Continuing Professional Services

UTILITIES COMMISSION ~ CITY OF NEW SMYRNA BEACH
RSQ No. 10-18

April 5, 2018
April 5, 2018

Ms. Maureen Lynch, CPPB
Materials Manager
Utilities Commission
City of New Smyrna Beach
200 Canal Street
New Smyrna Beach, Florida 32168

Re: RSQ NO. 10-18 Continuing Professional Services

Dear Ms. Lynch:

Environmental Consulting & Technology, Inc. (ECT), is pleased to provide continuing civil engineering services for the Utilities Commission City of New Smyrna Beach (UCNSB). Please find attached two originals (marked “ORIGINAL”) and three copies (marked “COPY”) and one flash drive of our Statement of Qualifications. We have been awarded the contract in the past and look forward to the opportunity to renew our continuing civil engineering consultant contract with UCNSB.

ECT can provide timely, high-quality, and cost effective technical services to the Utilities Commission for the following reasons:

- ECT, a Florida-based company with nearly 30 years of experience and eight offices strategically located throughout the state, has more than 160 professional engineers, planners, scientists, and field support personnel experienced in providing the requested services.

- The New Smyrna Beach ECT office has a long and successful history providing engineering and planning services to UCNSB as well as numerous municipal clients in East Central Florida, including the cities of New Smyrna Beach, Titusville, Lake Helen, and Melbourne; Volusia, Brevard and Seminole counties, and the St. Johns River Water Management District.

- Most of the tasks assignments are completed in the New Smyrna Beach ECT office. However, when needed we will draw on other offices to utilize the most appropriate and experienced professionals for a given task assignment.
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- ECT has the technical expertise and available staffing resources to provide the civil engineering services required by the Utilities Commission. ECT has a history of successful projects with UCNSB, including CUP permitting, water and wastewater transmission and collection system design, and site development engineering.

- The ECT project team to be assigned to the Utilities Commission has been selected to maximize quality service and timely delivery of a quality product that meets or exceeds UCNSB’s expectations.

As the project manager, I will serve as the primary contact with the Utilities Commission and will be responsible for project coordination and timely delivery of a quality product.

ECT appreciates the opportunity to provide this proposal. If you have any questions, please contact me at 386-427-0694 or cfaengerstrom@ectinc.com.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Chris Fagerstrom, P.E.  
Project Manager

James W. Ridgway, P.E.  
Vice President

ADDENDUM NO 1 RECEIVED BY:

Chris Fagerstrom, P.E., Principal Engineer  
Printed Name

3/27/18
ECT was contracted by the Utility Commission, City of New Smyrna Beach (UCNSB) to replace an existing 30-inch PVC force main crossing on the pipeline between the final lift station (LS-60) in town and the water reclamation facility (WRF). The existing force main was cradled on two concrete electric light poles which spanned a creek adjacent to a pair of box culverts. This entire assembly was shrouded by a steel superstructure to prevent ultraviolet rays from degrading the PVC pipe. At the client’s request, ECT provided a structural engineer to perform an analysis of the existing structure’s stability and provide an estimated life span. The results of this analysis indicated that immediate replacement would be necessary.

ECT provided an alternative analysis to value-engineer the water crossing replacement. ECT’s initial recommendation was to construct a horizontal directionally drilled replacement. Upon further discussion, it was determined to proceed with the less expensive alternative of an aerial crossing supported by saddles on the existing bridge deck.

To evaluate the design for the possibility of damage by utility vehicles, simulations were performed and a 3-D model was constructed to ensure that UCNSB vehicles would be able to safely negotiate the path across the bridge.

As there were no alternative means to realistically reroute or otherwise divert the wastewater flows from LS-60 to the WRF, and because the stream and adjacent Turnbull Creek were designated wetlands, special construction methods and specifications were required to avoid adverse impacts to the wetlands and extended shut downs. LS-60 and the other lift stations in the system could only act as temporary storage for brief periods while line stops were inserted and a temporary bypass was put into operation. As the overall number of valves in this pipeline was minimal, one of the line stops was retained as an in-line valve.

Due to the professional workmanship and careful planning, the project was completed without incident, on time, and under budget.

**Project Highlights**

- 3-D modeling
- Suspended PVC force main
- Structural & alternatives analysis
- Ductile iron pipe replacement
- Eye to future multi-use trail

CLIENT: Utilities Commission, City of New Smyrna Beach
Derek Wainscott, P.E., Director of Engineering
386-424-3019
ECT has been providing grant administration services and completed numerous diverse civil engineering service assignments in support of the City of Lake Helen under this contract since 1995. Grant administration services have been provided primarily for the Community Development Block Grant (CDBG) and the State Revolving Fund (SRF) loan program. Engineering services have encompassed all aspects of a typical city’s engineering department, including site plan review, stormwater design, permitting, retrofit projects, utility projects (potable water system), and roadway design and rehabilitation.

Some examples include:

- SRF Loan Program—ECT assisted the city with water system improvements, including tank inspection and rehabilitation, system automation, and upgrades funded through the SRF program.
- Pennsylvania/Goodwin Intersection Reconstruction—ECT performed a drainage basin analysis and provided plans and permitting to replace the undersized culvert.
- I-4 Widening Water Main Relocation—ECT coordinated water main replacement in advance of the Florida Department of Transportation project to widen two overpasses in the City of Lake Helen.
- Numerous Stormwater/Flood Mitigation Projects—ECT assisted the city by designing and permitting various stormwater treatment projects in accordance with the city’s stormwater master plan.
- Central Area Water System Upgrade—Assisted the city in the upgrade of the potable water system and the design of a 100,000-gallon aboveground storage tank and renovation of a 50,000-gallon storage tank.
- McKenzie Road-Lake Road Drive Water Main Interconnect—Design and construction of 9,000 feet of six-inch water main through a suburban residential area

Project Highlights

- CDBG grant funding & SRF loan administration
- Stormwater treatment system design & planning
- Water system improvements
- Project permitting & multi-agency coordination
- Site plan review services & roadway improvements
- Stormwater retrofit design
- Flood mitigation & damage assessment

CLIENT: City of Lake Helen
Jason Yarbrough, City Administrator
386-228-2121
In response to the need for cheaper, cleaner energy sources, a Florida power client has tasked ECT with conducting site development services for several solar farm sites in Florida. To date, the locations currently undergoing development are in Hillsborough, Pasco and Polk counties, ranging from 300- to 600-acre parcels.

The baseline effort at each location begins with environmental due diligence, including a Phase I and II environmental site assessment (ESA), that results in preparation of an environmental assessment report.

More extensive site evaluation involves ecological surveys, including wetland delineation, threatened and endangered species surveys, land use analysis, and any necessary tree or gopher tortoise surveys. All necessary local, state, and federal environmental permitting requirements will be satisfied on an as-needed basis.

As the projects progress, ECT’s certified land-use planners analyze land use and zoning compatibility of proposed sites. Impacts to infrastructure, surrounding land uses, and the environment also are evaluated.

ECT’s team of engineers has also played an integral part in the site development engineering for these sites. Site development engineering has included site layout to avoid and minimize wetland impacts, stormwater management design and permitting and site construction plan review.

The sites were permitted through both FDEP’s environmental resource permitting program and the associated County’s site development permitting process. As a highlight to the permitting process, most of the site were permitted without receiving a request for additional information (RAI) from FDEP.

**Project Highlights**
- Phase I/II ESA
- Wetland delineation
- Threatened & endangered species survey
- Gopher tortoise survey
- Land use analysis
- Stormwater management design
- County Site development permitting
- FDEP environmental resource permitting
As an extension of the consumptive use permit (CUP) that ECT performed for the Utilities Commission, City of New Smyrna Beach (UCNSB), and in an effort to provide uninterrupted water supply to the City of New Smyrna Beach utility service area, ECT participated in a project to expand the central well field’s daily and emergency supply in accordance with the negotiated expansion plan. This well field resides within the 100-year floodplain and also contains multiple wetland ecosystems in close proximity.

Previously, in accordance with the CUP, well No. 24 was drilled, developed, and pumped to evaluate the potential impacts to the surficial aquifer and the overlying wetlands. Testing and monitoring in accordance with the plan was conducted for a number of years to satisfy the St Johns River Water Management District (SJRWMD) that potential impacts were acceptable.

In 2011, ECT expanded the well field by drilling and developing three of the remaining six potential well sites. The wells required access under the majority of the most adverse conditions. The expansion required the construction of an access road elevated above the floodplain to gain continuous access to the various well pads.

ECT staff performed an evaluation of available Lidar, radar, and aerial photographic information to determine the likely extents of the existing wetlands. This was followed by field examination and wetland limit flagging in conjunction with ecologists from the SJRWMD. Subsequent survey and geotechnical investigation allowed for the design and permitting to provide upland buffers and wetland protection, and to establish seasonal high groundwater elevations needed to provide for compensating storage for the elevated access road.

ECT obtained the appropriate environmental and health department permits required for the work, assisted in the bidding, construction contract award, and construction phase engineering services to successfully complete the project.

Subsequent phases provided topside outfitting of pump appurtenances, emergency power generation, telemetry, and connection to the existing raw water main located in State Road 44.

Project Highlights
- Wetland delineation & monitoring
- Fill in the floodplain
- Raw water well field expansion

CLIENT: Utilities Commission, City of New Smyrna Beach
Derek Wainscott, P.E., Director of Engineering
386-424-3019
ECT is providing ecological, stormwater, and site civil engineering services for a proposed 21.9-mile electric transmission corridor in St. Johns County, Florida. Ecological services include the delineation of wetlands along with threatened or endangered species surveys. Utilizing available GIS data, along with targeted field visits, enabled ECT to identify and quantify all the wetlands which would be impacted by the construction of the continuous access road necessary for the construction of the new transmission line.

To minimize wetland impacts and stormwater treatment requirements, ECT’s site civil design team coordinated with ECT ecologists to design the access and maintenance road. The roadway is required to accommodate a 350-ton crane, along with adequate turning radii to accommodate multi-pivot tractor trailer rigs to haul in the concrete poles. These roadways were designed to be at-grade as much as possible to avoid creating artificial dams in the otherwise largely unimproved corridor adjacent to Interstate 95. Culverted crossings in the otherwise unchanneled flow ways would have been impractical, therefore the roads were designed to provide low water crossings during heavy rain events, yet not stage up to more than 18 inches to facilitate the passage of men and equipment during high water conditions.

The project requires a flexible design schedule because of shifting pole locations based on geotechnical and other considerations which are updated on a semi-regular basis. This requires ECT staff to respond quickly and efficiently to meet the changing conditions, yet still meet a tight schedule.

**Project Highlights**

- 21.9-mile electric transmission corridor
- Box culvert design
- FDOT ROW permitting
- St. Johns County ROW permitting
- Construction engineering services
- Cost estimating
- Wetland delineation
- Minimal impact
- Minimal infrastructure
- Right-of-way acquisition support
- Stormwater treatment via pervious surfaces
- Environmental resource permitting
- Floodplain compensation
2. Consultant’s Understanding

Introduction

Environmental Consulting & Technology, Inc. (ECT), has consistently demonstrated the ability to provide the civil engineering services similar to those listed in the Utilities Commission RSQ. The foundation of our professional success is our commitment to strong project management, accountability, and control, all aimed at delivering excellent technical products through our strong corporate quality program.

ECT provides water, wastewater, reuse water, piping, distribution, transmission, pumping, and miscellaneous site planning to a variety of clients. Large-scale renovations of storage and treatment and water and wastewater plant upgrades are better performed by other specialty firms, but could be undertaken with suitable sub-consultants acceptable to UCNSB. Additionally, ECT has the experience and capability to perform environmental services should the need arise for groundwater contamination assessment, remediation and compliance, environmental assessments (Phase I and II), and ecological assessments and permitting.

ECT utilizes a standard engineering design approach proven over many years and many projects. These typically include:

- Initial meetings with the client to fully understand and define the scope, breadth, and schedule for the project. Conceptual designs as well as potential roadblocks and permitting requirements are fully identified.

- Preliminary engineering allows the project specific challenges to be identified and plans to be developed for the client’s initial review and comment. A preliminary cost estimate is prepared to determine if the current scope is in line with the existing budget.

- Final design client comments are incorporated as final project details, plans, and specifications are developed. During this stage of the project, plans are submitted to the appropriate permitting agencies. Upon completion the final engineering package (construction plans, specification, and cost estimate) will be submitted to the client for review, comment, and approval.

- Following final comments by the client and the permitting agencies, final bid plans and specifications are prepared.

- During the bidding process, ECT then works with the client to address any bidder questions and prepares addendums as required. This is followed by a review of bidders and award recommendation.

- Construction phase services are tailored to meet the client's needs. Typically, UCNSB requests review of submittals, change orders, and pay requests, as well as field supervision of critical items, followed by as-built certification and close out documents. Should UCNSB desire it, ECT could provide additional field oversight of construction, as needed.
**STAFFING**

High quality performance requires responsive project management. Effective project controls allow timely performance and success in meeting the challenges of multidisciplinary projects. On any specific project task, extensive consultation with the client allows the ECT project manager to select ECT staff that can achieve the goals and desired project deliverables. After this is accomplished the project manager will confirm the final project tasks, timetables, and deliverables with the client.

**COST CONTROL**

ECT maintains a computerized job cost accounting and progress tracking system for project control. This standardized system interfaces with ECT’s accounting package and interacts with other information provided by the accounting system, such as timesheet entry, accounts payable, and subcontractor costs. Project managers are provided weekly and monthly status reports summarizing data on cost, schedule, and technical status. With the detailed project cost and budget information shown on these reports, the project manager can continually compare actual costs versus budgeted costs.

**QUALITY CONTROL**

ECT is committed to providing the Utilities Commission with high-quality engineering, environmental, and scientific services. ECT maintains an active corporate quality program (CQP) to monitor and deliver timely products. ECT’s established CQP defines the policies and procedures for controlling the facets of ECT’s technical work, including field data collection, field survey methods, data analyses, and project deliverables. The CQP also incorporates all subcontractors in the program. Important elements of the CQP include:

- Determination of work tasks and assumptions; definition of the program requirements as understood by the client and ECT.
- Preparation of project-specific quality assurance project plans (QAPP).
- Use of recognized experts to review plans and specifications and field/laboratory results; and examine final deliverables for completeness, objectivity, and technical quality.
- Clearly defined lines of internal and external communication; and managerial and technical responsibilities throughout the period of program performance.

**PROJECT MANAGEMENT PRACTICES**

ECT utilizes several contract specific practices that are instrumental in achieving the successful completion of task assignments. Each ECT project manager remains personally involved with every project. This commitment manifests itself in several ways:

- Being present at the beginning of each milestone effort to confirm the work is proceeding as planned.
- Regularly visiting the client to informally discuss the status of each active project.
- Implementing corrective action in a timely manner if problems are identified.
• Personally, conducting project planning meetings to discuss technical ideas, costs, and project timeline efficiencies.
• Conducting project meetings once a week or as needed with contractors and subcontractors to review progress and confirm timely project schedule.
• Conducting project manager reviews inspection reports for accuracy and adherence to project quantities and specifications
• Change order requests are rare, but when justified, reviewing them for cost efficiencies, safety, engineering practices, and consistency with project schedules.

CIVIL ENGINEERING SERVICES

ECT’s full service civil, utility, and stormwater engineering and design staff consists of experienced project managers, multi-disciplinary engineers, environmental scientists, field technicians, Geographic Information System (GIS) specialists, Computer Assisted Design and Drafting (CADD) specialists, and construction oversite personnel.

The Utilities Commission expects a reliable, experienced, and dedicated team to provide full support for all civil engineering needs. ECT can provide standard utility design analysis, such as upgrading existing distribution lines or lift stations. ECT provides a high-level service based on our experience with local conditions, knowledge of regulatory requirements, and efficient staff utilization.

ECT offers a wide array of general civil engineering services for projects requiring infrastructure design and permitting. ECT has significant experience in pollutant loading analyses and design of innovative stormwater BMPs.

ECT has provided design services for county and city facilities, which include water and waste water distribution and collection mains, lift station modification, stormwater design, parking lots, roadways, docks and piers. Recently, ECT completed a full engineering design, permitting, and construction administration of the City of Titusville stormwater retrofit project, which included
water main and sanitary sewer relocations. ECT is currently working on several water main upgrade projects for the City of Lake Helen.

If a project requires other aspects of civil engineering not provided in the ECT New Smyrna office, ECT can utilize engineers from other offices who specialize in this area. In those cases where the services do not match ECT’s area of expertise, we will notify the Utilities Commission and can seek additional expertise from a specialty firm as a subcontractor, work with a subcontractor chosen by the Utilities Commission, or pass on the assignment. ECT will not accept any assignment for which we cannot deliver the high-quality product expected by UCNSB.

PERMITTING & PERMIT COMPLIANCE

ECT regularly shepherds projects through the challenges of implementation, in terms of balancing economical alternatives, environmental considerations, public acceptance, constructability, and regulatory constraints. ECT works with agencies such as the St. Johns River Water Management District, Florida Department of Environmental Protection, and the U.S. Army Corps of Engineers and has a proven record of success in getting project permits in a timely manner.

To provide timely permit delivery, ECT has had success when the project goals and objectives are clearly conveyed to the affected agencies through one-on-one meetings, field visits, and technical discussions. ECT has a thorough knowledge of regulatory programs and rules. In fact, ECT staff includes several technical experts with prior regulatory agency experience that we rely upon when performing permit review services and compliance inspections. As such, ECT has an excellent rapport with the regulatory community and can work through the permitting process in an efficient manner. In addition, all permit compliance issues, such as periodic inspections and scheduled reporting, are all part of ECT’s client services for regulatory programs.
3. **Staffing Requirements**

ECT's Team Members

ECT matches the technical needs of each project using staff with the education, experience, and expertise to deliver a high-quality project. This requires the ECT project manager to fully utilize our established system of project management designed to ensure technical excellence. Thus, ECT will provide the Utilities Commission with the technical expertise and dedication for each project in a manner that achieves results with an efficient, cost effective approach.

At ECT we pride ourselves on completing projects on schedule and within budget. ECT’s project management program maintains strict control over project costs and schedules, allowing continuous client communications and responsiveness to meeting project objectives.

ECT will provide business administration and contract management to this general engineering contract as an essential part of delivering the technical capabilities of the project. ECT has assembled a project team with the technical expertise in engineering services, project management, and administration of government and private-sector contracts. The project management team consists of a principal-in-charge, project manager, and project team.

**ECT Project Management Office:** 707 East Third Avenue, New Smyrna Beach, Florida 32169. Telephone: 386-427-0694, Fax: 386-427-0889

**Principal-in-Charge – James W. Ridgway, P.E., Vice President.** Mr. Ridgway has more than 30 years’ experience in government, industry, and consulting. He brings a wealth of professional training and practical experience to water, wastewater and stormwater management assignments. He has operated the (then) world’s largest municipal wastewater treatment plant as well as designing, operating, and maintaining several smaller, privately operated treatment facilities. He has worked internationally on projects that require knowledge of the chemistry and biology of water and wastewater processes as well as a strong working knowledge of treatment technology and innovative applications of this technology. He has a wealth of practical experience in system design, start-up, operation, and maintenance and has developed excellent “hands-on” experience in remediation equipment operation and maintenance. Mr. Ridgway has three engineering degrees from the University of Michigan and is a registered professional engineer in Michigan, Virginia, and Florida.

Mr. Ridgway’s role on this contract would include QA/QC of construction documents and reports to confirm UCNSB receives only the highest-quality deliverables. He would also act as secondary point of contact to help meet our client satisfaction goals.

Contact Information: Email: jridgway@ectinc.com. Telephone: 313-963-6600.

**Project Manager – Chris R. Fagerstrom, P.E.,** New Smyrna Beach office manager, will be responsible for project conceptualization, technical review, and allocation of company resources (personnel, equipment, and financial) to complete the project to UCNSB’s satisfaction.
Mr. Fagerstrom has extensive experience working with many of the local city and county governments and manages multiple projects with several of Florida’s water management districts. Recent clients include SWFWMD, SJRWMD, Volusia County, Seminole County, and the cities of Lake Helen, Gainesville, and Lakeland. Mr. Fagerstrom’s recent project management experience includes *Depot Park Regional Stormwater Treatment System* for the City of Gainesville, *Draa Field Stormwater Retrofit System* for the City of Titusville, *Lake Gibson Southwest Drainage Basin Retrofit* for the City of Lakeland, *B-21 Watershed Management Plan* for Volusia County, *Park Avenue Culvert Replacement* for Volusia County, and *27th Avenue Stormwater Retrofit* for the City of New Smyrna Beach.

Mr. Fagerstrom graduated from the University of Florida with a bachelor’s degree in environmental engineering and is currently working toward his master’s degree. He is a registered Professional Engineer (No. 63045) in the State of Florida. His professional associations include the Florida Engineering Society and the Florida Stormwater Association. He has been on the ECT water resources team for 18 years.

Contact Information: Email: cfagerstrom@ectinc.com. Telephone: 386-427-0694.

**PROJECT TEAM – General Civil Engineering – Sam Arden, Ph.D., P.E.**

*Project Team (Water, Wastewater, Reuse Water).* Mr. Arden has a diverse background with experience in both ecological engineering-based watershed management as well as novel, integrated approaches to urban water management. He has worked for six years in the Florida water resource field on modelling, design, permitting, and construction oversite of projects ranging from wetland and natural system restorations to lake and stormwater management plans. Mr. Arden also has extensive research experience, having recently completed his Ph.D., in environmental engineering at the University of Florida (UF) with a focus on urban water infrastructure. Working with and funded by the U.S. EPA Office of Research and Development, his research focused on detailed, life cycle-oriented evaluation of existing and future urban water systems with the goal of identifying more sustainable, integrated approaches to water supply, sanitation and drainage services. Prior to his Ph.D., Mr. Arden obtained a master’s degree (also in environmental engineering from UF) while working on a floating island treatment system for phosphorus removal from surface waters, funded by SJRWMD. In his seven years of graduate studies, he worked at the UF Center for Wetlands where he gained a foundational understanding and appreciation of natural system dynamics and ecological engineering-based approaches to solving water problems.

In his role as engineer at ECT, Mr. Arden seeks to apply innovative and integrated solutions to water problems in natural and built environments. Mr. Arden is also a registered Professional Engineer (No. 84269) and a member of the American Water Resources Association and American Water Works Association.

Contact Information: Email: sarden@ectinc.com. Telephone: 852-332-0444.

**CONSTRUCTION ADMINISTRATION MANAGER – Chris Fagerstrom, P.E.** In addition to his engineering design experience, Mr. Fagerstrom has specialized in project bid specifications, plan
review, and overall construction administration. Karl Gruber E.I. and Richard Morrissey will assist Mr. Fagerstrom in field inspections and construction oversight. Mr. Morrissey has extensive experience in environmental monitoring and compliance, where Mr. Gruber will be responsible for civil construction oversight and field inspections. Mr. Gruber will also provide support in reviewing shop drawings, pay requests and as-built certifications.

PROJECT TEAM – Jeff Smith, M.S (Ecology & Water Quality & Biological Monitoring). Mr. Smith will serve a team leader for water quality monitoring and ecological investigation and permitting. He brings valuable experience in the areas of water quality sampling, hydrology measurements, bathymetric surveys, auto sampler setup and calibration, and data validation and management. A recent project for Seminole County involved the maintenance, collection, and monitoring of automated samplers serving the Middle St. Johns River basin. This task is in support of the Seminole County BMAP for impaired waters of Lake Jesup and associated tributaries.

Mr. Smith has expertise in the areas of upland and wetland landscape restoration, wetland biochemistry, wetland delineation and permitting. A recent project involved multi-agency permitting for a major redevelopment of an industrial parcel in Edgewater, Florida. Mr. Smith has also been responsible for delineating thousands of acres of wetland impact throughout Florida for ECT’s industrial clients, national utility providers, and other state and local agencies.

Mr. Smith has a master’s degree in soil and water sciences from the University of Florida. He is a member of the Florida Lake Management Society and the Society of Wetland Scientists. He has been on the ECT water resources team for 12 years.

Contact Information: Email: jsmith@ectinc.com Telephone: 386-427-0694.
Mr. Ridgway brings a wealth of professional training and practical experience to each remediation assignment. He has worked internationally on projects that require knowledge of the chemistry and biology of water and wastewater processes as well as a strong working knowledge of treatment technology and innovative applications of this technology. He has a wealth of practical experience in system design, start-up, operation, and maintenance and has developed excellent “hands-on” experience in remediation equipment operation and maintenance. Mr. Ridgway is a registered professional engineer in Michigan, Virginia, and Florida.

Vice President; Environmental Consulting & Technology, Inc.—Manages a staff of engineers and scientists engaged in a wide variety of environmental services, including hydrogeology, geology, hydrology, environmental engineering, chemical engineering, air quality monitoring, and all types of environmental regulatory compliance support. Recent projects include stormwater management, monitoring and permitting for a variety of industries, computer modeling of chemical spills within the Great Lakes interconnecting channels, bioremediation at a major automotive parts manufacturer, and a major study for combined sewer overflow control and nonpoint source contribution to urban rivers.

Assistant Director of Wastewater Operations; Detroit Water and Sewerage Department (DWSD)—Responsible for the operation of the world's largest wastewater treatment plant. This job entailed the administration of a $150 million operation and maintenance budget and a staff of more than 1,000. Negotiated with the Michigan Department of Natural Resources concerning the eligibility to DWSD projects for federal funding, the administration of the industrial pretreatment program, and all aspects of operating and maintaining a major facility under an NPDES permit.

Project Director; Newburgh Lake Restoration Project, Wayne County, Michigan—Developed the basis of design, the remedial action plan, and the plans and specifications for the removal of approximately 400,000 cubic yards of PCB-contaminated sediment from a 105-acre lake. An additional 225,000 cubic yards will be removed so that the resulting minimum depth of the lake is 8 feet to help control the growth of aquatic plants. Final grading will provide scattered depressions dredged to depths in excess of 14 feet to provide overwintering spots for the fish. Shoal areas and extension of an existing island were developed to accommodate less need for offsite disposal. The design had to accommodate the existing interceptor sewer that runs underneath the lake. ECT was able to develop the plan that protected the sewer and added additional protection. ECT was also responsible for designing and implementing a fish kill, preparation of construction documents, construction oversight and construction management of the habitat restoration. The project cost was more than $10 million and was grant funded.

Project Director; Phase I Oxbow Restoration, Henry Ford Museum & Greenfield Village—Oversaw the design team in the development of a grant-funded restoration plan and specifications to restore a historic river oxbow, provide habitat for both fish and wildlife and reconnect it to the river. The restoration design include the following tasks: topographic and bathymetric surveys, sediment analysis, wetland delineation and vegetative mapping, hydro period analysis, development of design concepts and alternatives, development of restoration plan, conduct an environmental assessment, prepare plans and specifications, develop education programs, and prepare applications for permits. The continued the involvement in the project by leading the public and construction management team for the construction phase. Phase I restored Oxbow Wetlands similar to riverine wetland system. Additional enhancements were made to the project, including trails/paths, observation decks, signage, and kiosk.

Project Director; Carpenter Lake Restoration, Southfield, Michigan—Provided oversight in the grant-funded design and the construction oversight for an urban lake restoration project in Oakland County, Michigan. The project included the initial studies, design, and construction oversight for removal and replacement of the current dam, dredging, wildlife and fisheries habitat restoration and development, wetland development, and development of a park system around the lake.
Project Director; Kingswood (Cranbrook) Lake Restoration, Cranbrook Educational Community—Provided oversight for a grant-funded turnkey project for the restoration of this lake on the National Historical Cranbrook Campus in Oakland County, Michigan. The project includes providing design and development of restoration plans and permitting for the construction activities. Construction services included hydraulically dredging a portion of the lake to geo-bags for dewatering before loading/hauling and disposal. Construction oversight and coordination were recently completed.

Project Director; Henry Ford Fairlane Estate, University of Michigan—Provided oversight for this project to investigate and provide restoration plans for 5-acre lake located on the estate campus in Dearborn, Michigan. This lake was originally designed and constructed by Henry Ford in the early 1900s. The investigation included a bathymetric survey, water and sediment quality sampling, and fish habitat, and over wintering evaluation. Based on the results of the investigation, alternatives for the lake were developed. Evaluated the feasibility of a fish ladder to be installed on the Rouge River at the dam on the estate. Crucial to this was keeping the integrity of the historic architectural dam. The best way to accomplish all of the objectives was the construction of a natural channel fish way.

Project Director; Evergreen-Farmington Sanitary Sewer Overflow (SSO) Control Project, Oakland County Drain Commission—ECT has supported the Office of the Oakland County Drain Commissioner in their attempt to modify MDEQ’s position on SSO control. The original project cost (using MDEQ criteria) was $180 million. By proposing a more liberal reading of the Clean Water Act, the cost estimate has been lowered to $17 million. This project has required ECT to meet with EPA in Washington, EPA Region 5, MDEQ and many congressional representatives. Oakland County continues to seek financial assistance from the federal government.

Project Director; Avoca Innovative Wastewater Treatment System, St. Clair County Drain Office—Directed the design of a cost-effective collection system and an innovatively constructed wetlands for effluent treatment. Currently raw sewage is discharging from the homes in Avoca, Michigan, to a county drain that is ultimately a tributary to Lake St. Clair. A grant application was written to investigate, acquire land, design, and provide for the construction of the system. Secured $400,000 in grant funds that helped pay for this project. Additional funding provided by low interest Rural Development Loans. The design system will consist of a collector sewer to clustered septic tanks (preliminary treatment) with small diameter sewer to transport the sewage to the treatment system. The treatment system will consist of subsurface flow wetlands using native vegetation. The use of an unlined wetland cell will return water to the ground. After completion of the design, construction oversight of the collection and treatment systems will be provided.

Project Director; Avoca Innovative Wastewater Treatment System, St. Clair County Drain Office—Directed the design of a cost-effective collection system and an innovatively constructed wetlands for effluent treatment. Currently raw sewage is discharging from the homes in Avoca, Michigan, to a county drain that is ultimately a tributary to Lake St. Clair. A grant application was written to investigate, acquire land, design, and provide for the construction of the system. Secured $400,000 in grant funds that helped pay for this project. Additional funding provided by low interest Rural Development Loans. The design system will consist of a collector sewer to clustered septic tanks (preliminary treatment) with small diameter sewer to transport the sewage to the treatment system. The treatment system will consist of subsurface flow wetlands using native vegetation. The use of an unlined wetland cell will return water to the ground. After completion of the design, construction oversight of the collection and treatment systems will be provided.

Project Director; Municipal Wastewater Treatment System Audit, City of Wixom, Michigan—ECT conducted a third-party evaluation of the operation and maintenance of the water supply system, the wastewater collection system and the wastewater plant of the city of Wixom. A contract wastewater operations firm operated all their systems. The purpose of this plant evaluation was to review current plant operations, evaluate the condition of treatment equipment, and analyze the impact that increased influent flows would have on the overall treatment operations. During this audit, detailed attention was paid to the actual operations and condition of equipment to determine if and where changes could be made to improve the overall effectiveness of the treatment operations. Engineering analyses were performed utilizing influent flow characteristics, contaminant removal efficiencies, sludge management, and effluent water quality. Upon completion of the project, a detailed report was prepared and submitted to city officials summarizing the evaluation findings and providing recommendations for changes that would enhance all aspects of the operations.
Mr. Fagerstrom has a bachelor’s degree in environmental engineering and is a professional engineer with more than 17 years of water resources engineering experience.

Mr. Fagerstrom has experience conducting a wide array of project types from watershed management plans, municipal stormwater systems retrofit and design, regional treatment facilities, municipal, industrial and commercial site development, hydrologic/hydraulic modeling, water quality modeling and water quality monitoring assessments.

**Project Manager; Watershed Water Quality Master Plan, City of Titusville, Florida**—Conducted a water quality master plan for four Indian River Lagoon (IRL) watersheds to identify and conceptually design best management practices (BMPs). For each watershed, a series of potential projects were evaluated with the objective of preparing a basin scale plan to address necessary nutrient load reductions. The plan focused on data collection and water quality modeling to determine annual nutrient load contributions, identification of potential projects and conceptual BMP development.

**Engineer of Record/Task Manager; Conastone to Maryland/Pennsylvania Line 230-kilovolt (kV) Transmission line Upgrade, Confidential Client**—Currently preparing an erosion and sediment control plan and permitting services for a 2-mile transmission corridor in Baltimore county, Maryland. Services include site development permitting and erosion and sediment control design and grading plans for proposed access roads and pole pads along the corridor.

**Project Director; Marine Street Triangle Boat Ramp Parking Lot Project, City of Carrabelle, Florida**—Responsible project conceptualization and project oversight for the design of a boat trailer parking lot in Carrabelle, Florida. The project included the design of permeable pavement for stormwater treatment.

**Project Manager; Lake Apopka Flow-way Optimization Study, Intera, Inc.**—Developed conceptual improvements to restore, optimize, and increase the nutrient removal effectiveness. Seven conceptual alternatives were prepared, including site layout and life cycle cost evaluation.

**Project Engineer; Payne Creek Solar Facility, Tampa Electric Company**—Responsible for third-party review of the site civil and stormwater design. Additionally, ECT prepared and oversaw the environmental permitting process.

**Project Manager; Foley Cellulose Stormwater Evaluation; Georgia-Pacific Passport**—Conducted a stormwater hydrologic study to evaluate various alternatives to prevent potential illicit discharges from the site. Developed an ICPR model of the site using ICPR 4 to create an existing condition model and to evaluate potential storage options.

**Project Manager; Alton Drive Stormwater Retrofit, Seminole County**—Currently conducting the design and permitting of a stormwater retrofit to improve water quality discharging into Lake Asher. Services include watershed hydrologic modeling, water quality assessment, and design of a nutrient removal focused treatment train.

**Project Manager; Right-of-Way Drainage Evaluation, Confidential Client**—Provided review of potential drainage improvements that could potential impact the transmission line infrastructure within the Corbett right-of-way. Reviewed permit applications, hydrologic modeling and stormwater calculation to evaluate the impacts of the proposed design.

**Project Manager; Confidential Client**—Currently preparing St. Johns County, Florida, right-of-way improvement plans. Providing civil engineering design services for access roads; tower construction and demolition working areas; and associated BMPs for stormwater management, easement access, and erosion control.

**Project Manager; Confidential Client**—Currently preparing St. Lucie County, Florida, right-of-way improvement plans. Providing civil engineering design services for access roads; tower construction and demolition working areas; and associated BMPs for stormwater management, easement access, and erosion control.

**AREAS OF SPECIALIZATION**


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**CHRIS R. FAGERSTROM, P.E.**

**Principal Engineer**

**Education**

B.S., Environmental Engineering—University of Florida, 1999

**Registrations**

Professional Engineer, Florida; No. 63045

FDEP Qualified Stormwater Management Inspector, No. 6338

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**AREAS OF SPECIALIZATION**

Project Manager; Daytona Beach International Airport (DAB) Stormwater Pollution Prevention Plan (SWPPP), Volusia County—Updated the facility SWPPP. The plan included review of the DAB stormwater BMPs and conducting interviews with the 25 tenants. In addition to the SWPPP update, SWPPP training was provided to DAB staff and their tenants.

Project Director; Site Development Engineering – St. Johns Bluff Branch, Navy Federal Credit Union—Provided site development services, including site design and site plan review by the local municipality. Permitting was completed through SJRWMD and the City of Jacksonville, Florida. Provided construction oversight, coordination with the architect, and other site civil engineering work to expand the existing branch.

Project Manager; Environmental Resource Permitting, Foley Cellulose—Responsible for National Pollutant Discharge Elimination System (NPDES) and environmental resource permitting for plant modifications undertaken at the Foley plant in Perry, Florida.

Project Manager; Site Development Engineering – Fleming Island Branch, Navy Federal Credit Union—Provided site development services, including site plan review by local municipality; and permitting through the FDEP, SJRWMD, and Clay County.

Project Manager; Comprehensive Stormwater Inventory and Water Quality Modeling, City of Titusville—Responsible for inventorying the stormwater infrastructure within the City of Titusville. A geodatabase was developed for the city for future use. Upon completion of the inventory, the watershed associated with each outfall was delineated and a water quality model focused on nutrient load estimation was developed. The results of the modeling effort will allow the city to prioritize project to achieve the most effective nutrient removal.

Project Manager; NPDES Phase II Municipal Separate Storm Sewer System (MS4) Permitting, City of Titusville—Responsible for preparation of the City of Titusville Phase II MS4 permit application. A city wide stormwater management program is being developed to meet the required elements of the NPDES program, including a water quality inventory, stormwater BMP evaluation, pollution prevention plans and illicit discharge elimination program. [13-0257—2014—$35,000]

Project Director; Central Wellfield Expansion Project, Utilities Commission New Smyrna Beach (UCNSB)—Responsible for the evaluation and recommendation for construction of three of seven potential well sites previously permitted for the expansion of the Central Wellfield. The three-phase project includes design of an access road, raw water manifold and well construction, well outfitting and top side construction, followed by raw water transmission main construction. The design provides for the construction of an access road with stormwater treatment and compensating storage for flood mitigation. Phase I is currently under permit consideration by the various agencies.

Project Director; Otter Boulevard 30-inch Aerial Force Main Crossing Improvement, UCNSB—The 15-year-old pole supported aerial force main crossing posed a potential threat to the integrity of the single pipeline connecting downtown with the wastewater treatment plant. Responsibilities included structural analysis of the existing aerial crossing and design and permitting for the replacement of a 30-inch aerial force main crossing. Design included evaluation of a horizontal directional drilling alternative. Final design included wet tapping with bypass piping and constructing the pipe on supports on a pedestrian bridge.

Project Engineer; Keystone Industries Bulk Storage Terminal, Southern Monitoring and Environmental, LLC—Responsible for various aspects of the redevelopment of a port facility in Jacksonville, Florida, on the St. Johns River. The project required coordination with the FDEP, Department of Homeland Security, Norfolk Southern Rail Road, and the various private developers needing to tailor the site to their individual needs. Services included site layout, industrial permitting, stormwater treatment and environmental protection, wetland issues, and coordination of geotechnical, survey and structural engineering services to provide for the heavy construction needed to redevelop the site and construct the world’s largest radial stacking conveyor.

Project Engineer; Depot Avenue Segment 3 Roadway Design, City of Gainesville—Conducted design modification and permitting of a segment of Depot Avenue in Gainesville, Florida. Project highlights included coordination with adjacent concurrent projects for the remediation of contaminated soil within the project area and the proposed reconstruct of SR 329. Other project tasks included construction document preparation and bidding assistance.

QA/QC Engineer; S. Summit Avenue Improvement Project, City of Lake Helen—Provided review and oversight of the design, permitting, plans, and specifications of this Community Development Block Grant (CDBG)-funded project for improvement of approximately 1,900 linear feet of this residential roadway. The existing dirt road was in dilapidated condition, and this multi-phased project incorporated all aspects of stabilization, stormwater treatment, and utility infrastructure to improve this neighborhood for the City of Lake Helen, Florida.
As an environmental engineer, Mr. Arden, Ph.D., P.E., conducts engineering analysis and construction oversight for projects involving ecosystem restoration, stormwater treatment, hydrologic assessments, and park design. Mr. Arden has experience in hydraulic and hydrologic (H&H) modeling, surface water quality analysis, stormwater pollutant loading assessment, stormwater treatment using natural and constructed wetlands, and ecological evaluation of natural and disturbed systems. He has conducted field research and exploration in systems ranging from xeric uplands to herbaceous and forested wetlands. Mr. Arden is also responsible for data analysis, H&H modeling using a variety of software applications, geographic information systems (GIS) analysis, technical writing, technical specifications, and construction bid package preparation.

**Team Member; Total Maximum Daily Load (TMDL) Restoration: Newnans Lake Improvement Initiative (NLII) Water Quality Enhancement of Little Hatchet Creek, Alachua County Environmental Protection Department (ACEPDP)** — Provided modeling support for a watershed restoration plan designed to provide nutrient load reductions to Newnans Lake, an impaired water body in North Central Florida. Work included assessment of nutrient dynamics, long-term hydrology, and stormflow. Existing nutrient dynamics were evaluated using water quality data, hydrologic data and a long-term ICPR4 hydrologic model. Based on existing condition analysis, several restoration or remediation strategies were proposed and modeled in ICPR4, both to test long-term nutrient and hydrologic improvements, as well as potential flooding impacts.

**Project Coordinator; Lake Management Program, City of Naples, Florida** — Provided professional consulting engineering services concerning lake maintenance and improvement program. Performed stormwater pond loading analysis, including hydrologic and nutrient loadings, stormwater pond assessment, and nutrient reduction calculations.

**Staff Engineer; Riverside Filter Marsh, City of Naples, Florida** — Provided engineering services to prepare designs and permits, and provided construction services for a filter marsh to treat stormwater discharge from the Goodlett Road Pump Station. Responsible for modeling in support of site permitting, wetland delineation and UMAM characterization, permit submittal and finalization, as well as monitoring equipment setup, calibration, and data analysis.

**Staff Engineer; South Lake Conine Watershed Restoration and Stormwater Treatment Services, City of Winter Haven, Florida** — Assisted in design and permitting services for development/restoration of watershed facilities on a 34-acre, city-owned lakefront parcel. The lake was impaired with nutrient TMDL. Design included regional stormwater pond and treatment train, finishing with polishing wetland before discharge into lake, intended to improve lake water quality via nutrient load reductions. Responsible for design efforts, including wetland delineation/assessments, geotechnical investigations, boundary and topographic survey, watershed modeling, stormwater pollutant load modeling, stormwater treatment train design, vegetation planning, and park design. Developed a detailed hydrologic model to ensure proper water levels were maintained within the various segments of the proposed design. Also assisted with bidding and construction services.

**Project Coordinator; Chassahowitzka Headspring Restoration Project, Southwest Florida Water Management District** — Responsible for preliminary site investigations and preparation of dredge plan to remove accumulated headspring muck and restore a more historic appearance and water quality regime. Prepared a plan that fit within the limited available dewatering area footprint, was sensitive to and accounted for recovery of cultural resources, treated dewatering effluent to Outstanding Florida Waters standards, and did not violate any water quality criteria. Dredge plan included development of site plan, equipment sizing, archaeological and endangered species monitoring, pumping calculations, dewatering calculations, and chemical amendment dosing calculations. Responsible for acquiring permits through FDEP, USACE, USFWS, and SHPO. Coordinated existing campground and boat ramp operations with construction, dredging, and archeological teams while meeting client expectations, permit requirements, and stringent water quality standards.
Staff Engineer; Thermal Plume Characterization and Environmental Effects in Warren Bayou and West Bay, Florida, Confidential Client—Assisted in data processing and analysis of thermal and salinity gradients in support of biological assessment to determine if thermal plume discharge from the client’s power plant was adversely affecting local environmental integrity. Incorporated data collected by colleagues into biological integrity assessment, including benthic macroinvertebrate collection, seaweed collection, water quality monitoring, and sediment sampling.

Staff Engineer; Highspeed Rail Environmental Permitting and Civil Engineering Services, All Aboard Florida (AAF)—Assisted with environmental permitting services for a high-speed rail line to connect South Florida to Orlando. Primary role was development of a noise and vibration model in support of the project NEPA EIS. The model was constructed from scratch in Microsoft Excel following Federal Railroad Administration (FRA) and Federal Transit Administration (FTA) guidelines and requirements. The model was used to identify possible noise and vibration impacts and accordingly recommend remediation strategies. Coordinated with both client and external contractors to communicate results of the model which required alteration of proposed rail centerlines, offsets, noise barriers, etc. Also coordinated with noise and vibration experts to translate model results into an appropriated noise and vibration monitoring plan.

Staff Engineer/Ecologist; Wetlands Reserve Program (WRP) Scarborough and Sons Site, USDA NRCS—Engineering lead for onsite restoration efforts for this 2,700-acre site in Okeechobee County under the USDA NRCS WRP. Working closely with staff biologists; conducted preliminary site investigations, including evaluation of ecological health, hydrologic conditions, and infrastructure conditions; and developed alternative restoration strategies intended to restore historical habitats based on proper hydrology and vegetation community structure. Led modeling efforts for pre- and post-restoration hydrologic and hydraulic models, using USDA SPAW software and ICPR, respectively. Models were used to quantify hydrologic improvements expected from the proposed restoration alternatives as well as to evaluate and mitigate any flooding impacts.

Staff Engineer/Ecologist, WRP Fisheating Creek Site, USDA NRCS—Assisted in restoration services for the Fisheating Creek WRP project, the largest contiguous private-lands project (26,225 acres) in the country involving four landowners and five individual tracts of land and approximately 8 miles of channelized Fisheating Creek in Highlands County, Florida. Assisted in the preliminary site investigation, which included assessment of project area hydrologic regime, ecological health, and condition of existing infrastructure. Then, in conjunction with colleagues, developed pre- and post-development site hydrologic models using USACE SPAW program and pre- and post- hydraulic models using ICPR3. Assisted in development of three restoration alternatives.

Project Coordinator; Bay Lake Diagnostic Study and Lake Management Plan, Orange County Water Authority—Coordinated efforts to provide a nutrient load reduction plan for each of the three lakes. Specific tasks included field work activities related to the characterization of surface and seepage inputs, storm event monitoring using ISCO equipment, development of a hydrologic and nutrient budget using a site-specific watershed loading model and BATHTUB water quality model, development of recommendations for the reduction of nutrient loading into the lake, and coordination of subcontractors.

Staff Engineer; Stormwater and Leachate Treatment System Design for Low pH Discharge, West Camden Sanitary Landfill—Provided engineering and modeling support for a proposal to treat low pH leachate and stormwater runoff using constructed wetland technology. Responsible for calculating peak and annual runoff volumes for each of the six stormwater outfalls that were in violation of NPDES permit requirements and sizing constructed wetland and caustic-based dosing systems.

Staff Engineer; FDEP Itchetucknee Trace Mining Reclamation and State Park Design, Lake City, Florida—Assisted in development of a water quality sampling plan designed around site conditions and potential contaminants of concern. Performed construction oversight, vegetation establishment monitoring, and permitting for recreational components.

Staff Engineer; FEMA Flood Mapping Updates Peer Review, Southwest Florida Water Management District—Assisted in review of updated FEMA maps based on an ICPR model for northwestern Ocala. Efforts included review of the model for appropriate inputs, modeling accuracy, and overall appropriateness for revised 100-year FEMA flood areas.

Staff Engineer; Terra Ceia Preserve State Park, Florida Department of Environmental Protection—Developed plans for construction of a new access channel, boat ramp, and parking facility in lands adjacent to an aquatic preserve, which was also an Outstanding Florida Water. Responsibilities included development of a conceptual site plan, which included design and placement of a revised access channel, dredge cross-section development, dredge plan, placement of channel markers, and permitting compliance. Also assisted with design of amenities, including a new boat ramp, a floating dock with innovative LID features, a canoe launch location, a parking area with LID BMPs, bathrooms, pedestrian trails, boardwalk/bridges, benches, and other interpretive features. Lastly, coordinated surveying and mapping services, geotechnical explorations, acquisition of permits, and construction bid package development.
Jeff Smith has been conducting wetland and water quality monitoring, research, and ecological assessments in Central and South Florida for more than 12 years. He has a master’s degree in soil and water science. Mr. Smith specializes in the technical development and implementation of data collection programs to ensure the highest quality and most representative data are collected. He has expertise in the areas of ecological restoration, treatment wetland design, wetland delineation, wetland functional assessments, nutrient dynamics, wetland biogeochemistry, biological assessments, and surface water quality sampling systems—including auto sampler programming, data validation and management, and hydrological measurements. Mr. Smith has been the lead scientist on numerous water quality monitoring projects focused on BMAP implementation, treatment system efficiency monitoring, nutrient runoff studies and NPDES compliance monitoring as well as ecological projects focused on wetland jurisdictional determination, functional assessments and threatened and endangered species.

**Project Director; Nutrient Loading Characterization for Biosolids Land Application, St. Johns River Water Management District (SJRWMD)**—Conducted storm event and baseflow water quality monitoring of tributaries adjacent to agricultural land permitted for land-application of biosolids. Responsible for technical implementation of flow monitoring stations, data collection, and event mean concentration and pollutant loading calculations.

**Project Manager; English Creek Solar Facility Environmental Resource Permitting, Tampa Electric Company (Tampa Electric)**—Managed environmental resource permitting tasks necessary to construct a 21-megawatt (MW) photovoltaic solar facility. Received sovereign submerged lands determination. Coordinated cultural resource assessment survey and submittal to the State Historic Preservation Office (SHPO). Facilitated stormwater engineering tasks and permit application submittal to the Florida Department of Environmental Protection (FDEP). Provided additional services, including tree survey and gopher tortoise relocation, as required by Hillsborough County and FWC.

**Project Manager; Lithia Solar Facility Environmental Permitting, Tampa Electric**—Managed environmental resource permitting tasks necessary to construct a 74 MW photovoltaic solar facility. Coordinated cultural resource assessment survey and submittal to SHPO, and facilitated stormwater engineering tasks and permit application submittal to FDEP. Provided additional services, including tree survey and gopher tortoise relocation, as required by Hillsborough County and FWC.

**Project Manager; Palm Bay Scrub Jay Monitoring, City of Palm Bay, Florida**—Conducted annual survey and reporting of scrub jay families with the residential neighborhoods in Palm Bay, Florid, as required by a U.S. Fish and Wildlife Incidental Take Permit.

**Project Director; Draa Field Grass Carp Permitting, City of Titusville, Florida**—Proposed the use of triploid grass carp as an alternative means of submerged aquatic vegetation control and management for the Draa Field stormwater park. Directed efforts to secure necessary permits through FWC, which included the design, fabrication, and installation of a fish barrier. Coordinated a vendor to stock the pond with 22 grass carp.

**Project Scientist; Stream Condition Index and Habitat Assessment of Created Streams; Confidential Client**—Conducted stream condition index sampling and habitat assessments for macroinvertebrates on four created streams on reclaimed phosphate mines. Responsible for field data collection, including the documentation of the stream morphology and habitat characteristics, and the physical sampling of productive habitats.

**Project Manager; Boston Whaler Expansion Gopher Tortoise Relocation; Boston Whaler, Inc.**—Conducted a
100-percent gopher tortoise burrow survey and secured a relocation permit from FWC for a 60-acre parcel adjacent the existing Boston Whaler manufacturing facility in Edgewater, Florida. Relocated 20 gopher tortoises using bucket traps and mechanical excavation methodologies. Installed exclusion fence to prevent gopher tortoises from entering the construction site.

**Project Manager; Draa Field Stormwater Park Efficiency Monitoring, City of Titusville, Florida**—Evaluated the load reduction effectiveness of the Draa Field stormwater treatment system part of a FDEP 319h grant. The project required a post construction monitoring plan to evaluate water quality before and after the implementation of BMPs. Prepared and submitted a QAPP to FDEP. Conducted flow-paced storm event sampling at two inflow and outflow stations of the treatment system. Responsible for the technical implementation, data collection, and analysis of the projects, including the equipment operation and maintenance, load reduction calculations, quality assurance controls, and reporting.

**Project Manager; Game Management Plan, Miami Corporation**—Conducted an assessment of the Florida white-tailed deer population on the 59,000-acre Farmon Tree Farm in Volusia County, Florida. The assessment was necessary to develop a management plan associated with the conversion of mitigation banks from ratio to Uniform Wetland Assessment Method (UMAM) credits. A population index approach was implemented to determine the approximate size of the herd, sex ratio, and density. Five nocturnal spotlight counts were conducted along eight 1-mile transects. Data were compiled and reported as a baseline population index.

**Project Manager; Wetlands and Threatened and Endangered (T/E) Species Permitting, Boston Whaler**—Conducted joint FDEP/U.S. Army Corps of Engineers (USACE) wetland delineations, and T/E species surveys on a 60-acre parcel in Edgewater, Florida. Provided qualitative assessments for mitigation and conservation easements, and worked with the project engineer to submit environmental resource permits.

**Project Scientist; Biological Monitor for Wetland and T/E Species, Sabal Trail Natural Gas Pipeline Project; TRC Companies, Inc.**—Provided biological monitoring services during the construction of a natural gas pipeline through north central Florida. Surveyed construction corridor ahead of the construction crews for T/E species and other environmental concerns. Oversaw the excavation of gopher tortoise burrows, documented species occurrences, and relocated wildlife, as necessary.

**Field Team Leader; Wetland Delineation and T/E Species Survey, St. Johns to Pellicer Transmission line, Confidential Client**—Determined joint FDEP and USACE wetland delineations along a 22-mile proposed transmission line corridor in northeast Florida. Conducted T/E species surveys along proposed corridor. Prepared UMAM forms, USACE wetland forms, and photo-documentation of the wetlands and habitats.

**Task Manager; Formal Wetland Determination Permitting, Daytona Beach International Airport (DBIA)/Volusia County**—Provided permitting support to reauthorize formal wetland determination permits on several parcels owned by the DBIA. Facilitated regulatory agency wetland boundary verification, recertification of existing surveys, and permit application submittal.

**Project Scientist; Wetland Delineation and T/E Species Surveys, Baltimore Gas & Electric**—Delineated wetland boundaries using the USACE wetland delineation methodology along two existing segments of the Conastone and Graceton transmission line corridors in Harford and Baltimore counties, Maryland. Also conducted T/E species surveys and developed land use maps within the corridor.

**Task Manager/Project Biologist; Gopher Tortoise Relocation, Compass Group**—Conducted a 100-percent survey and relocated eight gopher tortoises from a two-acre hotel development property in New Smyrna Beach, Florida. Located potentially occupied burrows using global positioning system (GPS), and developed a Florida Land Use, Cover, and Classification System (FLUCCS) map for inclusion in the relocation permit application. Captured and relocated gopher tortoises using bucket traps and hand-excavation methodologies in accordance with FWC permit conditions. Coordinated daily inspections of the traps for 28 consecutive days.

**Project Manager; Deering Parkway Ecological Assessment and Environmental Resource Permit (ERP), Lassiter Transportation Group, Inc.**—Determined jurisdiction wetland boundaries and conducted 15-percent gopher tortoise survey on an 11-acre extension of Brevard County Road 5A/Deering Parkway. Developed FLUCCS maps, gopher tortoise population estimates, T/E species survey, and UMAM assessments. Verified wetland boundaries with SJRWMD, prepared wetland impact information for the ERP, and provided responses to requests for additional information.

**Project Scientist; Wetland Delineation and T/E Species, Navasota Energy**—Conducted wetland, Waters of the United States, and T/E species surveys on agricultural properties in Grayson, Wilson, and Guadalupe counties, Texas, for siting simple-cycle electrical generation facilities. Prepared the ecological resources sections of the preliminary site evaluation and environmental due diligence report.
Mr. Gruber graduated with a bachelor’s degree in civil engineering from University of North Florida. Mr. Gruber has experience in civil site development, water resource engineering, stormwater management planning & design, and environmental compliance. Mr. Gruber has worked on projects throughout the eastern United States, from South Florida to Maine.

Task Engineer; 230-kV Transmission Line Rebuild and Right-of-Way Improvements, Confidential Client—Developing right-of-way improvement plans for site in Palm Beach County, Florida. Providing civil engineering design services for access roads; tower construction and working areas; and associated best management practices (BMPs) for stormwater management, easement access, and erosion control. Assisting in preparing the required information necessary to apply for any permits.

Task Engineer; Payne Creek Solar, Tampa Electric Company—Reviewed the hydrology design and site development plan. Ensured the design was in accordance with any jurisdictional laws in Polk County, Florida. Reviewed the proposed hydrologic/hydraulic model to ensure accurate representation of existing conditions and proposed development.

Task Engineer; Seawoods Stormwater System Inspection, Sea Woods Homeowners Association—Provided site inspection and certification services for the Sea Woods Community stormwater system in New Smyrna Beach, Florida. Assisted in obtaining relief from a portion of non-ad valorem tax as allowed in the city’s code of ordinances.

Task Engineer; Plains LPG Terminal Expansion, Plains LPG Services—Developed site grading and drainage plans to expand the terminal in Tampa Bay, Florida. Prepared the stormwater pollution prevention plan (SWPPP) documents, including relevant plans for onsite detention and implementation. Designated the type and location of the appropriate best management practices (BMPs) for the control of erosion and sediment associated with construction of the project.

Task Engineer; HarSCO Stormwater Pond Expansion Feasibility Study, Southern Environmental Sciences, Inc.—Evaluated the existing stormwater pond onsite and conducted an iterative hydrologic/hydraulic modeling analysis to conceptually design an expanded pond that can detain the entire runoff volume that is produced by a 100-year, 24-hour storm event. This created a “zero discharge” facility which eliminated the necessity for an industrial wastewater permit.

Task Engineer; Foley Cellulose Stormwater Evaluation, Georgia-Pacific Passport—Developed plans to optimize storage in the wastewater collection system to prevent flooding and offsite discharges during large storm events in Taylor County, Florida. ICPR 4 was used to model the existing conditions and results were evaluated to determine alternatives that could prevent flooding. Each alternative was modeled in ICPR 4 and the most efficient and effective alternative was recommended to the client.

Task Engineer; Conastone to Maryland Line 230-kV Transmission Line Rebuild, Confidential Client—Developed right-of-way improvement plans for a power transmission corridor in Baltimore County, Maryland. Provided civil engineering design services for access roads, tower construction and working areas, and associated BMPs for stormwater management, easement access, and erosion control. Prepared the required information necessary to apply for all required permits.

Task Engineer; Lake Helen Water Main Relocation, City of Lake Helen, Florida—Developed plans to relocate a portion of water main in Lake Helen, Florida.

Task Engineer; Passadumkeag Windfarm Operation and Maintenance (O&M) Site Stormwater Modeling, Confidential Client—Conducted site investigation and survey to execute hydrologic modeling for the O&M site in Greenbush, Maine. Developed site plans, basin delineations,
and land use maps to calculate curve number and time of concentrations for the ICPR model. Determined peak runoff attenuation, phosphorous export, and water quality treatment in accordance with the Maine stormwater manual.

Task Engineer; Confidential Client—Currently preparing St. Johns County, Florida, right-of-way improvement plans. Providing civil engineering design services for access roads, tower construction and demolition working areas, and associated BMPs for stormwater management, easement access, and erosion control.

Task Engineer; Confidential Client—Currently preparing St. Lucie County, Florida, right-of-way improvement plans. Providing civil engineering design services for access roads, tower construction and demolition working areas, and associated BMPs for stormwater management, easement access, and erosion control.

Task Engineer; Eads Court Flood Abatement, City of Titusville, Florida—Conducted site investigations of problem areas within the city’s stormwater infrastructure. Developed basin and drainage models to research solutions for flooding, and produced conceptual plans for new stormwater infrastructure design.

Task Engineer; Titusville Bioswale Design, City of Titusville, Florida—Developed preliminary alternatives for a series of bioswales in Titusville, Florida, to help remove pollutants from surface water runoff using various types of vegetation. Developed final planting and landscaping plans for the chosen alternative.

Task Engineer; Highlands Borrow Pit Environmental Resource Permitting, Anderson Columbia Company—Conducted pre/post developmental analysis of the project area in Clay County, Florida. Developed and modeled pre/post development discharges based on curve number and time of concentration analysis using ICPR model. Developed comprehensive report to submit for permitting.

Task Engineer; Quincy Sand Processing Mine Environmental Resources Permitting, Anderson Columbia Company—Conducted pre/post developmental analysis of the project area in Gadsden County, Florida. Developed and modeled pre/post development discharges based on curve number and time of concentration analysis using ICPR model. Developed comprehensive report to submit for permitting. Conducted investigations of tenant facilities on property and developed SWPPP for operational and environmental changes.

Task Engineer; Graceton Wetland Delineation, Confidential Client—Delineated wetlands and streams along the transmission line corridor in Northern Maryland, using the U.S. Army Corps of Engineers (USACE) wetland delineation method. Evaluated and determined the presence of hydric soils, hydrophytic vegetation, and hydrologic indicators. Delineated wetland boundaries using differentially corrected GPS points.

Task Engineer; Conastone Wetland Delineation, Confidential Client—Delineated wetlands and streams along the transmission line corridor in Northern Maryland, using the USACE wetland delineation method. Evaluated and determined the presence of hydric soils, hydrophytic vegetation, and hydrologic indicators. Delineated wetland boundaries using differentially corrected GPS points. Also, developed land use maps along the corridor and species lists.

Task Engineer; 230-kV Transmission Line Wetland Delineation and Drainage Feature Survey, Confidential Client—Delineated wetlands and streams along the transmission line corridor in St. Johns County, Florida, using the USACE wetland delineation method. Evaluated and determined the presence of hydric soils, hydrophytic vegetation, and hydrologic indicators. Delineated wetland boundaries using differentially corrected GPS points. Also, developed land use maps along the corridor and species lists.

Task Engineer; Florida Southern Pipeline Hydrostatic Testing Water Use Permitting, Confidential Client—Developed the necessary documentation to apply for a water use permit from Southwest Florida Water Management District to allow the client to conduct the hydrostatic testing of a new natural gas pipeline through Polk, Osceola, Okeechobee, St. Lucie, and Martin counties to ensure its integrity.
Mr. Peters is a licensed professional geologist in Florida, Kentucky, North Carolina, Pennsylvania, and Tennessee, and a licensed geoscientist in Louisiana. He has more than 24 years’ experience as a consultant in the environmental field. Mr. Peters holds a bachelor’s degree in earth sciences and a master’s degree in business administration. He has managed both technical and administrative staff and has a wide range of experience in personnel management, technical project management, sales and marketing, business development, budget management and research. He is also experienced in business management, risk management/loss prevention, safety, and human resources policies and procedures. He has extensive community outreach and engagement experience and has been very successful in bringing groups from diverse backgrounds together for betterment of the community.

**Principal Scientist; Environmental Risk Management, Bithlo Ranches, Orange County Environmental Protection Department (OCEPD)**—Environmental risks were evaluated prior to the redevelopment of this parcel for affordable housing. Phase I/II environmental site assessments (ESAs), a jurisdictional wetland delineation, a potable well evaluation, and an onsite sewerage evaluation were completed. After the environmental risks were evaluated and were at an acceptable level, the parcel was going to be repurposed for Habitat for Humanity housing. Duties included proposal preparation and negotiations, W/MBE and SDV utilization goal tracking, supervision and oversight of subcontractors, reporting, invoicing, and client and regulatory contact.

**Principal Scientist; Wekiva River Basin Groundwater Assessment, OCEPD**—Responsible for the technical oversight of parcel selection and drilling of monitoring wells throughout the Wekiva River Basin into the Upper Florida aquifer, geotechnical testing, groundwater testing, and groundwater sampling. The goal of this project is to collect data and assist OCEPD with development and potential revisions to the existing basin management assessment plan. Duties included proposal preparation and negotiations, W/MBE and SDV utilization goal tracking, supervision and oversight of subcontractors, reporting, invoicing, and client and regulatory contact.

**Principal Scientist; Used-Oil Line Closure Assessment Report, Orange County**—Completed used-oil piping closure activities, consisting of piping removal, soil and groundwater assessment, and reporting. Underground piping removal and replacement activities were completed, while maintaining full operational status at Orange County’s main fleet maintenance facility for fire/rescue and street maintenance vehicles. A line closure assessment report was approved by FDEP on September 6, 2016.

**Contract Manager; Brownfield Cleanup Grant, City of Live Oak**—Responsible for project management and technical oversight for all aspects of this EPA $200,000 hazardous substances grant, including programmatic support, public outreach, and cleanup. Also responsible for certain administrative functions such as contract and proposal preparation and negotiations, W/MBE utilization goal tracking, supervision and oversight of subcontractors, reporting, invoicing, and client and regulatory contact.

**Contract Manager; City of Orlando Brownfield Cleanup Grant, City of Orlando**—Responsible for project management and technical oversight for all aspects of this EPA $200,000 hazardous substances grant, including programmatic support, public outreach, and cleanup. Also responsible for certain administrative functions such as contract and proposal preparation and negotiations, W/MBE utilization goal tracking,
supervision and oversight of subcontractors, reporting, invoicing, and client and regulatory contact.

Project Manager; Brownfield Phase II ESA, Treasure Coast Regional Planning Council—Responsible for project management and technical oversight of a Phase II ESA completed at the Lake Shore Civic Center located in Belle Glade, Florida. Non-statistical approaches along with statistical analysis were employed to compare the on and offsite background data for arsenic levels in near-surface soils.

Project Director; Seminole County Environmental Services—Provide contractual management and technical oversight of projects, budgets, and correspondence regarding Phase I and II ESAs; site assessment/remediation; underground storage tank (UST) and aboveground storage tank (AST) closures; stormwater pollution prevention program and spill prevention, control, and countermeasure (SPCC) plans; water quality sampling, and brownfield consulting.

Project/Contract Manager; Petroleum Restoration Program Agency Term Contractor, Florida Department of Environmental Protection—Responsible for project management and technical oversight of restoration funding-eligible petroleum cleanup at sites located through Central and North Florida. Responsibilities include negotiating scope of work, technical oversight of field activities, preparation of documents, and signing/sealing of documents as a licensed professional geologist, when required.

Contract Manager; Brownfield Assessment Grant, City of Orlando—Responsible for project management and technical oversight for all aspects of this EPA $400,000 petroleum and hazardous substances grant, including programmatic support, public outreach, Phase I/II ESAs, and Analysis of Brownfield Cleanup Alternatives. Also responsible for certain administrative functions such as contract and proposal preparation and negotiations, W/MBE utilization goal tracking, supervision and oversight of subcontractors, reporting, invoicing, and client and regulatory contact.

Contract Manager; Brownfield Assessment Grant, Orange County—Responsible for project management and technical oversight for all aspects of this EPA $400,000 petroleum and hazardous substances grant, including programmatic support, public outreach, Phase I/II ESAs, and Analysis of Brownfield Cleanup Alternatives. Also responsible for certain administrative functions such as contract and proposal preparation and negotiations, W/MBE utilization goal tracking, supervision and oversight of subcontractors, reporting, invoicing, and client and regulatory contact.

Project Manager; Professional Services Contract, Brevard County, Florida—Responsible for task orders under the Brevard County Natural Resources Management Office. Projects include groundwater quality investigations to support the county’s efforts in improving stormwater management, Phase I ESAs, and other monitoring projects. Work efforts have consisted of monitoring well installation, groundwater sampling for conventional and ultratrace metals parameters, reporting, and well abandonment.

Contract Manager; Brownfield Assessment Grant, City of Eustis—Provided project management and technical oversight for completion of Phase I/II ESAs and participated in community outreach activities. Also responsible for certain administrative functions such as contract and proposal preparation and negotiations, W/MBE utilization goal tracking, supervision and oversight of subcontractors, reporting, invoicing, and client and regulatory contact.

Senior Geologist/Project Manager; Environmental Services, Walt Disney World Resort—Conducted environmental services, including interim RAP/reports, site assessment plans/reports, remedial alternative studies, remedial implementation plans, and UST and AST closures at a major tourist attraction in Orange County, Florida. Performed assessment and cleanup activities to satisfy corporate counsel and meet the requirements of Chapter 62-770, Florida Administrative Code (F.A.C.). Remediation technologies for these projects included remediation by bio-augmentation, source removal, and natural attenuation.

Senior Geologist/Project Manager; Towne Park Brownfield, City of Winter Springs—Completed a SAR and source removal plan in a limited time to address arsenic soil impacts associated with a former railroad spur that transects an age-restricted affordable housing project located in Seminole County, Florida.

Project Manager; Compliance Inspections, Seminole County Board of County Commissioners—Managed this contract for AST and UST compliance inspections within Seminole County. Inspections were performed monthly to ensure facilities were in compliance with Chapters 62-761 and 62-762, F.A.C. Inspections logs were then sent to the contract administrator at Seminole County with any notes or deficiencies noted and recommendations to correct the deficiencies.

Senior Geologist; Markham Woods Aquifer Storage and Recovery (ASR) Well, Seminole County Public Works—Assisted a team of engineers, geologists, and scientist assisting with the development of an ASR well system in Lake Mary, Florida. The ASR well system provides Seminole County cost-effective alternatives to storing and using potable water during times of surplus and demand. Specific duties included the development of the water quality testing program during project development. This program consists of pre-cycle, baseline testing, source water, and a minimum of four separate cycle tests.
Mr. Seibel is a certified GIS Professional (GISP) under the GIS Certification Institute, in addition to having obtained a bachelor’s degree in environmental studies. He also holds three Linux Administration certifications. For more than 19 years, Mr. Seibel has utilized GIS to solve a wide range of complex problems via GIS spatial analysis and scientific modeling. He has been a power user of ESRI GIS and Geographic Resource Analysis and Support System (GRASS) GIS for 19 and 13 years, respectively. Mr. Seibel has expertise in applying geospatial technology to solve complex spatial problems, regardless of the discipline they fall into. He possesses expertise in hydrologic modeling, constructing digital elevation models from LiDAR point sources, and parsing big data for LiDAR point cloud manipulation and filtering. Mr. Seibel has modeled drainage networks, drainage areas, and flow accumulation on more than 500,000 acres. Specialized tasks include: modeling wetland water storage, ordering basins and streams using the Strahler methodology, and identifying potential seepage slopes.

Mr. Seibel was the first in the state of Florida to receive Florida Department of Environmental Protection (FDEP) agency approval to delineate streambanks using GIS-based scientific modeling techniques. He is experienced in configuring web mapping services to deliver GIS data to end users via a web-based interface, or by directly serving features into GIS desktop software.

Senior Geospatial Analyst; Viewshed Analysis; C4GT, LLC—Computer modeling was needed to determine visibility of stacks in the environment, with the alternative being balloons floated in the air. Using LiDAR data, a digital elevation model (DEM) was constructed for viewshed analysis. Visual impacts to the surrounding community of Charles City, Virginia, were determined to be negligible. Additional efforts included incorporating the tree canopy from LiDAR, as well as creating a 3D model of the stacks situated in the terrain with tree canopy modeled from LiDAR.

Senior Geospatial Analyst; Hydrologic Analysis of Wetland Restoration Project, Western Reserve Land Conservancy—The Bloomfield Swamp in Orwell, Ohio, has a 30-foot canal draining it. Restoration efforts required modeling the current environment. Modeled 56,000 acres of terrain from LiDAR point source data to create a 1-meter DEM. Performed hydrologic analysis on the 20,200-acre Upper Rock Creek watershed. Delineated 72 location-specific drainage areas and modeled the drainage network for flow accumulation. Outputs were used as input to ICPR modeling.

Senior Geospatial Analyst; Floodplain Impacts and Compensation for Powerline Transmission Corridor, Confidential Client—As construction pads were designed and placed in the corridor, volumetric floodplain impacts were calculated. Within the same corridor, compensation areas were designed to mitigate the filled floodplain areas. Each location was analyzed for maximum hydrologic continuity to avoid isolated floodplain compensation areas.

Senior Geospatial Analyst; North Hardee Hydrology Monitoring, Confidential Client—Completed hydrologic flow modeling for optimal monitor station placement. Built 1-meter DEM from 1-meter LiDAR point data for hydrologic analysis. Model area was approximately 22,000 acres in Central Florida. Modeled drainage network using MFD accumulation. Corresponding drainage areas were modeled using the node at each junction to delineate the upgradient contributing area. Model data were used to help identify primary and secondary flow-ways in the drainage network and ensure a good spatial distribution of stations. Also modeled topographic depression locations.

Senior Geospatial Analyst; Solar Project Siting, Tampa Electric Company—Classified land cover in Polk County, Florida, for solar plant siting from aerial photograph of old
mined land into five categories: water, wet soil/vegetation, grass, bare earth-soil, and bare earth-sand (some pond solids included). Applied the use of LiDAR data to create 1-meter DEM and test correlation between open water and wet vegetation with elevational low spots. LiDAR confirmed low, pocketed elevations for open water and wet vegetation.

**Senior Geospatial Analyst; Modeling, St. Johns River Water Management District**—Performed hydrologic analysis on Deep Creek by modeling 31 drainage areas in Volusia County, Florida. Also modeled flow accumulation and direction.

**Senior Geospatial Analyst; Volumetric Material Balancing, Confidential Client**—Client had a six-million-cubic-yard deficit of sand fill, and needed help optimizing the mined out areas to move as little material as possible, and help design the terrain to account for sand filling shortage. Developed special techniques and methods to design general landform topography in mined out areas, by using existing high spots and low spots in the disturbed areas to create the most optimal landform by minimizing bulldozing work (cut) and balancing it with minimizing sand tailing fill. Rough estimates (in one of dozens of areas) was a savings of at least ½ million cubic yards.

**Senior Geospatial Analyst; Hydrologic Analysis, Confidential Client**—Completed hydrologic analysis, supplying information via modeling of USACE, under Rapanos v. U.S., to determine if wetland is jurisdictional. LiDAR processing and DEM construction allowed for modeling flow accumulation, drainage areas and storage capacity of wetlands.

**Senior Geospatial Analyst; Hydrologic Analysis, Confidential Client**—Performed hydrologic analysis on two wetlands of importance for continued mining operations. Both wetlands required refiltering LiDAR data to bare earth points, constructing a DEM and performing storage capacity computations. The goal of one modeled wetland modeled with high definition was to determine which way water flowed as the wetland filled with water.

**Senior Geospatial Analyst; Hydrologic Analysis, Confidential Client**—Processed LiDAR files into a DEM to subsequently run hydrologic tools. Features were extracted such as: flow accumulation, streams, problematic drainage areas, downslope flowlines, potential seepage slopes, major basins, sub-basins and contributing areas to flow stations. Project wide cell model size was 25 feet; however, 5-foot cells were utilized for more detail in areas of interest. Project sizes were 16,000 acres and 21,000 acres.

**Senior Geospatial Analyst; Watershed Modeling Support, Southwest Florida Water Management District**—Modeled a problematic internally drained watershed with GRASS GIS, using a variety of tools, including a lake package for flooding, accumulation maps for illustration of concentrated flow, terraflow module for illustrating potential problem areas with ponding, and the watershed model to delineate watershed divides.

**Web Mapping Programmer and Linux System Administrator; GIS Mapping Services, Confidential Client**—Deployed web-based GIS mapping application to consulting team for land development analysis, on an open source platform. System serves more than 3 GB of aerial photography and 100 GIS vector datasets. Duties entailed configuring and administering Linux server, installing and configuring related open source GIS software on system, and configuring and monitoring Apache web server. Web mapping software used is UNM’s Mapserver. Programming languages includes HTML, CGI, and JavaScript. Current efforts entail re-writing the web application with PHP, under Mapserver/Mapscript for advanced mapping functionality.

**Senior GIS Analyst; Modeling, Confidential Client**—Performed kriging spatial analysis and modeling of sub-surface features such as phosphate pebbles, phosphate concentrates, and percent clay and chemical concentrations such as magnesium oxide. Spatial Analyst of the ESRI ArcGIS suite was used to perform these analyses, using raster data models. Once surface and subsurface features had been modeled, additional analyses were performed to provide information to the client to make informed decisions about wetland quality, impacts, mitigation, and sub-surface value.

**Senior GIS Analyst; GIS Mapping, Florida Gas Transmission**—Mapped and constructed two mitigation areas (10.8 and 10.6 acres) using GPS technologies, traditional surveying techniques, and GIS. The project had several phases; first, project boundary coordinates were imported from a surveyor into the GIS system. Then ECT generated points in GIS that delineated the needed acres for clearing and mitigation. After uploading the GPS points to the GPS unit, a field crew used a bulldozer and GPS unit to clear the needed areas, based upon the GIS coordinates generated in the office. Additional points were taken from the field and integrated into the GIS data. Exact acreages (to the tenth of an acre) of mitigation were able to be performed using GIS and GPS jointly.

**Senior GIS Analyst; GIS Mapping, Central Florida Regional Planning Council**—For the first time in the Tampa Bay region, a historical analysis of phosphate mining in the Peace River Basin was performed using GIS. This mapping analysis involved analyzing 1.5 million acres of land in three 25-year time frame snap shots: 1975, 2000, and 2025. Dozens of historic and current properties were integrated into this land use data set, from various sources such as: historic paper maps, digital CAD DXFs, ESRI Shapefiles and Arc/Info coverages. Analysis revealed a trend showing mining activities decreasing, while human population explosion growths were illustrated as being the major consumptors of regional water in the Peace River Basin.
Richard Morrissey is a graduate from Flagler College, where he focused his undergraduate studies on water quality and coastal estuarine biological and physical systems. He specializes in synthesizing technology and science to support high quality data collection and interpretation for representative results. Mr. Morrissey has experience in areas of ecological restoration, threatened and endangered species surveys, gopher tortoise, environmental compliance and oversight, wetland delineation, wetland functional assessments, nutrient dynamics, biological assessments, shoreline characterization, and surface water quality sampling systems—including auto sampler programming, data validation and management, and hydrological measurements. He has been a project scientist on water quality monitoring projects focused on BMAP implementation, treatment system efficiency monitoring, nutrient runoff studies and NPDES compliance monitoring as well as ecological projects focused on wetland analysis, functional assessments and restoration and threatened and endangered species.

**Project Ecologist; Reclaimed Stream Monitoring, Confidential Client**—Field team lead for annual stream condition index (SCI) surveys of created streams on restored phosphate mine land in Hillsborough County, Florida. Responsibilities include environmental health assessment of surrounding areas, collection and reporting of physical stream health data, as well as the collection of macroinvertebrates from within the survey areas.

**Project Ecologist; Stream Monitoring, Confidential Client**—Field team lead for an annual SCI survey of a created stream on restored phosphate mine land in Polk County, Florida. Responsibilities include environmental health assessment of surrounding areas, collection and reporting of physical stream health data, as well as the collection of macroinvertebrates from within the survey area.

**Project Ecologist; Stream Monitoring, Confidential Client**—Field team lead for an annual SCI survey of a created stream on restored phosphate mine land in Hardee County, Florida. Responsibilities include environmental health assessment of surrounding areas, collection and reporting of physical stream health data, as well as the collection of macroinvertebrates from within the survey area.

**Project Scientist; Cliff Creek Flow Monitoring, City of Melbourne, Florida**—Support and execute the installation, monitoring, and reporting tasks of a drainage canal attached to the Indian River Lagoon (IRL). Responsible for the installation, flow monitoring, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; Wheeler Stormwater Park, Intera**—Support and execute the installation, sampling, and reporting tasks of a large stormwater catchment system in the central IRL area. Responsible for the installation, flow monitoring, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; Autumn Woods Stormwater Outfall Monitoring, City of Melbourne, Florida**—Support and execute the installation, monitoring, and reporting tasks of a stormwater treatment pond that discharges into a drainage canal attached to the IRL. Responsible for the installation, flow monitoring, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports. [17-0070]

**Project Scientist; Southwest Park Baffle Box Monitoring, City of Melbourne, Florida**—Support and execute the installation, monitoring, and reporting tasks for a baffle box treatment system within an urban stormwater park. Responsible for the installation, flow monitoring, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; Bell-Garfield Stormwater Outfall Monitoring, City of Melbourne, Florida**—Support and execute the installation, monitoring, and reporting tasks of two baffle box treatment systems. Responsible for the installation,
flow monitoring, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; South Croton Stormwater Outfall Monitoring, City of Melbourne, Florida**—Support and execute the installation, monitoring, and reporting tasks of a baffle box treatment system that discharges into a drainage canal attached to the IRL. Responsible for the installation, flow monitoring, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; Croton-Lime Stormwater Monitoring, City of Melbourne, Florida**—Support and execute the installation, monitoring, and reporting tasks of a baffle box treatment system that discharges into a drainage canal attached to the IRL. Responsible for the installation, flow monitoring, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Ecologist; Depot Park Phase II Monitoring, City of Gainesville, Florida**—Conducted semi-annual mitigation monitoring surveys for wetlands impacted during remediation on a 13-acre parcel in Gainesville, Florida. The wetland plan connects two stormwater treatment ponds that include a braided stream planted with a diverse mix of native wetland vegetation, upland enhancement, and management plans to meet the mitigation requirements. The plan also includes a trail and other park amenities. Responsibilities included plant identification, global positioning system (GPS), and data logging of vegetation communities, as well as the GIS import/export of data and figures collected in situ for preliminary and final reports.

**Project Scientist; Draa Field Stormwater Park Water Quality Monitoring, City of Titusville, Florida**—Support and execute the installation, sampling, and reporting tasks of three catchments for the newly built stormwater treatment park. Responsible for the installation, sample collection, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; Stormwater Outfall Monitoring, City of Titusville, Florida**—Support and execute the installation, sampling, and reporting tasks of three basins that discharge into the IRL—St. Johns Street, Main Street, and Sycamore Street. Responsible for the installation, sample collection, data management, and maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; Crescent Lake Stormwater Sampling, St. Johns River Water Management District (SJRWMD)**—Support and execute the sampling, transport, and reporting tasks of six surface water sample site locations along the Crescent Lake water shed in Flagler County. Responsible for the preparation, collection, transport, and data management of surface water samples obtained via a Van-dorn water sampler and taken within two hours of qualifying storm events.

**Field Team Member; IRL Storm Event Monitoring and Load Characterization Study, SJRWMD**—Supported and executed field data collection, analysis, demobilization and reporting tasks for four large catchments that drain to the IRL. Coordinated with project manager and other organizations involved with project. Responsible for the sample collection, data management, maintenance of sophisticated flow monitoring and sampling equipment, as well as the synthesis of project reports.

**Project Scientist; St. Johns Basin Water Quality Monitoring, City of Titusville, Florida**—Evaluated the load reduction effectiveness of stormwater BMPs as part of a FDEP 319h grant. This project was designed to reduce nutrient exports to the IRL. The project required a post construction monitoring plan to evaluate water quality before and after the implementation of BMPs. Responsibilities included collection, operation, maintenance, and data management.

**Field Team Member; Deep Creek Nutrient Reduction Assessment, SJRWMD**—Conducted storm event-based tributary monitoring in the Deep Creek watershed of the Middle St. Johns River Basin (MSJRB) which has an established total maximum daily load (TMDL) and best management action plan (BMAP). The study focused on the inflow and outflow tributaries of Lake Ashby. Rainfall, base flow, and storm flow were continuously monitored and qualifying storm events were sampled using automatic samplers. Responsible for assisting in the synthesis of all data and figures in the final report.

**Project Scientist; Stormwater Inventory, City of Titusville, Florida**—Completed georeferencing and cataloging hundreds of stormwater asbuilts in ArcGIS, as well as geotagging thousands of existing major stormwater infrastructure for additional cataloging via field surveying using a Trimble GPS. Assisted in building and developing the final deliverable by creating a functional database with thousands of interconnected features for use in ARCGIS water modeling. The project was focused on building and maintaining a stormwater runoff inventory of land development in the city for management and planning purposes.
4. **LOCATION**

Environmental Consulting & Technology, Inc., would complete the majority of project work at their New Smyrna Beach location. (707 East Third Avenue). This office is located just 1.9 miles from the UCNSB office located at 200 Canal Street.
5. **FINANCIAL STABILITY**

Incorporated in Delaware in 1988, Environmental Consulting & Technology, Inc. (ECT), has grown to an annual revenue volume in excess of $28 million and assets in excess of $11 million. ECT currently has more than 1200 active projects with a combined backlog of approximately $26.2 million. Some of the ongoing projects started as early as 2001 and end as late as 2020, although a large percentage of ECT’s projects are less than 12 months in duration. ECT enjoys a stable workforce as the company is wholly owned by ECT employees, and approximately 90 percent of the employees own stock either directly or through the company Employee Stock Ownership Plan.

If you have additional questions, please do not hesitate to contact me.

*Environmental Consulting & Technology, Inc.*

Katherine H. Pierce  
Chief Financial Officer
THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFER NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

### PRODUCER
Brown & Brown of Florida, Inc.
Ocala Division
1720 SE 16th Avenue, Suite 301
Ocala, FL 34471-4620
Michael McNerney

### INSURED
Environmental Consulting & Technology, Inc.
3701 NW 98th Street
Gainesville, FL 32606

### COVERAGES
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### DESCRIPITION OF OPERATIONS / LOCATIONS / VEHICLES
ACORD 101, Additional Remarks Schedule, may be attached if more space is required.

Sample Certificate

The ACORD name and logo are registered marks of ACORD
7. **OCCUPATIONAL LICENSES**

State of Florida
Board of Professional Engineers

Attest that
Environmental Consulting & Technology, Inc.

Is authorized under the provisions of Section 471, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes.

Expiration: 2/28/2019
Audit No: 2282019041278 R

CA Lic. No: 5520

I certify from the records of this office that ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC. is a Delaware corporation authorized to transact business in the State of Florida, qualified on February 1, 1989.

The document number of this corporation is P22824.

I further certify that said corporation has paid all fees due this office through December 31, 2018, that its most recent annual report/uniform business report was filed on March 16, 2018, and that its status is active.

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

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Nineteenth day of March, 2018

Ken Detjen
Secretary of State

Tracking Number: C0079098660
To authenticate this certificate, visit the following website: https://services.myflorida.com/Filings/CertificateOfStatus/CertificateAuthentication
8. **Client References**

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ECT has several continuing contracts with regional and national utility providers that are confidential. We have long-standing relationships with these clients with services ranging from civil engineering to ecological permitting.
9. **Other Information**

Firm’s Qualifications & Expertise

ECT has developed a close relationship with the Utilities Commission, City of New Smyrna Beach, (UCNSB) while carrying out numerous projects over most of the last decade. From subaqueous crossings of the Intracoastal Waterway, to utility relocations, to access road paving and preparation of the Triennial Report, ECT’s local presence and close work with the City of New Smyrna Beach has allowed us to nurture those relationships and successfully complete these projects. We look forward to providing our services on CIP projects in the years to come.

In addition to the project types listed above, ECT helped UCNSB renew their consumptive use permit (CUP) through the St. Johns River Water Management District (SJRWMD), delineate wetlands to avoid costly mitigation for well field expansion, and provide design, permitting, and construction phase engineering services throughout the Utility Commission’s service area. A review of the current five-year capital improvement plan (CIP) would indicate a number of utility extensions, replacements, rehabilitations, and other water and waste water projects for which we would be ideally suited.

In our capacity as a consultant for the City of New Smyrna Beach, ECT has also performed several flood mitigation and roadway improvement projects that have required the adjustment of UCNSB facilities or provided the opportunity to replace aging infrastructure. These projects allowed ECT to coordinate with both entities and further strengthen our relationships.

With these in mind, please review the following projects as a representative sample of our previous utility projects with an eye toward our continued professional relationship.