Alachua County

Newnans Lake System Comprehensive Restoration

December 20, 2023

Little Hatchet Creek, Alachua County

34 East Pine Street
Orlando, FL 32801

December 20, 2023

Michele Lieberman
Alachua County, County Manager
12 SE 1st Street
Gainesville, FL 32601

RE: Newnans Lake System Comprehensive Restoration

Dear Ms. Lieberman,

On behalf of HGS, LLC dba RES Environmental Operating Company, LLC, a wholly-owned subsidiary of Resource Environmental Solutions, LLC (together with all of its subsidiaries and affiliates, "RES"), we are pleased to provide this proposal to Alachua County (County) for a regional water quality treatment and hydrologic restoration project in Alachua County, which will assist the County in restoring Hatchet Creek and associated wetlands in Hatchet and Little Hatchet Creek sub-basins. Our project will improve water quality conditions in Newnans Lake, which the Florida Department of Environmental Protection has formally identified as an impaired waterbody.

As a national leader in ecological and environmental restoration solutions, we are confident that our team of in-house professionals, consultants, and subcontractors will enable a large-scale, sustainable, and successful turnkey wetland and stream restoration project. Our project will provide multiple environmental benefits to the state, thereby ensuring that the vital creek, wetlands, and lake are protected and preserved as a natural, comprehensive system, and improve water quality for regional benefit for fish, wildlife and for the people of Alachua County.

The RES team includes professional engineers and scientists who are experienced experts in water resources and environmental sciences. The staff assigned to implement this uniquely comprehensive watershed-scale project have dedicated their careers to developing natural system solutions for the improvement of communities, our environment, and the integration of both for the future. These technical specialists and subject matter professionals are supported by business, government, and legal professionals rooted in environmental policy to ensure each of our environmental solutions are not only technically proficient, but also fully vetted from a financial, political, and legal position for both RES and the County.

The RES solution brings tailored engineering and scientific approaches to resolve the challenges facing our clients which is accomplished through early and ongoing collaborative discussion. A public-private partnership (P3), implemented through Section 255.065, F.S., allows the County and RES to develop the optimal solution for the project together, as partners. We look forward to collaborating with Alachua County to develop and deliver this turnkey project solution as your partner.

The following proposal contains information that qualifies as confidential proprietary information, or trade secrets, where if such information was made public before the execution of an interim agreement or a comprehensive agreement, RES' financial interest or bargaining position would be adversely affected.

Pursuant to section 815.045, Florida Statutes the Legislature determined that it is a public necessity that trade secret information as defined in s. 812.081, Florida Statutes, be expressly made confidential and exempt from the public records law. Certain information included in RES' Unsolicited Proposal qualifies as trade secret information. Section 119.07(1)(a), Florida Statutes, requires the custodian of public records to permit the inspection and copying of public records. However, records "which are presently provided by law to be confidential or which are prohibited from being inspected by the public" are removed from this statutory mandate. Under Florida's public records laws, when a public record contains information that is exempt from disclosure, the records custodian must redact the exempt information and disclose the remainder of the public record. Trade secret information as defined in s. 812.081 is expressly made confidential and exempt from the public records law. To protect trade secrets from potential disclosure under the public records law, RES must, and is, specifying which information provided to the County is a trade secret.

RES herein invokes the protections of this section as it relates to certain trade secret information, marked herein with grey highlight, A specific explanation of the reasons why protection is necessary was provided in our Exemption Justification Letter. The highlighted sections constitute a compilation of information which is used in the operation of RES' business which provides RES an advantage, as well as the opportunity to obtain an advantage, over those entities who do not know or use it. As the owner of the information, RES is taking the requisite measures to prevent it from becoming available to persons other than the County.

I am happy to answer any questions you may have and commit to making myself and our team available to the County as we progress in water resources restoration, together.

Best Regards,

Mary Szafraniec, PhD, PWS
Director, Water Quality Initiatives
mszafraniec@res.us | 813.748.3625

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1.0 Ability of Professional Personnel

For this project, RES has assembled a comprehensive team of professionals in land planning, acquisition, permitting, design, construction, operations, monitoring, and maintenance. Our team is experienced in delivering project outcomes implemented by the public-private partnership (P3) statute, Section 255.065, F.S. in Florida and elsewhere across the United States. This team uses data to optimize water quality goals and objectives in our nature-based solutions, which are coupled with ecologically engineered stream and wetland restoration solutions. The team provides outcome-driven and performance-based projects that are proven over an extended period using full-delivery and turnkey project delivery. Our team also includes experts in Florida's environmental and procurement laws, government affairs, budget, financial assurances, and grant and investor assistance to address every aspect for a successful turnkey solution for the County. Our team structure and qualifications are presented below.

Our Project Team will be led by RES, a national operating company focused on restoring a resilient earth for a modern world, project by project. As the nation's largest ecological restoration company, RES supports the public and private sector with solutions for stormwater and water quality, climate and flood resilience, and environmental mitigation. RES has a unique operating model for delivering ecological uplift, based on science-led design, full delivery, long-term stewardship, and guaranteed performance. RES designs, builds, and sustains sites that preserve environmental balance, lifting impaired ecosystems into restored health and ultimately, self-sufficiency. RES works closely and creatively with operators, landowners, and regulatory agencies to balance the needs of clients, communities, and resources. Our operating model is built around this approach. We employ teams covering the full project lifecycle, combining in-house analytics and technical expertise with implementational resources and capabilities.

As an operating company, RES looks at projects from a different perspective than a consulting company. Projects developed by RES are developed holistically; our view is not limited to just design or construction. By having this comprehensive project development view, we are able to take on the risks for performance and completion for which our clients are otherwise obligated using common project delivery methods like design-bid-build and design-build. RES leverages our relationships with investors and through active government affairs to provide private and public funding that fully support the RES technical solutions and outcomes required by our clients. And unlike our common competitors, our business model is set up to leverage costs across long-term work products versus by task, to allow for early adaptive management where needed and risk reduction in addition to providing our clients with long-term financial assurances that further insure our performance.

RES has helped clients successfully permit more than 4,000 projects, creating rich, high-functioning ecosystems as part of each permit. Though we have acquired several other ecological and environmental companies across the country since we were founded, we remain one company with a singular vision and proven track record of implementing the creative solutions sought by our clients. Our clients include local and state governments, large mining operators, energy production companies, energy transmission companies, Fortune 500 companies, departments of transportation, and other public sector organizations. RES now employs over 918 dedicated staff in over 51 operational hubs across the country including several offices in Florida. We have dozens of remote staff that do not report to an office and have staff that live and work locally near Gainesville, Florida.

RES delivers customized solutions tailored to our clients' needs. Our internal resources include environmental, health, safety, and security (EHS&S) staff, land acquisition specialists, wildlife biologists, hydrologic and hydraulic modelers, professional wetland scientists, aquatic ecologists, ecological engineers, hydrologists, QA/QC oversight teams, field ecologists, regulatory project managers, analysts, certified foresters, arborists, landscape architects, construction managers, superintendents, and field crew members as well as supporting project controls, government affairs, public relations, financial, legal, and analytical staff.

RES' experience includes:

- Restoration, enhancement, and preservation of 75,050 acres of wetlands and conserved land
- Restoration of over 650 miles of streams and surrounding floodplain
- Rehabilitation, preservation, and/or management of over 20,200 acres of special-status species habitat
- Currently conducting monitoring and maintenance (including invasive species management and hydrologic data collection and analysis) for over 50,225 acres of restored habitat
- Design, permitting, management, and development of 197 wetland, stream, species and conservation banks
- Delivery of 20,000 acres of custom, turnkey restoration solutions
- Design and construction of over 356 stormwater management facilities for the improvement of water management and water quality across urban and agricultural lands
- Reductions of over 352 tons of water quality nutrients
- Planting of over 25,664,000 trees across the country for improved habitat and restoration of wetland systems
- Development and operation of native plant nurseries in six states including the largest coastal nursery in Louisiana
- Development of restoration projects for the facilitation of compensatory mitigation and nutrient offsets for over 4,000 federal and state permits

Local Florida P3 Experience: RES has completed a site assessment and commenced design and permitting for a 400+ acre wetland and stream restoration P3 project to reduce nutrient loads entering the Peace River in partnership with Polk County in Florida.

We have proven experience in Florida implementing a P3 water quality restoration project, where we have:

1) identified the issue, 2) acquired the land, and 3) are developing cost-effective stream and floodplain wetland restoration designs to reduce nutrient loads to the maximum extent possible. We expect to move into the construction and monitoring phases, and the 25-year long operating and maintence phase shortly after we receive permits. This project is being implemented at a more expedited pace as compared to the traditional design-bid-build delivery method (see the Polk County Wilson Ranch P3 project example sheet in section ***1.2 Relevant Project Experience***).

To achieve these accomplishments, we draw on our dedicated, in-house resources and deep experience across all phases of ecological restoration projects in defining our project approach, which seeks to balance performance and cost in the manner that is most beneficial to our clients.

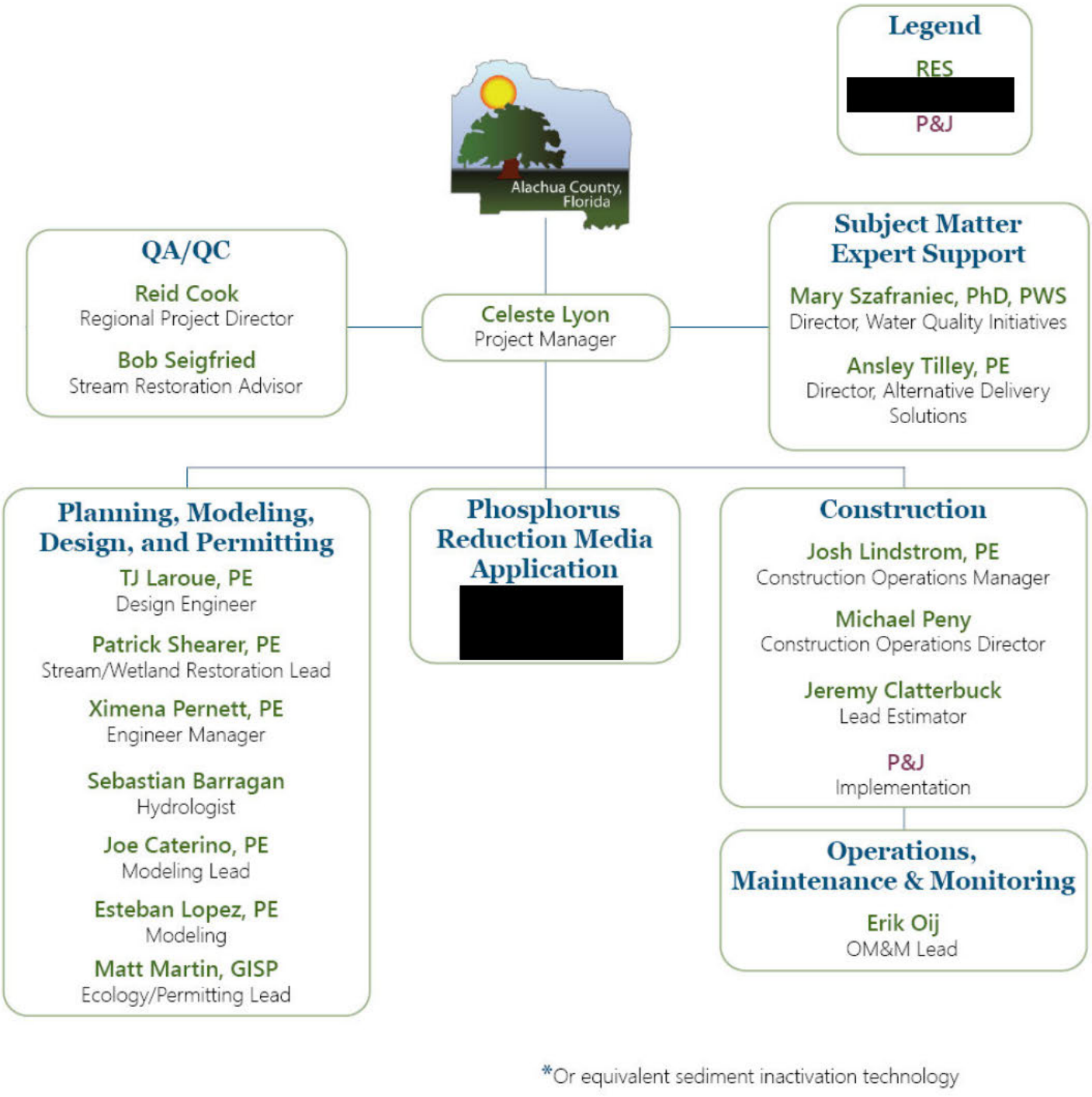
P&J, a Phillips Infrastructure Holdings, Inc. company, is a WBENC-certified woman- owned, heavy civil and infrastructure contractor established in 1952. P&J's core values and priorities—integrity, safety, quality, and production— guide their daily business practices. P&J is a people-first company, and they hold safety imperative above all other objectives. A safe workplace and workforce are the only acceptable way to do business, - and the only way to take care of the community, the people, and the environment. P&J's long-standing experience in Florida, with headquarters operating in the state since the 1980s, provides RES and the County with a capable, knowledgeable construction contractor team that understands Florida's unique and environmentally-sensitive geography. Our turnkey approach will allow RES and P&J to work through any nuances and potential issues during design, permitting and construction to ensure that the project is constructable.

Through their sister company, National Fleet Services (NFS), P&J has access to an extensive fleet of more than 750 heavy and specialized pieces of equipment. This equipment has the latest grade control technology allowing them to move material faster, smarter, and with more accuracy. NFS has two equipment service centers, one in Tennessee and one in Florida. They are manned by a workforce of highly skilled mechanics and service technicians that maintain their equipment, whether in the field or in their shops, which enables their team to control both costs and availability. P&J also maintains

national accounts with major equipment vendors which gives them the ability to efficiently and cost-effectively acquire and rent equipment.

[redacted]

1.1 Organizational Chart



Resumes for key personnel are located in ***Appendix A / Key Personnel Resumes***.

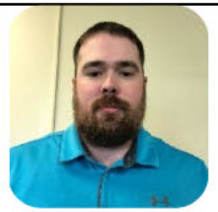
Table 1. Key Personnel

Key Staff Name & Role	Office Location	Project Availability / Involvement	Background/Expertise
 **Mary Szafraniec, PhD, PWS** SME / Director, Water Quality Initiatives	Tampa, FL	40%	Dr. Szafraniec has 20 years of experience designing ecological studies analyzing and characterizing water quality, hydrologic regime, and biological community structure to assess the effects of anthropogenic and hydrological modifications on ecosystem response, and to determine the effectiveness of restoration activities. Her springshed/watershed approach to ecosystem restoration includes investigations of source, cycling, removal, and legacy effects of pollutants to help determine cost-effective alternatives to meet TMDLs, RAPs, and NNCs for Florida waterbodies. She has developed numerous stream and wetland restoration projects to improve water quality in streams, lakes, rivers and lakes. Dr. Szafraniec was also the lead BMAP coordinator for the previous FDEP TMDL/BMAP Technical Support Contract so she is intimately familiar with FDEP's SOPs, rules, and regulations.
 **Ansley Tilley, PE** SME / Director, Alternative Delivery Solutions	Palm Beach, FL	30%	Ms. Tilley has over 18 years of experience in engineering and infrastructure design and construction. At RES, she is charged with creating unique water resources and full delivery solutions for government, agricultural, and private sector clients across the country. Ansley's experience spans public and private sectors providing solutions for land development, water resource public-private partnerships (P3), municipal land planning and development compliance, and developing large infrastructure for the Department of Defense along the east coast of the US and across the State of Florida. Before joining RES, Ansley held the position of Chief of State Policy for South Florida Water Management where she was responsible for the P3 Program, developing restoration solutions using delivery methods beyond the consultant driven model.
 **Celeste Lyon** Project Manager	Tallahassee, FL	70%	Celeste Lyon is an experienced environmental specialist and project manager with more than seven years of experience and a demonstrated history of working in the environmental sciences industry. Her expertise encompasses groundwater science, nutrient loading, source tracking, restoration planning, interagency collaboration, watershed management and assessment, and Basin Management Action Plans. She has experience with data collection, analysis, report preparation, and technical presentations relating to both surface and groundwater water quality. She is also highly skilled in conducting spatial analyses using ArcGIS.

Key Staff Name & Role	Office Location	Project Availability / Involvement	Background/Expertise
 **Thomas "TJ" LaRoue, PE** Design Engineer	Lakeland, FL	40%	Mr. LaRoue specializes in drainage improvement projects, water quality improvement/retrofit projects, water quality sampling, remediation, programming, and natural system restoration (i.e., wetlands and lakes). His experience includes project management, groundwater and soil sampling, construction supervision and remediation system maintenance. He has designed numerous water quality restoration projects to help meet TMDLs.
 **Patrick Shearer, PE** Stream/Wetland Restoration Lead	Fort Lauderdale, FL	40%	Mr. Shearer is a project manager and senior engineer experienced in ecological restoration design including wetland restoration, stream restoration, oyster restoration, and living shoreline projects in both freshwater and estuarine ecosystems. His technical experience is rooted in nature-based habitat restoration, resiliency and urban stormwater retrofits, green infrastructure, and water quality improvement projects related to impaired rivers, bays, and estuaries.
 **Ximena Pernett, PE** Engineer Manager	Palm Beach, FL	35%	Mrs. Pernett's areas of expertise includes water resources engineering, public-private partnerships, non-point source control programs and project management. She has actively participated in the development (planning, design, and permitting), implementation, operations, and optimization of Federal and State efforts to restore and protect water resources within the northern and southern Everglades watersheds including CERP, CEPP, NEEPP, and the SFWMD Regulatory Nutrient Source Control Program.
 **Joe Caterino, PE** Modeling Lead	Richmond, VA	45%	As a senior project manager and modeler with RES, Joe Caterino manages water resource engineering projects. His involvement begins at site selection, where he works with a team of environmental specialists to define environmental constraints of the property. Joe prepares water quality plans to reduce non-point source pollutants by implementing conventional or low-impact integrated management strategies. He has experience drafting floodplain studies to obtain local and federal permits for work within a regulated floodplain or floodway. Joe leads watershed management and planning studies, dam rehabilitation, erosion and sediment control design, floodplain studies including FEMA no-rise, CLOMR, and LOMR certifications, project bidding, on-site construction administration, and post-construction monitoring.

Key Staff Name & Role	Office Location	Project Availability / Involvement	Background/Expertise
 **Esteban Lopez, PE** Modeling	Orlando, FL	50%	Esteban is a senior engineer with experience in both the air and water resources fields. He has experience with regulatory compliance, staff development, quality assurance and control, project management and scheduling, contract review, and fee estimates. He is an expert in hydraulic design, groundwater simulation, and watershed analysis models such as HEC-HMS, HEC-RAS, EPA SWMM, Streamline Technologies ICPR, Aquarian Software CHAN, USGS MODFLOW, and Environmental Simulations Groundwater Vistas as well as the multi-purpose environmental analysis tool BASINS 4.
 **Matt Martin, GISP** Ecology/Permitting Lead	DeLand, FL	50%	Matt is a senior scientist with experience in environmental science, including planning, assessment, and restoration. He has experience coordinating complex projects and working directly with clients to achieve project goals and ensure timely delivery of project deliverables. His ecological experience includes environmental resource permitting, threatened and endangered species surveys and monitoring, wetland delineation, monitoring, and restoration, wetland mitigation site planning, monitoring and reporting, dune and coastal habitat monitoring and restoration, NEPA studies, biological monitoring for offshore pipeline cover remediation, lake management, and aquatic restoration.
 **Sebastian Barragan** Hydrologist	Miami, FL	60%	Mr. Barragan is a civil engineer with experience in water resource management, evaluation of hydropower and infrastructure projects throughout Latin America, modeling rivers, hydraulic structures, flood mapping, surface drainage systems and risk management. He is an expert in preparing professional studies and reports, modeling flow networks and analyzing dam break events. Sebastian regularly performs flow calculations for plans and maps production for a variety of water resources project.
 **Reid Cook** QA/QC	Warrenton, VA	20%	Reid manages and provides technical expertise and personnel supervision for projects related to stream restoration design, implementation, and monitoring. His specific responsibilities include overall project management; preparation of natural channel design stream restoration and mitigation plans; stream geomorphic condition surveys; stream attribute and condition assessments; construction administration and supervision of stream restoration projects; stream monitoring to evaluate project success criteria; and working with regulatory agencies. Reid has designed and/or managed over 65 stream restoration projects totaling approximately 336,000 LF. These projects have provided over 150,000 mitigation offset credits and approximately 9,000 nutrient reduction credits. He has performed over 1 million LF of stream channel assessments including habitat and biological evaluation, restoration potential and feasibility, and crediting. Reid has managed over 45,000 LF of stream restoration construction projects that have ranged from bank stability/ bioengineering to full-scale channel relocation.

Key Staff Name & Role	Office Location	Project Availability / Involvement	Background/Expertise
 **Erik Oij** Project Scientist	St Petersburg, FL	65%	Erik has 18 years of experience in the environmental consulting field working with public and private sector clients on a variety of environmental projects. He has significant experience in stream habitat assessments, benthic macroinvertebrate sampling, natural habitat identification and mapping, mitigation monitoring, water quality, sediment characterization, hydrological monitoring, and listed species surveys. He is certified in FDEP's rapid biological assessments, including habitat assessments, lake vegetation index (LVI), rapid periphyton survey (RPS), linear vegetation survey (LVS), stream condition index (SCI), and BioRecon assessments. Erik has been a project lead and field lead on numerous projects. For the past three years, he has been writing and providing proposals to clients and managing project budgets. Erik possesses four years of additional experience in research and technical writing for academic and governmental organizations in Florida and Georgia that focused on ecology, water quality, and analytical laboratory management.
 **Bob Siegfried** Stream Restoration Advisor	Richmond, VA	30%	Bob Siegfried has over 30 years of experience managing a wide variety of environmental projects throughout the Mid-Atlantic Region and recently in Florida. He has managed multiple statewide environmental contracts for the Virginia Department of Transportation (VDOT), as well as projects for local governments and municipalities. Mr. Siegfried's experience includes environmental impact statements and assessments for compliance with federal, state, and local regulations. He has led watershed planning and water quality monitoring programs and prepared conceptual and final engineering design services for innovative stormwater, non-tidal and tidal wetlands, and stream restoration/mitigation. To date, Bob has completed over 100,000 LF of stream assessments, 15,000 LF of stream design, and 100+ acres of wetland design.
 **Josh Lindstrom, PE** Construction Ops. Manager	Tampa, FL	45%	Mr. Lindstrom's experience includes water resource and geotechnical engineering design, existing facilities inspection, operations, and maintenance planning, construction quality control, construction self-performance, and contract management. Josh is a capable, flexible leader of multidisciplinary teams with a proven track record of successfully overcoming challenges to meet the specific needs of each project. He has led teams on engineering design and planning-level scientific studies for state agencies.

Key Staff Name & Role	Office Location	Project Availability / Involvement	Background/Expertise
 **Michael Peny** Construction Ops. Director	Warrenton, VA	15%	As Regional Operations Director, Michael manages and provides senior construction implementation oversight on a wide range of projects including wetland, stream, and shoreline restoration to conventional and innovative Surface Water Management (SWM) facilities, including retrofit of wet or dry retention ponds and installation of low impact development (LID) features such as raingardens, bio-swales, sand filters, and wetland enhanced facilities. Michael is responsible for managing project personnel, allocating resources to various projects, and ensuring project schedules and budgets are met. To date, Michael has led his team to complete over 20 miles of stream restoration, 400 acres of wetland creation, and retrofit over 350 SWM facilities.
 **Jeremy Clatterbuck** Lead Estimator	Warrenton, VA	25%	As region lead estimator for RES, Jeremy Clatterbuck develops formal bid pricing for multi-million-dollar ecological construction projects including stream and wetland restoration, LID installation, shoreline stabilization, stormwater BMP retrofits, etc. He strategically develops overall pricing tabulations to ensure contract profitability while remaining competitive in the industry. Jeremy's role requires plan set analysis and creative thinking in developing full pricing for complex, various project types. Contract experience includes private, local, state, and federal bids, both in indefinite delivery, indefinite quantity and firm fixed price/lump sum.

1.2 Relevant Project Experience

Wilson Ranch Stream and Wetland Restoration Project

Polk County, FL

Florida's Heartland Region includes some of the of the fastest growing areas in Florida. In addition to being highly desirable for new residents, it remains a place rich in resources and the location of the headwaters of the Peace River. Continued growth and land use changes in the area have weighed heavily on the region's natural resources, water resources, both groundwater and surface water.

As a result, the region is now included as a Water Resource Caution Area for water supply and has over 50 U.S. Environmental Protection Agency (U.S. EPA) designated impaired water bodies for poor water quality, of which several of these water bodies have now received Total Maximum Daily Load (TMDL) designations for contaminant contributions into those water bodies. The Heartland region has taken an active role in seeking solutions and developing plans to improve the impaired water bodies, even prior to the implementation of TMDLs by the U.S. EPA and the Florida Department of Environmental Protection (FDEP).

Recognizing the "heavy lift" placed on the region to provide solutions to reduce nutrients in the regional surface water system within the impaired watersheds of Peace Creek and Saddle Creek, RES developed a concept plan for a turnkey stream/wetland hydrologic restoration project that includes, stream, wetland, and floodplain restoration to improve water quality, conservation, water supply and recharge opportunities, and enhance and preserve the natural system and improve resiliency and sustainability for the region. The project also produces long-term, lasting effects through a wide range of environmental benefits on approximately 400 acres of RES-owned, historic pasture lands.

The project will provide additional sheet flow across a restored, vegetated floodplain area when stream conditions in the project area exceed bank full. The sheet flow across the restored vegetated floodplain wetland areas promotes biogeochemical processes to remove excess Total Phosphorus (TP) and Total Nitrogen (TN) from the system prior to being returned through the natural hydrologic cycle via recharge, seepage, and evapotranspiration. The reduced nutrient loads in the system will ultimately support improved water quality conditions downstream in Charlotte Harbor Estuary. Our proposed approach to restoration will return a more appropriate and natural cross section and profile to the channel, which will stabilize its banks, encourage more out of bank flows into the restored floodplain, and significantly

AT A GLANCE.

Project Size
~400 acres

Contract Period
2023–2040, includes 10-year monitoring period, and 25-year operation and maintenance period

Project Highlights

- Public-Private Partnership (P3) Turnkey Project Delivery
- Hydrologic/floodplain restoration of 150+ acres
- ~ 9,000 LF stream restoration and enhancement
- Nutrient removal capability of ~ 1+ metric ton of TP and 2+ metric tons of TN annually
- 350+ acres wildlife habitat restoration and enhancement
- 350+ acres wetland restoration and conservation
- Land acquisition, design, permitting, construction, monitoring, and maintenance by RES Team

Key Staff

- Mary Szafraniec, PhD, PWS
- Ansley Tilley, PE
- Celeste Lyon
- TJ LaRoue, PE
- Patrick Shearer, PE
- Ximena Pernett, PE
- Joe Caterino, PE
- Esteban Lopez, PE
- Matt Martin, GISP
- Sebastian Barragan
- Bob Siegfried
- Reid Cook
- Josh Lindstrom, PE
- Michael Peny
- **P&J**

improve the range of aquatic habitat through the introduction of large wood and woody debris back into the system. This will fundamentally restore the critical functions and characteristics associated with this stream type and introduce additional biogeochemical conditions to induce processes that improve water quality and reduce nutrient contributions through stream and wetland ecosystem restoration activities.

RES is designing, building, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. RES restoration field technicians are also providing full time invasive, exotic, and nuisance vegetation monitoring and management activities for over 150 acres of densely forested wetland area of the project.

Wancopin Creek Stream Restoration

Virginia Department of Transportation | Loudoun County, VA

AT A GLANCE.

Project Size
~16,195 LF

Contract Period
2018 – Present, includes 10-year monitoring period

Project Highlights

- Covers nearly 9 miles of streams, including 3 miles of Wancopin Creek
- Broker 4,300 lbs of Phosphorus reduction credit
- Provides direct TMDL solution to VDOT
- RES performed all land acquisition, design, permitting, construction, monitoring, and maintenance work

Key Staff

- Bob Siegfried
- Reid Cook
- Michael Peny
- Jeremy Clatterbuck

The Wancopin Creek Stream Restoration is an innovative turnkey stream restoration project performed by RES on VDOT's behalf. The Project is enrolled as part of VDOT's Bay TMDL Action Plan, with the associated nutrient reductions credited toward compliance with the Bay TMDL Special Conditions applicable to VDOT as a regulated MS4 under Virginia's MS4 General Permit Program. This project was completed under RES' VDOT Statewide MS4/TMDL Implementation & Related Activities On-Call Contract.

This project involves the restoration of approximately three miles of degraded channel along Wancopin Creek, as well as several unnamed perennial and intermittent tributaries to Wancopin Creek and Goose Creek. The project is located on a 900+ acre private property near Middleburg, VA. As the Project is situated on private land, RES has acquired all rights necessary to implement the Project and seek credit certification on behalf of VDOT.

RES projects that the restoration work will deliver approximately 4,300 lbs per year of Total Phosphorus (TP) reduction. Monitoring of the constructed reaches in Phase I has demonstrated greater than 95% efficiency in terms of load reduction, significantly higher than the 50% default rate outlined in the Expert Panel guidance for the Chesapeake Bay Protocols.

A unique aspect of this project was that the remaining streams on the property have also been restored or preserved, as necessary, as part of the RES-owned Wancopin Creek Mitigation Bank, generating credits to offset impacts authorized under Clean Water Act Section 401/404 permits. Mitigation activities on the Bank site included 4,152 linear feet (LF) of additional stream restoration, 95 acres of riparian buffer planting, 32 acres of riparian buffer restoration, and 151 acres of riparian buffer preservation, generating a total of 21,557 stream credits. In addition, 50,000 LF of fencing was used to exclude livestock from the streams and riparian buffer areas within the VDOT Project and Bank limits.

The restoration measures implemented by both the VDOT and mitigation bank portions of the project were based on a holistic, large-scale evaluation of the entire property and the contributing and downstream watersheds were selected based on their ability to produce ecosystem-level restoration benefits. Prior to proposing either the Project or the Bank, the entire property was comprehensively evaluated to determine the existing in-stream and riparian conditions of all streams, the level of degradation present, and the onsite and upstream watershed stressors. This information was used to develop a holistic conceptual plan for the entire site, designing restoration activities that were appropriate for the condition of each stream reach, which would result in the greatest ecological benefit from an individual site and watershed perspective.

Full Delivery Stream Restoration – Corvias & Clean Water Partnership Phase 1 & 2

Prince George's County, MD | Clean Water Partnership

Post-Construction, Hillmeade

AT A GLANCE.

Project Size
27,294 LF

Contract Period
Construction: 2019 - 2021

Project Highlights
- Generated approximately 568 Impervious Acre Credits for Prince George's County
- Turnkey Delivery
- Part of a holistic Public-Private Partnership

Key Staff
- Joe Caterino
- Reid Cook
- Michael Peny
- Jeremy Clatterbuck

RES is providing stream restoration credits to Prince George's County Maryland Clean Water Partnership (CWP) program. The CWP is a Public-Private Partnership formed to meet the US Environmental Protection Agency's (EPA) Clean Water regulatory requirements. The projects delivered through this contract will be enrolled as part of Prince George's County Bay TMDL Action Plan, with the associated nutrient reductions credited toward compliance with the Bay TMDL. RES designed and constructed four projects totaling 27,294 LF (~5 miles) of restored channel throughout the County. These four projects generate approximately 568 Impervious Acre Credits for Prince George's County.

To execute these projects, RES performed existing site assessments and geomorphic surveys. Using these data along with Natural Channel Design philosophies and published reference data, RES designed bankfull channels that provided stable banks and frequent floodplain connectivity. Additionally, RES ensured that there were no offsite floodplain rises and performed all necessary hydrologic and hydraulic modeling. RES acquired all state, federal and local permits necessary to execute the proposed work.

Upon completion of the design and permitting portion of the projects, RES' construction staff used a team of subcontractors and in-house construction crews to execute the projects. During construction, RES' design staff remained an integral part of the team making frequent site visits, attending multiple site meetings, and ensuring the proper execution of the design.

Pre-Restoration Erosion, Crain

HILLMEADE

The first project designed and constructed under this contract was the Hillmeade Stream Restoration Project. This project restored 2,862 LF of degraded channel along Horsepen Branch and unnamed tributaries. Horsepen Branch is located in a wooded parcel surrounded by a golf course and single-family residential areas and is traversed by multiple utilities. At the terminus of the project area, Horsepen Branch drains approximately 473 acres of suburban development.

Construction began in June 2020 and was substantially complete by August 2020. RES expects that the restoration work completed will deliver reductions per year of 211 pounds of Phosphorus, 201 tons of sediment, 821 pounds of Nitrogen, and yield 79.5 Impervious Acre Credits.

Post-Construction, Crain

CRAIN

In a period of approximately 6 months, between August 2020 and February 2021, RES restored 4,695 LF of degraded stream channel. To achieve a stable stream system, this restoration plan was completed using natural channel design principles and utilized the installation of in-stream structures and channel grading to control elevation and flow patterns. The stream restoration generated 93.9 Impervious Acre Credits (IAC). In addition to IAC, the project will result in the reduction of approximately 1,468 pounds of Nitrogen, 676 pounds of Phosphorus, and 644 tons of sediment annually.

Post-construction, Black Swamp Creek

TRIBUTARY TO MATTAWOMAN CREEK

The Tributary to Mattawoman Stream Restoration Project restored 4,926 LF of degraded stream channel, generating 98 Equivalent Impervious Acre Credits for CWP / Prince George's County. The project is estimated to reduce approximately 416 tons of sediment, 437 pounds of Phosphorus, and 949 pounds of Nitrogen annually. Construction was completed in May 2021.

BLACK SWAMP CREEK

Completed in June 2021, the Black Swamp Creek Stream Restoration, the largest of the projects completed under this contract, restored 14,810 LF of degraded stream channel, providing the Clean Water Partnership / Prince George's County with 296 IACs. Based on the Expert Panel Revised Interim Rates, the project should remove 1,594 pounds of Phosphorus, 1,517.85 tons of sediment, and 3,461 pounds of Nitrogen annually.

Pikes Branch Stream Restoration

Virginia Department of Transportation | Fairfax County, Virginia

RES holds a five-year, open-end contract with VDOT to provide technical services for the development and implementation of projects to meet TMDL Action Plans in support of VDOT's MS4 Program. In-house services provided by RES under this contract included ecological assessment, regulatory permitting, design, construction, construction oversight, and maintenance and monitoring services. The Pikes Branch Stream Restoration was one of 14 projects completed under this contract.

The project involved the restoration of approximately 4,300 linear feet of stream channel to reduce TSS, TP, and TN loads. The project restored stream bank stability in a deeply incised, highly urban stream channel with stream banks often more than 10 feet tall. Services provided by RES include bank stability (i.e., BEHI/NBS) field data collection and pollutant load calculations, site survey, hydrology and hydraulic studies, geomorphic stream assessments, stream restoration design, fish passage assessment, permitting, SWPPP and E/S inspections and construction. This project included a detailed FEMA floodplain study as well as outreach to Fairfax County and local stakeholders.

This project has a 1.5 square mile urban watershed, with storm flow delivered through over 25 separate stormwater outfalls. Each outfall was retrofitted with either an energy dissipation pool or step/pool outfalls to reduce scour in the main channel. The channel design provided a wide floodplain upon which to dissipate stormwater flows and reduce channel erosion. The design profile re-buried two sanitary sewers which were exposed in the channel and avoided conflicts with a potable water line.

AT A GLANCE.

Project Size
4,300 LF

Contract Period
2017-2021

Project Highlights

- ~3,700 lbs TP/yr removal
- ~9,200 lbs TN/yr removal
- Complex urban hydrology including FEMA studies
- Stabilized 25+ stormwater outfalls, including slip lining 7 stormwater pipes
- Extensive public outreach by RES and VDOT to address concerns over tree loss.
- Three years from start of design to completion of construction

Key Staff

- Bob Siegfried
- Joe Caterino
- Michael Peny
- Jeremy Clatterbuck

The project included thousands of native trees and shrubs, as well as hundreds of pounds of native seed mix. The floodplain contains a mixture of upland areas, wetland seeps, and vernal pools, providing habitat for a wide range of species including numerous amphibians, birds, mammals, and pollinators.

The project also included addressing failing infrastructure including the reconstruction of 1,000 LF of a local road experiencing geotechnical failure due to marine clays and slip-lining seven failing corrugated metal stormwater pipes, thus avoiding road closures. RES provided emergency stabilization when another stormwater pipe failed on a major road giving VDOT time to prepare for a permanent solution. The project also used reinforced cassion to stabilize 350LF of road.

Active construction

Post-Restoration

2.0 Volume of Previous Work (VOW) awarded by the County

RES has had no prior work awarded by the County, however, two members of the project team, Mary Szafraniec and Celeste Lyon, both have experience working with and for the County on several projects, while at a previous firm. Project titles are provided below.

- Mill Creek Sink Water Quality Improvement Project, Alachua County, FL
- Hornsby Spring Restoration and Dissolved Oxygen Study, Alachua County, FL
- Fertilizer Grant, Alachua County, FL

3.0 Understanding of the Project

3.1 Background and Understanding

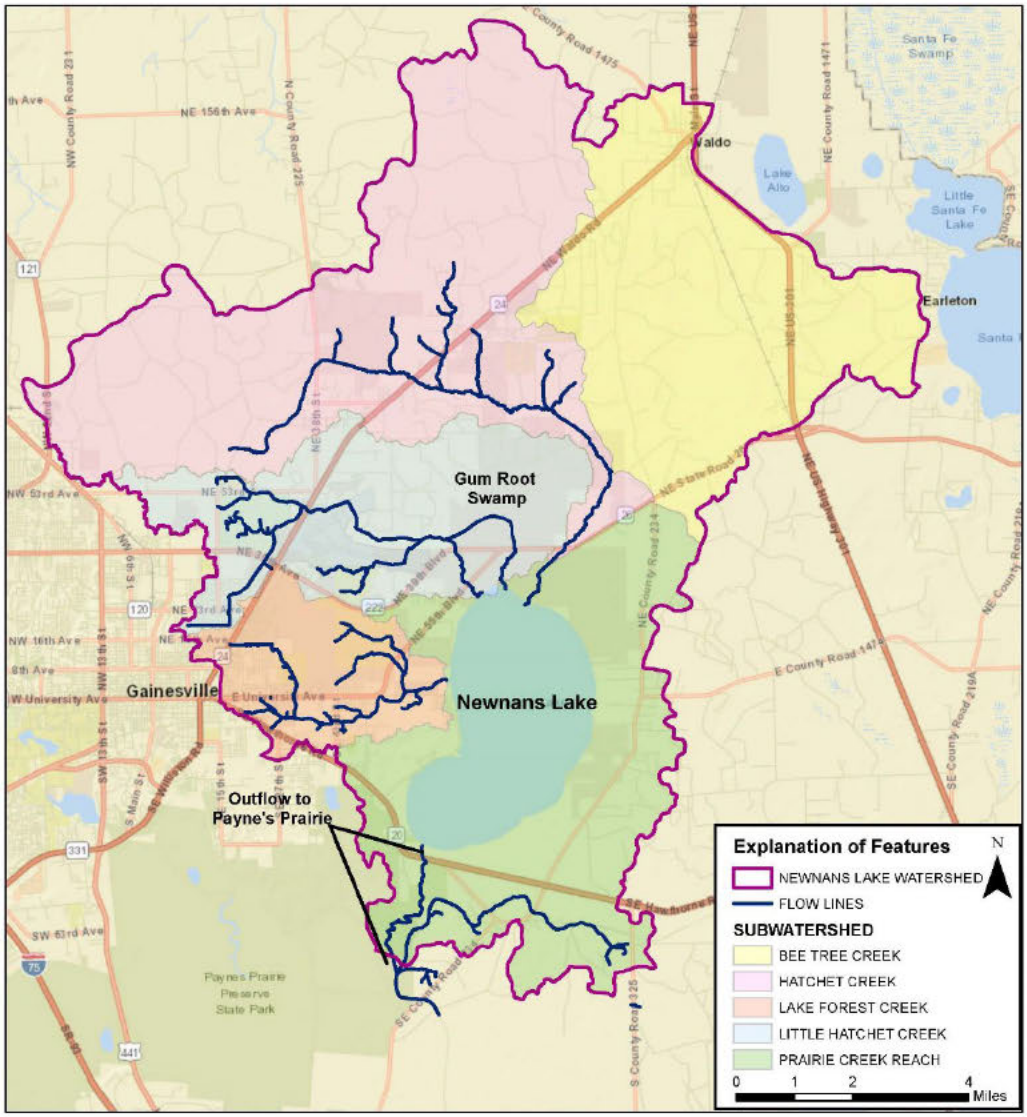


Figure 1. Newnans Lake Watershed Map

Newnans Lake is an approximately 6,500-acre, shallow lake situated in Alachua County. Its watershed spans approximately 74,000 acres where land use is dominated by silviculture and wetlands. The lake itself is fed primarily by surface runoff and inflow from three streams to the North and West. Hatchet Creek contributes the most flow to the lake followed by Little Hatchet Creek and Lake Forest Creek. Little Hatchet Creek, near the Gainesville Regional Airport, drains into Gum Root Swamp where it branches into two separate flow paths, both named Little Hatchet Creek, before ultimately discharging into Newnans Lake (see ***Figure 1***). Surface water discharges from the lake's only outlet, Prairie Creek, where the majority of outflow is routed to Payne's Prairie, while the remaining water flows toward Orange Lake via Camp's Canal.

[redacted]

Newnans Lake has been used by humans for thousands of years and is a significant archaeological site containing more than one hundred prehistoric canoes[1]. While sediment studies have shown that the eutrophic condition of the lake has existed for most of its history[2] (Holly 1976), changes in the watershed and management of the lake have led to hypereutrophication. The geology of the area is dominated by the phosphate-clay-rich Hawthorn Group, which acts as a semi-impermeable clay layer separating surface water from the aquifer. Sedimentation of the eroded Hawthorn Formation may be substantial in Gum Root Swamp as significant sediment plumes from Little Hatchet Creek into the swamp have been observed and documented. Land use and stream corridor changes have accelerated and exacerbated erosion into the Hawthorn Formation and led to exponential increases in soluble reactive phosphorus (SRP), the geologic and most bioavailable form of phosphorus.

Historically, Florida's natural landscapes allowed pollutants entrained in surface water runoff to be attenuated across the landscape, providing for natural filtration and water quality treatment prior to the water being returned to the surface waters and aquifer system. Wetlands interlaced across the natural system provided habitat and ecosystem services. Silviculture represents a large part of the land use in the Newnans Lake watershed. Extensive hydromodification of the natural conveyance features related to silviculture practices has reduced the resiliency and effectiveness of the watershed to treat the water, thereby causing growing concern and driving the need to improve water quality and quantity conditions at the watershed scale. Continued growth and land use changes in the area have weighed heavily on the region's natural resources, particularly water resources.

As a result, Newnans Lake, once renowned for its sportfishing and unique ecological resources, is now on the verified list of impaired waters for the Ocklawaha Basin and has a designated Total Maximum Daily Load (TMDL) for total nitrogen (TN) and total phosphorous. (TP). In 2014, the Phase 2 Orange Creek Basin Management Action Plan (BMAP) was adopted by the Florida Department of Environmental Protection (FDEP). The plan identified Newnans Lake as one of the waterbodies within the Orange Creek Basin that would not meet its TMDL due to a lack of adequate management strategies to reduce nutrient loading. A 2019 BMAP amendment assigned loading reductions to responsible entities for Newnans Lake which included Alachua County. The nutrient load reductions allocated to the County include 588 pounds of total phosphorus per year (lbs-TP/yr) and 5,239 pounds of total nitrogen per year (lbs-TN/yr).

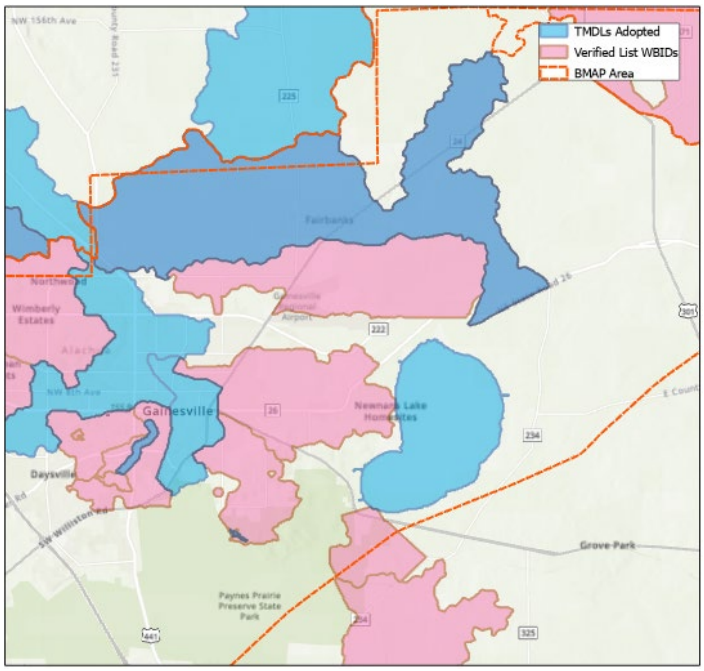


Figure 2. Impaired Waterbodies Surrounding Newnans Lake

A major step toward water quality improvement in the lake is addressing external loading from the tributaries that feed it. The County, along with partners, has submitted plans to the FDEP for the Newnans Lake watershed with ongoing or recently completed restoration activities. The County sponsored Newnans Lake Improvement Initiative aims to identify the most cost-effective restoration projects and lays the foundation for taking advantage of future funding opportunities and grants to improve water quality in the region. With funding from the Alachua County Forever portion of Wild Spaces and Public Places, Alachua County finalized the purchase of approximately 1,200 acres in the Newnans Lake watershed. The activities outlined in the 2019 BMAP Amendment, in conjunction with other completed and proposed stormwater and wastewater improvement projects, will improve water quality within the watershed, but these efforts are unlikely to achieve full restoration of impaired waters. Additional projects are necessary to address water quality impairments as a result of past practices and to prevent future degradation of an already overly stressed resource.

[1] Wheeler, R. J., Miller, J. J., McGee, R. M., Ruhl, D., Swann, B., & Memory, M. (2003). Archaic Period Canoes from Newnans Lake, Florida. American Antiquity, 68(3), 533–551.
[2] Holly, J. B. 1976. Stratigraphy and sedimentary history of Newnans lake. M. S. thesis, University of Florida: 102 p.

4.0 Project Approach

4.1 Concept & Approach

Recognizing the "heavy lift" that has been placed on the County to provide solutions to reduce nutrients in the regional surface water system within the Newnans Lake watershed, RES developed a plan for a turnkey solution, implemented through the P3 statute, for improving water quality and conserving and preserving the natural system for a sustainable, long-term outcome.

The plan produces a wide range of environmental benefits [redacted] RES is positioned to support Alachua County in performing the project on whichever lands are most preferred. For private lands, RES will gain direct control of suitable parcels to perform the work for the County, either by land acquisition and/or by obtaining easements. Should the public lands that have already been secured by RES remain available for the project, RES will continue to support the County to secure the required agreements for developing the project on the identified public lands.

Hatchet Creek is the largest contributor of flow to Newnans Lake and has also been identified as a significant source of phosphorus loading. A section of the creek has been straightened, deepened and functionally cut off from its floodplain and associated wetlands. The proposed project will restore hydrologic function and floodplain connectivity through stream and wetland restoration. [redacted]

Restoration of stream function and floodplain connectivity will provide hydrologic improvements, flood resiliency, and nutrient reduction through increased wetland area and contact time with wetland systems. [redacted]

The proposed overall watershed restoration project will greatly reduce the nutrient loads delivered to the lake and reduce algal proliferation.

See ***Appendix B / Concept Plan***

4.1.1 Permitting and Monitoring

The comprehensive restoration of the Newnans Lake system project will require several permits prior to construction, which the RES team will obtain as part of the project. Required permits will include a USACE Section 404 permit as a result of dredge and fill activities during construction and a Florida Environmental Resource Permit (ERP) to demonstrate the project will not impact surrounding properties, and that discharges from the project are in accordance with the State of Florida's stormwater rules as identified in the SJRWMD ERP handbook. Further, it is anticipated that the project will be monitored to

document the achievement of water quality performance goals. RES is experienced in performing monitoring and assessment for flows, sediment, vegetation, and water quality and will perform the necessary monitoring with the appropriate associated equipment to ensure requirements are met.

4.1.2 Operations and Maintenance

At the completion of construction, RES will transition into the operations and maintenance phase of the project, [redacted] where RES will be responsible for all permit compliance and reporting, infrastructure maintenance, and repair or replacement of any part of the facility and vegetation that is not performing. Incorporation of long-term maintenance and monitoring of the project ensure that the project outcome will meet and sustain the stated goals and remain successful.

4.1.3 Facility Transition and Turnover

Once the operations and maintenance phase of the agreement between RES and the County is complete, RES will return operations and maintenance activities back to the County. The operations and maintenance of the facility will be in a sustainable condition where basic maintenance activities should be all that remain on the project. As part of the transition, RES will ensure that the County has all necessary rights of access [redacted] The County may elect not to transition the operations and maintenance from RES to the County at the end of the agreement and may choose to contract or extend RES' operations and maintenance services under a separate agreement or by way of pre-negotiated terms within the agreement proposed by this proposal.

4.2 Innovative Design Techniques and Cost-Reduction Terms

[redacted] One aspect of the proposed project is to employ highly innovative methods to significantly reduce phosphorus loads [redacted]

In addition to proposing highly cost-effective innovative design techniques to reduce costs to meet load allocations, RES is also facilitating significant cost reductions to the County by [redacted]

4.3 Project and Deliverable Schedule

A schedule is provided below that summarizes the work plan milestones and associated deliverables for the project.

[redacted]

*** Assuming that Comprehensive Agreement is executed with Alachua County during Q2 2024, all end dates subject to change based on notice to proceed. Q1= Jan-Mar, Q2= Apr-Jun, Q3=Jul-Sept, Q4=Oct-Dec.**
**** All Deliverables are subject to change based upon the County's preferences that will be confirmed during scope development.**

4.4 Estimated Project Cost

Preparing for a large project under traditional procurement strategies requires clients to be prepared for inflation and escalation throughout the life of the project. Projects under traditional procurement methods also place all price risk on the client as projects step through the design, bid, build or design-build process; and clients are responsible for all changes in cost whether requested or not. Payment structures under traditional procurement methods inherently leave all price volatility on the client, with the client fully responsible for all unknowns and variations in construction resulting from changes in project design before and during construction. However, the RES model provides the County with a pricing structure that [redacted]

To ensure adequate resources are available as the project progresses through development to operations and maintenance, RES has evaluated the timeframe for funding needs and aligned funding sources and strategies to ensure those needs are met.

As part of our turnkey solution, RES has assembled a team comprised of experts in the technical development of the project and the business and governmental affairs needed to navigate the challenges of bringing a regional solution to the County that reduces the need for the County to exercise its resources, both time and money. [redacted] needed to obtain sufficient funding to implement the project. [redacted]

[redacted]

[redacted]

[redacted]

The estimated range of costs presented in **Table 3** are assumed for a range of restoration options that will be based on the County's preference of scope. The estimated cost range is subject to change and final pricing and costs will be negotiated during the contract negotiation period. [redacted]

1. [redacted]

[redacted]

4.4.1 Milestone Payment Schedule

A schedule is provided below that summarizes the estimated milestone payments based on a percent of total project cost. Specific payment amounts per milestone will be derived after negotiation of final scope with the County.

[redacted]

4.5 Financing - Insurability and Financial Stability

RES is in a strong financial position and has the financial wherewithal to self-finance project-related cash flows. RES' asset and cash position, as well as its credit capacity, enables a strategy of managing project capitalization without third-party financing, thus providing the County with a lower overall project cost.

In addition to a strong balance sheet, RES maintains an aggregate bonding capacity of greater than $700 million with A+ rated sureties which can be used to securitize both the financial assurances required by the regulatory agencies (if applicable) and the contractual liabilities associated with delivering on operational obligations over time. Whether providing bonding for regulatory financial assurances or directly to our clients, these performance bonds cover both the installation phase and the maintenance phase of each given project.

One of our surety broker's selected surety organizations provided a reference letter (see ***Appendix C / Surety Letter***) specific to this project, however, amongst all sureties, we maintain $700M in aggregate capacity and $100M per project.

A copy of RES' Evidence of Insurance is provided in ***Appendix D / Evidence of Insurance.***

4.6 Community Benefit

The benefits associated with this proposed public-private partnership will be substantial and diverse. Ecological restoration, enhancement and preservation activities have been shown to create and/or improve economic, recreational, aesthetic, and educational resources enjoyed by all members of the community.

RES proposes to enter into a Partnership with the County to complete a series of ecosystem restoration activities to aid in achieving TMDL reduction requirements, all of which will occur on property controlled by SJRWMD. There are multiple benefits to this Partnership as described elsewhere in this submittal. Specifically, the proposed Partnership will: 1) relieve both the County and SJRWMD of the day-to-day burden of managing stream and wetland restoration/preservation projects, 2) reduce the cost and speed the delivery of restoration, 3) get closer to achieving water quality improvement goals, and 4) place the responsibility of managing the restoration projects in the hands of a team of restoration specialists with decades of experience delivering turnkey project outcomes.

Aside from the benefits associated with the actual setup of the agreement and management of resulting restoration areas, there are numerous tangible benefits tied to the physical manifestation of these projects. These range from the direct benefits of floodwater reduction and minimization of damage associated with flooding, protection of utility assets and other infrastructure as it pertains to streambank erosion or floodwater exposure, and a minimization of downstream/ in-lake sedimentation, to a host of ecological benefits. These latter benefits include, but are not limited to, improvements in water quality while providing healthy aquatic and terrestrial habitats utilized by a wide spectrum of wildlife.

As areas are enhanced and restored, they become more attractive for and accessible to recreational activities such as hiking, birding, and educational eco-tourism. Increased recreational activities may bring more people into contact with interpretive signage and an immersive experience in nature that can enhance the educational value and overall experience of the user. Signage can provide various educational content including the functions of wetlands and streams, flood and pollutant attenuation, the importance of restoration activities, and a summary of the local flora and fauna typically observed in the area. Ultimately, the proposed ecological enhancements will improve water quality downstream in Newnans Lake. This will not only aid the County in achieving TMDL/BMAP reductions but will enhance the aesthetic value of the lake, reducing persisting algal blooms and providing opportunities for recreational activities such as boating and fishing.

Our proposed ecological enhancement project will work to improve stormwater flows and alleviate flooding concerns through increased stormwater retention in floodplains and new wetland areas and through creating additional flood and stormwater capacities. This project will reduce negative downstream impacts by balancing sediment transport, thereby reducing sediment and nutrient accumulation in Newnans Lake.

The ecological benefits resulting from this Proposal typically include minimizing sediment loss from bank erosion, reconnecting a stream to its floodplain, and providing improved in-stream and riparian habitat. Restoration activities have been proven by RES to rehabilitate habitat for fish, benthic macroinvertebrates, and other aquatic fauna on a significant scale. Restored and protected areas will provide a host of ecosystem services, including water quality restoration, floodplain restoration, groundwater recharge, floodplain nutrient processing, and long-term carbon storage.

4.7 Transfer of Risk

Together, we can protect ongoing operations and reduce risks to the County and RES by having competent implementation partners for ecological restoration projects with the experience and resources necessary to handle issues when they arise. To address ongoing risks and liabilities, RES can provide liability transfer for our clients through one, or a combination, of several mechanisms including contractual indemnification and surety bonding for the life of our agreement. This is an assurance that very few in this industry can provide.

RES will begin by reviewing issues and developing design and development strategies that inherently reduce risk in project performance, operations, and long-term maintenance. As a full delivery project provider, we view projects from a "long-term viewpoint" since our work and our obligations to the client and project do not stop when construction is complete. We carry the obligation through several years of performance and permit compliance. During this period, all maintenance issues and adaptive management are RES' responsibility to resolve technically and financially. Thinking, designing, building, and maintaining with the mentality of an owner/operator (albeit temporarily, as in this case), leads to better design and operational decisions for a durable, lower maintenance outcome. Our in-house experts and competent implementation partners address ongoing risks and liabilities with the experience and resources necessary to handle issues when they arise.

RES will be responsible for each stage of development, inclusive of, planning, permitting, construction, operation, monitoring, and maintenance until project performance goals are consistently achieved. Furthermore, our delivery model establishes a contractual obligation for the performance requirements of each project taking full responsibility and ownership for delivery.

[redacted] RES' commitment to maintenance spans the entire performance period of the project until the final closeout and project turnover. The entire contract between the County and RES is accomplished without change orders while addressing all adaptive management and remedial actions necessary to maintain performance compliance.

5.0 Procurement

5.1 Accessing RES through Competitive Procurement

In 2013, the Florida legislature recognized that public resources were inadequate to meet growing capital and operational needs and Public Private Partnerships (P3s) can meet public "needs by improving the schedule for delivery, lowering the cost, and providing other benefits to the public."

The private sector, as a partner, can provide local and state governments with additional capabilities and the flexibility necessary to meet ever-expanding requirements and responsibilities, even when resources continue to be limited. Florida Statute (F.S.) Section 255.065 provides municipalities or public entities with a streamlined and efficient process for implementing P3s while protecting the interest of the public entity and ensuring the procurement remains competitive.

Under this legislation, qualified facilities and/or projects must:

- Serve a public purpose,
- Be used by the public at large, or
- Support an accepted public purpose or activity.

As part of this process, Section 255.065(3) (F.S.), allows public entities to receive unsolicited proposals from the private sector. The public entity may choose to enter into a comprehensive agreement with a private entity for building, upgrading, operating, ownership, or financing projects or facilities, after completing the following steps.

- To ensure competitive engagement, publish a public notice stating that an unsolicited proposal was received, and the public entity will now accept other proposals for the same project or facility. Other proposals must be submitted 21 to 120 days from initial publication.
- The public entity will review, evaluate, and rank all proposals received.
- The public entity will negotiate with the highest-ranked private entity submitting a qualified proposal within the notice period. If negotiations fail, the public entity may negotiate with the second-ranked firm.

Should the County accept this unsolicited proposal, RES is prepared to begin contract discussions to further define the roles and responsibilities for RES and the County. We are fully prepared to conform to the standard set forth in Florida Statutes prescribing and defining procurement process for unsolicited proposals under F.S. 255.085.

Appendix A / Key Personnel Resumes

Appendix A / Key Personnel Resumes

Mary Szafraniec, PhD, PWS

Director, Water Quality Initiatives

Dr. Mary Szafraniec's extensive ecological assessment and restoration background includes design and implementation of marine and freshwater ecological monitoring and assessments, springshed and watershed pollutant evaluation and restoration, and within-system ecological restoration such as sediment removal or inactivation, hydrologic alteration, invasive vegetation or algae removal, and native vegetation planting. Dr. Szafraniec has 20 years of experience designing ecological studies analyzing and characterizing water quality, hydrologic regime, and biological community structure to assess the effects of anthropogenic and hydrological modifications on ecosystem response, and to determine the effectiveness of restoration activities. Her springshed/watershed approach to ecosystem restoration includes investigations of source, cycling, removal, and legacy effects of pollutants to help determine cost-effective alternatives to meet TMDLs, RAPs, and NNCs for Florida waterbodies.

She previously served as one of the SWFWMD's top springs experts. Dr. Szafraniec was also the lead BMAP coordinator for the previous FDEP TMDL/BMAP technical support contract so she is intimately familiar with FDEP's standard operating procedures, rules, and regulations.

AT A GLANCE.

Years of Experience
20 years

Years with Firm
1

Office Location
Tampa, FL

Education
- Ph.D., Environmental Engineering Sciences
- Graduate certificate in Wetlands Science
- MS, Environmental Engineering Sciences
- BS, Biology

Certificates | Licenses
- Professional Wetland Scientist, No. 2182
- FDEP Certificates: BioRecon, Lake Condition Index, Boating Safety, Stream Condition Index, Lake Vegetation Index, Linear Vegetation Survey, Rapid Periphyton Survey, Habitat Assessment
- PADI Open Water SCUBA Certification

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As technical advisor, Mary provided technical expertise for the development and implementation of a full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Mill Creek Sink Water Quality Improvement Project, Alachua County, FL

As a technical advisor, Mary provided technical oversight for a stormwater retrofit project aimed to improve groundwater and surface water resources in Alachua County. The project included watershed delineation and analysis in GIS, runoff estimation, BMP sizing, site design, feasibility study, conceptual site planning, and water quality analysis. Portions of Interstate 75 drain into Mill Creek, which is impaired due to nutrient enrichment, and eventually to the Upper Floridan aquifer at Mill Creek Sink. Provided input on treatment wetland design options to provide conditions for diverse vegetative habitat and to avoid issues with sinkhole openings in this highly karst area.

Lake Lulu Water Quality Improvement Project, Permitting and Design, Polk County, FL

As a technical advisor, Mary provided permitting and design to rehydrate/reconnect degraded floodplain wetlands along the Lake Lulu shoreline that have been disconnected from the lake. The purpose of this project will be to remove excess nutrients in the surface water to meet TMDL requirements.

Belcher Park Regional Water Quality Improvement Project Property Acquisition Feasibility Evaluation, Pinellas County, FL

As a technical advisor, Mary directed the preparation of conceptual design options that included treatment wetland and natural stream design systems along with preliminary flood storage and water quality benefits. The objective of this project

was to evaluate the potential water quality benefits that could occur to Cross Bayou Canal and associated waters should the county purchase several properties bounded by Cross Bayou Canal to the west and Park Boulevard to the south.

Joe's Creek Channel 1 Bank/Stream Restoration, Pinellas County, FL

The channelized segment of Joe's Creek experiences erosion and bank failure due to steep banks and rapidly changing water levels from draining its highly urbanized watershed. As project manager, Mary directed efforts to assess erosion impacts, perform stream assessment, prepare and compare conceptual design alternatives, and prepare a preliminary engineering design report. Water quality in the creek was assessed with trend analysis, correlations, and comparisons to NNC. While Joe's Creek is not impaired, the County desired to include nutrient removal with bank stabilization design to protect downstream waters. Two-dimensional hydraulic modeling was performed to compare shear stresses in three conceptual bank stabilization designs (hard-armor, reducing bank slopes, and natural channel design). The natural channel design, which used Florida-specific stream restoration concepts to develop a floodplain and natural stream properties, outperformed the other options. Conducted a public forum to explain and discuss study findings and conceptual designs to the Joe's Creek community and incorporated public feedback into final deliverables. The project also included incorporation of the preliminary design into the existing County ICPR model.

Carpenter Creek and Bayou Texar Watershed Management Plan, Escambia County, FL

Mary was the technical lead for a project involving the development of a comprehensive watershed management plan for the Carpenter Creek and Bayou Texar watersheds in Northwest Florida, totaling approximately 19 square miles in Pensacola, Florida. Funding for the plan development was secured through the Escambia County RESTORE Direct Component Allocation. The management plan provided a roadmap for identifying, addressing, and recommending actions for at least the following main objectives: water quantity and quality, fish and wildlife habitat, public access and recreation, and community resilience. In addition to hydraulic and hydrologic watershed modeling, this project included statistical analysis of water quality and hydrologic data, stream assessment, and BMP alternatives analysis. This project included several meetings and site visits with stakeholders, media, and the public to present and discuss the watershed management plan

Nutrient Source Tracking Study, Pinellas County, FL

As project manager, Mary reviewed existing water quality data to identify nutrient sources and assess additional monitoring needs for McKay, Allen's, and Curlew Creeks. A robust statistical framework using random forests and linear mixed effects models will detect and quantify complex relationships among water quality, hydrological, biological, and climatic variables to identify the sub-basins most strongly contributing to downstream water quality problems. Samples are analyzed for basic water quality constituents, and some sites are assessed to examine the presence radioisotopes including $\delta^{15}N$, $\delta^{18}O$, and $\delta^{11}B$ as well as sucralose, aspartame, and caffeine, which may indicate contribution from human sources (i.e., wastewater tracers). This data is being used to help determine whether the nutrient sources are natural or anthropogenic and whether they are a result of organic (sewage or natural) or inorganic (fertilizer) inputs.

Ridge Lakes Plan, Southwest Florida Water Management District, Highlands and Polk Counties, FL

The Lake Wales Ridge chain of lakes, which consists of more than 100 lakes is a district priority waterbody. A high number of deep sinkhole basin lakes makes this region unique from the other lake regions throughout the state. The lakes along the ridge are threatened by both declining levels and water quality. Common impacts include stormwater runoff, treatment effluent, fertilizer applications, agricultural runoff, groundwater pollution, shoreline habitat degradation and hydrologic alterations. The objective of this study was to perform an assessment of existing information, literature review, collect additional data, conduct NNC assessments to determine potential impairment, and recommend projects and programs necessary to ensure that the quality of the lakes in the Lake Wales Ridge meets the desired water quality objectives. The project involves incorporating existing information, collecting additional data, and prioritizing future actions related to lake management. Additional tasks included project management, stakeholder involvement and coordination, data analysis, report writing, QA/QC, technical direction, and review. Mary served as Task Manager and Technical Director.

Edwards Bottomlands Restoration Project, Suwannee River Water Management District, Starke, FL

Project involved the restoration of the Edwards Bottomlands floodplain by diverting flows from the adjacent Alligator Creek drainage canal in the City of Starke. The diverted flows were designed to be conveyed across the 33-acre Edwards Bottomlands parcel through a restored stream section. The project included a literature review of sediment transport methodologies to assist in the design of sediment transport methods to best estimate pre and post stream restoration construction changes in quality and quantity of sediment transport. Mary served as a project scientist.

Ansley Tilley, PE

Director, Alternative Delivery Solutions

Ansley Tilley is an experienced leader with a history of managing and implementing large infrastructure capital programs and projects. As Director of Alternative Delivery Solutions, she is charged with creating water resources solutions for government and agricultural clients. Ansley has over 18 years of experience spanning the public and private sectors in the design and construction industries providing solutions in private land development, public-private partnerships, municipal land planning and development compliance, and developing large landscape water resource solutions, infrastructure, and facilities for the Department of Defense along the east coast.

Before joining RES, Ansley led a water resources consulting team through various large projects critical to South Florida's restoration efforts. She also previously held the position of Chief of State Policy for South Florida Water Management where she was responsible for the Public-Private Partnership Program, Dispersed Water Management Program, coordinating and working with stakeholders on Northern Everglades and Estuaries Protection Program (NEEPP) issues, water quality, and water management operations and projects in the NEEPP. She was responsible for the coordination of NEEPP project operations with the SFWMD and USACE water managers.

AT A GLANCE.

Years of Experience
18 years

Years with Firm
2

Office Location
Palm Beach, FL

Education
- MSEM, Master of Science Engineering Management, Engineering/Industrial Management
- BSCE, Civil Engineering
- BSAE, Architectural Engineering

Certificates | Licenses | Association
- Professional Engineer: FL, VA
- Florida Association of Code Enforcement Level I & IV
- Florida Farm Bureau Natural Resources Committee Technical Advisor (2018–-2019)
- Florida Environmental. Permitting Summer School – Ag Water Policy Panel member (2018–-2023)
- Lake Belt Mining & Mitigation Committee Chairman (2019)
- Florida Stormwater Erosion and Sediment Control Inspector

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As a project director, Ansley developed the contract for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

EAA Canal Conveyance Improvement Project, SFWMD, Palm Beach County, FL

Ansley was a member of a team of engineers, hydraulic/hydrologic water modelers, and surveyors performing the study and design of conveyance improvements to two existing canals in Palm Beach County (Miami Canal and the North New River (NNR) Canal) that move water south out of Lake Okeechobee through the Everglades Agricultural Area to the stormwater treatment areas. The work performed on this project included a topo survey, hydrographic survey, LIDAR, and geotechnical investigations and engineering. To understand conveyance demands, Ansley performed an analysis of the permitted withdraws within the EAA as well as withdraws from the Miami Canal and NNR. This data modeling is used for nodal inputs in HEC-RAS. Using boundary constraints identified by the client, various flow scenarios were modeled to determine whether consumptive use or flood control conditions, also analyzed by Ansley and her team, dictate conveyance canal improvements needed to allow for additional flows from Lake Okeechobee to be moved south out of existing gate structures. Ansley used data mining and GIS mapping and database development to complete the withdraw and discharge analysis.

Biscayne Bay Coastal Wetlands – Cutler Flow Way, SFWMD, Miami-Dade County, FL

This project consists of reviewing and updating the existing 2008 plans and design to achieve the project objectives at the best construction value. The objective of the project is to improve the distribution of freshwater to Biscayne Bay and Biscayne National Park by re-directing runoff from the C-1 basin to the coastal wetlands along Biscayne Bay (rehydration area). Tasks included adding parcels to the rehydration area, updating HEC-RAS modeling for the proposed conveyance channel and spreader canal considering new information, re-designing culvert crossings under major arterial roads, adding an energy dissipater, and updating flows to 400 cubic feet per second (cfs) due to the proposed pump station receiving an additional

100 cfs pump. The updated design utilizes current codes, SFWMD and USACE technical references, and standard details. Ansley performed the cut/fill analysis to determine the best reuse of contaminated soils in project features where the client directed scraped materials from District parcels to be used to eliminate the need for off-site fill and soils disposal of the contaminated material. She worked with the District's Environmental Risk Assessment contractor to tailor an SMP for reuse. She was responsible for ensuring the plan was comprehensive enough to be in accordance with FDEP permitted tolerances, but also limited total hauled quantities to save the client from needing to spend more than was necessary in the reuse process. She also led the development and wrote several of the design and modeling technical memorandums and Design Development Report. She was the designated QA/QC representative for the project design as well.

C-51 Reservoir, Palm Beach Aggregates/SFWMD, Loxahatchee, FL

The C-51 Reservoir is a design-build public-private partnership (between the SFWMD and a private investor group). The reservoir occupies 2,200 acres of private property. The project is being developed in two phases with the first phase currently in construction. Phase 1 will store approximately 16,000-acre feet of water and is designed to provide a water supply of 35 million gallons per day (MGD) to participating utilities in the lower east coast of Florida. Phase 2 will add an additional 45,000- acre feet of water storage. While serving as a municipal water supply, the reservoir will also be capable of capturing excess stormwater from the SFMWD regional system, which otherwise would be discharged to the Lake Worth Lagoon estuary further exacerbating the water quality of the lagoon. Through its micro tunnel and channel connection to the SFWMD's L8 FEB facility, the reservoir will also assist in providing flood control and water supply for Everglades restoration.

Project components include two 700 feet long, eight feet diameter HOBAS pipe tunnels which connect the C-51 Reservoir to the L-8 FEB, via a double gated water control structure, associated headwalls/spillways, and an 800-foot-long rip rap and concrete-lined 43-foot (23 NAVD88 to -20 NAVD88) high channel. Ansley developed the operations plan for the project to operate in conjunction with the USACE 404/408 permitted L-8 FEB operations plan and the Central and South Florida regional system boundary constraints, ensuring greatest and optimal use of both the C-51 reservoir and L-8 FEB facilities. She used HEC-RAS hydraulic modeling results produced for the new channel connecting the facilities to determine the appropriate gate opening operations to ensure flows through the two (9'x9') gates remained protective of downstream infrastructure. This allowed the project to meet its objectives without needing to overdesign downstream infrastructure. Ansley also provided quality control review of the civil design, developed the grading plan for the channel design, sized rip rap for the channel, and designed the stilling well. She also led the team through drawing production.

Northern Everglades Protection Plan Public Lands CIP Plan, SFWMD, South Florida

Ansley evaluated all lands currently owned by the District for suitability for dispersed water management projects. She sought sites with a minimum of 300 acres, adjacent to a District-controlled canal, and in areas where storage or treatment was needed due to water quality conditions. She evaluated constructability, site access, availability of three-phase power, and favorable topography locations. Sites were then ranked on the evaluation performed (modeled performance), results of available due diligence, as well as estimated cost to construct, operate, and cost-effectiveness of performance to determine priorities for funding. This was the first Public Lands plan ever produced for the Northern Everglades and Estuaries Protection Plan and received funds in 2019 for the first time to fund two projects.

Lake Okeechobee Watershed Construction Project Update, SFWMD, South Florida

The Lake Okeechobee Watershed Protection Plan is required to be updated every five years per 376.4595 F.S. A key component of the plan is the watershed construction project, which includes management measures that the SFWMD recommends to the FDEP to be incorporated into their Basin Management Action Plans, the State Legislature's required "plan" for meeting the TMDLs within in an impaired waterbody. Ansley led internal and external stakeholder workshops to evaluate and analyze water quality and flow data for each of the basins within the watershed across a designated period of record to determine whether progress was being made in meeting the TMDLs. She also developed a methodology to identify basins with a flow or quality issue and how to evaluate management measures and projects within those basins so that recommendations moving forward accommodated the basin's issues. This assisted in creating the FDEP's Targeted Restoration Areas proposed in 2020.

Celeste Lyon

Project Manager

Celeste Lyon is an experienced environmental specialist with more than seven years of experience and a demonstrated history of working in the environmental sciences industry. Her expertise encompasses groundwater science, nutrient loading, source tracking, restoration planning, interagency collaboration, watershed management and assessment, and Basin Management Action Plans. She has experience with data collection, analysis, report preparation, and technical presentations relating to both surface and groundwater water quality. She is also highly skilled in conducting spatial analyses using ArcGIS.

AT A GLANCE.

Years of Experience
7 years

Years with Firm
1

Office Location
Tallahassee, FL

Education
- BS, Environmental Science
- MS, Geographic Information Science
- MS, Forest Resource and Conservation; Ecological Restoration

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As a project scientist, Celeste provided water quality and GIS technical support for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Fertilizer Grant, Alachua County, FL

Tasks include evaluating the potential nutrient load reductions to surface water and groundwater following a fertilizer social marketing campaign implemented by the Alachua County Environmental Protection Department (ACEPD). Reviewed ACEPD surface water monitoring data and developed a monitoring plan for detecting changes in nutrient concentrations in local surface waters. Assisted with development of the methodology used to estimate nutrient loads from fertilizer use.

FDEP Consultant Services for Groundwater Monitoring, Statewide, FL

Celeste served as a project manager for four different task assignments throughout various impaired springsheds in the state. Services included monitoring well siting, permitting, design and installation, development of a groundwater monitoring plan, data collection, water quality analysis, and reporting. Additional activities include design and implementation of specialized groundwater studies, including qualitative dye traces, nitrogen and oxygen isotope analyses, and OSTDS nitrogen leaching assessment.

Lakes Parker, Bonnet, Mirror, and Morton Nutrient Reduction Plan Development, Lakeland, FL

Assisted the City of Lakeland with developing four 4e Pollutant Reduction Plan (PRP) for Lakes Parker, Bonnet, Mirror, and Morton as an alternative to the development of the TMDL. The projects involved regulatory coordination and monitoring of lake sediments to assess if sediment internal cycling may be a substantial component of overall nutrient loading into the lakes. Preparation of documentation involves preparing narrative sections summarizing the findings of previous studies and presenting the pending restoration actions and programs to address the current water quality impairments within each of the lakes. Reviewed historical and current geospatial data, land uses, soil types, topography, and geology within the watershed. Prepared field reconnaissance maps to highlight potential nutrient sources based on review of geospatially distributed water quality concentrations and existing stormwater infrastructure.

Lake Tarpon and Brooker Creek Watershed Management Plans, Pinellas County, FL

Performed professional watershed management planning services for the Brooker Creek watershed in Pinellas County. Services included water quality data analysis, pollutant load modeling, identification of water quality issues, recommendations for improvements, conceptual plans, permit meetings, and cost estimates. Responsible for compiling water quality data for analysis and presenting data in a technical format for the Surface Water Resource Assessment component of this project.

Carpenter Creek and Bayou Texar Watershed Management Plan, Escambia County, FL

Managed the Surface Water Resource Assessment (SWRA) aspects of a comprehensive watershed management plan for the Carpenter Creek and Bayou Texar watersheds in Pensacola, Florida. Tasks included statistical analysis of water quality and hydrologic data, stream assessment, and BMP alternatives analysis and interpretive reporting. The project also includes a source tracking component. Celeste oversaw compilation of water quality data for analysis and presenting data in a technical format for the SWRA and pollutant load analysis component of this project. The study included statistical analysis of water quality and groundwater data and development of a pollutant load model using the SIMPLE method.

Nutrient Source Tracking Study, Pinellas County, FL

Celeste oversaw all technical activities related to the collection and analysis of water quality parameters that also included wastewater tracers (e.g., sucralose, caffeine, pharmaceuticals) and stable isotopes for nitrogen and oxygen to assess the proportion of sources being contributed to groundwater and the creeks. Project recommendations were provided to reduce nutrient loading from the recharge area into the three creeks and downstream receiving waterbodies, including estuarine ecosystems.

Water Quality Assessments and Improvements, Polk County, FL

Identified opportunities to improve water quality, provide flood protection, and restore natural systems in the Lake Lulu watershed. Services included water quality data analysis, pollutant load modeling, identification water quality issues, recommendations for improvements, conceptual plans, permit meetings, and cost estimates. Celeste managed tasks involving a feasibility study to understand groundwater connectivity and potential seepage into several lakes in Polk County. Tasks included a screening-level assessment of groundwater seepage as a pollutant source to the selected lakes using seepage meters.

Basin Management for the Suwannee, Santa Fe, Wacissa, Jackson Blue, and Springs Coast BMAPs, Statewide, FL

Assisted Water Management Districts (WMDs), local governments, and federal agencies in incorporating priority water quality improvement projects and budgets in such plans as Florida Forever work plans and watershed restoration plans. Reviewed and commented on WMD Surface Water Improvement and Management Act (SWIM) Plans, BMP manuals, and other efforts related to both urban and agricultural nutrient source protection. Managed projects, particularly with respect to projects supporting BMAP development. Ensured proper coordination in the Department and among stakeholders in BMAP drafting and review and in securing local acceptance, Department approvals, and secretarial adoption of BMAPs.

Springs BMAPs Monitoring Plans, Statewide, FL

Managed collection and compilation of water quality data from WIN/STORET to identify monitoring gaps within springsheds. Worked with WMDs and appropriate agencies to determine what analyses needed to be conducted to show water quality improvement to aid in success of BMAPs. Recommendations included continuous monitoring efforts, additional spring vent sampling at a consistent frequency, refinement/addition of groundwater monitoring wells, and a consistent approach for analyte suite for groundwater and surface water monitoring.

Environmental Best Management Practice Manual Review, Statewide, FL

Collaborated with the Florida Department of Agriculture and Consumer Services' Office of Agricultural Water Policy to perform a detailed literature review of material to support updates of the following BMP Manuals: Sod, Fruit and Nut, Silviculture, and Cow/Calf. Acted on behalf of the Department to review the manuals and ensure appropriate literature was referenced to support water protection policies of the BMP manuals.

Nutrient Source Inventory Loading Tool for the Springs Coast, Suwannee, Santa Fe, Wakulla, Wacissa, Wekiva, Rainbow, Silver, DeLeon, Gemini, and Jackson Blue Springsheds, Statewide, FL

Celeste was responsible for project scope development, data collection, and analysis for use in nutrient loading using a spreadsheet and GIS-based tool. The Department uses the Nitrogen Source Inventory and Loading Tool (NSILT) to estimate spatial nitrogen inputs to the land surface from various sources in spring areas. This tool applies literature-based nitrogen (N) attenuation factors to the input from each source to estimate nitrogen loading to groundwater. Reviewed literature to determine biological and geologic factors that influence different sources of N and how those sources impact groundwater.

Thomas (TJ) LaRoue, PE

Design Engineer

Thomas LaRoue's background primarily includes drainage improvement projects, water quality improvement/retrofit projects, water quality sampling, remediation, programming, and natural system restoration (i.e., wetlands and lakes). His experience includes project management, groundwater and soil sampling, construction supervision and remediation system maintenance.

AT A GLANCE.

Years of Experience
8 years

Years with Firm
1

Office Location
Lakeland, FL

Education
- MS, Civil Engineering
- BS, Civil Engineering

Certificates | Licenses
- Professional Engineer, FL #84301

Additional Information
- President – American Society of Civil Engineers – Ridge Branch

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As design engineer, Thomas is providing engineering support for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Lake Lulu WQ Improvement, Permitting and Design, Polk County, FL

Directed permitting and design to rehydrate/reconnect degraded floodplain wetlands along the Lake Lulu shoreline that have been disconnected from the lake. The purpose of this project was to remove excess nutrients in the surface water to meet TMDL requirements.

Hilochee WMA Hydrological Assessment, Florida Fish & Wildlife Conservation Commission, Tallahassee, FL

The project consists of the Polk County portion of the approximately 16,000 acres of Hilochee WMA. The emphasis of the Florida Fish and Wildlife Conservation Commission (FWC) was to develop and support restoration strategies and management activities to re-establish sheet flow and rainfall driven hydroperiods to improve the function of both terrestrial and aquatic habitats. Both desktop and field review identified existing features to be surveyed. Historic aerials were used to determine areas within the existing digital terrain model (DTM) that needed to be modified to reflect historical conditions. The historical conditions DTM was used in the development of the historical conditions MIKE SHE model. The existing conditions model was then used to create a proposed conditions model that included the addition of control structures and berms to simulate historical hydrologic conditions. A hydrologic assessment report was developed to provide FWC with water regulation schedules, draw down rates, annual variations in water depth and hydroperiods, identify enhancements to habitats, and monitoring plans.

Pasture Reserve, Lake County, FL

Served as engineer of record. Pasture Reserve is roughly 810 acres of conservation land consisting of a mosaic of uplands and wetlands, including cypress strands, marsh, mixed forested wetlands, pasture, and pine flatwoods. This was a natural systems habitat project involving hydrologic and ecosystems enhancement and restoration. The restoration goal was to create sustainable surficial connections to wetlands which are currently connected by culverts and bisected by ditches/dikes and to improve natural sheet flow as much as possible.

San Juilian Wetlands Study, Permitting and Design, St. Johns County, FL

Served as project engineer. Provided drainage analysis/modeling, wetland assessment, design, ROW/easement land rights acquisition identification, and permitting services for drainage improvement projects identified in the 2019 Butler Beach Regional Drainage Study for this area. The scope also included coordinating public outreach and engagement, and identifying potential grant funding opportunities for the projects.

Stormwater Management and Resiliency Master Stormwater Plan, Lakeland, FL

Served as project engineer. Developing a comprehensive stormwater model covering 130.4 square miles using the ICPR4 platform. The model utilizes portions of six existing watershed masterplan models as well as several smaller local models combined into one unified model. Model parameters were upgraded to reflect current City of Lakeland flooding, alternatives analysis for addressing the problem and development of design plans to construct improvements. Undersized conveyances and/or surge ponds are typically required to reduce flooding but not cause problems downstream from the increased flows. This requires compromises between an optimal design and working with and incorporating other existing, often undersized, facilities. Stormwater and environmental permitting differed for each specific project.

Apopka Government Service Center, St. Johns River Water Management District, Apopka, FL

Served as project engineer. Provided professional engineering services for the SJRWMD Apopka Service Center. Prepared detailed site construction plans for the project. The site civil construction plans included a site plan, grading and drainage plan, utility plan, construction details, and water utility details, including wastewater and drinking water calculations. Construction plans and specifications referenced FDOT's "Standard Specifications for Road and Bridge Construction," Orange County, and City of Apopka standards.

Ridge Lakes Plan, Southwest Florida Water Management District, South Florida

Served as project engineer. The objectives of this study were to perform a watershed assessment for numerous lakes in the Ridge Lakes area by analyzing existing data and literature, collecting additional data, conducting NNC assessments to determine potential impairment, developing a spreadsheet pollutant loading model to identify nutrient loading hot spots, performing univariate and multivariate statistics on water quality and hydrologic parameters (such as trend analysis, correlations, principal components analysis, etc.), and to identify and prioritize preliminary designs for projects and programs in the watersheds that will help the Ridge Lakes area meet water quality requirements (NNC or TMDL). The project also involved coordinating with municipal stakeholders for data collection, development of regional and lake-specific action plans, and preparation of technical reports and presentations.

Mining Site Civil Design and Permitting, White Springs, FL

Provided permitting, and design for a mining client in Florida where we designed and permitted new access roads, utilities, and drainage discharge from mining processes.

Patrick Shearer, PE

Senior Engineer

Mr. Shearer is a project manager and senior engineer with experience in civil, environmental and water resources engineering. His technical experience is rooted in nature-based habitat restoration, resiliency and urban stormwater retrofits, green infrastructure, and water quality improvement projects related to impaired rivers, bays, and estuaries. He has experience successfully completing environmental studies and analyses including watershed-based studies for hyper urbanized and environmentally sensitive areas, wetland mitigation banking documents and plans, hydrologic and hydraulic (H&H) modeling, stormwater / watershed management plans, shoreline stabilization and living shoreline plans, stream assessments, stream restoration plans, and water resource related technical reports. He is experienced in ecological restoration including wetland restoration, stream restoration, oyster restoration, and living shoreline projects in both freshwater and estuarine ecosystems, including the restoration and creation of tidal channels, and living seawalls for hyper-urban areas.

Mr. Shearer's technical capabilities include AutoCAD Civil 3D, ESRI ArcGIS, Rivermorph Software, HEC-RAS, EPA SWMM 5.0, ICPR4, Total Station Instruments, GPS units, and various other hydrology and land planning applications.

AT A GLANCE.

Email
pshearer@res.us | 785.493.2919

Years of Experience
15 years

Years with Firm
8

Office Location
Fort Lauderdale, FL

Education
- BS, Civil Engineering – Environmental Option; Natural Resources and Environmental Science
- Integrated Stream and Stormwater Wetland Design in Urban Settings Class

Certificates | Licenses
- Professional Engineer, FL #79596

Additional Information
- FDEP qualified Stormwater Management Inspector #34890
- Waterfront Edge Design Guidelines Certification WEDG-Assoc.-2020234
- Member – American Society of Civil Engineers, since August 2003
- Board of Directors – ASCE Environmental and Water Resources Institute (EWRI), Miami-Dade Branch, since 2016
- Member – American Water Resources Association, since 2017

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As design engineer, Patrick is providing engineering support for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Brook Haven Stream Restoration, James City County, Virginia (2015)

Mr. Shearer was the design engineer responsible for the assessment, evaluation, and development of stream restoration plans for a degraded urban stream within a built-out residential subdivision. Runoff from upstream development had eroded the stream banks, and the channel had become incised exhibiting severe erosion. Mr. Shearer utilized Natural Channel Design principals to develop plans to raise the stream channel within the current channel configuration to re-connect the stream to its floodplain. Mr. Shearer prepared preliminary design plans for restoration of approximately 600 linear feet of stream channel and creation of approximately 200 linear feet of channel to reduce undermining and flooding in residential backyards. The stream restoration will provide significant water quality benefits and contribute to meeting the County's permit obligations for the Chesapeake Bay Total Maximum Daily Load (TMDL) requirements.

Mill Dam Creek Stream Restoration, Virginia Beach, Virginia (2012-2015)

Mr. Shearer was the design engineer responsible for the assessment, evaluation, and development of a stream restoration alternatives analysis for a degraded reach of urban stream within the City of Virginia Beach MS4. Two design alternatives were developed and analyzed to restore a 1,700 linear feet reach of Mill Dam Creek to reduce bank erosion and improve water quality. Natural Channel Design techniques were utilized to develop conceptual plans for both alternatives. Water quality improvements for sediment, nitrogen, and phosphorus pollutant reductions were quantified for both designs as well as engineer's cost estimates so the client could determine the most effective design. Mr. Shearer was also in charge of

obtaining permits for the project from the USACE and Virginia Department of Environmental Quality. The client was awarded $220,000 of grant funding due to TMDL pollutant reduction calculations performed by Mr. Shearer.

Roanoke Cement Quarry Expansion Stream Assessment and Mitigation Plans, Troutville, Virginia (2010-2012)

Mr. Shearer led a mitigation site search on the 2,800-acre property for all on-site mitigation opportunities to be used as environmental compensation for impacts caused by the proposed 80-acre quarry expansion. He was responsible for the field mapping and led the assessment of all streams and wetlands to be impacted by the proposed quarry expansion at this cement mining facility. The team identified a potential dam removal and several stream restoration and enhancement opportunities on-site. Mr. Shearer developed the environmental permit exhibits for stream and wetlands impacts, as well as the on-site stream enhancement and planting plans. He used total station equipment to survey a section of Catawba Creek to be enhanced with a bankfull bench, as well as a reference reach of the stream. The plans included enhancement of approximately 2-miles of Catawba Creek and tributaries by 200-foot riparian buffer restoration on both banks, cattle fencing, and 400 linear feet of bankfull bench creation to offset on-site impacts. The Client was a proponent of the on-site mitigation approach because it allowed them to highlight their environmental stewardship for their operation and additionally saved over $1,000,000 instead of paying for mitigation credits off-site.

King William Reservoir, Stream Mitigation Site Search, City of Newport News, Virginia (Fall 2008-Summer 2009)

Mr. Shearer was in charge of the site search for one mile of stream restoration credit. The search for stream mitigation covered eight counties in the Coastal Plain region of Virginia and utilized a table-top and GIS-based search using currently available data (USGS maps, soils maps, NWI maps, watershed plans, county GIS data, aerial photographs, etc.). Candidate streams were investigated by "windshield survey" from public rights-of-way. Over 300 sites were researched, and ultimately four sites were provided to the client that satisfied the site selection criteria.

King William Reservoir, Difficult Hill Farm Stream Restoration, King William County, Virginia (2009)

Mr. Shearer assisted in the field data collection, assessment, and preliminary analysis for stream mitigation including 3.5 miles of stream in the Coastal Plain using Rosgen level I, II, and III assessments. Preliminary mitigation design was completed for 1,500 lf of stream enhancement, including the coordination of 57 acres of proposed onsite adjacent wetland mitigation plans. Preliminary stream enhancement and wetland mitigation plans included filling existing agricultural ditches, raising the existing stream bed to create floodplain access, and creating bankfull benches to relieve near bank stress and reduce erosion.

The Meadows (Whistle Walk) Stream Stabilization, James City County, Virginia (2010)

Mr. Shearer was in charge of the assessment, evaluation, and development of solutions for a degraded 430 linear-foot reach of urban stream. The study reach consisted of eroding banks, several exposed utility crossings, and safety issues. He developed three alternative solutions to stabilize this reach of stream with design practices ranging from traditional "hard" engineering techniques to more natural "soft" bioengineering techniques utilizing Natural Channel Design (NCD) to the maximum extent practicable. Mr. Shearer was responsible for the site survey, assessing the existing stream stability, alternatives development, hydrologic and hydraulic analyses, concept plan development, and cost estimating. The resulting alternatives analysis gave the client three preliminary designs with costs to consider for development of construction plans.

Jose Marti Park Adaptive Re-design, City of Miami, Miami Dade County, Florida

Mr. Shearer is the project manager and the engineer-of-record providing civil / stormwater / environmental engineering, green infrastructure, and nature-based solutions. Mr. Shearer is responsible for leading the innovative urban stormwater retrofits and assisting in the adaptative design for the living shoreline / living seawall waterfront edge. The project site is an existing historically relevant 13-acre park along the Miami River which experiences King Tide flooding and will be redeveloped as the premiere Miami adaptation park project to showcase innovative waterfront resiliency adaptations to climate change and sea level rise, and offer many opportunities for waterfront connection for citizens, ecological enhancement, and for innovative stormwater management such as green infrastructure practices which will filter the hyper-urban 100-acre watershed as it drains through the park to Miami River, an impaired waterway. RES has been engaged to provide services related to the natural systems urban restoration and innovative stormwater design for the park's Adaptive Master Plan through year 2060.

Ximena Pernett Medina, PE

Regional Engineer Manager

Ximena Medina is an agricultural engineer with over 18 years of experience in water resource engineering, public-private partnerships, non-point source control programs, and project management. She has actively participated in the federal and state's efforts to restore and protect the water resources within the Northern and Southern Everglades watersheds. Through her work at the South Florida Water Management District as well as the private sector, Ximena has acquired extensive experience in the development, implementation, operations, and optimization of water resource restoration projects and programs. Areas of specialization include design, development, and implementation of water resource restoration projects; project management; permitting and compliance; hydraulic, hydrology, and nutrient loading analyses; public-private partnerships; non-point source controls; contract negotiations; and the development and optimization of water quality monitoring networks.

AT A GLANCE.

Years of Experience
18 years

Years with Firm
1

Office Location
Palm Beach, FL

Education
- BS, Agricultural Engineering, Universidad Nacional de Colombia

Certificates | Licenses
- Professional Engineer, FL #75371

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As engineering manager, Ximena is providing engineering support for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Big Cypress Mitigation Bank, Hendry County, FL

Ximena is serving as the lead water resources engineer for the restoration efforts at this mitigation bank. Prior to RES acquiring the property, the bank was failing to meet the permitted success criteria, owing in large part to a poorly implemented hydrologic restoration plan. After reviewing multiple years' worth of hydrologic data collected from on-site piezometers, the RES team developed a revised hydrologic plan that is currently being implemented. Ximena is responsible for processing, evaluating, and reporting the on-site hydrologic data collected to determine if the permitted success criteria are met. Ximena is also providing permitting assistance with the state and federal permit modifications for the bank.

review for phases 1-6. Hydrographs determination and hydro criteria assessment.

EAA Canal Conveyance Improvements Design Project, SFWMD, Palm Beach County, FL

Ximena was a member of a team of engineers, hydraulic/hydrologic water modelers, and surveyors performing the design of improvements needed for the Miami and North New River (NNR) Canals, in Palm Beach County, to convey additional Lake Okeechobee releases to the future A-2 Stormwater Treatment Area (STA) while adhering to proposed operational constraints. The work performed for this project includes topographic and hydrographic survey, LIDAR, geotechnical investigations, and engineering. To understand conveyance demands, Ximena performed analyses of stormwater runoff inflows and water supply demands from EAA properties as well as excess flows from the C-139 basin to determine the overall timing and quantity of discharges and withdrawals over average and peak periods. This data is used in modeling to determine the required conveyance improvements. Ximena used data mining and GIS mapping and database development to complete the analyses. In addition, she provides project management support, plan review on design drawings for QA/QC, and prepares project technical reports.

Biscayne Bay Coastal Wetlands – Cutler Flow Way, SFWMD, South Florida

The objective of the project is to improve the distribution of freshwater to Biscayne Bay and Biscayne National Park by re-directing runoff from the C-1 basin to the coastal wetlands along Biscayne Bay. This project was originally designed in 2008, however, it was never constructed. Ximena was a member of the team of engineers that reviewed and updated the original

design to achieve the project objectives at the best construction value. She coordinated with local government agencies and utility companies to ensure the project features accommodate existing and future planned infrastructure and operations of the agencies. She also produced the appropriate documents necessary to satisfy permitting requirements, design drawings for QA/QC, and assisted with the update of the project's technical specifications and technical reports.

C-51 Reservoir, Palm Beach Aggregates, South Florida

The C-51 Reservoir is a public-private partnership (between the SFWMD and a private investor group) to design and build a project that will provide water resources for the lower east coast of Florida. The C-51 Reservoir will also provide operational flexibility to the SFWMD as an extension of the L-8 Flow Equalization Basin (FEB). Ximena performed the riprap calculations for the inflow/outflow channel connecting the C-51 Reservoir and the L-8 FEB, and assisted with the development of the project's operations plan as well as the project's technical specifications.

Lake Okeechobee Watershed Best Management Practice (BMP) Program Evaluation, Florida Department of Agriculture and Consumer Services (FDACS), South Florida

This project evaluated data associated with implementation of BMPs under the FDACS Program in the Lake Okeechobee watershed to determine if practices are helping to address water quality and/or quality issues identified in the Targeted Restoration Area analysis provided in the Florida Department of Environmental Protection (FDEP) 2020 Lake Okeechobee Watershed Basin Management Action Plan update. Ximena was part of the team that conducted all the data (enrolled acreage, land use, BMP manuals, BMP plans, verification records, etc.) analysis needed to provide recommendations for prioritization of future enrollment and cost share efforts as well as BMP implementation verification activities.

Lake Okeechobee Watershed Protection Plan Update, South Florida

The Northern Everglades and Estuaries Protection Program (NEEPP, s. 373.4595) requires the Lake Okeechobee Watershed Protection Plan (LOWPP) to be updated every five years to provide an evaluation of projects and conditions in the Lake Okeechobee Watershed; propose modifications to projects and programs identified in the Watershed Construction Project; and update the Lake Okeechobee Watershed Research and Water Quality Monitoring Program. As the project manager, Ximena coordinated with both internal and external stakeholders the evaluation and analysis of water quality and flow data for each of the basins within the watershed to determine whether progress was being made in meeting the Lake Okeechobee TMDL. She also provided technical assistance in the development of the methodology to identify the issues (water quality and/or quantity) in each of the subwatersheds and basins and then determined if projects were addressing those issues or not. The LOWPP update was published in the South Florida Environmental Report 2020.

Northern Everglades Public-Private Partnership (NEPPP) Program, SFWMD, Everglades, FL

As the project manager for SFWMD for public-private partnerships in the Northern Everglades area, Ximena was the prime contact for technical and contractual issues for landowners from project inception to operation on each of the NEPPP projects. She provided technical assistance with the evaluation of project water quality and quantity benefits; the development of operations plans for review by SFWMD's water managers that optimize project operation and maximize benefits; and a cost effectiveness evaluation. She also reviewed project design documents for compliance with contracts and permits prior to issuing a Notice to Proceed for construction.

BMP Effectiveness and Optimization for Reduction of Phosphorus in Runoff, Everglades Basins, FL

Ximena oversaw all project-related activities for SFWMD's efforts to ensure basin compliance in accordance with Chapter 40E-63, F.A.C. Activities included, but were not limited to, identifying project/research needs, developing scopes of work; ensuring compliance with permits, contract requirements, and project objectives; overseeing design, construction, and monitoring activities; and reviewing project technical reports, etc..

Joe Caterino, PE

Modeling Lead

As a senior project manager and modeler with RES, Joe Caterino manages water resource engineering projects for residential, commercial, industrial, and recreational developments. His involvement begins at site selection, where he works with a team of environmental specialists to define environmental constraints of the property. Joe prepares water quality plans to reduce non-point source pollutants by implementing conventional or low-impact integrated management strategies. He has experience drafting floodplain studies to obtain local and federal permits for work within a regulated floodplain or floodway.

Joe has been an integral part of the design and construction management team for several wetland creation and stream restoration projects that provide mitigation to development projects with environmental impacts. Other management responsibilities include managing watershed management and planning studies, dam rehabilitation, erosion and sediment control design, floodplain studies including FEMA no-rise, CLOMR, and LOMR certifications, project bidding, on-site construction administration, and post-construction monitoring.

AT A GLANCE.

Years of Experience
25 years

Years with Firm
6

Office Location
Richmond, VA

Education
BS, Civil Engineering

Professional Engineer
VA, #035242; MD, #28756

Certificates | Licenses

- Rosgen Level I-III
- Advanced Stream Restoration Design Principals – North Carolina Stream Restoration Institute
- NSCD Stream Restoration Construction Management Workshop – Canaan Valley Institute
- Rivermorph Stream Restoration Software Training – Pilot View Resource and Conservation Development, Inc.

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As modeling lead, Joe is providing modeling support for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Full Delivery Stream Restoration Services, Maryland Department of Transportation, State Highway Administration (MDSHA), Statewide, MD

Served as project engineer to provide a total of 22,592 LF of full delivery stream restoration projects. RES provided services on six separate sites under this contract. For each site, RES was responsible for site selection, land acquisition, survey, design, permitting, construction, monitoring, and adaptive management to support MDSHA's Chesapeake Bay restoration goals.

Select projects completed under this contract include the following:

- UT Broad, Frederick County – 4,965 LF stream restoration, floodplain design approach
- Ben's Branch, Frederick County – 4,501 LF stream restoration, floodplain design approach
- Tarnans Branch, Anne Arundel County – 4,421 LF stream restoration, hybrid natural channel and floodplain design
- UT Patapsco, Baltimore County – 1,824 LF stream restoration, natural channel design approach

Wancopin Creek Stream Restoration, Virginia Department of Transportation, Middleburg, VA

Served as project engineer to provide an innovative turnkey stream restoration project. The project was enrolled as part of VDOT's Bay TMDL Action Plan, with the associated nutrient reductions credited toward compliance with the Bay TMDL Special Conditions applicable to VDOT as a regulated MS4 under Virginia's MS4 General Permit Program. This project was completed under RES' VDOT Statewide MS4/TMDL Implementation & Related Activities On-Call Contract. This project involved the restoration of approximately 15,000 LF of significantly degraded reaches of stream channel located along Wancopin Creek, as well as several unnamed perennial and intermittent tributaries to Wancopin Creek and Goose Creek. Overall, almost seven miles of stream were enhanced or restored. All land acquisition, design, permitting, construction, monitoring and maintenance work has or will be performed by RES.

Statewide MS4/TMDL Implementation & Related Activities On-Call Contract, VDOT, Statewide, VA

Serves as Project Engineer for five-year, open-end contract with the VDOT to provide technical services for the development and implementation of projects to meet applicable TMDL Action Plans in support of VDOT's MS4 Program. Anticipated projects include stream restoration, land cover conversion, shoreline stabilization, and other structural and non-structural SWM BMPs under this contract including ecological assessment, regulatory permitting, design, construction, construction oversight, and maintenance and monitoring services.

Individual projects completed to date include:

- Pike Branch Restoration, Fairfax County – Restoration of approximately 4,000 LF of stream channel to reduce TSS, TP, and TN loads. Services provided include BEHI/NBS field data collection and pollutant load calculations, hydrology and hydraulic studies, geomorphic stream assessments, stream restoration design, fish passage assessment, wetland restoration, and permitting. This project includes a detailed FEMA floodplain study as well as outreach to Fairfax County and local stakeholders.
- Skiffes Creek, James City County – Served as project manager for the design, permitting, and implementation of a TMDL reduction project that incorporated a bio-swale surface runoff collection system in combination of restoration of two degraded intermittent tributaries. The restoration of the tributaries resulted in significant functional uplift, including hydraulic, geomorphic, physicochemical, and biological properties. The realignment of the stream channel, and adjustments to the stream channel dimensions reduced erosion and decreased the delivery of sediment and nutrient loads. The increase in floodplain connection improved hydrology to floodplain vegetation and reduced in-channel hydraulic stresses currently causing bank erosion. The bio-swale captured sheet flow runoff from the adjacent impervious surfaces to provide additional nutrient reduction and peak flow retention.

Watershed Management Planning, James City County, VA

Served as project manager for the watershed planning contract for James City County. Work under this contract included the following: baseline watershed assessment to quantify the land uses and impervious areas; inventory and assessment for stream corridors based on stream and floodplain stability and habitat conditions; assessment of existing stormwater management practices; and the development of pollutant loading models. Utilizing the baseline assessment data, a decision support system was developed to provide guidance for implementation projects. Watershed management plans were prepared to document the recommended implementation projects and to establish watershed goals and strategic actions. The watershed management plans assist with planning of future development, identifying hot spots, implementing better site design protocols, providing watershed education, and identifying potential TMDL reduction projects.

Windy Run and Donaldson Run Tributary B, Arlington County, VA

Served as project manager to design plans and construction specifications for two stream restoration projects totaling 1,850 LF for Arlington County's TMDL reduction program. Both projects were identified as priority projects from the implementation project decision support system (DSS). The streams were designed using natural channel design principles to stabilize the urban degraded systems. Flow regimes for the stream reaches were developed using regional urban curves and verified through hydrologic modeling. Hydraulic models were prepared to verify a no rise condition for the 100-year floodplain and no hydraulic encroachments to adjacent properties.

Arlington County Full Delivery TMDL, Arlington County, VA

Served as project manager for full delivery stream restoration and BMP retrofit projects for TMDL credits. RES has delivered TMDL credits to Arlington County, Virginia for their MS4 compliance using a full delivery project implementation process. The delivery of MS4 TMDL credits involved collaboration with a land partner, Washington Golf and Country Club, to secure an easement for the stream restoration work and monitoring/maintenance grant of access for 10 years following completion of construction. The property was chosen as a strong candidate for restoration due to the severely impaired conditions of stream channel located on the property. Additionally, the stream channels located on the property were at the headwaters to Donaldson Run stream which was restored by Arlington County in previous years.

Esteban R. López, PE

Senior Engineer

Mr. López is a senior engineer with experience in both the air and water resources fields. He has managed several small and large-scale domestic and international projects. He has experience with regulatory compliance, staff development, quality assurance and control, project management and scheduling, contract review, and fee estimates. Mr. López is proficient with several air dispersion models including AERMOD, CAL3QHC, CALINE3, ISCST3, TCSCREEN, ALOHA, and PAL as well as air emission models such as MOVES2014 and WebFIRE. He is also an expert in hydraulic design, groundwater simulation, and watershed analysis models such as HEC-HMS, HEC-RAS, EPA SWMM, Streamline Technologies ICPR, Aquarian Software CHAN, USGS MODFLOW, and Environmental Simulations Groundwater Vistas as well as the multi-purpose environmental analysis tool BASINS 4.

AT A GLANCE.

Email
elopez@res.us | 407.923.7971

Years of Experience
23 years

Years with Firm
9

Office Location
Orlando, FL

Education
- MS. Environmental Engineering, University of Central Florida, 2000
- BS. Environmental Engineering, University of Central Florida, 1997 Cum Laude

Certificates | Licenses
- Professional Engineer, FL #60958

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

Esteban is providing engineering support for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Lake of the Woods Drainage Improvements, City of Orlando, Orange County, Florida

The City's Public Works Department contracted RES to provide design and permitting services concerning stormwater drainage improvements along Annie Street. These improvements would mitigate flood risk for several properties near Lake of the Woods and enhance level of service for Orange Avenue (S.R. 527), which is a primary service road for the Orlando Regional Medical Center. Mr. López served as the project engineer that modeled, designed, and permitted the stormwater drainage system connecting Lake of the Woods to Al Coith Park. Additional design improvements included a bioretention area in Al Coith Park and a second-generation baffle box to enhance water quality discharged from Al Coith Park to Lake Cherokee. A hydrologic and hydraulic model was generated using the Interconnected Channel and Pond Routing (ICPR), Version 3.10 software to compare performance of the proposed stormwater drainage system with existing conditions. Mr. López prepared and submitted an Environmental Resource Permit application to the SJRWMD and addressed Requests for

Bell Avenue Drainage Improvements, City of Melbourne, Brevard County, Florida

The City of Melbourne contracted RES to prepare design drawings, submit Environmental Resource Permit to SJRWMD, and provide bid services for construction related to stormwater BMP improvements along Bell Avenue. Mr. López served as the project engineer producing pre- and post-development ICPR models to simulate design storm events in support of permitting and design efforts. Modeling demonstrated that estimated peak stages would increase slightly due to additional head losses through the baffle boxes and negative slopes through pipes. Roughly 358 pounds of nitrogen and 72 pounds of phosphorus would be removed from annual discharge to the Eau Gallie River and ultimately the Indian River Lagoon.

Resource Recovery Management Facility Feasibility Analysis, City of Medley, Miami-Dade County, Florida

RES conducted a flood reduction study and developing stormwater management needs to reduce flooding for the Pennsuco complex located in northern Miami-Dade County. The site was developed without a comprehensive stormwater master plan and currently experiences recurrent flooding and drainage issues. RES is evaluating H&H for the approximately 400-acre site utilizing a two-dimensional ICPR-4 surface and groundwater model to perform stormwater and watershed modeling analysis. Site conditions are challenging for flood relief due to the nearly built-out industrial environment, high groundwater table, low surface elevations, and heavily compacted soils with limited infiltration capacity. These conditions are further complicated by onsite management issues such as groundwater withdrawals and sprinkler systems to distribute and

discharge wash water used for dust control which add to onsite surface water management issues. LiDAR survey data was collected using drone equipment for the project evaluation and development of conceptual projects. Conceptual projects are being developed and evaluated using the LiDAR survey and ICPR-4 model to assess the cost-benefit analysis of certain levels of service for stormwater upgrades at the site. Surface water and groundwater elevation and rainfall monitoring are being utilized for site-specific model input and ICPR-4 model calibration. The effects of sea level rise on the groundwater levels at the site are being evaluated as part of this study. The engineering study will result in a Master Plan report which will outline flooding conditions, the H&H model evaluation, conceptual projects developed to address flooding, and a project prioritization matrix to assist the owner in implementation and budget planning. Innovative solutions such as rainwater harvesting and re-use are being assessed to reduce onsite groundwater demand, reduce flooding and to facilitate surface water management in support of reduced onsite flooding.

Year-3 Annual Pollutant Load Estimates, City of Winter Park, Seminole County, Florida

The Public Works Department in the City of Winter Park contracted RES to develop the Year 3 Annual pollutant loading and event mean concentrations as required by the City's NPDES Phase 1 MS4 Permit. Mr. López served as the project engineer to determine Year 3 annual pollutant load estimates within the City. Collection of available as-built plans, major watershed boundaries, historic pollutant loading reports, GIS land use and soils data, stormwater facility service areas, and removal efficiencies were executed under this project. Event mean concentrations were acquired from various sources and employed to estimate gross and net loadings for five-day Biochemical Oxygen Demand, Total Copper, Total Nitrogen, Total Phosphorus, Total Suspended Solids, and Total Zinc

NPDES Phase I MS4 Annual Report for Lee County, FDOT District One, Florida

FDOT District One contracted RES to complete the Cycle 4, Year 2 annual report for FDEP. Mr. López served as the project engineer and evaluated ambient water quality data acquired by the County near FDOT's MS4 major outfall discharge locations. Regression analysis using the Spearman Rank Correlation Nonparametric Test was performed to determine the trend direction and significance of the monotonic correlation between time and measured ambient water quality concentrations. This data along with a pollutant load analysis will be used to determine the overall effectiveness of FDOT's SWMP in reducing stormwater pollutant loads to nearby receiving waters during the Cycle 4, Year 4 annual report.

Environmental Sampling, City of Doral, Miami-Dade County, Florida

The City of Doral has experienced numerous nuisance odor complaints and contracted with RES, Inc. to conduct environmental monitoring of hydrogen sulfide, volatile organic compounds, and ammonia in the ambient air, surface water, groundwater, and soil. Continuous air sampling of hydrogen sulfide gas was performed near the Medley Landfill in areas identified as potential hotspots through atmospheric dispersion modeling using EPA AERMOD. Results from the atmospheric dispersion model correlated well with documented odor complaint locations. Surface water, groundwater, and soil samples were obtained and evaluated for several contaminants including volatile organic compounds known to produce odors as well as ammonia. Sulfide concentrations were measured in the water samples and correlated to atmospheric concentrations using the EPA MINTEQ chemical speciation software. Mr. López served as the project engineer for this project and performed atmospheric dispersion modeling, chemical speciation of water samples, and completed statistical analysis of recorded data for spatial and temporal trends.

Statewide Annual Report for FDEP, FDOT District Five, Various Counties, Florida

FDOT District Five contracted RES to prepare the Statewide Annual Report (STAR) for stormwater pollution control projects that were recently completed or currently under construction in 2018 and located within an adopted Basin Management Action Plan (BMAP). This effort included estimating street sweeping credits based on the Florida Stormwater Association's Municipal Separate Stormwater Sewer System Load Reduction Assessment Tool. Average nutrient removal credits were assigned to new Best Management Practices (BMPs) based on available research published by Dr. Harvey Harper or credits typically recognized by the FDEP. Nutrient credits were only reported to FDEP if the treatment provided by the BMP exceeded the minimum standards required to obtain an Environmental Resource Permit. Mr. López served as the project engineer evaluating nutrient removal credits for individual BMAPs.

Matthew M. Martin, GISP

Ecology/Permitting Lead

Matthew Martin is a senior scientist with experience in environmental science, including planning, assessment, and restoration. He has experience coordinating complex projects and working directly with clients to achieve project goals and ensure timely delivery of project deliverables. His ecological experience includes environmental resource permitting, threatened and endangered species surveys and monitoring, wetland delineation, monitoring, and restoration, wetland mitigation site planning, monitoring and reporting, dune and coastal habitat monitoring and restoration, NEPA studies, biological monitoring for offshore pipeline cover remediation, lake management, and aquatic restoration.

Matthew has experience in environmental efforts that include soil, sediment, groundwater assessment and remediation, oversite of soil excavation, dredge operations, and in-situ chemical oxidation injections, data analysis, evaluation and reporting, oil spill response and reporting in accordance with the National Incident Management System, ecological risk assessment, bird monitoring, air quality monitoring and assessment, and noise exposure monitoring and assessment.

He is also proficient in geospatial efforts including ArcGIS software, geospatial analysis and modeling, web-based mapping and web application development, utility mapping and GPS data collection and analysis, geodatabase management, and raster analysis for wetland and habitat assessment.

AT A GLANCE.

Years of Experience
24 years

Years with Firm
6

Office Location
DeLand, FL

Education
- BS, Marine Environmental Science, Coastal Carolina University
- Graduate certificate in GIS, University of Central Florida

Certificates | Licenses
- GISP Certification No. 160737
- FWC Authorized Gopher Tortoise Agent GTA-21-00023
- FDEP Wetland Delineation Training Course
- Princeton Groundwater Pollution and Hydrology
- FDEP SOP Sampling Training for Groundwater, Surface Water and Wastewater
- HAZWOPER 40-Hour
- Advanced Open Water Dive Certification

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

Matt is the lead permitting and ecology scientist for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Palm Bay Channel Dredge Feasibility Study, Brevard County, FL

Matthew conducted an environmental assessment for a proposed dredge project under evaluation by the City of Palm Bay's Bayfront Community Redevelopment Agency. He provided an environmental constraints analysis including identification of benthic marine resources such as wetlands and seagrasses and provided a habitat evaluation to assess the potential for occurrence of federal and/or state-listed species.

Shingle Creek Regional Trail Phase II, Osceola County, FL

Matthew provided ecological assessment for the Shingle Creek Regional Trail project, including wetland determination, GPS data collection, qualitative assessment, and GIS analysis and mapping.

Woodland Avenue Pedestrian Bridge, Polk County, FL

Matthew performed a wetland delineation and wildlife habitat evaluation for a proposed pedestrian bridge reconstruction project being conducted by Polk County. The purpose of the pedestrian bridge project was to provide enhanced safety and design standard improvements to the structural support and modification of the existing dilapidated walkway. Matthew assisted in the preparation of documentation and applications for a state general permit and federal nationwide permit greatly reducing the timeframes for permit issuance.

Florida Gas Transmission, Pipeline Management Ground Bed Installation, Pasco County, FL

Matthew performed ecological and contaminated site evaluations for proposed pipeline anomaly dig areas. Site evaluations included desktop GIS analysis, field evaluation of wetlands and listed species within the proposed construction areas, GPS data collection, and reporting. In addition, he provided gopher tortoise survey, permitting, and relocation support for the project.

SR 5/US 1 South Roundabout, FDOT District Five, Flagler County, FL

Matthew provided ecological assessment and permitting support for the SR 5 Roundabout project. He performed wetland delineation, protected species surveys, and associated reporting and GIS mapping.

SR 5 Resurfacing, FDOT District Five, Volusia County, FL

Matthew provided ecological assessment, permitting, and contaminated site evaluation support for the SR 5 Roundabout project. He performed wetland delineation, protected species surveys, and associated reporting and GIS mapping. In addition, Matthew completed a CSER in accordance with FDOT PD&E Manual guidelines (Part 2, Chapter 20, 6/14/17 revision), including field review and review of environmental database resources.

Creel Street Wetland Feasibility Study, Melbourne, FL

Matthew provided an ecological assessment for this project. He performed field survey and qualitative assessment of on-site wetlands that were then analyzed using the UMAM to assess the functional quality of on-site wetlands, including GIS analysis and mapping.

General Engineering Consultant Contract, District Staff Assistance and Mitigation Support, FDOT District Five, FL

As a subconsultant, RES provides environmental permitting support for the District Five work program. RES staff provided specialized engineering and environmental support and coordination with the WMDs, USACE, FWS, FWC, and FDEP. Matthew assisted with wetland mitigation monitoring, shorebird surveys, sea turtle compliance monitoring during emergency response construction activities, sea turtle lighting evaluation non-compliance reporting, gopher tortoise survey and permitting, and gopher tortoise recipient site vegetative monitoring.

1-0767-001 Mid Coast Aggregates Mazak Limerock Mine, Sumter County, FL

Matthew conducted the 2017 annual monitoring event for the on-site wetland creation areas, as well as, the annual monitoring events at the on-site wetland preservation areas. Support included vegetative monitoring and data collection. Additionally, he provided GIS support for a mining alternatives analysis to estimate mining reserves and costs associated with wetland mitigation.

Eglin Air Force Base, Okaloosa County, FL (4/2014–7/2017)

While with another firm, Matthew coordinated environmental resource permitting and wetland restoration for multiple dredging/excavation projects within Eglin AFB involving the removal of contaminated sediments/soil. He compiled ERP applications and exhibits, performed desktop habitat and species assessments of proposed dredging areas, developed wetland restoration plans for impacted wetlands, and coordinated post dredging/excavation wetland restoration and monitoring activities.

U.S. Tennis Association Bald Eagle Monitoring, Lake Nona Central, Orange County, FL (9/2014–4/2017)

As staff scientist, while with another firm, Matthew conducted bald eagle nest compliance monitoring and alternate nest surveys related to the construction of the USTA Tennis Center. In addition, he also provided support for permit modification and monthly compliance reporting.

Kinder Morgan, Palmetto Pipeline, Jacksonville, Duval, and Nassau Counties, FL (12/2015–7/2017)

Matthew, while with another firm, performed wetland delineation and species surveys within the proposed pipeline route. He collected survey data using a handheld GPS unit and performed wetland assessments using FDEPs UMAM. He also performed QA/QC of wetland assessment and GIS data.

Sebastian Barragan, EIT

Hydraulic Modeler and Design Engineer

Mr. Barragan is a civil engineer with experience in water resource management, evaluation of hydropower and infrastructure projects throughout Latin America, modeling rivers, hydraulic structures, flood mapping, surface drainage systems and risk management. He is an expert in preparing professional studies and reports, modeling flow networks and analyzing dam break events. Sebastian regularly performs flow calculations for plans and maps production for a variety of water resources project. He is also fluent in English and Spanish.

AT A GLANCE.

Years of Experience
9 years

Years with Firm
1

Office Location
Miami, FL

Education

- MCE, Civil Engineering, Specialization in Water Resources, University of Los Andes, Bogotá, Columbia,
- BS, Civil Engineering – Specialization in Hydrotechnical and Structures, Pontifical Xavierian University, Bogotá, Columbia

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

Sebastian is providing engineering support for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Big Cypress Mitigation Bank – EC&D, Hendry County, FL

Project engineer for the Big Cypress Mitigation Bank in Clewiston, Florida. Performed the mitigation bank hydrology analysis, existing conditions evaluation and piezometer monitoring review for phases 1–6, and hydrographs determination and hydro criteria assessment.

INGETECS S.A.S., Bogotá, Colombia

Sebastian was the principal engineer for the risk and water resource analysis department for the water resources division from 7/2018 to 6/2022. He was responsible for design of surface drainage systems for a photovoltaic solar park and an excavation disposal zone; simulation of power generation for run-of the river hydroelectricity; analysis of dam break events and flood mapping using HEC-RAS, HEC-Geo RAS, and ArcGIS; development of risk management plans and risk analysis; development of threat, vulnerability, and risk maps using ArcGIS; design of urban rainwater drainage and sewer networks using EPASWMM and/or SewerGEMS, simulations of water networks for hydropower generation using MODSIM and a project in Bolivia; and determination of runoff flows.

INGETECS S.A.S., Bogotá, Colombia

Sebastian was the design engineer for the planning department in the water resources division from 1/2018 to 6/2018. He was responsible for analysis of dam break events and flood mapping using HEC-RAS, HEC-GeoRAS and ArcGIS for projects in Panama; simulations of water networks for hydropower generation and water management (city's water supply, irrigation and transportation) using HEC-ResSim for projects in Panama; determination of water supply and irrigations flows; and evaluation of dam height alternatives for dam-reservoir projects.

Reid Cook

QA/QC / Regional Project Director

As Stream Restoration Design Manager for RES, Reid manages and provides technical expertise and personnel supervision for projects related to stream restoration design, implementation, and monitoring. His specific responsibilities include overall project management; preparation of natural channel design (NCD) stream restoration and mitigation plans; stream geomorphic condition surveys; stream attribute and condition assessments; construction administration and supervision of stream restoration projects; stream monitoring to evaluate project success criteria; and working with regulatory agencies, such as USACE.

Reid has designed and/or managed over 65 stream restoration projects totally approximately 336,000 LF. These projects have provided over 150,000 mitigation offset credits and approximately 9,000 nutrient reduction credits. He has performed over 1 million LF of stream channel assessments including habitat and biological evaluation, restoration potential and feasibility, and crediting. He has conducted all levels of geomorphic assessments and completed comprehensive surveys on numerous projects that encompass different stream types across several states and physiographic regions. Lastly, he has managed over 45,000 LF of stream restoration construction projects that have ranged from bank stability/ bioengineering to full-scale channel relocation.

Reid has extensive professional training in Rosgen, stream restoration construction, advanced stream restoration design, and RiverMorph courses. He also has expertise in the development, implementation, and reporting of multi-faceted stream research studies, aquatic macroinvertebrate identification, EPA rapid bioassessment protocols, and the identification and resolution of water quality issues.

AT A GLANCE.

Years of Experience
19 years

Years with Firm
18

Office Location
Warrenton, VA

Education
- MS, Aquatic Ecology
- BS, Environmental Science – Aquatic Resources

Certificates | Licenses
- Rosgen Level I-IV
- Advanced Stream Restoration Design Principles – North Carolina Stream Restoration Institute
- NSCD Stream Restoration Construction Management Workshop – Canaan Valley Institute
- Rivermorph Stream Restoration Software Training – Pilot View Resource and Conservation Development, Inc.

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

Providing stream design and QA/QC for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

RES is designing, building, and monitoring the project using in-house engineering, environmental science, and restoration technician staff. RES restoration technicians are also providing full time land management to include invasive, exotic, and nuisance vegetation treatment over 150 acres of a densely forested wetland area.

TMDL Credit Services, Corvias, Prince George's County, MD

Serves as contract manager to provide TMDL credits to the Clean Water Partnership to help Prince George's County meet their MS4 permit goals. RES provided full-delivery services including design, permitting, and construction. These projects restored over 27,000 LF of degraded streams, generated over 568 equivalent impervious acres (EIA) credits, and resulted in approximately 2,900 pounds of phosphorus, 2,800 tons of sediment, and 9,500 pounds in nitrogen reductions. Four projects have been completed under this contract.

Water Quality Improvement Credits – Green Infrastructure Best Management Practices, Montgomery County Department of Environmental Protection, Montgomery County, MD

Stream Restoration Design Manager for turnkey projects defined as green BMP, that will treat impervious surface acres, which are currently untreated or inadequately treated, and secure the greatest water quality credits per the Maryland

Department of the Environment. The Broad Run Stream restoration site consists of approximately 12,000 LF of first, second, and third order streams along the headwaters of Broad Run, a direct tributary of the Potomac River. This project represents significant sediment and nutrient reductions with a possible total decrease of 1,400 tons of sediment, 1,490 pounds of phosphorus, and 3,200 pounds of nitrogen annually from the Montgomery County MS4 jurisdictional area.

Maple Dell Farms Stream & Wetland Restoration, Howard County, MD

Serves as contract manager to perform turkey stream, wetland, riparian buffer, and floodplain restoration on an agricultural site draining into the Tridelphia Reservoir and Patuxent River in Howard County, Maryland. This project includes 14+ acres of restored wetlands, 6,000+LF of stream restoration, and 62 acres of EIA credit. This project will not only improve water quality in through restoration practices on the stream and wetlands, but also through the installation of BMPs designed to capture stormwater runoff from the dairy and row crop operations on site. Restoration will be implemented in a fashion that will have minimal effect on current farming practices.

Hull Springs Farm Mitigation Bank, The Longwood University Foundation, Westmoreland County, VA

Provided stream assessment and final design services to this stream and wetland mitigation bank located on 200-acre property associated with Longwood University. Original concept plans approved by the IRT dictate that the bank will provide 1,238 LF of stream restoration, 3,202 LF of stream enhancement, 3,357 of stream preservation, 26.5 acres of wetland restoration, 47 acres of wetland enhancement, and 95.88 acres of wetland preservation. Generated final stream plans and oversees construction, which is being provided by RES in phases. As this bank is intended for educational as well as ecological purposes, Reid will lead student outreach efforts to incorporate the restoration and associated data into relevant curriculum.

Prince William Environmental Bank, Prince William County Department of Parks and Recreation, Prince William County, VA

Conducted initial site identification, preliminary mitigation feasibility analyses, habitat assessments, stream perenniality flow determinations, wetland delineations, and a stream restoration ecological suitability evaluation for 10 county park sites consisting of approximately 1,800 acres and 100,600 LF of stream channel affected by urban land use. Evaluated potential locations for stream restoration and enhancement, preservation opportunities, alternative design approaches, and limits of protective buffers for stream corridors. Have prepared concept and final designs for two completed PWEB projects including Locust Shade Park and James Long Park, which involved 5,160 LF and 7,215 LF of stream restoration, respectively. Oversaw construction for both projects.

James Long Stream Restoration, Prince William County Department of Parks and Recreation, Prince William County, VA

Stream designer for restoration design for 7,215 LF of stream channel. Conducted detailed survey and collected upstream reference reach geomorphic and sediment data, which were used in NCD of all on-site restoration reaches. Coupled NCD dimensionless ratios and reference reach data with near bank stress, critical shear stress, stream incision, and bank erosion hazard potential data as part of the final design. Oversaw construction. Currently oversees monitoring and maintenance.

The Potomac Regional Environmental Bank (Caeli Farm), Mitigation Services Inc., Aldie, VA

For Phase I, completed final design plans at Caeli Farm for approximately 3,400 LF of Priority II, III, and IV stream restoration and 23 acres of riparian buffer reestablishment on Hungry Run, as well as 1,224 LF of Priority I restoration on an un-named tributary of Little River. Conducted detailed surveys and collected upstream reference reach geomorphic and sediment data, which are used as the major component for the natural channel design employed in all on-site restoration reaches. Coupled NCD dimensionless ratios and reference reach data with near bank stress, critical shear stress, stream incision, and bank erosion hazard potential data as part of the final design. Phase II of this project required assessment, design, and construction oversight to an additional 6,800 LF of channel. Design included eight offset cross vanes, six rock vanes, two constructed riffles with wood, 36 log vanes, three constructed riffles, and several rootwads.

Trapp Branch Stream Mitigation Design-Build, Mitigation Services, Inc., Fauquier County, VA

Prepared a stream restoration plan for 2,500 LF of Trapp Branch Stream. Conducted existing conditions assessments and perenniality flow determinations; designed the stream bank re-grade and stabilization; directed floodplain construction and reconnection to the channel; and provided oversight for the design and installation of in-stream structures and erosion and sediment controls.

Eric Oij

Environmental Scientist

Erik has 18 years of experience in the environmental consulting field working with public and private sector clients on a variety of environmental projects. He has significant experience in stream habitat assessments, benthic macroinvertebrate sampling, natural habitat identification and mapping, mitigation monitoring, water quality, sediment characterization, hydrological monitoring, and listed species surveys. He is certified in FDEP's rapid biological assessments, including habitat assessments, lake vegetation index (LVI), rapid periphyton survey (RPS), linear vegetation survey (LVS), stream condition index (SCI), and BioRecon assessments.

Erik has been a project lead and field lead on numerous projects. For the past three years, he has been writing and providing proposals to clients and managing project budgets. Erik possesses four years of additional experience in research and technical writing for academic and governmental organizations in Florida and Georgia that focused on ecology, water quality, and analytical laboratory management.

AT A GLANCE.

Contact
eoji@res.us | 727.420.4508

Years of Experience
18 years

Office Location
St. Petersburg, FL

Education
- MS Certificate, Wetlands and Watershed Resource Management
- MS, Applied Environmental Science
- BS, Environmental Science and Policy

Certificates | Licenses
- Authorized Gopher Tortoise Agent
- FDEP Stream and River Habitat Assessment
- FDEP Stream Condition Index
- FDEP Biological Reconnaissance
- Rapid Bioassessment Protocol for Benthic Macroinvertebrates
- Rapid Bioassessment Protocol for Fish
- FDEP Rapid Periphyton Survey
- FDEP Linear Vegetation Survey
- FDEP Lake Vegetation Index
- FDEP Wetland and Other Surface Water Delineation Chapter 62-340 F.A.C.
- Mine Safety and Health Administration

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

Project Scientist for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to the County. RES is designing, building, and monitoring the project using in-house engineering, environmental science, and restoration technician staff. RES restoration technicians are also providing full time land management to include invasive, exotic, and nuisance vegetation treatment over 150 acres of a densely forested wetland area.

City of Plant City, Stream Restoration Assessment, FL

Stream Ecologist responsible for data collection of stream cross-sections, data analysis, and preparation of assessment recommendations. The City of Plant City Project involved assessing three stream systems within the City to identify locations for potential stream restoration BMPs, developing a conceptual plan, assessing benefits to be obtained in terms of water quality and stream condition index (SCI), and preparing a technical memorandum describing how and where to insert BMPs to get uplift in water quality and habitat.

Alafia River Watershed Restoration Plan, Environmental Science Associates, FL

Technical Specialist responsible for equipment installation, monitoring, data analysis, and reporting. ESA involves developing and implementing a study design to assess the hydrologic and water quality characteristics of historically mined lands at a representative sub-basin site located within Alafia River State Park. The study design included the installation and monitoring of seepage meters, data loggers, and an instream hydrologic monitoring station. Additional data collected included in situ water quality, flow and surface water and seepage meter water samples.

Southwest Florida Water Management District, Phosphorus Alternatives Analysis, FL

Technical Specialist/Sediment Flux Lab Lead responsible for sediment collection and flux lab analysis. This project assisted with an evaluation of multiple phosphorus treatment alternatives that could be implemented at a treatment wetland site to

enhance phosphorus removal prior to discharge to downstream receiving waters. The study assessed several alternatives to determine the technical feasibility, costs, potential water quality improvement, and regulatory requirements. Specific tasks included a technology literature review, and sediment and water quality data review, and a field and laboratory component to assess the effectiveness of various sediment treatment alternatives to reduce the nutrient flux from the sediment to the water column, since it was determined early on that the sediment is contributing a significant load of phosphorus to the water column. Alternatives that were assessed during in-tact sediment flux incubation experiments a Flux Lab included Phoslock, sand, organic sediment from nearby lakes, and a combination of amendments under aerobic and anoxic conditions. An alternatives analysis that included a cost-analysis comparing the various methods was conducted to evaluate the technical feasibility of implementing the proposed alternatives. Nutrient load reduction and cost efficiencies were compared across the different alternatives evaluated.

Mosaic Fertilizer, LLC, North Bowlegs Creek Restoration, Polk County, FL

Technical Specialist responsible for conducting monitoring at a reclaimed stream connecting to Bowlegs Creek in Polk County, Florida. Specific tasks include conducting FDEP HA and SCI to assess macroinvertebrate community and assessing the fish community using an electroshock backpack. Installed and monitored staff gage with continuously reading data logger, as well as collected discharge measurements using an acoustic Doppler velocimeter to develop a stage-discharge rating curve.

Suwannee River Water Management District, Water Quality and Biology Monitoring Services, FL

Technical Specialist responsible for stream sampling using FDEP methods. The purpose of this project is to collect accurate environmental data related to the chemistry and biology of surface water and groundwater in the District. Specific field monitoring tasks include water chemistry monitoring at 68 groundwater stations, three surface water lake stations, and 91 surface water stations; aquatic macroinvertebrate monitoring (SCI and modified BioRecon) at two stations; periphyton monitoring at five stations; LVI at three stations; and stream and river linear vegetation survey (LVS) at one station. Specific role in this project is to conduct water quality and biological data (SCI, BioRecon, and LVI) collection.

Florida Department of Environmental Protection, WaSh Model Review and Technical Support, FL

Technical Specialist responsible for data management and data processing in support of modeling effort. Project involved providing modeling support for the integrated surface and groundwater, flow and transport, model named St. Lucie Estuary Watershed Model (WaSh) that was developed by South Florida Water Management District (SFWMD). As part of this project a detailed peer-review of the model was provided with suggestions to improve model parameterization and setup. Additionally, several scenario simulations involving removal of septic tanks and computing load reductions for different scenarios were conducted.

City of Ocoee, Lake Prima Vista Nutrient Budget, Ocoee, FL

Technical Specialist and Sediment Flux Lab Lead Technician responsible for sediment core collection and flux lab analysis. Project involved developing a nutrient budget and lake management plan for the Lake Prima Vista. The lake has experienced a significant decrease in water quality along with continuous algal blooms and is currently impaired for nutrients. In addition to pollutant load modeling. Project involved collecting seepage meter data and has assessed nutrient flux to determine the contribution of both internal and external nutrient sources. Specific tasks included collection of sediment samples for phosphorus fractionation, and sediment flux cores for incubation in an in-house sediment flux laboratory. Conducted in-tact sediment flux core incubations under aerobic and anoxic conditions.

Florida Department of Environmental Protection, TMDL/BMAP Consultant, FL

Technical Specialist responsible for assisting in data collection and analysis. Project involved an evaluation of TMDLs and the development of BMAPs for various impaired waters throughout Florida. The work required detailed understanding of water quality management issues, the TMDL provisions of the Federal Clean Water Act, the TMDL and BMAP provisions of the Florida Impaired Waters Rule, and the ability to perform QA/QC screens and statistical analyses on large quantities of water quality data from streams, lakes, rivers, and estuarine and coastal waters. Project expertise included water quality and watershed assessment and modeling, hydraulic and hydrodynamic modeling, analysis and design of stormwater BMPs, knowledge of EPA/FDEP rules and policies, and overall project management. WSP's scope of services included management, screening, and statistical analysis of water quality data; watershed and waterbody modeling; facilitation of technical and stakeholder meetings; and preparation and peer review of technical reports and related documents.

Robert "Bob" Siegfried, II

QA/QC / Stream Restoration Advisor

Bob Siegfried has over 30 years of experience managing a wide variety of environmental projects throughout the Mid-Atlantic Region and recently in Florida. He has managed multiple statewide environmental contracts for the Virginia Department of Transportation (VDOT), as well as projects for local governments and municipalities. Mr. Siegfried's experience includes environmental impact statements and assessments for compliance with federal, state, and local regulations. He has led watershed planning and water quality monitoring programs and prepared conceptual and final engineering design services for innovative stormwater, non-tidal and tidal wetlands, and stream restoration/mitigation. To date, Bob has completed over 100,000 LF of stream assessments, 15,000 LF of stream design, and 100+ acres of wetland design.

AT A GLANCE.

Years of Experience
30 years

Years with Firm
9

Office Location
Richmond, VA

Education
- MS, Marine Biology
- BS, Freshwater Ecology

Certificates | Licenses
- Rosgen Level I-II
- Reading the River
- Sediment Transport Principles Applied to Channel Design
- Geomorphic Principles of Stream Restoration
- Alternative Approaches and Analytic Tools for Stream Restoration
- Process-Based Channel Design
- Planning Hydrology for Constructed Wetlands

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

As stream restoration advisor, Bob is providing stream design oversight for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

North Texas Municipal Lake Project, North Texas Municipal Water District, Fannin County, TX

Serves as lead stream designer to restore approximately 15,000 acres worth of nearby habitats to offset the environmental impacts of building this new lake. RES will provide complete stewardship of the mitigation sites, from design and implementation through monitoring and maintenance over the next 20+ years. RES will provide approximately 70 miles of stream restoration and enhancement and plant more than five million trees. Select staff will be living on the project property full-time.

Wells Branch Stream Restoration, Anne Arundel, MD

Technical lead for the restoration design of 2,700 LF of degraded stream channel. Supervised the stream assessments, surveys, soil borings, wetland delineations, plan production, cost estimates, and schematic design report. Design included raising the invert of an incised sand bed stream, grade to remove legacy sediment, and using woody material to force aggradation.

Statewide MS4/TMDL Implementation & Related Activities On-Call Contract, VDOT, Statewide, VA

Serves as contract manager for five-year, open-end contract with the VDOT to provide technical services for the development and implementation of projects to meet applicable TMDL action plans in support of VDOT's Municipal Separate Storm Sewer (MS4) Program. Anticipated projects include stream restoration, land cover conversion, shoreline stabilization, and other structural and non-structural SWM. BMPs under this contract include ecological assessment, regulatory permitting, design, construction, construction oversight, and maintenance and monitoring services.

Individual projects completed to date include the following:

- Pike Branch Restoration, Fairfax County – Restoration of approximately 4,000 LF of stream channel to reduce TSS, TP, and TN loads. Services provided include BEHI/NBS field data collection and pollutant load calculations, hydrology and hydraulic studies, geomorphic stream assessments, stream restoration design, fish passage assessment, wetland

restoration, and permitting. This project includes a detailed FEMA floodplain study as well as outreach to Fairfax County and local stakeholders.

- Skiffes Creek Restoration and BMP, James City County – Restoration of approximately 400 LF of stream channel and provides stormwater management for a winter operations facility. Services provided include full site survey, geotechnical studies, BEHI/NBS field data collection and pollutant load calculations, geomorphic stream assessments, hydrology and hydraulic studies, stream restoration design, stormwater drainage and BMP design, and permitting.
- Proctors Creek Restoration, Chesterfield County – Evaluation of approximately 1,600 LF of stream channel. Services provided by RES include full site survey, geotechnical evaluation, BEHI/NBS field data collection and pollutant load calculations, geomorphic stream assessments, hydrology and hydraulic studies, stream restoration design, and permitting.
- Outfall Restoration, Chesterfield County – Evaluation of five eroding outfalls or culverts. The project will repair failing outfalls and restore channel stability. Services provided include full site survey, BEHI/NBS field data collection and pollutant load calculations, geomorphic stream assessments, hydrology and hydraulic studies, stream restoration design, and permitting.

Wetlands & Water Quality Engineering Services On-Call Contract, VDOT, Statewide, VA

Past contract manager to fulfill VDOT's stream and wetland mitigation needs associated with Clean Water Act 401/404 compliance. Tasks included wetland delineation, agency coordination, permit application, identification of mitigation sites, design of stream or wetland mitigation, and construction and post construction monitoring and reporting to USACE, DEQ, VDOT, etc., for various projects. Example projects included stream and wetland mitigation for various road and bridge improvements to I-66, I-95, I-81, Route 17, Route 236, Route 123, and Route 33. Served two terms as contract manager and currently assists this contract as a subcontractor to the prime.

Swift Island Mitigation Site, Buckingham County, VA

This 55 AC project-specific wetland mitigation site provided compensation for impacts taken at the Cobbs Creek Reservoir in Cumberland County, VA. Provided construction phase design support, including modification of grading and planting plans, revision of water budget, and periodic field inspections of the construction progress. Currently responsible for coordination with landowner and regulatory agencies, including overseeing annual success monitoring and long-term management of the mitigation site.

Hathaway Substation, Dominion, Rocky Mount, NC

Designed the self-mitigating relocation of an impaired coastal stream to compensate for impacts from a proposed electricity substation. The relocation design provided a sand bed base flow channel connected to a floodplain, with wooded riparian buffers. The mitigation design was a component of an individual permit application. The proposed self-mitigating relocation resulted in substantial cost savings to the client over purchase of mitigation credits.

Wetland & Stream Monitoring and Maintenance Open End Contract, VDOT, Statewide, VA

Provided monitoring, report production, remedial construction, corrective action plans, and special studies under a $2 million, three-year open-end contract for VDOT. Project manager responsible for contract administration, development of scopes and cost estimates, progress reports, supervision of all technical work, and client and agency coordination. **Individual projects include the following:**

- 2011 Annual Monitoring of Mountain Run Mitigation Bank, Culpeper, VA – Managed 2011 annual monitoring including stream geomorphic measurements for 800 LF of channel, installation of 20+ monitoring wells and loggers, vegetative monitoring at 20+ stations, and report preparation.
- 2011 Riparian Buffer Monitoring. Rutledge Creek, Amherst, VA – Managed vegetative monitoring along 3,800 LF of stream channel.

Josh Lindstrom, PE

Construction Operations Manager

Josh Lindstrom's experience includes water resource and geotechnical engineering design, existing facilities inspection, operations and maintenance planning, construction quality control, construction self-performance, and contract management. Josh is a capable, flexible leader of multidisciplinary teams with a proven track record of successfully overcoming challenges to meet the specific needs of each individual project. He has led teams on engineering design and planning-level scientific studies for state agencies, local municipalities, and private sector clients. His experience includes performing existing conditions and operational enhancement inspections for water resource-related facilities ranging from high-hazard dams to culvert pipes in remote locations.

AT A GLANCE.

Years of Experience
18 years

Years with Firm
2

Office Location
Tampa, FL

Education
- BS, Civil Engineering

Certificates | Licenses
- Professional Engineer, FL (79530)
- OSHA 40-Hour HAZWOPER Training
- AWRA member
- OSHA 29 CFR 1926, Subpart P – Excavation Safety Competent Person Training
- USACE Construction Quality Management for Contractors

SELECT PROJECT EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

Josh is providing construction oversight and operations management for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Big Cypress Mitigation Bank, RLH, Hendry County, FL

Josh has served a dual role as civil engineer and operations lead for the restoration efforts at this mitigation bank. Prior to RES acquiring the property, the bank was failing to meet the permitted success criteria, owing in large part to a poorly implemented hydrologic restoration plan. To bring the bank back into compliance, Josh and the RES team compiled and reviewed multiple years' worth of hydrologic data from onsite piezometers. Upon review of the assimilated data, Josh worked to develop a revised hydrologic restoration plan, which included modification to an existing onsite reservoir, targeted ditch filling, and re-grading over 300 acres of ridge and swale topography from previous agricultural use on site. The proposed enhancements required modifications to the existing ERP as well as coordination with multiple stakeholders, including the Army Corps of Engineers and neighboring private landowners.

Biscayne Bay Coastal Wetlands – Cutler Flow Way, SFWMD, Miami-Dade County, FL

This project consists of reviewing and updating the existing 2008 plans and design to achieve the project objectives at the best construction value. The objective of the project is to improve the distribution of freshwater to Biscayne Bay and Biscayne National Park by re-directing runoff from the C-1 basin to the coastal wetlands along Biscayne Bay (rehydration area). Tasks included adding parcels to the rehydration area, updating HEC-RAS modeling for the proposed conveyance channel and spreader canal taking into account new information, re-designing culvert crossings under major arterial roads, adding an energy dissipater, and updating flows to 400 cubic feet per second (cfs) due to the proposed pump station receiving an additional 100 cfs pump. The updated design utilizes current codes, SFWMD and USACE technical references, and standard details. Josh led the team performing the updates to the hydraulic modeling for the rehydration area using HEC-RAS 2D. Efforts included utilizing a more refined LIDAR-derived digital elevation model (DEM) to and additional survey data to depict and map the project benefits more accurately. The modeling efforts included multiple iterations to optimize the project benefits of rehydrating coastal wetlands while keeping the anticipated construction costs within project budget.

Southwest Protection Feature, SFWMD, Collier County, FL

Josh served as a project engineer and quality assurance manager for this South Florida Water Management District project which consists of the design of approximately 7.5 miles of protective levee to mitigate risks to private and public property

associated with the initiation of the Picayune Strand restoration projects. The levees will be constructed in an ecologically sensitive environment and designed with input from numerous stakeholders. Josh provided civil design engineering for the levees including layout, slope stability, and seepage mitigation features. Additionally, authored significant portions of the development of the design documentation report, the engineer's opinion of probable construction costs, and served as a senior technical reviewer for the technical specifications and design drawings.

EAA Canal Conveyance Improvement Project, SFWMD, Palm Beach County, FL

Josh was a member of a team of engineers, hydraulic/hydrologic water modelers, and surveyors performing the study and design of conveyance improvements to two existing canals in Palm Beach County, the Miami Canal and the North New River Canal, that move water south out of Lake Okeechobee through the Everglades Agricultural Area to the stormwater treatment areas. The work performed on this project included topo survey, hydrographic survey, LIDAR, and geotechnical investigations and engineering. This data modeling is used for nodal inputs in HEC-RAS. Using boundary constraints identified by the client, various flow scenarios were modeled to determine whether consumptive use or flood control conditions dictate conveyance canal improvements needed to allow for additional flows from Lake Okeechobee to be moved south out of existing gate structures.

Middle Suwannee River H&H Modeling, SRWMD, Lafayette/Dixie Counties, FL

Josh served as project manager and senior civil engineer for this water surface and groundwater modeling effort. The project intended to identify potential aquifer recharge and wetland restoration opportunities within the SRWMD-owned Mallory Swamp tract and the surrounding parcels privately owned by willing partners. Participated in and managed the day-to-day work effort of the team performing site reconnaissance efforts for the 58,000+ acre Middle Suwanee River study area. Managed the development of the three-dimensional surface and groundwater model for the study area performed by a team of both in-house and sub-contracted technical subject experts. Served as principal author and signing engineer for the hydraulic and hydrologic model summary report provided to the SRWMD, which documented results of the model study and provided suggestions for adaptive management strategies for existing infrastructure within the study area to optimize future efforts at aquifer recharge and hydrologic restoration.

El Maximo Ranch Water Quality Treatment, Generation Farms/SFWMD, Osceola County, FL

The project is a 7,030-acre ranch conversion into a flow through water quality treatment project. The site provides attenuation of flows pumped from the Kissimmee River and Blanket Bay Slough by moving the pumped water across ranchland, improved pasture, that is divided into seven treatment basins by 39 miles of new low hazard levee (berms). The water is after a hydraulic residence period to the Kissimmee River further downstream. The project is a public-private partnership with the state of Florida in the Northern Everglades and Estuaries Protection Program and will provide TP nutrient reductions for the impaired Lake Okeechobee watershed. To ensure the project did not conflict with the State of Florida's Kissimmee River restoration goals, and to ensure the project would be able to achieve its contracted performance measures to cycle roughly 30,000-acre feet per year through the project, needed to achieve the anticipated nutrient reductions, the project was modeled using the SFWMD's DWM tool, an extension of the RSM used to understand regional conditions in South Florida. Additional modeling was performed using ICPR V4 for basin routing as well as for environmental resource permitting, verifying the recovery time of each of the basins after significant rainfall and ensuring a 25-year, three-day storm could be accommodated.

Emergency Stormwater Modifications, Chemtrade Logistics, Tampa, FL

A dispute with a neighboring property owner led to the owner of this industrial facility requiring emergency modifications to the existing stormwater management system on site. Josh provided a turnkey solution to the owner by serving as both the engineer and constructor to expedite the installation of the modifications. Duties performed included serving multiple roles as the engineer of record, construction project manager, and site superintendent throughout the project. Engineering efforts included performing the calculations to size the new drainage infrastructure, preparing construction drawings, and obtaining the necessary permits with the City of Tampa. Construction project management efforts included developing the project schedule, coordinating with internal resources, hiring and negotiating with sub-contracted resources, overseeing the delivery of equipment and materials, as well as project closeout and documentation. During construction, served as the site superintendent managing the performance of the crew.

Michael Peny, RLA

Regional Operations Director

As Regional Operations Director, Michael manages and provides senior construction implementation oversight on a wide range of projects including wetland, stream, and shoreline restoration to conventional and innovative SWM facilities, including retrofit of wet or dry retention ponds and installation of low impact development (LID) features such as raingardens, bio-swales, sand filters, and wetland enhanced facilities. Michael is responsible for managing project personnel, allocating resources to various projects, and ensuring project schedules and budgets are met. To date, Michael has led his team to complete over 20 miles of stream restoration, 400 acres of wetland creation, and retrofit over 350 SWM facilities.

AT A GLANCE.

Years of Experience
24 years

Years with Firm
20

Office Location
Warrenton, VA

Education
BLA, Landscape Architecture

Certificates | Licenses
MD, #3211

SELECT WORK EXPERIENCE

Wilson Ranch Stream and Wetland Restoration Project, Polk County, FL

Serving as operations director for this full delivery public-private partnership project with Polk County to improve water quality and hydrologic conditions in the highly impaired Upper Peace River Basin, that feeds Charlotte Harbor Estuary. RES acquired a 400+ acre parcel to implement a stream and wetland restoration project that will reduce approximately 1 metric ton of total phosphorus and 2 metric tons of total nitrogen. RES is designing, building, maintaining, and monitoring the project using in-house ecological engineering, science, and restoration practitioners. Construction will be supported by our external earthwork contractor, P&J. Once constructed, RES will own and operate the project for 25 years before the project is transferred to Polk County.

Full Delivery Stream Restoration Services, Maryland Department of Transportation, State Highway Administration (MDSHA), Statewide

Serves as operations manager to provide a total of 21,000 LF of full delivery stream restoration projects. RES will be providing services on seven separate sites under this contract. For each site, RES is responsible for site selection, land acquisition, survey, design, permitting, construction, monitoring, and adaptive management to support the MDSHA's Chesapeake Bay restoration goals. **The following are two examples of projects delivered under this contracting mechanism:**

- Mardella Branch Stream Restoration**,** Maryland State Highway Administration, Baltimore County, MD – As Region Operations Director, Michael managed regional operations (with direct reports including Will Weaver, RES' Operations Manager) and performed quality control and oversight responsibilities. This project restored 3,400 LF of degraded stream channel in Baltimore County for MDSHA's compliance under their MS4/TMDL permit. The project was bisected by an active county road and material management had to be coordinated to prevent blockage or damage of the roadway during construction. Construction involved tie-in to an existing bridge culvert at the road crossing. RES was responsible for all landowner coordination, acquisition of easements, permitting, plans, and construction implementation.
- Tarnan's Branch Stream Restoration, Maryland State Highway Administration, Anne Arundel County, MD – As Region Operations Director, Michael managed regional operations (with direct reports including Will Weaver, RES' Operations Manager) and performed quality control and oversight responsibilities. This project restored 5,200 LF of degraded, forested stream channel in Anne Arundel County for MDSHA's compliance under their MS4/TMDL permit. The project stabilized the stream channel and provided floodplain reconnection along the main branch and four tributaries of Tarnan's Branch. Construction involved excavation and grading of 12,000 yards of material generated from the site. RES was responsible for all landowner coordination, acquisition of easements, permitting, plans, and construction implementation.

Trapp Branch Stream Restoration, Mitigation Services Inc., Fauquier County, VA

Oversaw the construction and restoration of four acres of wetlands, approximately 3,000 LF of stream embankment, 11 acres of forested riparian buffer, and a large bass pond. Administered construction budget estimating and coordinated design staff, landowners, and materials suppliers. Directed all aspects of the on-site work, including surveying, erosion and sediment control procedures and compliance, earthwork operations, hydraulic control installation, seed bed preparation, landscaping,

and planting operations. Provided quality assurance/quality control for all maintenance and construction services contracted.

James Long Stream Restoration. Prince William County Department of Parks, Prince William County, VA

Provided senior oversight for 7,215 LF of stream restoration on public park land in Haymarket, Virginia. Managed staff operations, oversaw implementation of major tasks, and ensured budget and schedule constraints were met. Oversaw installation of 55 offset cross vanes, 44 log vanes, one plunge pool, 10 cross vanes, three constructed riffles, and several rootwads. As this project was in a public park, ensured adequate safety and educational outreach efforts were completed for the community.

Cow Branch Stream Restoration, Prince William County, VA

Provided senior oversight for restoration of 1,000 LF of Cow Branch, an upper coastal plain stream in an urban watershed. This project was one of the most technically difficult reaches completed to date by Prince William County. The degraded channel was 50 feet wide with vertical banks that were up to 15 feet tall. At the outlet of Optiz Boulevard, there was a seven-foot-tall waterfall. The restoration involved relocating the main channel of Cow Branch on to the abandoned floodplain and filling in the existing incised channel to create a new floodplain. RES installed 460 LF of imbricated stone armoring as a part of the bank stabilization, a large plunge pool, 1,500 LF of stone toe protection, and 475 LF of riffle grade controls. Over 500 LF of the stream was relocated while the remaining 500 LF was restored along the original channel location.

Sheffield Hunt Stream Restoration, Fairfax County Department of Public Works, Fairfax County, VA

Oversaw construction operations on this stream restoration and pond rehabilitation project to ensure proper management of stormwater flows resulting from the Sheffield Hunt community. RES performed 1,000 LF of stream restoration originating at the outfall, combined with the rehabilitation and grading of a downstream stormwater management pond.

Stratton Park Stream Restoration. F. G. Pruit (Prime), Chesterfield County, VA

Oversaw construction operations on a stormwater conveyance system for newly built sports fields in Chesterfield County's Stratton Park. Project involved 500 LF of stream restoration with 54 cross vanes and step pools, 10 step runs, and installed cobble along the entire length of stream. Challenges overcome during this project included an extremely steep stream slope and the installation of a large amount of rock grade structures near one another.

Locust Shade Park Stream Restoration. Prince William County Department of Parks, Prince William County, VA

Provided senior oversight of the restoration of 5,160 LF of stream, designed and built by RES. Project involved intensive restoration of the highly incised channel, including complete relocation of the stream along the floodplain. Installed just under 200 rock structures for grade control and flow redirection, including 95 cross vanes and 95 riffle grade structures. Also installed 27 log vanes and sills to deter headcutting of the stream and 54 root wads for natural bank stabilization. Ensured project managers and site superintendents implemented effective implementation strategies, while overseeing budget, scheduling, and equipment coordination. Worked closely with the project's in-house designers and regulatory staff to ensure effective implementation of project goals. As this is in a public park, oversaw outreach efforts to trail groups, park visitors, and park staff to educate community members on stream restoration, update them on trail closures, and encourage a dialogue for their concerns.

North Branch of Cypress Creek Restoration, Anne Arundel County, MD

Provided senior oversight for this $1.6M project consisting of 2,700 LF of stream and five acres of wetland restoration. Tasks included installation of regenerative stormwater conveyance outfalls, mass and fine grading to restore the site to its previous wetland condition (>8,500CY of exported material), installation of low gradient weir structures to maintain grade and increase groundwater infiltration, creation of a coastal plain braided stream channel, and the installation of over 2,000 wetland plants. Installed structures included cobble weirs (15), sandstone outfalls (15), floodplain grade control structures (cobble/sandstone mix) (6), log grade control structures (4), boulder cobble cascades (9), and log/ boulder step-pools (6).

Jeremy Clatterbuck

Region Lead Estimator

As region lead estimator for RES, Jeremy Clatterbuck develops formal bid pricing for multi-million-dollar ecological construction projects including stream and wetland restoration, LID installation, shoreline stabilization, stormwater BMP retrofits, etc. He strategically develops overall pricing tabulations to ensure contract profitability while remaining competitive in the industry. Jeremy's role requires plan set analysis and creative thinking in developing full pricing for complex, various project types. Contract experience includes private, local, state, and federal bids, both in indefinite delivery, indefinite quantity (IDIQ format) and firm fixed price/lump sum. He has developed and maintains relationships with material suppliers and vendors, including minority business enterprise partners, to ensure competitive costs.

AT A GLANCE.

Years of Experience
16 years

Years with Firm
14

Office Location
Warrenton, VA

SELECT WORK EXPERIENCE

Sheffield Hunt Stream Restoration, Fairfax County, VA

Chief estimator for $579,000 stream restoration and pond rehabilitation for Fairfax County, VA. The project was to ensure proper management of stormwater flows resulting from the Sheffield Hunt community. Performed pricing for 1,000 LF of stream restoration originating at an outfall and the rehabilitation and grading of a downstream stormwater management pond. The project received Champion Award by Fairfax County, VA in 2012.

Northwest Branch of Anacostia River Ecosystem Restoration, Phase I, US Army Corps of Engineers, Silver Spring, MD

Chief estimator for this 5,000 LF, $2M, stream restoration project that included three independent sites. Oversaw the pricing of a variety of stream restoration techniques such as coir logs and live fascines, imbricated stone wall, j-hook and cross vanes, log v-drop structures, seeding and stabilization, and the planting of over 5,000 trees and shrubs. Ensured effective coordination with the client and multiple stakeholders.

IDIQ Contracts (3) for Environmental Restoration in Sligo Creek Basin, Little Falls/Rock Run Basins, and Lower Anacostia/Beaverdam/Mattawoman Basins, Washington Suburban Sanitary Commission (WSSC), Montgomery and Prince George's Counties, MD

Chief Estimator for three IDIQ contracts to provide stream restoration construction and infrastructure protection services for WSSC. Project tasks included hard armoring of infrastructure pipes and installation of in-stream cross vanes, step pools, slope toe protection, and imbricated riprap walls. Combined contract value total over $36M.

On-Call Contract for Design-Build Restoration, Baltimore County Department of Environmental Protection and Sustainability, Baltimore County, MD

Provided cost details for $5M, five-year contract with Baltimore County DEPS for design-build environmental restoration. Projects include the restoration of several SWM facilities, replacement of low flow pipes, installation of new outfalls, dredging of excess material, and grading and stabilization of project sites.

On-Call Contract for Design-Build Restoration, Baltimore County Department of Public Works (DPW), Storm Drain Design Section, Baltimore County, MD

Chief estimator to provide cost details for $6M, five-year contract with Baltimore County DPW for design-build environmental restoration. Projects include installation of bio-swales, bioretention ponds, permeable pavers, restored stream channels, and submerged gravel wetlands.

On-Call Stormwater Management and Stream Restoration Unit Price Construction Contract, MD Government, Montgomery County, MD

Chief estimator for on-call contract with Montgomery County, Maryland. RES conducts a variety of restoration projects. Example projects include stream restoration in urban/suburban neighborhoods, installation of raingardens and bioretention facilities at existing county properties (e.g., libraries) and individual homeowner properties, pond embankment repairs with new riser structures, piping, and clay cores, invasive species management, and mitigation site tree plantings.

On-Call Maintenance, Repair, and Stabilization of Stormwater/Drainage Facilities, Harford County Government, Harford County, MD

Served as chief estimator for construction activities under on-call contract with Harford County, Maryland. RES has held this contract since 2007. Primary projects include stormwater retrofit projects requiring embankment, riser, and pipe replacements; culvert and headwall retrofits; dry pond conversions; and stream stabilizations.

Prince William Environmental Bank, Prince William County Department of Parks, Prince William County, VA

Chief estimator for two extensive stream restorations under RES and Prince William County's P3 agreement. Completed all pricing for 5,160 LF of stream restoration at Locust Shade Park in 2012, totaling $956,820 for construction. Completed pricing for 7,215 LF of stream restoration at James Long Park in 2013, totaling $1.1M for construction.

Paint Branch Stream Restoration, US Army Corps of Engineers, College Park, MD

Chief estimator for $1.9 million-dollar stream restoration for the US Army Corps of Engineers – Baltimore District. Project consisted of restoring roughly 1,800 LF of Paint Branch stream. In addition to the original pricing segment, damage from Hurricane Sandy necessitated significant repairs on a previously restored, adjacent channel spanning 4,250 LF. Jeremy developed pricing for this additional work segment as well.

Arlington National Cemetery. U.S. Army Corps of Engineers, Arlington, VA

Served as chief estimator for $2M stream restoration at Arlington National Cemetery. This project is in conjunction with the Millennium Expansion Project to develop 27 AC of increased burial space in the cemetery. In total, RES restored approximately 1,920 LF of degraded stream channel on cemetery property, as well as 165 LF of impaired channel and outfall remediation at an off-site location behind the National Park Service building. Jeremy developed all pricing for the project, which required coordination with several large entities including the US Army Corps of Engineers – Norfolk (project owner), Forrester Construction (prime contractor for Millennium Project), Jacobs (engineer for Millennium Project), Wetland Studies and Solutions (stream designer, subcontractor to Jacobs), and The National Park Service (landowner for Chaffee Place site).

North Branch of Cypress Creek Restoration, Anne Arundel County, MD

Chief estimator for a $1.6M project that consists of over 2,700 LF of stream and five acres of wetland restoration for Anne Arundel County, Maryland. The project scope includes the installation of regenerative stormwater conveyance outfalls, mass and fine grading to restore the site to its previous wetland condition (>8,500CY of exported material), installation of low gradient weir structures to maintain grade and increase groundwater infiltration, creation of a coastal plain braided stream channel, and the installation of over 2,000 wetland plants.

On-Call Maintenance, Repair, and Stabilization of Stormwater/Drainage Facilities, Washington Suburban Sanitary Commission (WSSC), Montgomery County, MD

Adopting an existing contract with Montgomery County, MD, WSSC selected RES to provide stormwater management and stream restoration services for pipelines on an as-needed basis for a $1.6M contract. Key projects involved the repair and protection of water and sanitation lines located in streams in Prince George and Montgomery Counties in Maryland. For these projects, RES installed cross vanes for in-stream grade control, step pools, slope toe protection, imbricated riprap walls, sandbags, and F-walls for diversions. Jeremy provides pricing and client coordination for this contract.

MATT EIDSON, DBIA, ENV SP

P&J Regional Manager

Matt Eidson has 25 years of construction experience, including construction management, safety, and infrastructure development. He has constructed and managed numerous field operations with various types of contract disciplines from CMAR, PDB, DB, DBB, and DBO. In addition, Mr. Eidson has installed over two million linear feet of underground utility throughout the southeast; and has expertise in several underground utility techniques and technology. Nearly half of Mr. Eidson's career has been within the water quality and conservation market. In his current role as Regional Manager with P&J, Mr. Eidson provides coordination of personnel, equipment, and subcontractors; preparation of estimates and budgets; maintenance of the project schedule, processing of change orders and payment applications; monthly review of project costs; development of project-specific document control processes and procedures for our Heavy Civil division. His experience in project controls, including scheduling, cost tracking, and recovery planning, aids in successfully completing his duties

RYAN LESTER

P&J Senior Estimator

Ryan Lester, a graduate of University of South Florida with a Bachelor of Science in Business, has been an integral part of the Philips & Jordan organization for over 10 years. Managing a staff of 5 senior level estimators and several junior level estimators Ryan and his team provide services for a wide range of project delivery models. From Design-Bid-Build, Progressive Design-Build, Construction Manager at Risk, to Public-Private-Partnership projects he and his team are focused on quality, extensive levels of detail, organization, and the utmost accuracy in each project that is evaluated. The experience of the team provides our clients with a level of confidence in projects ranging from $1 million dollars to over $100+ million dollars in value. From early budgetary estimates to final cost for construction, Ryan and his team offer a level of service unmatched within the Heavy Civil construction industry.

R.A. WARDEN

P&J Construction Project Manager

R.A. Warden has more than five years of construction industry experience and currently serves as a Project Manager for P&J. His responsibilities include review of specifications and plans, development of project objectives, processing of submittals, material procurement, scheduling, processing of change orders, forecasting project budgets and reviewing budget variances, monitoring project progress, tracking project quantities and costs, and preparation of status reports. Among other large-scale water resource construction projects, he served as the Project Engineer on the Pasco County Master Reuse System. His experience involved planning, executing, and tracking the construction of the 15 wetland cells. The construction involved seven miles of pressurized pipe, 24" dia. valve manifold and SCADA system, and 260,000 CY of embankment. As a result, Mr. Warden can provide valuable insight and lessons learned related to the Groundwater Recharge Wetland Project development.

LEONARD LOTT

P&J Project Superintendent

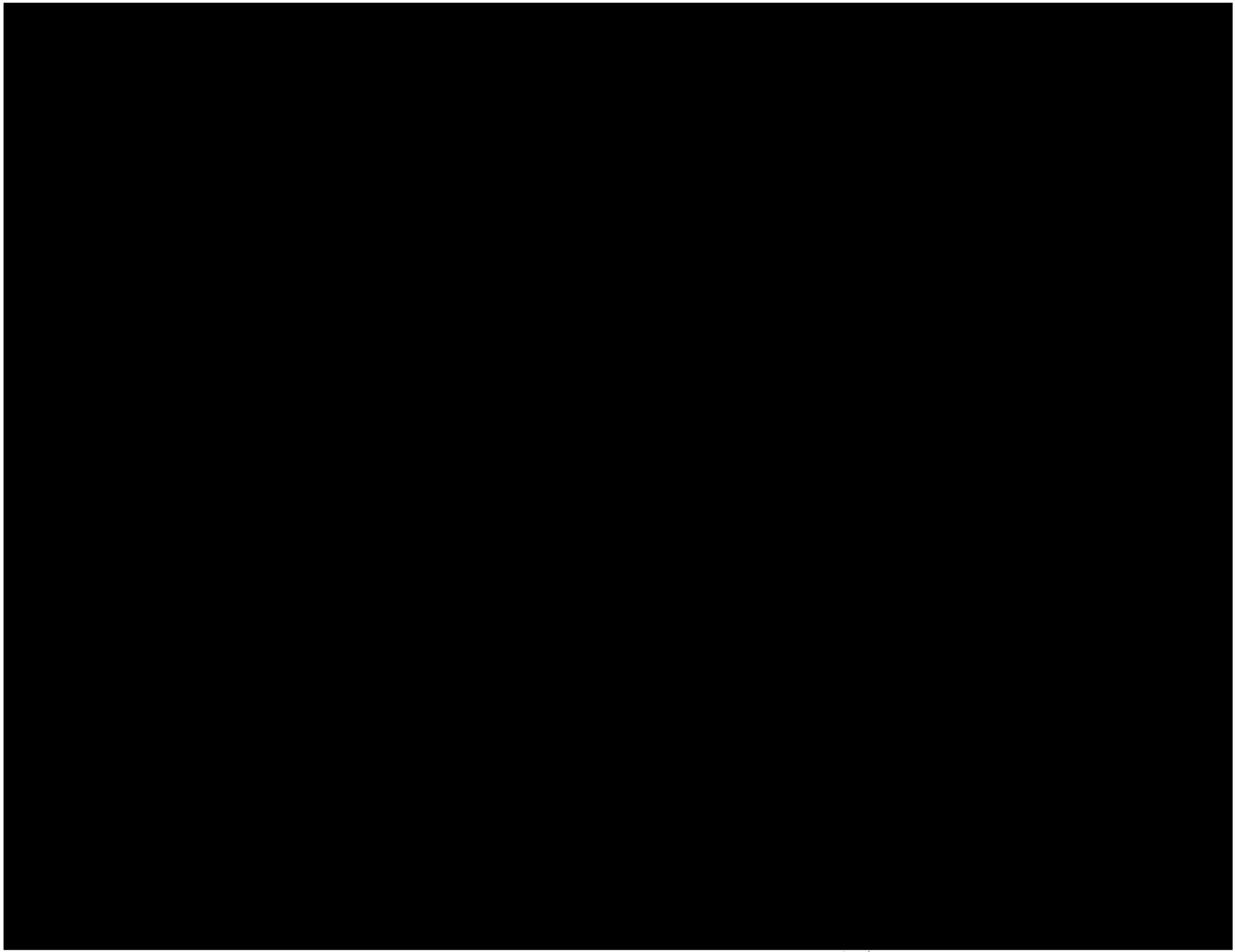
Leonard Lott has more than 40 years of construction industry experience and currently serves as a project superintendent for P&J. He focuses on earthwork and site development for the P&J's Industrial & Commercial Group. He is responsible for daily supervision of earthwork operations, management of equipment and materials, oversight of subcontractor activities, participation in project meetings, and preparation of daily reports.

SONNY LANCASTER

P&J Environmental Health & Safety Manager

Sonny Lancaster has 13 years of construction industry experience and serves as the Lead EH&S Manager for P&J's Industrial & Commercial Group. As a regional Lead, he supervises EH&S activities on multiple, simultaneous projects throughout Florida. Lancaster coordinates site EH&S Managers to oversee P&J work activities on these projects, perform safety training and auditing, prepare daily safety reports, and liaise with client management representatives, including the safety professional, implementation manager, and environmental manager on multiple projects throughout the region.

Appendix B / Concept Plan



Appendix C / Surety Letter

Appendix C / Surety Letter

One of our surety broker's selected surety organizations provided the below reference letter specific to this project, however, amongst all sureties, we maintain $700M in aggregate capacity and $100M per project.

ARGO SURETY
Member Argo Group

December 6, 2023

Alachua County
12 SE 1st Street
Gainesville, Florida 32601

Re: Newnans Lake System Comprehensive Restoration

To whom it may concern:

It has been the privilege of Argonaut Insurance Company ("Argo Surety")[1] and/or its underwriting team to have provided surety bonds for HGS, LLC dba RES Environmental Operating Company, LLC. During this time we have bonded projects in the $25,000,000.00 range for a wide variety of owners. HGS, LLC dba RES Environmental Operating Company, LLC is an account in good standing with our company. The general bonding line of credit established for or available to this firm is $50,000,000.00.

It is our opinion that HGS, LLC dba RES Environmental Operating Company, LLC is qualified to perform the above captioned project, which we understand has an estimated value of approximately $10,000,000.00. At their request we will give favorable consideration to providing the required bonds.

Please note that the decision to issue surety bonds is a matter between HGS, LLC dba RES Environmental Operating Company, LLC and Argo Surety, and will be subject to our standard underwriting at the time of the final bond request, which will include but not be limited to the acceptability of the contract documents, bond forms and financing. We assume no liability to third parties or to you if for any reasonwe do not execute said bonds.

Argo Surety is "Treasury Listed" by the U. S. Department of the Treasury with an underwriting limitation expressed therein of over $99,443.00. The A.M. Best Company has assigned Argo Surety a rating of "A-". Argo Surety is fully licensed and authorized to write bonds of this size and type in the State of Florida. If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,
Argonaut Insurance Company

Vanessa Dominguez
Attorney-in-Fact

[1] Argo Surety is an A- (Excellent) A.M. Best rated insurance company (Financial Size Category XIII ($1 billion to $1.25 billion).

P.O. Box 469011
San Antonio, TX 78246
www.argolimited.com

T 281 640 7912

Argonaut Insurance Company
Deliveries Only: 225 W. Washington, 24th Floor
Chicago, IL 60606
United States Postal Service: P.O. Box 469011, San Antonio, TX 78246
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the Argonaut Insurance Company, a Corporation duly organized and existing under the laws of the State of Illinois and having its principal office in the County of Cook, Illinois does hereby nominate, constitute and appoint:

Michael J. Herrod, Tina McEwan, Robbi Morales, Lupe Tyler, Lisa A. Ward, Donna L. Williams, Misty Wright, Terri L. Morrison, Gina A. Rodriguez, Andrea M. Penaloza, Amanda George

Their true and lawful agent(s) and attorney(s)-in-fact, each in their separate capacity if more than one is named above, to make, execute, seal and deliver for and on its behalf as surety, and as its act and deed any and all bonds, contracts, agreements of indemnity and other undertakings in suretyship provided, however, that the penal sum of any one such instrument executed hereunder shall not exceed the sum of:

$95,000,000.00

This Power of Attorney is granted and is signed and sealed under and by the authority of the following Resolution adopted by the Board of Directors of Argonaut Insurance Company:

"RESOLVED, That the President, Senior Vice President, Vice President, Assistant Vice President, Secretary, Treasurer and each of them hereby is authorized to execute powers of attorney, and such authority can be executed by use of facsimile signature, which may be attested or acknowledged by any officer or attorney, of the Company, qualifying the attorney or attorneys named in the given power of attorney, to execute in behalf of, and acknowledge as the act and deed of the Argonaut Insurance Company, all bond undertakings and contracts of suretyship, and to affix the corporate seal thereto."

IN WITNESS WHEREOF, Argonaut Insurance Company has caused its official seal to be hereunto affixed and these presents to be signed by its duly authorized officer on the 1st day of June, 2021.

Argonaut Insurance Company

ARGONAUT INSURANCE COMPANY CORPORATE SEAL 1948 ILLINOIS

by: _____

Joshua C. Betz , Senior Vice President

STATE OF TEXAS
COUNTY OF HARRIS SS:

On this 1st day of June, 2021 A.D., before me, a Notary Public of the State of Texas, in and for the County of Harris, duly commissioned and qualified, came THE ABOVE OFFICER OF THE COMPANY, to me personally known to be the individual and officer described in, and who executed the preceding instrument, and he acknowledged the execution of same, and being by me duly sworn, deposed and said that he is the officer of the said Company aforesaid, and that the seal affixed to the preceding instrument is the Corporate Seal of said Company, and the said Corporate Seal and his signature as officer were duly affixed and subscribed to the said instrument by the authority and direction of the said corporation, and that Resolution adopted by the Board of Directors of said Company, referred to in the preceding instrument is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand, and affixed my Official Seal at the County of Harris, the day and year first above written.

KATHLEEN M MEEKS
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 07/15/25
NOTARY ID 557902-8

Kathleen M. Meeks

_____
(Notary Public)

I, the undersigned Officer of the Argonaut Insurance Company, Illinois Corporation, do hereby certify that the original POWER OF ATTORNEY of which the foregoing is a full, true and correct copy is still in full force and effect and has not been revoked.

IN WITNESS WHEREOF, I have hereunto set my hand, and affixed the Seal of said Company, on the 6th day of December, 2023.

ARGONAUT INSURANCE COMPANY CORPORATE SEAL 1948 ILLINOIS

_____
James Bluzard , Vice President-Surety

IF YOU HAVE QUESTIONS ON AUTHENTICITY OF THIS DOCUMENT CALL (833) 820 - 9137.

Appendix D / Evidence of Insurance

Appendix D / Evidence of Insurance

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 10/11/2023

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

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

PRODUCER	CONTACT NAME:	
Aon Risk Insurance Services West, Inc. Denver CO Office 1900 16th Street, Suite 1000 Denver CO 80202 USA	PHONE (A/C, No, Ext): (303) 758-7688	FAX (A/C, No.): (303) 758-9458
	E-MAIL ADDRESS:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
HGS, LLC dba RES Environmental Operating Company, LLC 6575 West Loop South, Suite 300 Bellaire TX 77401 USA	INSURER A: Zurich American Ins Co	16535
	INSURER B: Scottsdale Ins Company	41297
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 570102212440 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
B	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC OTHER:			VRS0006957	10/01/2023	10/01/2024	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Deductible	$1,000,000 $350,000 $10,000 $1,000,000 $2,000,000 $2,000,000 $25,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			BAP 8633906 - 03	10/08/2023	10/08/2024	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$2,000,000
B	UMBRELLA LIAB X OCCUR X EXCESS LIAB CLAIMS-MADE DED RETENTION			VES0004308	10/01/2023	10/01/2024	EACH OCCURRENCE AGGREGATE Automobile Excess Limit	$10,000,000 $10,000,000 $9,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/ PARTNER/ EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WC863390703	10/08/2023	10/08/2024	X PER STATUTE OTHER E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	$1,000,000 $1,000,000 $1,000,000
B	Environmental Contractors and Prof			VRS0006957 Prof/Poll - Claims Made	10/01/2023	10/01/2024	Ea Claim / Cvg Aggregate Deductible	$1,000,000 $2,000,000 $25,000

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

Evidence of Insurance

CERTIFICATE HOLDER

HGS, LLC dba
RES Environmental Operating Company, LLC
6575 West Loop South, Suite 300
Bellaire TX 77401 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Insurance Services West, Inc.

Holder Identifier :

Certificate No : 570102212440

ACORD 25 (2016/03) The ACORD name and logo are registered marks of ACORD

AGENCY CUSTOMER ID: 570000075824

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Aon Risk Insurance Services West, Inc.	HGS, LLC
POLICY NUMBER	
See Certificate Number: 570102212440	
CARRIER / NAIC CODE	EFFECTIVE DATE:
See Certificate Number: 570102212440	

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: ACORD 25 **FORM TITLE:** Certificate of Liability Insurance

Named Insured Schedule

Bayou Paul Mitigation Area, LLC
Carolina Heelsplitter Conversation, LLC
CBAY-VA, LLC
Coastal Louisiana Resource, LLC
EBX-EM,LLC
EBX-GCW, LLC
EBX-Neuse I, LLC
EBX Mountain Run, LLC
EBX-Waccamaw, LLC
EBX Resource Banking, LLC
Ecological Restoration Services, LLC
Eighth Louisiana Resource, LLC
Environmental Banc Exchange, LLC (EBX)
Fifth Louisiana Resource, LLC
First California Resource, LLC
First Indiana Resource, LLC
First Louisiana Resource, LLC
RES Texas Mitigation, LLC
First Texas Resource, LLC
First Pennsylvania Resource, LLC
First West Virginia Resource, LLC
Fourth Louisiana Resource, LLC
HGS LLC dba RES Environmental Operating Company, LLC
Resource Project Specific Mitigation, LLC
RLF Angleton Properties, LLC
Second Louisiana Resource, LLC
Seventh Louisiana Resource, LLC
Sixth Louisiana Resource, LLC
Third Louisiana Resource, LLC
Third Texas Resource, LLC
Wingnut Interests, LLC
RES-Pac, Inc.
Louisiana Pecans, LLC
RES-Holding Company
Potamoi Holdings, LLC
RES Mitigation, LLC
GDS, LLC
Earthmark WV Mitigations, LLC
Chesapeake Wetland Mitigation Bank
Colonel Land, LLC
Bunker Root Bear Stand, LLC
Center for Restoration
Greenbanx, LLC
Red Brick Arrow, LLC
CAT Island Conservancy, LLC
RES Carolinas, LLC
RES Kentucky, LLC DBA Redwing Ecological Services
Headwater Management, LLC
RES Great Lakes, LLC
RES Florida, LLC


res