D6 Continuing Services Contract , *Districtwide, FL*
Geographic Discipline Leader responsible for project management including proposals, crew coordination, scheduling, QA/QC, deliverables, and billing.

2018-2020 Florida's Turnpike Wiles to I 595 PDE Study - Florida's Turnpike - Survey, *Districtwide, FL*
SUE Manager responsible for crew coordination, scheduling, QA/QC, and deliverables for Designates, and TH's for Turnpike and all intersecting streets.

Daniel Checchia

Regional Manager| Subsurface Utility Engineering

Education
AS, Applied Science, Suffolk County Community College, 2001

Affiliations & Memberships
SUE Association, President Elect

ASCE/Utility Engineering & Surveying Institute (UESI), Member

Florida Utility Coordination Committee (FUCC) member

UESI Chair, Broward County Chapter

D7 Utility Liaison Committee Secretary

Mr. Checchia is Regional Manager for Subsurface Utility Engineering Services (SUE) for CED. He has over two decades of South Florida experience in transportation engineering, surveying, and construction related fields, with expertise in SUE and utility coordination. His duties include the supervision of the day-to-day operations of Survey, SUE, and Utility Coordination assignments to ensure QA/QC from field to office is maintained on all projects.

Mr. Checchia maintains a strong rapport with local utilities and municipalities and assists clients with utility research, identification, data management and coordination. His high level of expertise and understanding of the Quality Levels defined with the ASCE Guideline 38, enables him to manage a project from pre-design through construction, identifying utility impacts, and mitigating conflicts with cost effective and timely resolutions.

Mr. Checchia has substantial experience working for the Florida Department of Transportation (FDOT). As a technical delegate for FDOT District IV Survey & Mapping Advisory Committee, he helped develop new field procedures and deliverables for statewide projects. He has a comprehensive knowledge of the FDOT Utility Coordination process, and his philosophy is to maintain an open and productive dialogue throughout the initial SUE investigation; utility coordination, and post-design follow up.

Key Projects

Tree Top Park, D4 Biscayne Engineering, *Davie, FL*
CED was tasked with performing a utility designation investigation along Nob Hill road for 6,500' along SW 45th Street, east along SW 45th Street from the west side of Nob Hill road, and east along Whispering Pines Road. CED utilized multiple geophysical prospecting techniques as well as ground penetrating radar to identify the existence of underground utilities. CED mapped all the utility designation. This effort is for future design enhancements to the entrance of the park and assist in identifying the presence of existing utilities. Wet land delineation will be performed, and the location of utilities will be critical in establishing rights of entry for any future utility work or maintenance.

Districtwide Subsurface Utility Engineering (SUE) and Survey Utility Excavation, FDOT District 4, *Palm Beach County, FL*
Provided ASCE Standard Quality Level A–D Subsurface Utility Engineering services to designate, locate by excavation, survey and map existing surface and subsurface utilities to support the design of construction plans on a districtwide basis on projects selected by the district office. Services include providing the exact horizontal and vertical locations of existing underground utilities by way of electromagnetic, sonic, and other geophysical location techniques including air/vacuum or other non-destructive excavation procedures.

SR 5 from South of Yamato Road to South of C-15 Canal, FDOT D4, *Palm Beach County, FL*
Provided Utility Coordination services to facilitate discussion between utility owners / authorities and FDOT to successfully resolve potential utility conflicts with the proposed design plans. Mr. Checchia also provided designating (ASCE Quality Level B) subsurface utility engineering services to map the horizontal position of underground utilities within the project limits of this three-r project.

Suzanne M. Zitzman, GISP

Discipline Leader | GIS

Education
AAS, Applied Science, Brookdale Community College, 1985

Professional Registrations
Geomatics Professional Certificate, Rutgers University

Geographic Information Systems Professional: GISP

Affiliations & Memberships
American Water Works Association (AWWA)

Mid-Atlantic Chapter of the Urban & Regional Information Systems Association (MAC URISA)

New Jersey Water Environment Association (NJWEA)

North Carolina ArcGIS Users Group (NCAUG)

New York State Association of Counties (NYSAC)

New Jersey Water Association (NJWA)

Ms. Zitzman, a Principal at the firm, has over 31 years of extensive GIS/GPS project management, design, and mapping experience in the transportation, and civil engineering fields. She manages the firms national GIS Asset Management Services Division. Her skills include various aspects of utilizing web-based geographic information systems involving utilities, land use, property assessment, environmental and transportation assets.

Her experience includes GIS needs assessment and implementation planning for a variety of client types such as; federal, county and local government, private utility companies and rail. She has been a keynote speaker on GIS asset management technology applications at state level conferences and received a national recognition award for her achievements in implementing web-based GIS management and public communication portal programs for local government.

Ms. Zitzman previously held the private sector NJ State GIS Council seat providing GIS assistance in the startup of the states GIS program, NJGIN. Ms. Zitzman is a key member in the firm's Quality Control/Quality Assurance Committee, where company standard procedures and policies are designed and implemented.

Key Projects

PennDOT District 6 – Sign Inventory and Transportation Collection and Geodatabase Modeling, *District Wide, PA*
Professional services providing LiDAR and GIS mapping services. Project Manager for a 100-mile data collection along PennDOT District 6 routes. A geodatabase was created to manage the roadway surface features mapping curbing, medians, lanes, roadway shoulders, and pavement markings. The geodatabase included curve advisory inspection data, matching curves to existing speed limit signage.

The signs were catalogued by MUTCD code, and condition attributing. The data will be used to manage the maintenance of their route network, using Esri web application Survey123, Collector for ArcGIS. Project data was delivered in Esri geodatabase format for signs, pavement markings, roadway geometry, straight line diagrams (SDL), with corresponding design level Microstation basemaps following PennDOT's CAD standards. SDL documents that were manually drawn diagrams describing the location of signage based on mile marker, were transformed into dynamic Esri web maps allowing the DOT staff to access directions to sign locations, edit sign condition, and track maintenance real-time through mobile devices.

County Stormwater System Program, *Putman County, NY*
Professional GIS/GPS services to satisfy the Federal National Pollutant Discharge Elimination System (NPDES) and the NYSDEC State Pollutant Discharge Elimination System (SPDES) general permit. Ms. Zitzman managed her team of professionals that were tasked with GPS field collection of County-owned outfalls; recording suspected stormwater illicit connections; photographing structures that required maintenance; and inventorying characteristics of the outfalls and their discharge point.

Education
BS, Geomatics, University of Florida, 2009

Professional Registrations
Professional Surveyor & Mapper (PSM), FL

Technical Skills
ArcGIS v10

ArcPad v10

TopoDOT

TBC

LGO

Cyclone

AutoCAD

MicroStation

StarNet

Wyatt Altman, PSM

Survey Lead| Right of Way (ROW) Services Lead

Mr. Altman is an experienced Survey Project Manager with extensive and diversified expertise that includes digital imaging and mapping, geodesy, GIS, GPS, photogrammetry, land tenure and cadastral studies, LiDAR, and remote sensing techniques. He has performed hydrographic, ALTA, full topographic, and boundary surveys; sub-surface utility locating; and construction layout. He also has expertise performing data processing using AutoCAD, CAice, Trimble Business Center, GeoPAK and Starnet.

Key Projects

District Wide SUE Designate, Locate and Coordination, FDOT D1,
Districtwide, FL
Performed task work orders to provide Quality Level A and B subsurface utility investigations. Quality Level A involves the use of the use of nondestructive digging equipment at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material, and other characteristics. Quality Level B involves the use of surface geophysical techniques to determine the existence and horizontal position of underground utilities.

Hillsborough Transportation Design and General Engineering Services,
Hillsborough County, FL
CED was awarded a county wide contract with Hillsborough county for continuing service for survey support. This contract has provided 2 tasks. Task 1 we provided a topographic and SUE survey for the intersection of Durant Road and Miller road. Under task 2 we provided topographic and SUE survey for the intersection of CR 579 and Old Hillsborough road.

SR 694 Gandy Boulevard, FDOT D7, *Pasco County, FL*
Survey Crew Chief providing Mobile LiDAR services and post-processed and delivered data for this design-build contract, which consisted of road widening, sidewalk design, and signal redesign for seven miles of SR 54. Responsibilities included utilizing Mobile LiDAR, Static LiDAR, and Aerial LiDAR to create standard FDOT compliant deliverables. TopoDOT was used to extract 3D break lines, features, and ground points for creation of a detailed DTM and standard 2 planimetric files. This information was also combined with conventional boots on the ground survey data and existing information provided by the FDOT from earlier surveys in order to completely cover the corridor width. This investigation found about 70% of the corridor needed to be resurveyed, a process that was completed in a timely matter by leveraging the LiDAR technology.

SR 519 from I-95 to North of SR 520, FDOT D5, *Pinellas County, FL*
Managed the data collection for the location of the entire storm water network in only two days which would have taken twice the time using conventional survey techniques. Analyzed the data for proper flow and missing structures further saving time in the field for the main topographic survey. Team delivered design files for planametics, 3D DTM files, and storm water locations. The storm sewer infrastructure in this project was complex due to the coastland elevations to determine storm water flows. Team implemented Trimble RTK GPS with integrated GIS libraries to quickly map the storm structures, decipher flow direction, and collect pertinent attribute data prior to conventional location.

Education
BS, Plant Science, Rutgers University, 2015

BS, Surveying, University of Main, (In-Progress)

Professional Registrations
CST-III

Section 107 Certified UAS PIC

Technical Skills
Computer Skills

Autodesk Civil3D

Autodesk Revit

Autodesk Recap

Leica Cyclone

Leica Cloudworx

FARO Scene

Certainty 3D TopoDOT

Hexagon Metrology 3DReshaper

Amberg Rail

Trimble Business Center

Leica P-40 HDS Laser Scanner

Leica C-10 HDS Laser Scanner

Leica P-20 HDS Laser Scanner

FARO Focus 3D Laser Scanner

CJ Ruch, CST III

Senior Surveyor

Mr. Ruch is a Senior Project Surveyor and Laser Scanning Specialist with over 23 years of experience in land surveying and over 10 years of experience with laser scanning systems and methodologies. His area of expertise focuses on utilizing point cloud data from terrestrial and mobile LiDAR technology for creation of standard and non-standard survey deliverables, using a diverse array of software applications. Mr. Ruch is well-versed in the creation of topographic surveys, boundary surveys, ALTA/NSPS land title surveys, boundary analysis, volume calculations, feature extraction, digital terrain models, 3D modeling (including buildings, steel, manufacturing facilities, and electrical substations), and other CAD functions.

Key Projects

McDuff & Norwood Pump Stations *Jacksonville, FL*
Managed and oversaw production by the project team, and oversaw QA/QC, as well as completion of models and renderings requested by client. 3D Scanning, LOD 300 BIM Model, Mech.

Millennium West Palm Beach, *West Palm Beach, FL*
Managed and oversaw production by the project team, and oversaw QA/QC, creating a LOD 300 model of 2 floors of the 525 Okeechobee Boulevard building, including structural, MEP, and architectural features for space planning and building fit-out.

Millennium Miami, at Sabadell Financial Center, *Miami, FL*
Managed and oversaw production by the project team, and oversaw QA/QC, creating a LOD 300 model of 3 floors of the 1111 Brickell Avenue Tower, including structural, MEP, and architectural features for space planning and building fit-out.

JEA Mcduff & Norwood Pump Stations 3D Modeling, *Jacksonville, FL*
Responsible for registration, QA/QC, and modeling of exiting mechanical, structural steel, plumbing, fire suppression, electrical, and architectural features of two pump rooms for delivery as a functional BIM model in Revit format. The client will use these Revit models to replace existing mechanical facilities within the pump rooms. These projects were completed using a variety of software, including Leica Cyclone, Autodesk Civil3D, Edgewise, and Autodesk Revit to ensure accuracy, efficiency, and expediency of delivery to the client.

Rebecca Green-Valente

Utility Coordinator Lead

Education
General Studies, University of Central Florida, 2015

IB (International Baccalaureate) Diploma, North Broward Preparatory High School, 2013

Affiliations & Memberships
Florida Utility Coordination Committee (FUCC)

In the past seven years, Rebecca Green-Valente has developed a comprehensive understanding of the processes involved in utility coordination as well as subsurface utility engineering. She is familiar with FDOT utility procedures in accordance with the Utility Accommodation Manual and has worked to develop relationships with UAOs statewide. Rebecca has successfully certified over 20 FDOT projects collectively in Districts 4 and 6.

Key Projects

Design Services Washington Street & 72nd Avenue Mobility Improvements, *FDOT District 4, Hollywood, FL*
This project includes the addition of bicycle lanes and pedestrian improvements to each corridor. Additional services include roadway drainage, signing and pavement marking, landscaping, survey, SUE, utility coordination, geotechnical, and public involvement. Rebecca prepared initial contact, conducted all utility design meetings, prepared, and conducted final design contact, created the utility clear package and documents, maintained the project status report, and finalized the Utility Certification.

I-95 and 45th Street, FDOT D4, *Broward County, FL*
As subconsultant to Hanson, scope of services included utility coordination on this PD&E Study to study the short- and long-term needs of I-95 and develop concepts to address traffic spillback onto I-95, improve interchange operations, reduce congestion, and increase safety at the 45th Street Interchange in Palm Beach County. Rebecca coordinated between project parties and introduced each utility agency to the concept plans and project overview. Currently, Rebecca drafted a write up based on the information provided by the utility agencies for the PD&E study to assist in determining the most cost effective and least impactful roadway design regarding utilities.

SR 80/Pike Road at Forest Hill Boulevard, FDOT D4 *Broward County, FL*
As subconsultant to Inwood Consulting Engineers. The scope included adding a third WB to SB left turn lane from Southern Blvd to Forest Hill Boulevard, widening the bridge over the C-51 canal, converting NB dual rights on Forest Hill Boulevard to one NB thru lane and one free flow NB right turn lane, and widening along Southern Boulevard. Rebecca has prepared initial contact, pre-design, contact, final design contact, utility clear package, utility project file & documents and project status report and finalized the Utility Certification.

Design Services for St. Lucie West Interchange Improvements, *FDOT District 4, St. Lucie County, FL*
As subconsultant to HDR, provided utility coordination services, FM3435337-1-32-01. This design project is of three lane median span concrete bridge at the interchange of I-95 at St. Lucie West Boulevard. This contract is to support in-house roadway design in the widening of this interchange.

Grant Fichter

SUE Project Manager

EXPERIENCE
- 24 Years

EDUCATION
- BS, Business Supervision & Management, Florida Southwestern State College, 2022
- AA, Florida Southwestern State College, 2014

REGISTRATION
- Professional Surveyor & Mapper, Florida # 7453, 2022

TRAINING
- ACES International, Inc.
- Intermediate MOT/TTC
- Confined Space Training
- Professional Utility Locator Training (Utility Training Academy)
- Subsurface Utility Engineering
- (Utility Training Academy)

PROFESSIONAL AFFILIATION
- Florida Surveying & Mapping Society
- National Utility Contractors Association

PROFESSIONAL PROFILE

Mr. Fichter is highly experienced in the science of land surveying and subsurface utility location. He began his career as a survey rod-person and after years of dedication and hard work, worked his way into the position of survey and subsurface utility engineering (SUE) manager. He is responsible for scheduling crews for their day-to-day tasks, researching surveys, briefing and debriefing crews, and conducting the initial Quality Control (QC) of all field data. Additional experience includes design, Right-of-Way (R/W) control, pre-construction and post-construction, as-built, Global Positioning System (GPS), construction layout, and hydrographic/bathymetric surveys. His experience in locating and designating underground utilities/facilities includes using various approved methods such as ground-penetrating radar, vacuum excavation equipment, and electromagnetic transmitting and detection devices. Additionally, Mr. Fichter is a Certified Damage Prevention Specialist through the Association of Communications and Electronics School (ACES International, Inc.) and has extensive training in Advanced Utility Locator and SUE locating and marking.

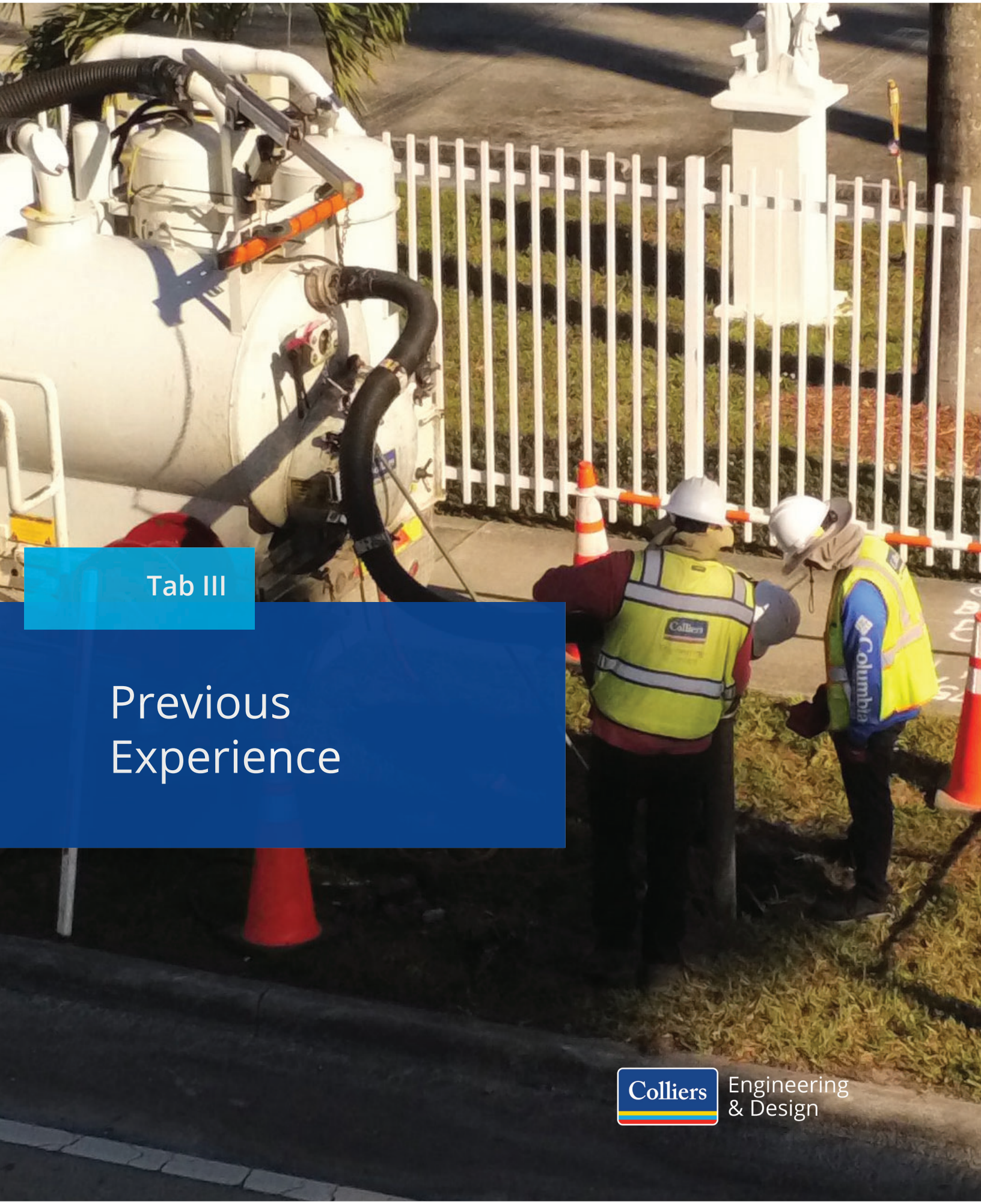
PROJECT EXPERIENCE

District-Wide Subsurface Utility Designate, Locate & Coordination Contract (C9X79 & CA248) – FDOT District One. Contract Manager. The general purpose of the contract is to provide all necessary services to designate and locate existing surface and subsurface utilities to support FDOT design and construction projects on an as-needed basis. Tasks include utility location and verification during construction, identification of existing/proposed utility facilities, resolution of conflicts between utility facilities and proposed construction, documentation of utility company activities, securing executed legal agreements to clear a project for letting, analyzing and certifying utility work schedules for compatibility to FDOT construction schedule, and providing R/W staking for advanced utility relocation.

Miscellaneous Surveying & Mapping Services Contract – Lee County. Contract Manager / Project Manager / Survey Field Crew Manager on multiple iterations of this contract since 2007. Some of the services encompassed in this contract include as-built surveys, boundary surveys, construction layout surveys, control surveys, hydrographic surveys, mean high water line surveys, quantity surveys, record surveys, specific or special purpose surveys, topographic surveys, wetland jurisdiction line surveys, legal descriptions and parcel sketches, R/W surveys, and map preparation.

District-Wide Minor Design Continuing Services Contract (CA319) – FDOT District One. Survey Task Manager. Under this contract, AIM provides surveying, mapping, and SUE support for all aspects of minor roadway design. The purpose is to perform miscellaneous engineering tasks necessary to produce construction plans for minor design, scenic enhancement, resurfacing, widening and resurfacing projects, and support of FDOT in-house efforts related to resurfacing projects.

Surveying Support Continuing Services Contract (C9J41) – FDOT District Seven. Project Manager. As a subconsultant, AIM provided surveying and mapping services to collect data in advance of work programmed advertisements. Under this task-based contract, AIM completed the design survey of the SR 52 Extension from East of Uradco Place to east of Fort King Road. AIM recovered/reestablished the historic alignment and referenced the alignment and all control points, provided 3D topographic/DTM survey through the project limits including void area densification, collected break lines, high and low points, and all lane lines for cross slope analysis, provided 1000' cross sections to verify the accuracy of the DTM, and provided drainage survey.



Tab III

Previous Experience

Colliers Engineering & Design

Utility Infrastructure SUE Projects

We understand the County's overall needs and expectations for this contract as we have served multiple clients within Florida and across the US. We will leverage this experience to help manage and execute this contract successfully for the County.

The scope of services of the projects and contracts included in the table below involved major SUE and vertical asset mapping and/or geospatial mapping.

Similar Projects	Experience				
	SUE (QL-C,B,A)	Survey | Mapping	LiDAR	GIS Database	Utility Infrastructure
Districtwide Subsurface Utility Designate, Locate & Coordination Services, D1	✓	✓			✓
SR 35 (US 17), Washington Loop Road to Desoto County Line, Charlotte County	✓	✓	✓		✓
SR 776 from Pinedale Drive to the Myakka River, Charlotte County		✓	✓		✓
MLK Forcemain Replacement, Sarasota County (Carollo Engineering)	✓	✓	✓		✓
Fort Myers Water Treatment Plant Assessment	✓	✓	✓		✓
SR 72 from west of Gateway Avenue to Gantt Road, Sarasota County	✓	✓			
Water & Sewer Improvements at NW 37 Avenue, Miami-Dade WASD (Biscayne Engineering)	✓	✓			✓
Design-Build Criteria Package Survey and Engineering Services, Gov't Cut Tunnel Port of Miami	✓	✓			✓
Boulevard Street Sanitary Forcemain and Watermain Replacement from NW 6th Street to NW 16th Street (RE Holland/JEA)	✓	✓	✓		✓
Sarasota County Forcemain Replacement Project, Dr. Martin Luther King Jr. Way & North Tuttle Avenue (Carollo Engineers)	✓	✓	✓		
Riverside Drive from Royal Palm Blvd. to Wiles Road, DP Development/Broward County Road & Bridge	✓	✓	✓		
North District Wastewater Treatment Plant, Miami-Dade County WASD	✓	✓	✓		
South District Wastewater Treatment Plant, Miami-Dade County WASD (Biscayne Engineering)	✓	✓	✓		
SR 417 Widening from Landstar Blvd. to Boggy Creek Road, CFX	✓	✓	✓		✓
SR 429 Widening from West Road to SR 414, CFX	✓	✓	✓		✓
Baypointe Golf Course Conversion, Pinellas County	✓	✓	✓		✓
St. Vincent Hospital Watermain Replacement (RE Holland/JEA)	✓	✓	✓		✓
SR 7 (US 441) Transit Corridor Improvements Southgate Blvd. to Hillsborough Blvd., Broward County (HBC Engineering – FDOT D4)	✓	✓	✓		✓
Evergreen & SR 50, Casings for Sanitary Forcemain, Watermain, and Gravity Sewer, Hernando County (Burgess & Niple)	✓	✓	✓		✓
Reedy Creek Energy Services Improvements District Lift Station Upgrades	✓	✓			✓
Rahway Sanitary Stormwater Sewer Mapping	✓	✓		✓	✓
Western Monmouth Utilities Authority GIS Services	✓	✓		✓	✓
Matawan Mobile GIS Implementation	✓	✓		✓	✓
Middletown Utility Asset Management Program	✓	✓		✓	✓
SR64 E of Manatee River to Bill Parrish Rd	✓	✓		✓	✓
SR 45 (US41B) from 17th St. W. to Bayshore Rd. Manatee Co	✓	✓		✓	✓

CED is currently contracted and/or providing a full spectrum of SUE, GIS, survey, geospatial/LiDAR mapping services through similar on-call contracts for multiple municipalities and agencies including:

Similar Contracts	Similar Experience
FDOT District 1 Districtwide Subsurface Utility Designate, Locate and Coordinate Contract	Prime contract holder with 30+ TWOs performing SUE designates and locates for projects in final design. Typically these include accelerated schedules to ensure conflicts were resolved prior to construction with significant UAO and stakeholder coordination.
City of Tampa Water Department Continuing Services	SUE (QL-B, QL-A)/Surveying/Mapping/LiDAR Services
TECO Peoples Gas	SUE (QL-B, QL-A)/Surveying/Mapping/LiDAR Services
Port Tampa Bay GEC	CED has performed 3 separate assignments under this contract includes providing boundary, topographic, control surveying, GIS asset management, Subsurface Utility Engineering, aerial photogrammetry and 3D modeling/ visualizations.
City of Miami, Miscellaneous Surveying and Mapping Services	Under this miscellaneous surveying and mapping services contract, CED was tasked with several boundary and topographic surveys for various city parks and facilities. Scope elements included control surveys with permanent benchmarks, as-built surveys utilizing Terrestrial LiDAR, construction stakeout, SUE services.
SFWMD Miscellaneous Survey Services	SUE (QL-B, QL-A)/Surveying/Mapping/LiDAR Services
Middletown Utility Asset Management Program	A web-based asset management program coupled with GIS mapping was implemented for the office and field staff to manage the Authority's sanitary sewer system. The Authority now has 24/7 web access within field vehicles and at their office locations to view and edit plan documents, administer work orders, view client account information, and allow supervisors to track the status of work being performed per staff member
City of Rahway, Stormwater and Sanitary Sewer GIS Data Collection and Modeling	Our team mapped the City's stormwater and sanitary sewer systems in the field using a combination of Esri's GIS software and mobile applications. Our team digitized the subsurface gravity mains in the field to accurately map the gravity mains based on real world conditions. The combination of high accuracy GNSS connected to Apple iPads running ArcGIS Field Maps allowed our team to quickly and efficiently map the location of over 4,600 sewer assets.
Miami-Dade County General Land Engineering and Surveying Services	CED has been providing general land surveying services under multiple, consecutive continuing services contracts since 2006. Scope of services have included: boundary surveys, design surveys with Mobile LiDAR, underground utilities surveys, as-built surveys, UAS photogrammetric services, preparation of legal descriptions and sketches and expert witness services.
City of Miami Beach Miscellaneous Professional Services Contract	Since 2016, CED has performed a variety of task assignments including boundary and topographic surveys for various transportation and utility facilities. Scope elements included control surveys with permanent benchmarks, as-built surveys, construction stakeout, SUE services, and flood analysis using aerial and mobile LiDAR data.
FDOT District 6 Districtwide Subsurface Utility Designate, Locate and Coordinate Contract	Prime contract holder with 40+ TWOs performing SUE designates and locates for projects in final design. Typically these include accelerated schedules to ensure conflicts were resolved prior to construction with significant UAO and stakeholder coordination.
FDOT District 4, Continuing Services Survey Contracts	CED has been performing multiple task work order assignments consisting of traditional field surveys and Mobile LIDAR data collection for design projects under three separate 5-year Districtwide support contracts.

Project Manager and Firm References

Nick Fewell References Clients | Associated Project	Contact Information
Hernando County | Hernando County Castings	**Josh Walker, Project Manager, Engineering** Hernando County Utilities Department 15365 Cortez Boulevard Brooksville, FL 34613 E: JoshuaW@HernandoCounty.us P: 352.754.4761
TECO | Fort King PPP Project	**Bobby Morig, PMP, Construction Project Manager** TECO 702 N Franklin Street Tampa, FL 33602 E: rjmorig@tecoenergy.com P (office): 904.443.7365 x 77365 P (cell): 904.510.6526
Hillsborough County | Calusa Trace Flow Diversion	**Christopher Snyder, PSM, Survey and Mapping Manager** Hillsborough County 601 E. Kennedy Blvd. Tampa, FL 33602 E: snyderc@hillsboroughcounty.org P: 813.307.4782
Firm Reference	**Contact Information**
SW 10th St. TSM&O Smart Work Zone	**Javier Manso, Project Manager** HDR, Inc. 3250 West Commercial Boulevard, Suite 100 Fort Lauderdale, FL, 33309 E: javier.manso@hdrinc.com P: 305.458.2070
SRQ Airport	**Kelly Rubino, Project Manager** EG Solutions 9015 Town Center Pkwy Bradenton, FL 34202 E: krubino@eg-solutionsinc.com P: 941.567.1622
AT&T - Utility Relocation Contract	**Erick Bustos, PE, Principal** Cobb Fendley & Associates 1414 NW 107th Ave. Suite 408 Miami, FL 33172 E: ebustos@cobbfendley.com P (office): 305.456.5100 P (cell): 305.439.4769

Tab IV

Project Control

Colliers Engineering & Design

Control of Project Schedule

Our success on similar on-call SUE, GIS and Survey/ Geospatial contracts is largely due to our commitment of resources and attention to critical path delivery schedules. We want you to be confident in assigning work to the CED Team, and it is our goal to track our capacity and utilize our team members responsibly to ensure timely delivery of services and commitments are met on every assignment. Mr. Fewell will coordinate with the County Project Manager to develop a proposed work plan that includes specific tasks, milestones, deliverables, completion schedules.

Resourcing and availability will be the driving elements of meeting project schedules. After completion of work order negotiations and upon Notice to Proceed, we will hold a kick-off meeting with all key personnel to discuss project milestones, schedules, accuracies, deliverables, and QA/QC procedures. All key staff will be given the work program schedule that identifies critical milestones for each stage of the project. Detailed communication procedures will be established and followed between all assigned team members and the CED management team. Schedule updates will be included with the monthly progress reports and corrective actions, if necessary, will be identified and communicated to maintain agreed upon deadlines.

The status of each Work Order will be closely monitored on a weekly basis to make sure all assignments remain on schedule. Supporting this contract for the County is not only a priority of our assigned team members but also our Florida leadership. Our survey and SUE staff hold daily scheduling and project management meetings which include leadership from all Florida offices, allowing our team to leverage resources regionally and prioritize assignments under this contract to ensure the quality and responsiveness you expect from our team without sacrificing other obligations. We envision our relationship with the County will develop quickly and strengthen with this contract and CED is prepared to grow with your needs as an organization and succeed on every assignment. Mr. Fewell, will be responsible for assuring all established milestone schedules are met.

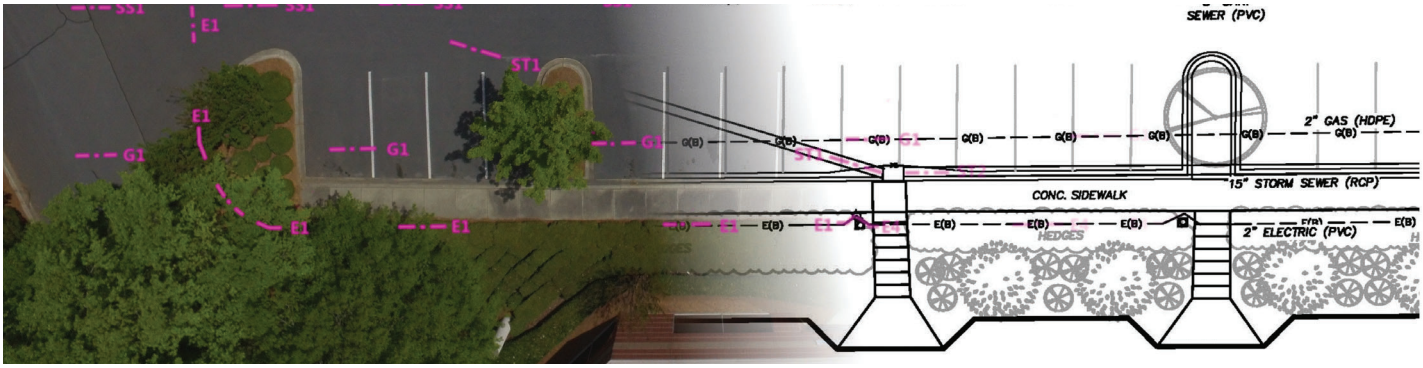
Control of Budget

This is a Work Order-based contract with each assignment negotiated on an individual basis. Mr. Fewell's experience with a wide variety SUE, survey and GIS assignments makes him familiar with the level of effort required for performing specific work elements included in various types of projects. Having negotiated numerous work orders on previous contracts, Nick understands the typical expectations regarding anticipated work efforts and how to efficiently utilize personnel. Mr. Fewell will be responsible for the cost control and overall budget maintenance of the contract. Budgets for each assignment will be tracked and maintained on a weekly basis using the project management portals included in BST Financial Software (Ver.10). This allows for monitoring of project financial details to quickly determine which activities are negatively impacting the schedule or budgets and institute aggressive corrections including adding resources to prevent cost overruns. Invoicing will be prepared monthly and/or to coincide with milestone deliverables and will document the percent complete status for each assignment.

Current and Projected Workload

CED holds several Work Order based contracts with state and local agencies that will continue through the duration of this contract. Our history of performance illustrates our ability to manage multiple active contracts and projects by focusing on communication, collaboration, and work-sharing. Our local management staff constantly forecasts our clients' needs and upcoming commitments to develop staffing requirements to meet all expectations and commitments. We are confident that supporting the projected projects/contracts included in the team availability table below will not diminish our ability to maintain capacity or our commitment to the County under this contract.

For your contract, CED will provide resources from our Fort Myers and Tampa offices, however, we will also have access to the company's five additional Florida offices located in Maitland, Miami, Boca Raton, Fort Lauderdale, and Jacksonville, along with the resources within the balance of our offices throughout the US.



Primary Team Availability

The following graphic demonstrates the CED Team's current commitments over the next year based on percentage:

Primary Key Staff Recent and Current Commitments		
Name | Role | Firm	Current Project Commitments	Availability
Nicholas Fewell, PSM | Project Manager | CED	FDOT D1 SUE 5% / FDOT D5 Aux lanes 10% / TECO Peoples Gas 5% / Suncoast Parkway 5% / City of Newport Richey SUE 5%	80%
Michael Ehrhart, PSM | Principal-in-Charge | CED	Central Florida Expressway, Osceola Pkwy Seg 2: 20% / City of St. Petersburg Continuing Contract: 10% / TECO Electric Solar Inspection: 10% / FDOT D5 I-75 Auxiliary Lanes: 10% / FDOT D1 SUE: 15%	35%
Michael Kriegel | Deputy Project Manager | CED	FDOT D6 SUE Continuing Services Contract 10% / FDOT D4 SUE Consultant Management Projects 10% / Dade/Broward County Schools SUE 5% / D5 SR426 5%	70%
Wyatt Altman, PSM | Survey Lead | CED	19000338B - I75 Aux lanes 20% / 23006003G - SR589 Suncoast 20% / St. Pete Survey Services - 5% / TECO Electric - 5% / TECO Gas - 5% / Hillsborough Country Transportation Work - 10% / City of Tampa / Survey Projects - 5% / CFX - Binion Rd - 5%	50%
CJ Ruch, CST III | Senior Surveyor | CED	EWMI-AMCOR 20%, Witkoff-Shore Club model 20%, DRPA-Bridge Scanning 20%	45%
Grant Fichter, PSM | SUE Lead | AIM	Contract Management- Various Projects	40%

Tab V

Proposed Design Approach

Colliers Engineering & Design

Project Understanding

We understand the intent of this contract is to perform QL-A utility locations in conformance with ASCE 38-22 standards to update the County's Map Book database and provide a complete and accurate inventory of the County's subsurface utility assets. In addition, the contract may involve performing new utility investigation assignments involving survey of utility appurtenances – Quality Level C (QL-C) and surface utility designation – Quality Level B (QL-B), per ASCE 38-22 standards.

We fully understand the Standard Guideline for Recording and Exchanging Utility Infrastructure Data, ASCE 75-22, utility "As-Constructed" or "As-Built" standard, to ensure that new utilities added to a project, or relocated during a project, have accurate and usable records of their location and attributes going forward. This standard addresses utility security concerns, and the needs of engineers, utility owners, and rights of way owners to know in the future what is under and above the ground.

CED has thorough knowledge of ASCE 38-22 as our staff have been involved since the beginning and with the current update. Our training, workflows, and SOPs for our "field to finish" SUE process was developed to dovetail with ASCE 38-22 and ASCE 75-22 Standards.

Along with updating the Utility Map Book Database, CED is committed to help the County fully transition into the emerging standard of using a 3D modeling environment for design, post construction as-builts, maintenance, supporting resiliency strategies and sustainable infrastructure initiatives; and making sure the County remains in compliance with regulatory agencies, such as FDEP, regarding asset inventory, condition assessment, and maintenance requirements.

All surveying services will comply with the Standards of Practice (5J-17, 472.027, Florida Statues).

CED stands ready to achieve the objectives established by the County for this contract through proven applications and workflows developed for effective data governance on similar SUE mapping contracts, and a wide range of utility infrastructure and transportation projects (airports, railways, roadways and ports) throughout Florida.

Approach

CED will be responsible for reviewing and evaluating the requirements and expectations for each assignment and recommending an approach tailored to meet all specific scope elements. Upon receipt of any assignment, Mr. Fewell will thoroughly review the scope of services and related information provided by the County to assess the project characteristics, determine safety and TTC needs

Why CED.....

Project Team Experience: A Broward County owned, unlocatable High Density Polyethylene Section of 24" Force Main, and City of Pompano owned, unlocatable High Density Polyethylene 18" Water Main, both without tracer wires, were causing delays to FDOT planned bridge improvements at the Ibis Bridge Canal in Lighthouse Point, FL. Multiple Consultants, including subaqueous consultants from both FDOT D4 and Broward County, were unable to provide enough information to the FDOT Bridge Engineers to allow for installation of new piles for the bridge. This project had already been delayed for over 12 months.

At a last minute request, before canceling improvements all together, Michael Kriegel was charged by FDOT D4 Survey & Mapping office to develop an approach to obtain more information. This included planning and coordinating with Broward County and the City of Pompano to determine the location of both the Force Main and Water Main crossing the canal to allow for safe installation of new bridge piles by FDOT. Mr. Kriegel proposed an approach to temporarily shut down the Force Main and access the pipe at a nearby pigging station found utilizing a combination of existing as-builts and GIS records. By utilizing multiple Sondes with differing frequencies, attached to a Flexrod, the Force Main was found and verified at depths up to 35'. Once successful with the Force Main, Mr. Kriegel proposed to temporarily shut down the existing City of Pompano Water Main, excavate the pipe, and remove a section to allow for access with a Sonde. Efforts with City of Pompano were coordinated through Ben Bray. Utilizing the same approach as with the Force Main, the Water Main was found and verified at depths up to 32'.

and note any special coordination, access issues or potential permits required. This review will allow us to recommend the appropriate method for SUE services - taking into consideration scope requirements, schedule and economics when determining the plan of action on work orders in a follow-up meeting with the County's Project Manager for consensus prior to staff hour development.

Preparation of the staff hour estimate and fee will then be completed and submitted for review and negotiation. The Work Order specific project team including field staff, survey technicians and subconsultants are then included in a kickoff meeting to review the approach, schedule milestones, site specific safety requirements, field documentation of control monumentation and project specific QC plan. Following field and in-house reviews, the QL-A information is submitted to the County's Project Manager for review and comment. The final submittal will include shape files conforming to the County's database schema as well as documentation of our QC reviews and any review notes from the County and CED responses.

CED will obtain all necessary permits, approvals, and permissions to perform the work associated with each assignment including: gaining access to easements on private property, rail right of ways, tribal lands and farms that supersede the surveyor property access statutes. We will also comply with all safety procedures and requirements, including utilizing appropriate MOT/TTC when working with rights of way and flaggers at rail crossings (see "Safety Program" herein for more details).

Subsurface Utility Investigation Approach

Surface Utility Designation - Quality Level "B". To effectively mark the surface designation of existing utilities, in support of Quality Level A (QL-A), we must provide a comprehensive field package for our SUE investigation team. Utility designation assignments are expected to occur within the existing right of way or easements, so researching available permits to make any additional requests, obtaining a Sunshine State One Call Design Ticket, preparing a health and safety form, and reviewing proposed MOT/TTC are necessary prior to mobilization to site.

Upon receiving notification of the area requiring investigation, the team will perform research to identify any potential records and their availability. Research areas include: County existing GIS platform, as-built data, permit records, project plans, and oral histories (parol evidence) from County staff. Our initial research is shared through cloud-based applications known as Basecamp and One Drive allowing our crews real-time access in the field, making field operations efficient and effective. With this due diligence, our designating crews are responsible for marking, flagging, and surveying the horizontal location of existing subsurface utilities and any secondary service laterals.

After reviewing all available research and record information, the team will physically investigate the site, identify visible utility appurtenances and potential connection points for our electromagnetic (EM) equipment. Utilizing EM systems, the team will attempt to designate the horizontal location of the target facilities. If the target facility is determined to be non-conductive, and/or lacks any traceable element (tracer wire), the team will attempt to utilize Ground Penetrating Radar (GPR) or acoustic systems to determine the horizontal location of the target facility. This approach with a limited amount of locating will verify the accuracy of the designation, resolve "unknowns" and ensure all utilities are accounted for. We will also provide electronic depths of designated facilities utilizing signal analysis and triangulation methods to ensure they are accurate and valid.

Drawing upon their experience, training, and knowledge of utility systems and construction methods, the team will designate the horizontal position and attempt to trace the facility to a point of logical termination (valve, hydrant, manhole, clean out, etc.) to ensure proper identification/classification of the asset. The designation is delineated by placement of temporary paint marks on the surface at the determined peak signal point or peak hyperbola in GPR. The designation markings are then surveyed to measure the horizontal position (x,y) at a relative accuracy of 0.2', more or less.

The survey data is processed through Trimble Business Center (TBC) to verify precision and balance residuals, the resulting point file is exported to Civil3D for processing into a proper CADD file. Using pre-determined layering, line styles, weights and symbology, the point files are developed into annotated CADD drawings indicating utility attribute data (size, type, composition) and verified against field sketches for correctness.

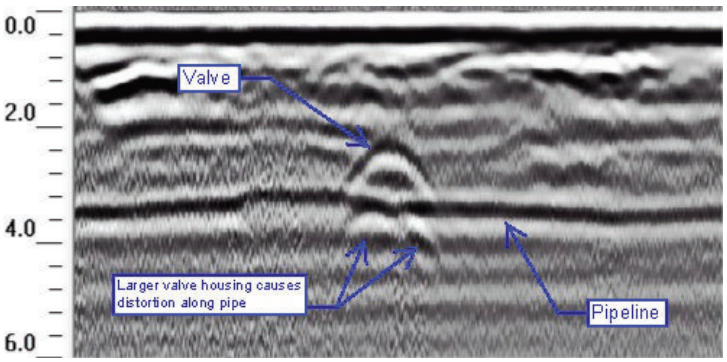
Subsurface Utility Location (Test Hole) - Quality Level "A". To effectively mark the surface designation of existing utilities, in support of Quality Level A (QL-A), we must provide a comprehensive field package for our SUE investigation team. The process of confirming the vertical and horizontal position of existing subsurface utilities requires exposure using (test holes), typically performed using vacuum excavation to expose the targeted subsurface utilities without damaging or cutting any if these facilities. Once permitting is determined and a valid dig ticket is approved, we move forward with confirmation of existing utilities by performing test holes, as necessary. Again, our preparation and research will consider any access issues, safety concerns and MOT/TTC requirements prior to engaging our utility mapping team.

This approach enables our team to utilize our available resources to perform the utility locates safely and efficiently. Documentation of our efforts is key, so at each test hole the facility type, owner, material, size, and configuration are provided. Geocoded digital photos accompany our findings and ensure restoration as well as location. This information is then surveyed with accurate elevations to incorporate into the utility mapping file and summary of verified utility locate sheets.One of our most effective tools is clear communication. Our team's extensive resources and technology will have a positive impact upon project schedule, even during peak demand periods. The County will benefit from access to our highly qualified, motivated, and committed personnel. With over 50 personnel in our Fort Myers and Tampa offices that are local to Charlotte County and who frequently provide services within the County, we have more than adequate staff to provide the services required throughout the duration of this contract.

Approach to Location of Valves Buried and Utility Features

Locating valves buried under asphalt or groundcover without excavation, expense, and traffic disruption can be very challenging. CED has developed a systematic process that has proven successful on similar assignments involving subsurface investigation of water, wastewater, gas, power, telecommunication and fiberoptic facilities for UAOs, municipalities, agencies, and FDOT. This process is summarized as follows:

- Begin by reviewing the specific TTC/MOT needs required since this type of location typically ends up lying within travel lanes due to roadway expansion.
- Review supplied records/as-builts to determine if there are any measurements from roadway features or other landmarks on site at the time of installation.
- Compare historical aerials versus recent aerials to estimate ties to current existing features.
- Based on the compiled information, mark out the utility in question, scan along the linework with a Maggie Schondstedt that can detect polarity. If the Maggie "rings" a metal object in the ground the polarity will tell us if the object we detect is aligned vertically or horizontally and we mark the location.
- Next run a dual frequency GPR that can detect shallow as well as deep objects along the marked utility. Then look for any shallow signal returns that appear to be metal that indicate a possible valve location. This process can also pick up a change in pipe material or elevation that may indicate the presence of a valve assembly. If needed, we can extract the GPR data and process the data using Radan 7 software by GSSI, to eliminate background noise and provide a better-quality image of the area of investigation.
- The area of interest is then marked.
- This data is geopositioned allowing for coordinates to be extracted to identify the suspected valve location.
- With the suspected valve location identified and marked we can now measure field ties to see how well the location matches up with our researched reference ties from as-builts, records, and historical/current aerial imagery. If the values are in good agreement, this increases our confidence of the area of interest.
- Our findings are then presented to the client and, if necessary, arrangements are made to perform vacuum excavation to expose the valve and survey the position (x,y) and elevation (z) of the feature. The excavated location will be restored with any disturbed material (dirt, asphalt, concrete, etc.) replaced in accordance with client or industry standards.
- Optionally, the above referenced excavation process can be performed and coordinated directly with the County maintenance staff or contractor responsible for installation of new valve boxes, etc.



Approach for Underground Utilities when Record Information is Incomplete or Inaccurate

Based on our utilities coordination experience most requests for information to support utility investigations will have very limited response because the utility industry does not typically share its records on a platform that is readily available to the public. The reasons for this are varied, including these facilities being considered critical infrastructure or subject to strict non-disclosure agreements, etc. So, in essence, firms performing the types of utility investigation included in this contract are essentially "putting together a puzzle" in the field based on identifiable above ground features and markers and that are married with unreliable or outdated information.

The difference between performing a utility investigation opposed to marking for a specific utility agency is that the representative of the agency does have the utility's internal record information in hand. Utility

agencies are typically marking for damage prevention, not design, therefore, abandoned, or inactive lines do not typically get identified in the field. **As a dedicated utility investigation SUE provider, CED will mark all the existing active and inactive lines that we can confidently identify in the field as part of every assignment**.

CED field technicians and office staff are knowledgeable with the design and configuration of infrastructure facilities through years of performing these specifics service for a wide variety of private and governmental clients. With a combined 50+ years of providing utility investigation, our SUE field and office staff are experts when dealing with nonexistent or inaccurate record information. CED leverages the shared expertise of our field utility designators, utility coordinators, and coordination team to assist in the accurate identification of utility infrastructure. Regardless of the underground facility-type e.g., water, wastewater, gas, power, or communications, we are confident that we can provide accurate information to our clients.

Our approach to subsurface utility investigation is summarized as follows:

- Review the 811 design ticket members.
- Collect and determine the accuracy of any as built or record information. Available record information, may consist of GIS, permit records, valve records, hand sketches, oral histories, and service records
- Contact any non-members separately
- Perform a site visit
- Perform initial sweeps and preliminary investigation of above ground appurtenances multiple geophysical investigation devices as well as perform a comprehensive sweep using multiple geophysical investigation devices and GPR
- Make determinations based on results from the field
- Discuss internally with utility coordination staff and project manager regarding what was captured in the field
- Determine whether a specific utility needs to be present in the field to review the results
- Conduct field meeting(s) with the UAO representative and document conversation
- Provide information based on the field meeting to support any judgments made
- Meet with the client to discuss what was found and what was not found
- Qualify all provided data based on the quality levels used to perform the investigation
- Identify and include in the sketch, CAD file, field investigation report, and associated survey report the methods in which the investigation was performed (i.e., as-built records, field procedures, field determinations, verbal recollections, directions, parole evidence, etc.)

Project Management

We understand that the County is consistently challenged to meet the needs of the community given County staffing constraints. As an extension of the County staff, CED will proactively address issues with the contract to reduce unnecessary county interaction.

Efficient and detailed project management is critical to the success of the program, and we understand that clear communication is requisite to success. CED has over three decades of experience delivering successful design and construction projects for both the private and public sectors throughout the country. In particular, our team has undertaken a significant number of similar SUE on-call/continuing service contracts. This experience provides us with a good understanding of what it takes to successfully manage and execute this contract.

Our Project Management Strategy centers around two core values- Responsiveness and Accountability:

Responsiveness - We fully understand that responsive, quality service drives the success of our assignments. Communication and quick response time are of the utmost importance for our team. We know that clear, regular, and responsive communication is critical to the overall success of on-call contracts. You will have all our resources at your disposal and our team will work tirelessly to deliver on deadlines and provide 24/7 support.

Accountability - CED will take an ownership approach to each assignment. Our team fully understands that we serve as an extension of the County whenever we work on an assignment for this contract. We are not only working in partnership with the County, but we are ultimately responsible and accountable for the performance of our projects. As your partner, we will structure our services for seamless integration of our services with the County's needs.

Communication and Engagement

Effective communication, coordination, and collaboration between our Project Manager, County Project Manager, and field crews will be vital throughout this contract. This will be achieved through developing a clear understanding of the scope, defining roles and expectations, establishing clear communication protocols, open and clear collaboration and reporting, and transparency regarding both achievements and challenges. Mr. Fewell will schedule individual or group progress meetings, field reviews and/or office visits, as necessary, to meet established due dates and address questions or concerns promptly as they arise. When

time is of the essence, CED will provide a staff hour estimate within 24 hours of the assignment request. We will schedule a face to face or virtual kickoff meeting with the County to confirm/review all scope items, project schedule, staffing/resource plan, and any required stakeholder coordination.

The agenda for the kick-off meeting for each Work Order and subsequent weekly team meetings include discussions regarding project goals, schedule, progress and performance with input welcome from all of the members of the project team. In this way, our team members are fully informed regarding project status and their individual responsibilities. If issues or challenges arise during the course of a project, they are discussed with various team members, a plan of action formulated, and instructions regarding the way forward disseminated appropriately for implementation. Bi-weekly written reports will be submitted to the Work Order project managers for all assignments with status updates for all established milestones.

QA/QC Program

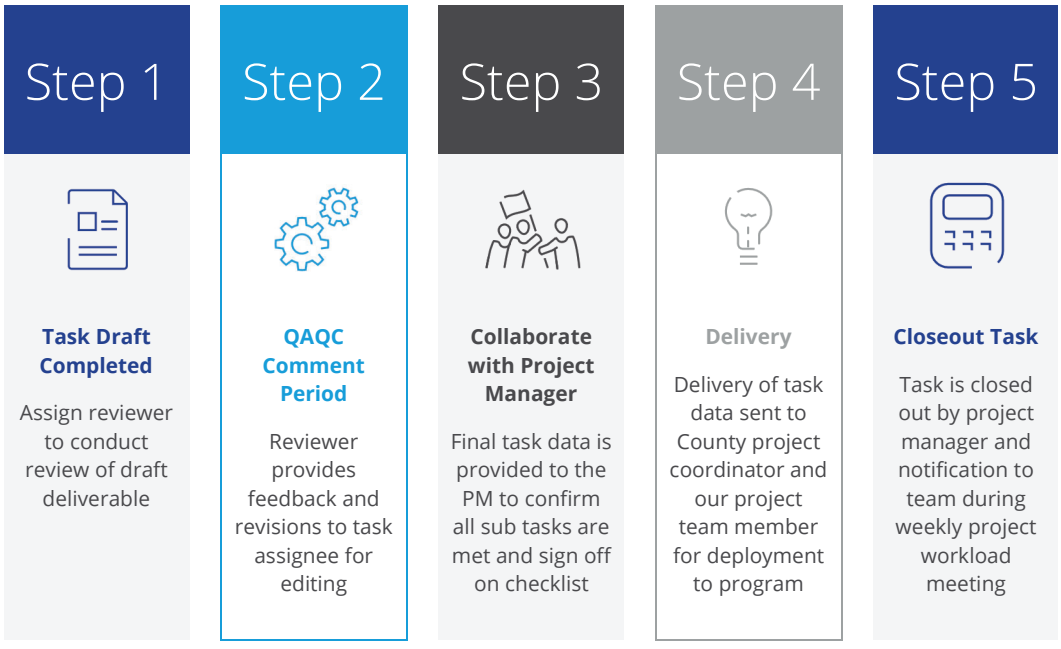
Quality Assurance: CED takes full responsibility for the quality of our project submittals, including components prepared by our subconsultants. A detailed QA/QC plan encompassing all of the disciplines included for this contract shall be developed to ensure deliverables are efficiently and accurately prepared. CED understands the County's concerns regarding the importance of quality products and agree that deliverables include complete and well documented data supporting the associated reports and digital files. We accomplish this by educating, training, and mentoring our personnel. Every employee receives a SOP that details our procedures and workflow from field to finish. QA is supported daily by the SUE, GIS and Survey manager assigned to the specific assignment who will oversee and monitor the process and results with field and office staff to ensure we are collecting the requested data using the agreed upon methods.

Daniel Checchia will serve as the QA/QC Manager for this contract and will be responsible for preparing our team's GIS and SUE QC Plans, respectively. The foundation for this plan is our corporate Quality Control Program, which includes QC protocols as key components for all GIS, SUE, and Survey workflows. For the duration of this contract, Dan will be accountable for QA - ensuring detailed QC requirements are being followed and submittals meet the County quality expectations. This will be accomplished through independent audits, reviews, and oversight for in-progress assignments.

Quality Control Process (QCP): Quality is accomplished through standardized field and office workflows and a series of systematic reviews throughout each assignment and documenting production process. Our workflows include standardized field procedures and best practices for utility investigation and survey measurements which significantly reduce the chance for error; equipment calibration performed on a routine basis to verify proper and reliable operation of the SUE and survey equipment; and thorough training and certification of our staff.

To achieve the highest possible quality, deliverables for each assignment will be reviewed by a qualified independent reviewer from the appropriate technical

Management Steps



discipline. Our QCP for all submittals is redundant in nature, having a minimum of two reviewers for every assignment. Each reviewer follows a strict order of process which involves thorough back-checking of all documentation. The final step of the process is a QA review by senior project management to ensure the QCP process was followed.

Safety Program

Safety is literally a core value for CED and we understand the magnified dangers inherent with working on FDOT and "off-system" roadways and MOT/TTC Safety protocols will be rigorously followed to minimize risk potential to both our workers and the traveling public. The details of potential site-specific safety issues will be communicated to our crew members during daily tail gate meetings. However, if a member of the CED team determines that any activity on the job site poses an imminent hazard, they have stop work authorization until appropriate action is taken, and the deficiency is addressed. This commitment to safety also extends to each of our subconsultant partners.

CED field crew members and production managers maintain Intermediate Maintenance of Traffic (IMOT) certifications and utilize the MUTCD, the FDOT Standard Plans for MOT/TTC Index 102-100 through 102-680. Our staff certifications and training include: OSHA 10-hour, OSHA 30-hour, OSHA HazWOPER, confined space entry, coalition for construction safety (CCS), CSX & E-Rail Safe, and first aid/CPR training. Additionally, CED utilizes Operator Qualification (OQ) programs through Veriforce to provide safety training and OQ certification for work in and around gas/petroleum/hazardous liquid facilities, such as FGT, TECO, and Florida Public Utilities.

Several of our in-house staff members are certified in Advanced Maintenance of Traffic for designing Temporary Traffic Control Plan (TTCP) as needed.

Tab VI

Similar Completed Projects

Colliers Engineering & Design

Project Details

Client:
Hernando County Utilities Department
15365 Cortez Boulevard
Brooksville, Fl 34613

Contact:
Josh Walker, Project Manager, Engineering
P: 352.754.4761
E: JoshuaW@HernandoCounty.us

Completion:
2023

Construction Cost:
$363,000

Services | Relevancy:
SUE services (QL-B & QL-A)

Hernando County Castings,

Hernando County, FL

CED was contacted to provide QL-A and QL-B services in support of a roadway design project along SR 50 in Hernando County. The county was concerned that their roadway casings may not provide enough clearance for the construction of a new turn lane for roadway widening. CED was asked to identify the locations of the ends of 3 casings for the county's watermain, gravity sanitary sewer and force mains.

The challenge for this project was the extreme depth of the casings making the QL-B difficult for this locates. CED used QL-D and QL-C information to assist with the QL-A effort and successfully identified the ends of all 3 casings. We verified that the casings had sufficient clearance for the proposed road widening to occur without the county needing to extend them. **Schedule and cost control** for this project was maintained through our crews' extensive experience with difficult locates as well as our vigorous training and QA/QC procedures. The county was pleased with CED effort and asked for additional QL-B and QL-A services to be performed on this project.

Project Details

Client:
TECO Peoples Gas
702 N Franklin Street
Tampa, FL 33602

Contact:
Robert Morig
P: 904.510.6526
E: RJMorig@tecoenergy.com

Duration:
2022-2023

Construction Cost:
$275,000

Services | Relevancy:
SUE services (QL-B & QL-A)

Fort King PPP Project, Ocala, FL

CED provided professional SUE services for this project. The project consisted of the replacement of 55,466 linear feet of 2" gas main and 521 residential gas services. TECO Peoples Gas determined these lines to be unlocatable using their standard locate procedures and the original as-builts were not accurate leading to a lack of information. CED was tasked with locating and coordinating with the gas main installation contractor to locate the gas facilities to eliminate damages and ensure construction stayed on schedule. CED performed over 600 QL-A services to supplement the QL-B services to identify the horizontal and vertical positions of the gas facilities.

Maintaining schedule was a challenge on this project CED had to coordinate closely with TECO personnel, inspectors and the contractor to maintain the construction schedule. CED had weekly meetings with all parties involved and provided daily updates to the contractor. Costs were kept under control by working closely with the project team to ensure that locates where ahead of construction but not so far ahead that locates would have to be performed a second time due to marks being destroyed. CED was requested to assist with construction process when there were problems. We used QL-A services to identify previously unknown loops in the gas system that would not allow a line to be retired as planned. We also used our procedures in identifying buried valves to locate lost valves that needed to be operated.

Our dedication to our client and their subs assisted in keeping the **construction project on schedule and within the budget**.

Project Details

Client:
Hillsborough County
601 E. Kennedy Blvd.,
Tampa, FL 33602

Contact:
Christopher Snyder, PSM,
Survey and Mapping
Manager
P: 813.307.4782
E: snyderc@
hillsboroughcounty.org

Completion:
2023

Project Value:
$50,000

Services | Relevancy:
SUE services (QL-B & QL-A), Utility Infrastructure, In-house Services

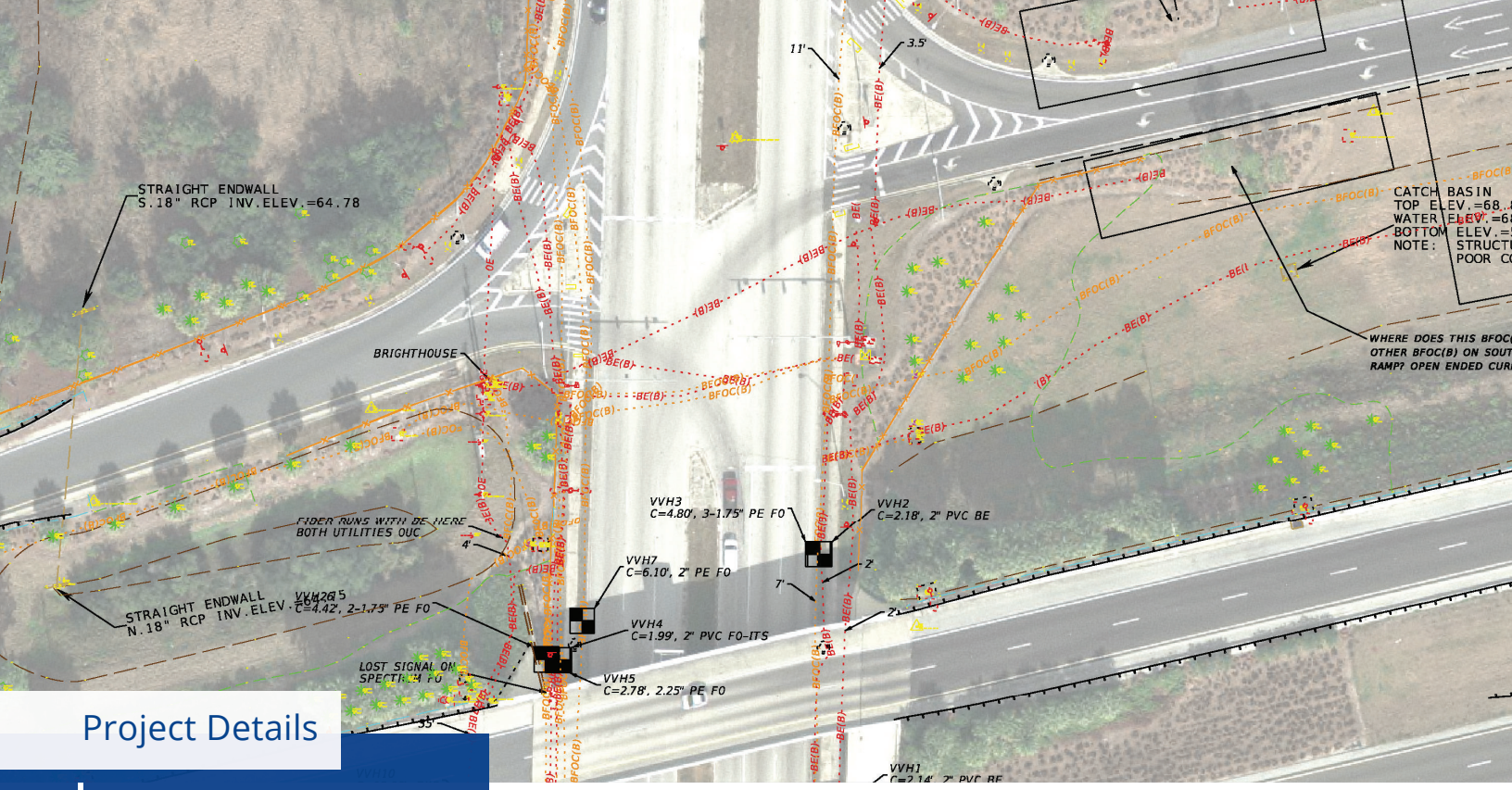
Calusa Trace Flow Diversion,

Hillsborough County, FL

CED provided survey and SUE services under a professional services contract in support of the design of 3,200 ft of proposed force main. The scope of services included a topographic survey, establishing control, right of way mapping, identifying existing utility easements and property lines and their respective boundaries, utility designation and utility locating. The survey with utility designates were provided to the engineers so they could design their path.

Utility locates meeting ASCE 38-22 criteria (QL-B and QL-A) were completed after design of the force main path at critical utility conflict locations as well as the two tie-in points to the existing wastewater systems.

Budget and schedule requirements were met for this project and there were no construction concerns.



Project Details

Client:
Central Florida Expressway Authority (CFX)
4974 Orl Tower Road,
Orlando, FL 32807

Contact:
Joey Roselli, Principal Engineer, American Structurepoint (Horizon Engineering Group - Prime Consultant)
P: 407.406.4512
E: jroselli@structurepoint.com
485 N Keller Road, Suite 501
Maitland, FL 32751

Completion:
2019

Construction Cost:
$363,000

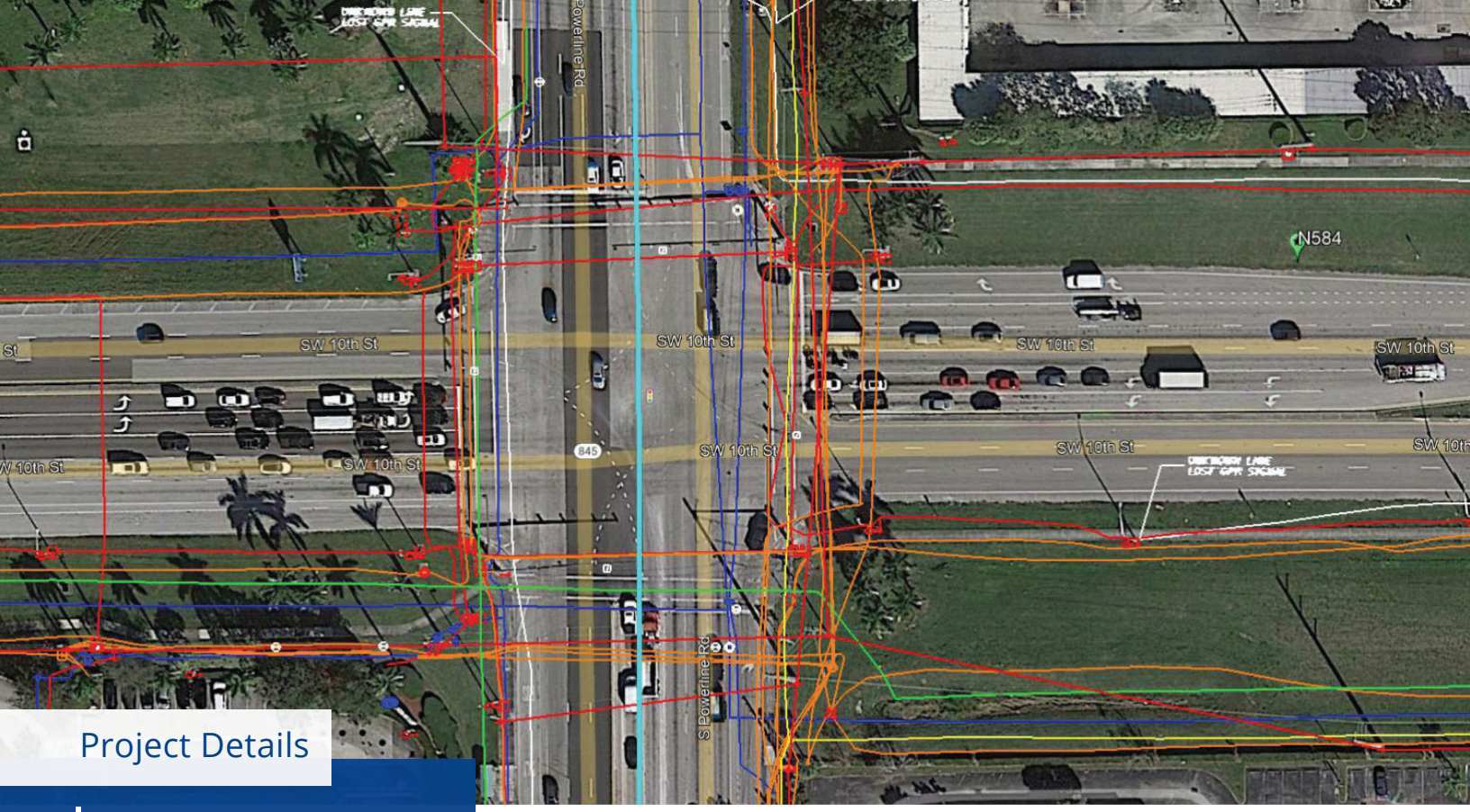
Services | Relevancy:
SUE services (QL-B & QL-A), GIS Research, Survey MOT/TTC, Permitting Site Safety Plan, As-builts

SR 417 Highway Widening & Improvements, Orange County, FL

From the initial design studies for State Route 417, the CFX has always envisioned an ultimate six-lane expressway to account for future growth and increased demand. The plan has been to widen the existing four-lane corridor by adding two median lanes, one in each travel direction. **Cost Control:** CED used an innovative approach for safely performing the topographic survey by combining a combination of Mobile LiDAR, and UAS LiDAR technologies in support of the design of highway widening and various other improvements along SR 417 from Landstar Boulevard to Boggy Creek Road.

The project included four off-system road crossing and an interchange at Boggy Creek, the entrance to Orlando International Airport, all of which includes a significant number of utilities. With the scope of work including bridge widening and advanced design of a new overpass entering the airport, all subsurface utilities needed to be designated and mapped to help with the design, coordination, and stakeholder involvement. Furthermore CFX maintains a fiber trunk line along this 4.5 mile corridor along with underground electric for lighting and ITS.

Schedule Control: Advanced utility coordination and prioritization of road crossings allow CED to designate the critical portions of the project first to ensure design could move forward. Some utilities were actually installed behind bridge abutments/ MSE walls making it difficult to define their horizontal position. CED utilized radar perpendicular to the MSE walls and from above to find these deep utilities (QL-B) and map them along with verifying their results with test holes (QL-A) outside of the wall foundations. Another significant effort was made coordinating with CFX's internal utility maintenance department for the Fiber trunk line running through the corridor. CFX marked several of these lines, however a portion along the median was more challenging to locate. **Construction Issue:** With CFX's planned inside widening, the location of the fiber trunk link was a significant unknown and a major downstream concern potentially effecting construction. CED used an attenuator truck to safely progress down the median and CFX ran a specific frequency through the fiber line so that our LiDAR technicians could verify the location of this critical fiber trunk line confidently and without return trips to the field.



Project Details

Client:
HDR Engineering, Inc.

Contact:
Javier Manso, Project Manager
P: 305.458.2070
E: javier.manso@hdrinc.com

Completion:
Ongoing

Design Cost:
$825,000

Services | Relevancy:
SUE Services (QL-B & QL-A), Utility Infrastructure, 3D Modeling | Scanning, In-house Services

SW 10th Street TSM&O SWZ Project,

Deerfield Beach, Coconut Creek & Pompano Beach, FL

The project will implement smart work zone (SWZ) applications for advanced traveler information and remote monitoring of the nearby arterial corridors as well as safety and mobility during the construction. The project will deploy arterial Transportation Systems Management and Operations (TSM&O) and Connected Vehicle (CV) equipment along the surrounding 6 state road corridors.

The installed infrastructure will be leveraged for regional arterial management and future technology expansion. Initial SWZ applications planned for implementation are work Zone Ahead Alert; Traffic Queue Warning; Travel Time Advisory; Alternate Route(s) Advisory, and Speed Limit Advisory. Permanent infrastructure includes CV Roadside Units (RSU), Vehicle Detectors, Arterial DMS and DMS structures, CCTV cameras and poles, Fiber communications network and power, CV central control system, data cloud with Application Programming Interface (API) and smartphone applications, and Adaptive Traffic Control System (ATCS).

Perform planimetric survey of all above ground roadway and utility features; survey and subsequent utility feature mapping (QL-C), together with SUE Investigation (QL-B) and SUE Location (QL-A) at major TSM&O infrastructure as identified by EOR with all work performed in accordance with ASCE 38 standards; and ROW surveys for all project corridors. All work was to be perform within an aggressive 6-month time frame.

Schedule & Cost Control: Our critical path approach focused on up-front utility coordination with approximately 30 utility agencies/owners, including Broward County Water and Wastewater Services, which called for thorough QL-D utility records research and cost efficiently utilizing Mobile LiDAR point cloud derived locations of the above ground utility appurtenances to support the initial QL-C mapping instead of a conventional survey approach. Follow up QC field reviews were performed to confirm identification and configuration of mapped utility infrastructures. Project areas requiring QL-B investigations to resolve any identified anomalies were performed to completes the ASCE 38 utility mapping; Baseline alignments and stationing and ROW line limits were resolved based on existing FDOT 4 cadd files, Broward County Right of Way Maps, and extensive Broward County Property Appraiser Research.

Project Details

Client:
EG Solutiuons,
9015 Town Center Pkwy
Bradenton, FL 34202

Contact:
Kelly Rubino
P: 941.567.1622
E: krubino@eg-solutionsinc.com

Completion:
2022

Construction Cost:
$80,000+ (Task Work Order Based)

Services | Relevancy:
SUE services (QL-B & QL-A), Utility Infrastructure, Survey/GNSS, 2D & 3D CAD Deliverables, In-house Services

SRQ International Airport Culvert and Utilities Exploration, Sarasota, FL

As part of a team, CED has provided a number of technical services for the airport on a variety of assignments. Mr. Nick Fewell has been the technical lead providing ground penetrating radar and SUE services. CED served on multiple tasks for varying purposes and roles as a team member with EG Solutions. Projects include:

- **Schedule & Cost Control and Construction Issues:** Stormwater Pipe Depressions Evaluation - CED provided SUE services, geophysical analyses, and geotechnical exploration of a distressed stormwater pipe crossing the runway and multiple taxiways that was identified after NTP and quickly became an issue impacting schedule and potentially construction costs. CED personnel used the results of the forensic exploration to provide remediation recommendations for the issues (i.e. depressions) caused by the existing stormwater pipeline. Careful coordination between the SUE team, geophysical team, and geotechnical team were critical to provide a seamless deliverable to the airport that accurately depicted the locations of utilities, all subsurface anomalies indicated by the GPR, and the results of the physical that were used to correlate the GPR results. In addition, the entire program had to be performed at night within an accelerated timeframe, to avoid disturbing the functioning airport.
- Commercial Apron Expansion Exploration – CED provided pavement cores and geotechnical exploration with sitework recommendations for the expansion of the commercial apron of the airport. Careful coordination of the exploration with the airport to avoid impacting operations were critical.
- Commercial Apron Expansion Construction Testing – CED is providing laboratory testing on soil samples, asphalt, and concrete being used for the commercial apron expansion. In addition, observation of construction activities is being performed.

Project Details

Client:
HDR Engineering
3250 West Commercial Boulevard Suite 100,
Fort Lauderdale, FL 33309

Contact:
Will Suero
P: 954.233.4934
E: will.suero@hdrinc.com

Completion:
2022

Project Value:
$350,000+

Services | Relevancy:
SUE Services (QL-B & QL-A), Utility Infrastructure

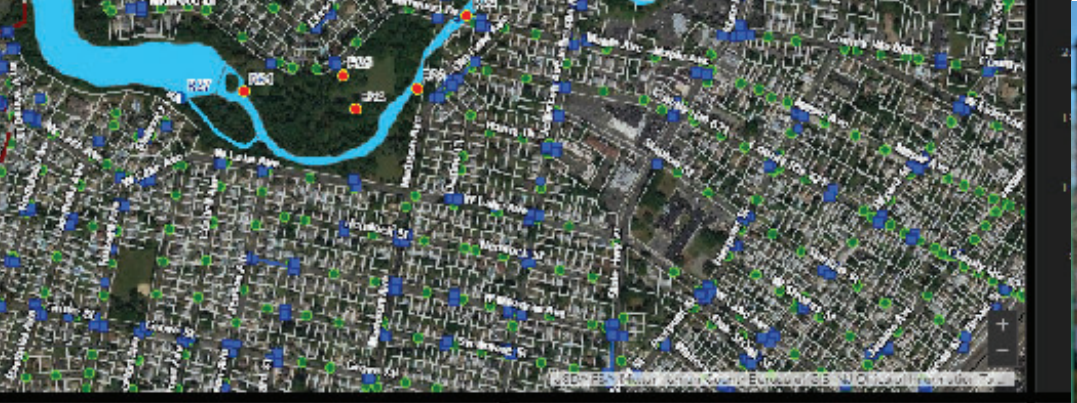
I-95/SW 10th Street Connector,

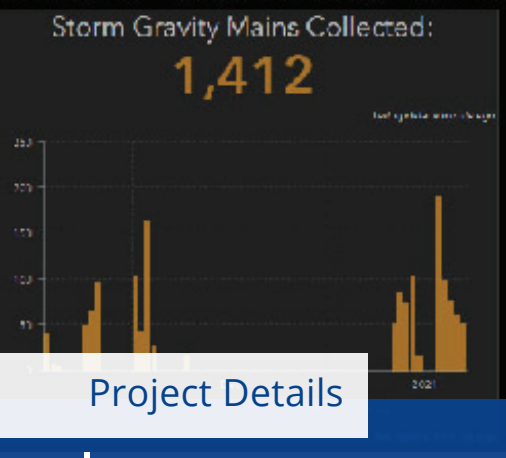
Deerfield Beach, FL

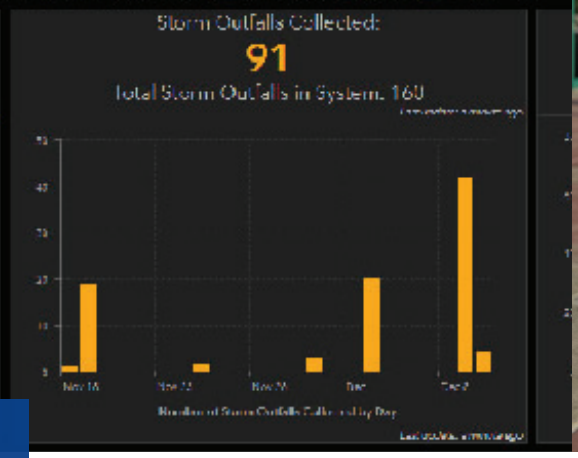
As a key regional connection in Broward County, Florida, SW 10th Street currently serves as a critical transportation corridor between I-95 and the Sawgrass Expressway. This project includes the design of two roadways along the 3-mile corridor. One roadway, the SW 10th Street connector lanes, will improve regional connectivity by connecting the Sawgrass Expressway with I-95. The other roadway, local SW 10th Street, will become a “Complete Street” that will incorporate a shared-use path and provide connectivity to all existing local properties and the local roadway network. The two roadways will work together to alleviate traffic congestion in the area, improve operations and safety, and improve emergency evacuation operations. CED)provided topographic survey, SUE meeting ASCE 38-22 criteria (QL-B and QL-A) , and Utility Coordination as a subconsultant to HDR, Inc. for the design of the improvements required for this dual roadway design concept.

The existing topographic design, drainage, and SUE survey data was approximately 10-years old and numerous roadway improvements including added/expanded right-hand turn lanes, median left-hand turn lanes, signalization, lighting and ITS facilities have been designed and constructed after the initial survey and SUE work was performed. Also, to accommodate the SW 10th Street ultimate concept, FP&L. AT&T and other utility providers proactively relocated major overhead electrical transmission lines, subsurface telecommunication lines and other subsurface utility infrastructure.

Schedule & Cost Control: Advanced utility coordination and research of permitting and roadway plans allowed CED to work closely with the EOR to identify areas requiring updated survey and SUE designation (QL-B) and investigation test holes (QL-A); portions of the project limits critical to the design schedule and areas requiring special MOT/TTC support due to safety concerns for our field staff.







Project Details

Client:
City of Rahway,
1 City Hall Plaza
Rahway, NJ 07065

Contact:
Daniel Lee, PE, CME, Director of Engineering & Land Use
P: 732.827.2081
E: dlee@cityofrahway.com

Completion:
2022

Project Value:
$89,000

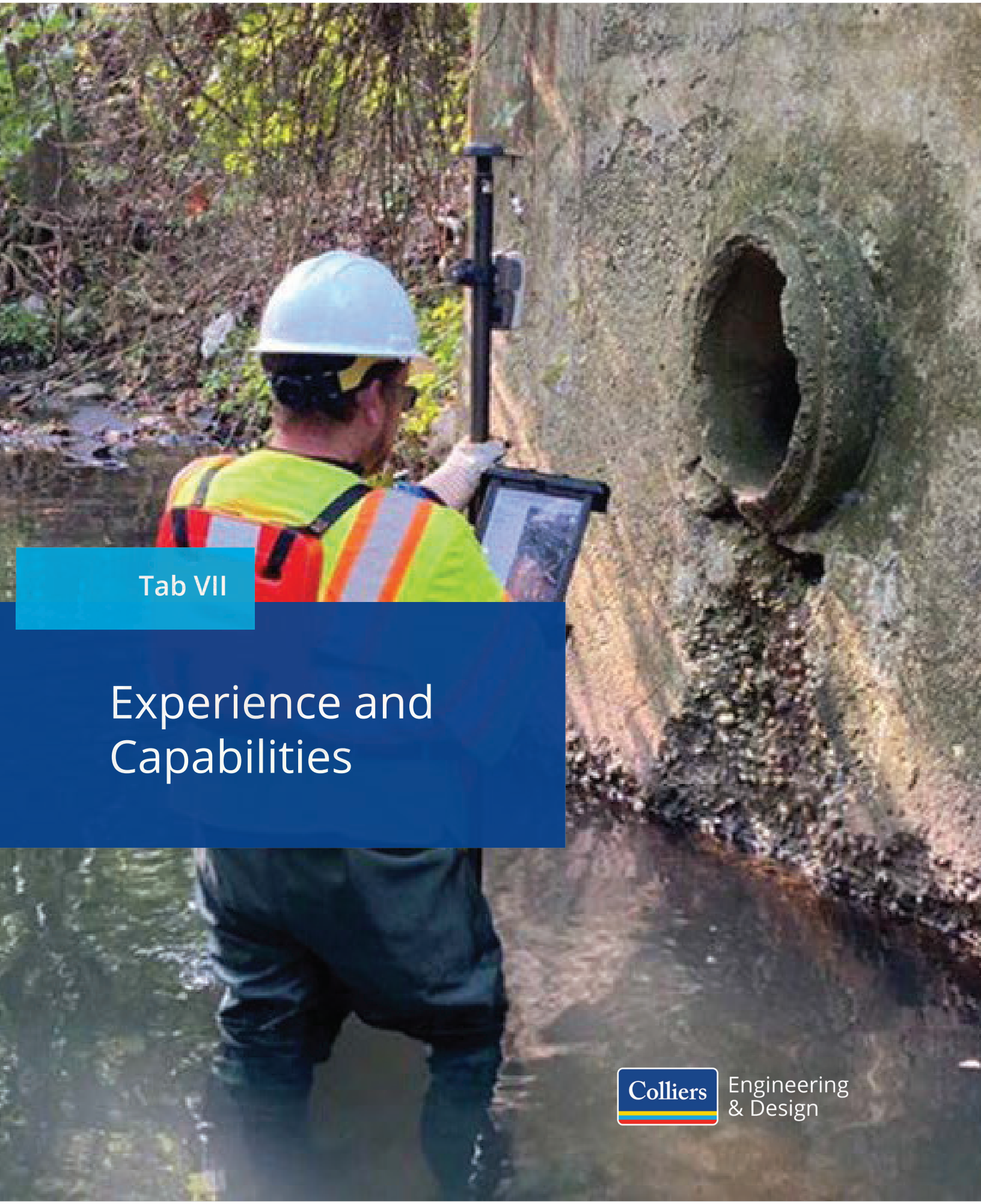
Services | Relevancy:
GIS Asset Management, Water | Waterwater Facilities, Municipal Experience

Rahway Sanitary and Stromwater Sewer Mapping, City of Rahway, NJ

Our team mapped the City's stormwater and sanitary sewer systems in the field using a combination of Esri's GIS software and mobile applications paired with centimeter-grade Global Navigational Satellite Systems (GNSS) equipment.

Surface assets including manholes, inlets, and outfalls were mapped using Eos Arrow Gold GNSS and Esri's Field Maps mobile application. **Schedule & Cost Control:** Our team digitized the subsurface gravity mains in the field to accurately map the gravity mains based on real world conditions. The combination of high accuracy GNSS connected to Apple iPads running ArcGIS Field Maps allowed our team to quickly and efficiently map the location of over 4,600 sewer assets. A project status dashboard was then created to allow our client and project team to view the collected field data in real time. The dashboard displayed the collected data and photos and summary metrics that allowed our client to view progress at any time.

We utilized ArcGIS Tracker to allow our field crews and office staff to see each field worker's real-time location. We eliminated traffic hazards on busy highways by using a laser rangefinder to accurately map the location of manholes from the side of the road. The real time tracking allowed our field crews to see where they had been and where their colleagues were at any given time. The final sewer data was loaded to the City's Enterprise GIS which will allow City staff to quickly view maps of the stormwater and sanitary sewers and associated data, information and photographs from their desktop computers and mobile devices.



Tab VII

Experience and Capabilities

Colliers Engineering & Design

Horizontal and Vertical Data Collection Capabilities

Approach to Collecting Field Information and Preparing 2D Records for Underground and Aboveground Utilities. Data received from mobile platforms utilized by our SUE field crews provides additional QA/QC data points to ensure collected data is thoroughly reviewed and incorporated into transmitted deliverables. The ability of our field technicians to utilize mobile apps makes our field crews extremely efficient in the collection of data. We have customized routines in our software programs to ask and collect the pertinent information needed to be collected in the field. We've also developed routines (checklist and maintenance) to ensure that nothing was missed. Other value-added aspects of using these mobile apps is the information is dynamic with real time review capabilities, allowing for QA of information as it's being collected in the field. Review comments on the quality or lack of quality, request for more information of anything that is being collected at the time can be made on-the-fly as the field work progresses. To complement these efficiencies, we also cross train or utilize hybrid crews that are well versed not only in SUE field procedures but also for Survey and GIS field data collection.

To achieve the accuracies stated in the current ASCE 38-22 standard our crews are very experienced in utilizing GPS data collection to capture designation marks and locate test holes in the field. This provides a level of confidence with regard to the information that was investigated and obtained by the crew that day. By utilizing hybrid crews, it eliminates information that would typically be missed or found doing a quality control audit of the information by a separate crew. Survey technicians are familiar with line styles, levels, layers, and symbology regarding utilities and can quickly produce CAD files from collected information in multiple CAD platforms such as Autodesk Civil 3D and MicroStation Open Roads Design (ORD). Once CAD deliverable is finalized it will be integrated into GIS according to flow direction. Pipes and all surface structure characteristics accessible from our observations in the field will be entered into the GIS as attribute data. Unique identifiers for features will be assigned using an incremental numbering scheme and entered to the GIS system as attribute data associated with each feature.

Approach to 3D Data Collection & Modeling. CED understands that most project owners are transitioning from a 2D design process to integrated 3D design/construct/maintenance workflows. Accurate 3D data models of utilities that can be exchanged throughout the asset lifecycle for utility owners and operators are a fundamental requirement. The CED approach to data collection and modeling is based on the ASCE 38-22, Standard Guideline for Investigating and Documenting Existing Utilities and 75-22, Standard Guideline for Recording and Exchanging Utility Infrastructure Data. An open architecture 3D data model based on utility owner requirements and the ASCE standards is first created. This data model is the basis for the 3 phase CED approach of utility investigation, evidence analysis, and data publication/delivery.

The utility investigation phase includes the research of existing documentation and field investigations required to populate the 3D asset data model. Existing records from paper, CAD, and GIS sources are evaluated to populate the 3D data model and identify current understanding and missing information. The result of the existing records investigation develops the scope of work for field investigation.

The field investigation will verify existing data and record missing data required to populate the managed asset data model. Exposed utilities and utility demarcation points will be accurately mapped to a common horizontal and vertical datum using conventional surveying and/or a variety of mapping technologies. Depending on the requirements of the assignment, the mapping technology options include Real Time Network (RTN) GNSS/GPS mapping; Mobile, Static (tripod mounted), and SLAM (inverted on adjustable pole) LiDAR; and close-range photogrammetry. Our subsurface utility investigation technologies allow our SUE technicians to document depth of cover on signals that are undisturbed and help create a profile of an existing utility between points of excavation and documentation. By combining accurate mapping and quantified depth of cover from undisturbed signals, the elements for an ASCE 38-22 data driven 3D asset model can be collected in the investigation phase.

The utility investigation phase feeds the CED evidence analysis phase. The goal of this phase is for the SUE investigation team to review the resulting data sets, evaluate, and create the SUE inventory with associated drawings, and populate the ASCE 75-22 3D data model. CED can accomplish this by having QL-B and QL-A information as the basis for the creation of 3D models in the form of Autodesk Civil3D Pipe Networks to show structure location, depth, size, material (if known), and pipe size, type, material, and wall thickness (if known).

Following the creation of the utility infrastructure system dwg file in AutoCAD Civil 3D, the system features will be converted into a 3D GIS model in a file geodatabase. This process will be completed using ArcGIS Pro software, using the 'CAD to Geodatabase' Conversion Tool. The tool will recognize that the dwg file contains 3D features and will convert those features to a Mulitpatch File Geodatabase Feature Class. In ESRI GIS, data with a Multipatch geometry type stores a collection of patches that represent the boundary, or exterior shell, of a

3D object as a single feature/record in a database. All the data attributes related to the manholes, pipes, catch basins, etc. from the AutoCAD file (feature type, pipe material, and size) will also be converted into the associated GIS tables. The final phase is data publication and delivery of the file geodatabase containing the conversion files to the County.

If legacy information is unavailable or unreliable, CED has extensive experience utilizing professional judgment when representing a utility segment and any values that have been determined to apply to these 3D networks. CED employs a substantial, varied, and talented pool of design professionals that are fluent in most 3D software on the market, allowing for customized modeling solutions with rapid deliverable turnaround. Applying the appropriate quality levels and supporting it with justification in report format allows the client to understand the relative accuracy of the provided information.

The final phase is the data publication and delivery. Data that was once locked in silos can now be exchanged between project lifecycle phases leveraging the open standards of ACE 75-22, and available data exchange technologies such as AutoDesk's Connector for ARCGIS and OGC (open geospatial consortium).

Data can more easily flow between design, construction, and maintenance phases. The approach affords the development of 2D pdf and plan sheets along with 3D digital exchange to support stakeholder interests and various levels.

GIS Database

GIS Database Migration to ASCE 38-22. Our GIS team will meet with the County Contract Manager and GIS staff assigned to this contract to confirm the required GIS data deliverable requirements, our proposed workflows, and data methodologies will meet County standards and ASCE 38-22 requirements.

We will confirm that the standard attribute schema is understood and documented for reference prior to Esri migration or receipt of new SUE field collection data. This will be a combination of existing County geodatabase schema, complimented with extended ASCE 38-22 data schema. Inconsistent attributing in the geodatabase schema will be identified and standardized prior to migration of project data attributes (i.e., pipe material, pipe size, depth to invert, etc.).

Existing metadata about GPS accuracy readings and date of collection will be maintained during migration. These data characteristics will play a key role in separating out current project data from existing County data. Our priority is maintaining clarity and accuracy of our project deliverables, while identifying and archiving our similar assets already contained in the existing County database.

From past similar project experience, we have Standard Operating Procedures (SOP) in place for our technical staff to reference when migrating project deliverables to existing County datasets. Our SOPs provide excellent Quality Control Process (QCP) and increase production efficiencies as new data is merged into existing GIS database environments by multiple technicians. These may include python scripting processes to improve efficiency levels on repeatable assignments.

Our seasoned GIS experts are well-versed in a variety of assets that make up project schemas. We will coordinate with County staff regarding criteria for data access and delivery of project data using Esri ArcGISPro or suitable desktop version approved by the County. Use of Portal, Esri web maps, and Esri Dashboards, could be applicable and effective for data migration processing.

Critical Path Method (CPM)

CPM is a valuable project management tool that helps establish the overall project length and identify the sequence and duration of critical assignments that must be completed on time to ensure project delivery to meet our client's schedule requirements. This method allows our PMs to prioritize tasks, mitigate risks, and better ensure timely completion of our assignments.

Utilizing CPM is especially effective for managing the QL-A subsurface utility location projects anticipated under this contract since they typically include multiple interdependent activities such as QL-D thru QL-B utility investigations; right of way or jurisdictional permitting; TTC/MOT; sunshine one-call; and coordination with UAOs, railroads, FDOT and other stakeholders.

Mr. Fewell, will prepare milestone schedules for each assignment utilizing GANTT charts to identify and depict the sequence and durations of the multiple project activities involved. Utilizing this chart will allow him to determine the anticipated length for completion of each assignment, monitor schedule status relative to key milestones, and manage the allocation of resources to either advance delivery schedules or mitigate potential delays caused by unforeseen bottlenecks. Nick will include up-to-date GANTT schedules with each monthly or weekly status report provided to the County project manager.

Specialized Experience

Approach to Non-Locatable Facilities. CED has an understanding that some of the requests may be in areas where the target facilities have been deemed non-locatable. We experienced this in our District 1 continuing services contract at the intersection of S McCall Rd and Gasparilla Rd in Port Charlotte. We utilized all of the SUE quality levels and worked together with Charlotte County locators to successfully locate the reclaim, sewer and watermain to resolve potential conflicts with FDOTs proposed intersection improvements.

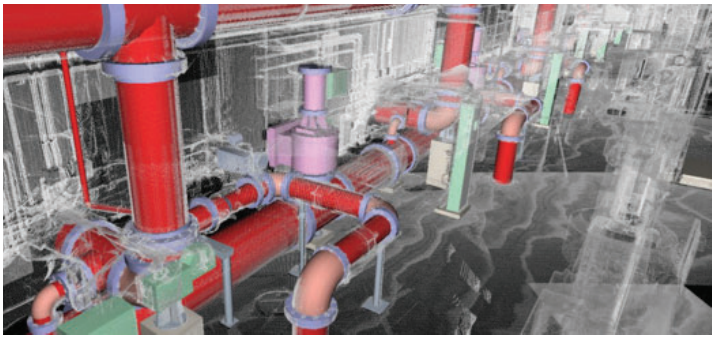
We begin our approach to locating non-locatable facilities by reviewing all available as-built information to identify above ground features that can provide potential connection points for electromagnetic frequencies to be applied to either the main or a wire. If a signal is produced along a tracer wire the signal can be traced out to a point where the signal fades and perform QL-A services at this point to identify why the signal fades. If the tracer wire is found to be broken it can then repaired and then we continue to trace out the signal again. This may have to be performed multiple times along the run of pipe. This method is highly successful and we have been able to make thousands of feet of pipe locatable again for other clients.

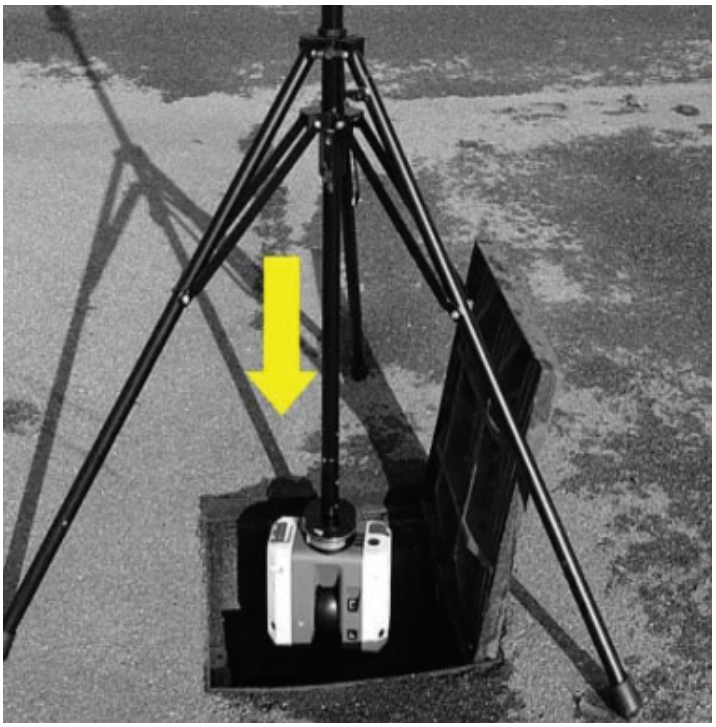
Ground penetrating radar can be used for facilities that do not have a tracer wire. If an image is produced in the target utilities suspected area this image is traced out until it leads to an above feature to assist with positive identification. QL-A services are then performed to verify the findings and identify the size and material of the target facility.

We have also performed QL-B services on all utilities within a requested area to identify unknown signals or GPR images that may be the target facility. QL-A services are then performed on the unknown object to identify the size & material to assist with confirming if the unknown is the target facility.

QL-A can be a standalone service when the previously described steps are unsuccessful. We use an airlance to probe and gently touch the line in a continuous fashion to mark out its position, periodically the line is exposed to verify it is of a consistent material and shape confirming that we are still on the target facility. This method is regularly used a lot for lines that lie within drainage ditches where performing excavations is impossible with high water.

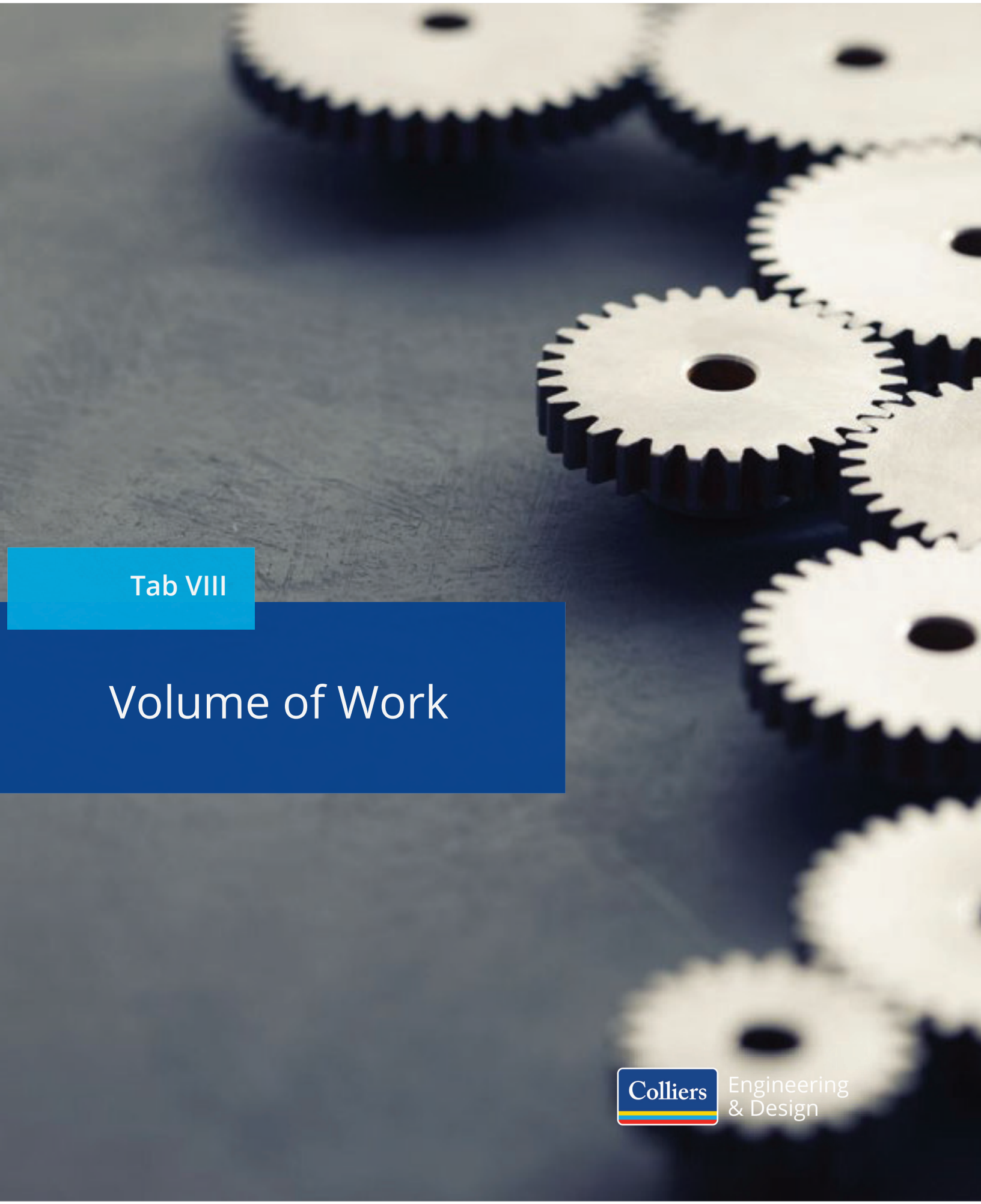
CED's project team members have worked on projects involving complex subaqueous locates for water and sewer lines throughout Florida. Sonde equipment allows our team to provide solutions for Quality Level B (QL-B) Designates and Quality Level A (QL-A) Locates on utilities which are traditionally considered as unlocatable, due to depth or other conditions. Utility lines installed at extreme depths with broken or missing tracer wires are difficult to locate with traditional methods. Utilizing a Sonde, placed inside of an existing subsurface utility, our crews have a proven track record of accurately locating lines at depths up to 25' +/-.





We can provide multiple in-house services to support this contract as needed. We have specialized equipment and services to locate hard to locate utilities.

- Electromagnetic (EM), GPR, Acoustic, and Vacuum Excavation Equipment
- Multiple methods for collecting data on both known and unknown utilities
- Sondes to supplement data for subaqueous and deep utilities
- Real Time Data from Mobile Apps

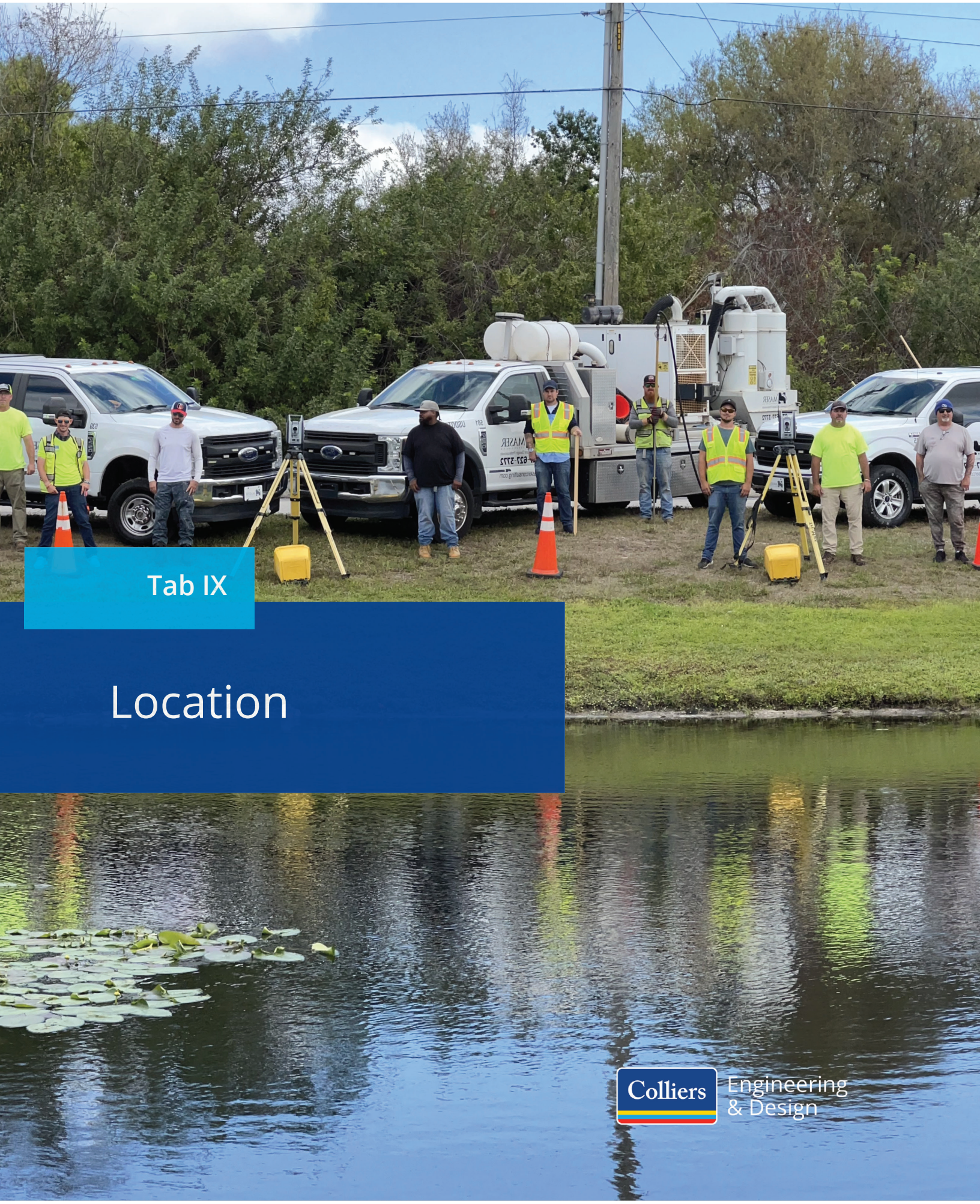


Tab VIII

Volume of Work

Colliers Engineering & Design

CED has not worked directly for the County and appreciates the opportunity to potentially provide SUE services. This section is N/A for CED.



Tab IX

Location

Colliers Engineering & Design

Firm Location

With over 160 employees in seven regional offices throughout the state, we've grown to include an arsenal of engineering, construction management, and advanced technology services. We are conveniently located off of I-75 and can easily be at the Charlotte County offices within an hour.

Office Address: 12821 Commerce Lakes Drive, Units 3-4, Fort Myers, FL 33914

CED understands the value a firm can bring to a client when they have familiarity with the project area. This familiarity is crucial as it can significantly impact the success and efficiency of a project. As represented within this proposal, CED has familiarity and provided services within the County and throughout SW Florida.

Tab X & XI

Litigation & Minority Business

Colliers Engineering & Design

Litigation

As a large, nationally recognized engineering design and consulting services company, Colliers Engineering & Design has, over the past three (3) years, been involved in certain claims and litigation. We value the confidences of our clients as well as our contractual commitments to confidentiality and strive to avoid disclosures to and/or with third parties of the circumstances involving other engagements and clients. We would take the same position with information regarding our work on your engagement. We can, of course, confirm that there are no claims or litigation of any kind that could reasonably be expected to have a material adverse impact on, or conflict with, Colliers Engineering & Design's performance and its ability to provide the services required for this engagement.

Minority Business

This section is N/A for CED.

Colliers

Engineering
& Design

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Infrastructure • Geotechnical/Environmental • Telecommunications • Utilities/Energy