

RFP NO. 20260279

# DESIGN – WETLAND HABITAT ENHANCEMENT AND FLOODING IMPROVEMENTS – CHARLOTTE HARBOR FLATWOODS

CHARLOTTE COUNTY

March 9, 2026





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

RE: RFP No. 20260279; Design — Wetland Habitat Enhancement and Flooding Improvements  
Charlotte Harbor Flatwoods

Dear Members of the Selection Committee,

HDR is excited to provide this proposal to Charlotte County for Design – Wetland Habitat Enhancement and Flooding Improvements – Charlotte Harbor Flatwoods. The HDR team possesses the right blend of technical expertise with local knowledge to deliver this exciting project and is eager to partner in this endeavor. Our proven experience with similar projects is highlighted in this response.

**Committed partners with strong local knowledge.** The HDR team has been the County's committed partner for over 15 years, and we are familiar with the County procedures and this project's local terrain. HDR and our selected subconsultants for this project— Water Science Associates, an Apex Company (Apex), Ardurra Group, Inc. (Ardurra); Environmental Science Associates Corporation (ESA); Surveying & Mapping, LLC (SAM); Terracon Consultants, Inc. (Terracon); and Lago Consulting & Services, LLC—have considerable experience working with the County and its stakeholders on a variety of projects ranging from Bond Farm Hydrologic Enhancement Impoundment, Charlotte Harbor Habitat Evolution Modeling (HEM) Update, and Lower Charlotte Harbor Flatwoods Hydrologic Investigation and Planning to Yucca Pens Wildlife Management Area (WMA) Hydrogeologic Assessment.

**Exceptional Modeling Experience.** The cornerstone of this entire project will be an effective model application of the various strategies developed by the HDR team. We are confident the modeling task lead, Roger Copp (Apex), with guidance from stakeholders, will provide the County with the expertise and local knowledge that a project of this nature demands. The modeling team is adept with MIKE SHE, MIKE 11, and MIKE Hydro integrated hydrological modeling software and has local modeling experience with this very watershed. Roger will be the lead H&H modeler, with extensive experience in the Babcock Webb and Yucca Pens Wildlife Management Areas. Roger has been involved in the region dating back to 2013, when he worked on hydrologic modeling studies that resulted in the purchase of Bond Farm to be used to store excess water from Babcock Webb's South Walk-In Area. With Roger's background, monitoring data, and available resources from previous related projects, the client will have all the relevant information for a successful project.



**Strong Leadership.** Todd Burton, PE, will manage HDR’s team and has worked on and managed water resources projects for over 15 years. He is familiar with complex project coordination and stakeholder engagement. Todd has familiarity with the County from his time working on the Bond Farm Hydrologic Enhancement Impoundment project. Eduardo Colchado, PE, will be our dedicated Engineer-of-Record, aiding the County project manager in the execution of the project’s vision and coordinating the team’s technical resources. Eduardo is adept with design of largescale projects.

Todd will work in tandem with the County project manager to facilitate stakeholder meetings, prepare technical documents and reports, coordinate field efforts, and help to frame and guide design development of project alternatives. The full spectrum of HDR engineering discipline expertise will be available to this project to facilitate the right combination of solutions to deliver on the goals of this project effectively by restoring and protecting Charlotte Harbor Flatwoods flows while effectively meeting the water supply and management needs of the Watershed itself.

HDR is committed to working on this project with the County and associated stakeholders and looks forward to continuing our partnership through this important opportunity.  
Sincerely,

HDR Engineering, Inc.

Richard LeBlanc, PE, LEED AP  
Principal-in-Charge

Todd Burton, PE  
Project Manager

In accordance with Part III, Section RP-28, A on Page 20 of the RFP, this proposal is made without collusion with any other person or entity submitting a proposal pursuant to this RFP.

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| TEAM  
PROPOSED  
FOR THIS  
PROJECT



## About us.

Founded in 1917, we know that a lot can change in 100+ years. Technologies improve, communities evolve, people come and go. To withstand a century of disruptions, you must be built on a solid foundation. At HDR, that foundation has always been our communities. Whatever the future holds, we know this: **we'll be right there with our clients, collaborating and creating in the only way we know how, together.**

## TEAM PROPOSED FOR THIS PROJECT

HDR has assembled a comprehensive team of experts in their respective fields with experience aligned to the required technical elements. This integrated team structure combines HDR's engineering, hydrologic, ecological, and geospatial capabilities with the specialized expertise of Water Science Associates, now wholly owned by Apex Companies, LLC (Apex), Ardurra Group, Inc., Environmental Science Associates (ESA), Surveying & Mapping, LLC (SAM), Terracon Consultants, Inc., and Lago Consulting & Services LLC.

The team supports the full project lifecycle, including hydrologic and hydraulic (H&H) modeling, ecological assessments, geospatial analyses, field investigations, engineering and design plan development, and permitting applications. HDR leads project management, modeling, engineering, and regulatory coordination efforts while our partners provide complementary technical depth in key disciplines. SAM supports topographic data collection and surveying services essential for accurate surface characterization. Terracon Consultants, Inc. provides geotechnical expertise and subsurface investigations that inform design and constructability considerations. ESA and Ardurra contribute specialized environmental and cultural resource capabilities, strengthening resource evaluation and regulatory compliance support. Water Science Associates enhances hydraulic and water resource engineering analyses.

This integrated delivery approach allows the team to efficiently address the interconnected hydrologic, hydraulic, ecological, and regulatory considerations typical of watershed and flood-prone systems. HDR's project management framework emphasizes coordination, schedule adherence, and budget control through disciplined planning, regular team communication, and the strategic alignment of technical resources.

By combining established technical methodologies, regional experience, and clearly defined team roles, HDR provides a coordinated partnership focused on reducing project risk, supporting regulatory compliance, and advancing resilient, technically defensible outcomes.

### COMPANY DETAILS

**Firm Name:** HDR Engineering, Inc.  
**Ownership:** 100% Employee-Owned  
**Offices:** 200+ worldwide  
**Employees:** 14,000+ worldwide




### FIRM LOCATION

6901 Professional Parkway E., Suite 227  
Sarasota, FL 34240 | 941.342.2700

### SINGLE POINT OF CONTACT

Todd Burton, PE  
Project Manager  
☎ 813.282.2467  
✉ Todd.Burton@hdrinc.com

## 2025 ENR RANKINGS

-  **#6 Top 500 Design Firms**
-  **#20 Top 200 Environmental Firms**
-  **#4 Top 15 Dams & Reservoirs**

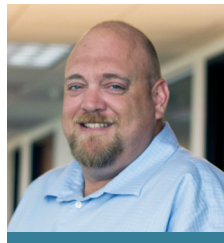
# BACKGROUND OF THE PERSONNEL

## LEADERSHIP TEAM

A team is only as strong as the people assigned to the work. For this critical project, **HDR is committing the Principal-in-Charge, Project Manager, and Lead Designer and affirms that these key roles will not be substituted without the express permission of the County.**



**Richard LeBlanc, PE, LEED AP**  
Principal-in-Charge



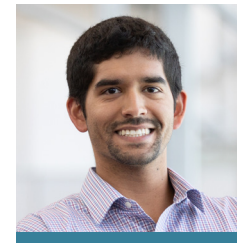
**Todd Burton, PE**  
Project Manager



**Eduardo Colchado, PE**  
Lead Designer/EOR



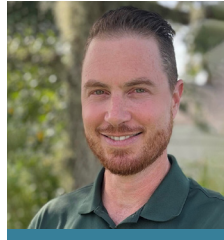
**Roger Copp**  
H&H Modeling Lead



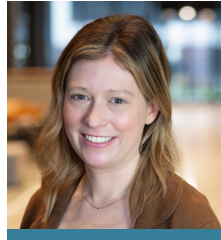
**Zaine Arth, PE**  
H&H Design Lead



**Elizabeth Dost, PE**  
Senior Restoration Engineer



**Steven Green, PWS**  
Senior Scientist



**Greta Backman, PE**  
Geotechnical Engineering Lead



**Samantha La Hée, PE**  
Process Mechanical Lead



**Courtney Arena, ENV SP**  
Permitting QA/QC

FIRM REFERENCES	
CLIENT INFORMATION	PROJECT DESCRIPTION
<p><b>South Florida Water Management District</b></p> <p>Laura Layman, PWS</p> <p>239.338.2929, ext. 7725</p>	<p><b>Bond Farm Hydrological Enhancement - Phase 1</b></p> <p>The Bond Farm hydrological enhancement project was designed to reestablish natural hydroperiods and improve wetland conditions disrupted by decades of farming, mining, and development. This project was a collaborative effort between the Charlotte Flatwoods Initiative, SFWMD, FWC, and other regional stakeholders. Phase 1 converts Bond Farm into a water storage facility with construction of a gated inflow, perimeter berms, seepage canals, and outflow structures to restore more natural flow patterns and improve downstream hydroperiods.</p>
<p><b>Peace River Manasota Regional Water Supply Authority</b></p> <p>Mike Knowles</p> <p>941.316.1776</p>	<p><b>Wetland Mitigation Delineation &amp; Design</b></p> <p>As part of the Peace River Regional Reservoir No. 3 Project for the Peace River Manasota Regional Water Supply Authority (Authority), HDR, with the assistance of subconsultants prepared wetland restoration design and applied for the State ERP and USACE 404 permits. Due to the significant amount of wetlands impacted as a result of the new reservoir footprint, the HDR team prepared a mitigation and permitting plan that helped the Authority make decisions and reduce costs for mitigating impacts, which resulted in over 700 acres of wetlands to be restored on the RV Griffin Reserve Property.</p>
<p><b>National Resources Conservation Services</b></p> <p>Brett Gee</p> <p>(352) 338-9523</p>	<p><b>Navum Valley Farms Wetland Restoration</b></p> <p>HDR developed a restoration plan to return Navum Valley Farms to its historic ecological condition. An ICPR4 model integrating overland flow, groundwater flow, and surface water features was used to simulate site hydrology and evaluate restoration strategies. A 20-year continuous simulation established baseline groundwater and surface water conditions and generated groundwater exceedance rasters for hydroperiod analysis. Model results were calibrated with groundwater well data and used to evaluate restoration features such as ditch blocks, dikes, and diversions to improve wetland hydrology and ecological zones across the site.</p>

# 1. Project Manager Summary



Experienced + Committed + Local

**Todd Burton, PE**  
 Project Manager

Firm: HDR Engineering, Inc.

Todd’s experience includes managing stormwater, drainage, and water resources projects involving hydrologic analysis, system evaluation, and infrastructure design. His work has encompassed drainage studies, watershed assessments, impoundments, pump stations, and water control structures developed to address flooding, storage, conveyance, and system performance objectives.

He has supported projects requiring close coordination between engineering design, environmental considerations, and regulatory compliance. His background includes preparation of plans and specifications, cost estimating, permitting coordination, and construction-phase services across multidisciplinary teams.

His relevant experience includes work with public agencies and water management districts where project success depended on balancing hydraulic performance, site constraints, and permitting requirements. Regular coordination with technical specialists, regulatory agencies, and subconsultants has ensured project alignment, schedule control, and design quality.

## Keys to Success



### Hydrologic & Drainage Systems Expertise

He brings practical experience evaluating and designing systems governed by complex hydrologic and hydraulic conditions. His proven experience includes:

- **Drainage and watershed assessments**
- **Hydrologic and hydraulic evaluations**
- **Impoundment and reservoir-related projects**
- **Stormwater conveyance and storage systems**

For this project, he will support development of solutions that align hydraulic performance with Charlotte County’s restoration objectives while maintaining technical defensibility and constructability.



### Regulatory & Permitting Coordination

His projects frequently require integration of regulatory requirements into design development and project execution.

He has coordinated with:

- South Florida Water Management District
- Florida Department of Environmental Protection
- U.S. Army Corps of Engineers

For this engagement, he will facilitate early consideration of permitting needs, agency coordination, and documentation requirements to reduce approval risks and avoid unnecessary redesign cycles.



### Proactive Management

His management approach emphasizes organization, communication, and early issue resolution.

Key elements include:

- Continuous coordination across disciplines
- Active schedule and task monitoring
- Early identification of technical challenges
- Clear communication with the County and project team

This approach supports predictable delivery, efficient decision making, and consistent progress throughout the project lifecycle.

## PROJECT EXPERIENCE

- Bond Farm Redesign | South Florida Water Management District
- Russakis Ranch Wetland Reserve Easements Plan of Operations and Design | Natural Resources Conservation Service
- Above-ground Impoundment | Istokpoga Marsh Watershed Improvement District
- C-44 Reservoir and Stormwater Treatment Area (STA) | South Florida Water Management District

Todd Burton, as Project Manager, will not be substituted without the express permission of the County.

## 2. Other Key Personnel



**Richard LeBlanc, PE, LEED AP**  
Principal-in-Charge

Richard is a Senior Project Manager with extensive experience leading complex water resources, stormwater, and environmental restoration initiatives. His professional background spans civil infrastructure, hydrologic systems, and multidisciplinary projects where technical performance, regulatory coordination, and design integration are critical to overall success.

His relevant experience includes principal leadership roles on projects such as the Bond Farm Hydrological Enhancement Phase I for the South Florida Water Management District, which focused on improving hydrologic function, storage, and conveyance within an environmentally sensitive system. He also served as Project Manager and Design Manager for the Peace River Reservoir No. 3 Preliminary project, leading development of a new 9.3-billion-gallon off-stream reservoir, river intake and pump station, and associated conveyance infrastructure. In addition, he supported hydrologic and restoration design efforts for the Myakka River Deer Prairie Creek Hydrological and Wetland Restoration project, contributing to solutions developed under watershed, ecological, and regulatory constraints. Richard's restoration portfolio further includes development of Wetland Reserve Plans of Operations and Design for the Natural Resources Conservation Service. These projects required coordination of grading, water control structures, surface modeling, and technical documentation to support long-term ecological and hydrologic objectives.

As Principal-in-Charge, Richard provides executive-level oversight, strategic guidance, and quality leadership, supporting the team in delivering technically sound, coordinated, and compliant project outcomes.



**Roger Copp**  
H&H Modeling Lead

Roger has a M.S. in Water Resources Management, a B.A. in biology, and is a P.E. in Pennsylvania. Mr. Copp has extensive experience in watershed studies and stormwater improvements. Mr. Copp has extensive experience in Babcock Webb and Yucca Pens Wildlife Management Areas, including development of the Tidal Caloosahatchee River Basin MIKE SHE/MIKE 11 integrated surface/ground water model in 2003, design of ATV channel blocks in Yucca Pens in 2010 to improve Yucca Pens hydroperiods, installed monitoring stations in Yucca Pens starting in 2011

through 2021, monitored surface and groundwater levels since 2017, directed groundwater investigations and surveying stream cross sections in 2019, and directed the development of the Lower Charlotte Harbor Flatwoods Hydrologic Restoration Study during 2020-2022.

He assisted FDOT with hydrologic modeling studies in 2013 in support of the widening of I-75 from Tuckers Grade to the Charlotte/Lee County line that resulted in the State of Florida purchasing the Bond Farm to be used to store excess water from Babcock Webb's South Walk-In Area. This solution was approved by SFWMD and resulted in a \$4 million dollar reduction in the cost of the I-75 widening project. That overall plan for restoration of Babcock Webb included delivery of flows to Bond Farm during the wet season, release of that stored water in the late wet season to a proposed flow-way from Bond Farm to Yucca Pens to augment water levels in Yucca Pens that suffers from shortened wetland hydroperiods due to over-drainage from Gator Slough on the south and eroded ATV trails that exacerbates wet seasons discharge to Mathlacha Pass. Because the available storage in Bond Farm is insufficient to restore Babcock hydroperiods to optimum conditions, additional storage water proposed for an aggregate mine west of Bond Farm and I-75.



**Eduardo Colchado, PE**  
 Lead Designer/Engineer-of-Record

Eduardo will serve as Lead Designer and Engineer-of-Record for the Yucca Pens Wetland Habitat Enhancement and Flooding Improvements project. He will provide direct technical oversight for development of preliminary and final design plans, including refinement of ditch block concepts, seepage barrier improvements, grading details, and hydraulic control features consistent with the project’s hydrologic restoration objectives.

With more than 25 years of experience in civil and water resources engineering, Eduardo has led design efforts for reservoirs, stormwater treatment areas, pump stations, water control structures, and large-scale hydrologic restoration initiatives throughout Florida. His experience includes work on the Bond Farm Hydrological Enhancement project in Charlotte County, reservoir and intake structures for the Peace River Manasota Regional Water Supply Authority, and complex South Florida Water Management District infrastructure under ERP authorization.

Eduardo will coordinate multidisciplinary technical inputs to ensure design consistency across hydrologic, hydraulic, structural, and permitting components. He will oversee preparation of biddable, construction-ready documents and detailed cost estimates suitable for budgeting and implementation. In support of permit compliance, he will guide preparation and submission of applications to local, state, and federal agencies; respond to agency clarification requests; and incorporate permit conditions into the final design package.

Eduardo will also support stakeholder coordination and presentation of final design plans, providing clear documentation, defensible engineering analyses, and written responses to agency and stakeholder comments. His disciplined technical leadership and restoration-focused engineering experience position him to advance this project from conceptual refinement through permit approval and ready-to-bid design.

LEAD DESIGNER REFERENCES	
CLIENT INFORMATION	PROJECT DESCRIPTION
<p><b>South Florida Water Management District</b></p> <p>David Anderson</p> <p>561.682.2614</p>	<p><b>C23/24 South Reservoir, Pump Station, and Associated Water Control Structures Design</b></p> <p>Eduardo led civil design efforts for multiple critical infrastructure sites surrounding the reservoir and perimeter canals, including the main pump station, discharge structure, water control structures, bridge crossings, and meteorological stations. Also served as the Engineer of Record for hydrologic and hydraulic (H&amp;H) design of the reservoir discharge structure and canal systems using HEC-RAS Software. Actively coordinated with multidisciplinary engineering teams, environmental permitting leads, external utility representatives, owner and cost sharing partners, and the owner’s field and engineering staff.</p>
<p><b>South Florida Water Management District</b></p> <p>Howard ‘Buff’ Searcy</p> <p>561.686.8800</p>	<p><b>C-44 Reservoir/Stormwater Treatment Area (STA)</b></p> <p>HDR provided engineering services during construction for the following efforts at the C-44 Reservoir/STA site: system discharge structure; stormwater treatment area of approximately 4000 acres; 1100 cfs stormwater reservoir pumping station; and remediation of agriculturally impacted soils. Services include processing contractor submittals and providing engineering support for issues arising during construction.</p>
<p><b>National Park Service</b></p> <p>Amy Renshaw</p> <p>305.224.4264</p>	<p><b>Raulerson Canal</b></p> <p>The NPS proposes to replace the failed Raulerson Canal plug within the Cape Sable area of Everglades National Park (EVER) to restore natural ecological processes to the Cape Sable region by eliminating the unnatural exchange of salt and freshwater through this man-made canal. HDR provided engineering and administration services for the design of a replacement canal plug which will be comprised of heavy steel sheet piling, limestone Rip-Rap boulders, and earthen fill to block the 80-foot-wide canal. HDR was responsible for the initial site inspections, data collection, permitting, and engineering designs to assemble full construction documents for the National Park Service.</p>



**Andrew Judd, PE**  
QC Reviewer — Engineering



Andrew Judd is a water resources engineer and project manager with more than two decades of experience supporting the planning, analysis, and design of stormwater, flood mitigation, and restoration-driven

infrastructure projects. He routinely provides technical oversight, hydraulic and hydrologic guidance, and independent quality reviews for multidisciplinary engineering assignments.

Representative experience includes the PR3 Wetland Mitigation Delineation & Design, Reservoir No. 3 Design for the Peace River Manasota Regional Water Supply Authority, C23/C24 South Reservoir, Pump Station, and Water Control Structures, Navum Valley Farms Wetland Restoration, and 2D Watershed Model Development for the Minnehaha Creek Watershed District.

Andrew's QA/QC role emphasizes design consistency, risk reduction, and defensible technical documentation.

**Elizabeth Dost, PE**  
Senior Restoration Engineer



Elizabeth has 30 years of experience in water resources engineering specializing in hydrologic and hydraulic (H&H) modeling, wetland restoration design, and mitigation implementation. She has led

modeling, engineering design, permitting support, and construction oversight for large-scale hydrologic restoration projects throughout Florida, including work within Yucca Pens and the Charlotte Harbor watershed. Her expertise includes ditch blocks, berm removal, low-water crossings, hydroperiod restoration, and development of construction-ready plans.

Elizabeth will provide H&H design leadership and quality control to ensure technically sound, implementable restoration solutions.

**Steven Green, PWS**  
Ecological Assessments Lead



Steven (Steve) has 19 years of experience in wetland delineation, ecological restoration design, listed species surveys, UMAM evaluations, and state and federal permitting.

He has authored ecological restoration plans and secured ERP and federal Section 404 permits for large-scale wetland and mitigation bank projects across Florida, including within the Charlotte Harbor region. Steve specializes in integrating ecological assessments with hydrologic modeling and engineering design.

He will lead ecological evaluations, provide quality control of environmental deliverables, and support permitting coordination and agency engagement.

**Courtney Arena, ENV SP**  
QC Reviewer — Permitting



Courtney Arena is an environmental professional with extensive experience supporting permitting, regulatory coordination, and environmental compliance for water resources and infrastructure projects.

Her background includes wetland identification and delineation, environmental documentation, agency coordination, and development of defensible permitting strategies for projects governed by state and federal requirements.

Her experience includes the Peace River Reservoir No. 3 Preliminary Design, S-28 Forward Pumping Station and Structure Replacement, North Shore D Neighborhood Improvement Project, and the Jog Road Bridge Design Project, each requiring careful integration of environmental constraints with engineering design.

Her QA/QC role emphasizes regulatory consistency, permit defensibility, and alignment between design decisions and agency expectations.



**Zaine Arth, PE**  
H&H Design Lead



With a technical focus on hydrologic and hydraulic modeling, Zaine Arth supports the planning and design of systems that manage surface water, evaluate flood risk, and advance restoration objectives.

His background includes stormwater model development, hydraulic analysis, and translation of modeling results into practical, constructible design solutions.

Zaine has contributed to a range of water resources and restoration initiatives, including the C-44 Reservoir and Stormwater Treatment Area, Peace River Reservoir No. 3 Preliminary Design, Bond Farm Hydrological Enhancement Phase I, Navum Valley Farms Wetland Restoration, and the Sunrise Sod Wetland Reserve Plan of Operations and Design.

In his role as H&H Design Lead, he guides modeling strategy, evaluates system performance, and helps align hydraulic considerations with overall project objectives and design development.

**Greta Backman, PE**  
Geotechnical Engineering Lead



Greta serves as the Geotechnical Engineering Lead, bringing extensive experience in subsurface investigations and geotechnical analysis for water resource infrastructure. Her work focuses on

understanding soil conditions, seepage behavior, and foundation performance associated with dams, levees, reservoirs, and stormwater systems. Greta has planned and overseen multiphase geotechnical investigations, coordinated field exploration and testing programs, and translated subsurface data into practical design recommendations.

Her experience includes projects such as the Peace River Reservoir No. 3 Pre-liminary Design, where geotechnical evaluations supported development of a major regional water supply facility. As Geotechnical Lead, Greta will guide subsurface investigations and support design decisions that are technically sound and constructible.

**Samantha La Hée, PE**  
Process Mechanical Lead



Samantha La Hée provides process mechanical and hydraulic engineering expertise supporting complex water resources, stormwater, and treatment-related projects. Her experience bridges

hydraulic modeling, pipeline and pump station design, and system evaluation, allowing her to contribute practical, performance-driven solutions across planning, design, and implementation phases. Projects she has been a part of include, the C-44 Reservoir and Stormwater Treatment Area, Peace River Reservoir No. 3 Preliminary Design, and S-28 Forward Pumping Station.

Samantha's background in hydraulic and hydrologic modeling, including the use of EPA SWMM and InfoWorks, strengthens her ability to assess existing system conditions, identify constraints, and support resilient design strategies.

**Russell Hyatt, PSM**  
Topographic Data



Russell Hyatt is a highly experienced Professional Surveyor and Mapper with 35 years of expertise in transportation planning, construction, and engineering. He possesses a

Bachelor of Science degree in Survey and Mapping from the University of Florida and holds the certification of Professional Surveyor and Mapper in Florida (LS#5303). Russell's notable achievements include serving as a past president of the Florida Surveying and Mapping Society and being affiliated with various professional organizations such as the National Society of Professional Surveyors and the American Society of Civil Engineers.

He has provided survey services to numerous local, state, and federal agencies, including Pinellas, Hillsborough, Manatee, Sarasota, and Charlotte Counties, the Florida Department of Transportation, the Florida Department of Environmental Protection, and the U.S. Army Corps of Engineers-Jacksonville District.

### Douglas Dunkelberger, PE Senior Geotechnical Engineer



Douglas will serve as Senior Geotechnical Engineer, offering more than four decades of experience in geotechnical engineering with a career focused on Florida's unique subsurface

conditions and water resource infrastructure. His expertise spans subsurface characterization, soil behavior, embankment performance, settlement and seepage considerations, and the geotechnical aspects of large civil works.

Douglas has supported a wide range of complex projects involving reservoirs, stormwater treatment areas, levee systems, and hydraulic structures. His experience includes major assignments such as the EAA STA A-2 (CEPP), SFWMD C-25 Reservoir and STA, Peace River Reservoir projects, and PRECOC Pole Encroachment evaluations. His long-standing practice, technical depth, and familiarity with regional geologic conditions provide a strong foundation for addressing geotechnical risks and supporting resilient, constructible design solutions.

### Alex Miller, PE, CFM, ENV SP QC Reviewer - Design/Modeling



Alex Miller is a water resources engineer with more than a decade of experience supporting stormwater design, hydrologic and hydraulic modeling, and flood risk analysis across Florida and the Southeast. His

work includes watershed modeling, restoration planning, and infrastructure design for complex coastal and wetland systems. Alex has supported projects for the South Florida Water Management District, local governments, and federal agencies, applying tools such as ICPR4, HEC-RAS, TUFLOW, and InfoWorks ICM to evaluate hydrologic performance and develop resilient water management solutions.

As a QC reviewer, Alex provides technical oversight of hydraulic and hydrologic analyses, ensuring modeling assumptions, calibration approaches, and design recommendations are technically sound and aligned with project objectives.

### Emily Keenan Senior Environmental Scientist



Emily has 24 years of experience in environmental science supporting hydrologic restoration, habitat enhancement, and watershed management initiatives throughout Florida. She has contributed to

restoration planning and permitting efforts associated with Bond Farm and Yucca Pens and has supported habitat master planning within the Charlotte Harbor watershed. Emily specializes in analyzing hydrobiological and water quality data to inform restoration design, evaluating habitat conditions and hydrologic alterations, and preparing technical documentation for regulatory coordination.

She will support ecological assessments and provide technical analysis to inform restoration design and permit submittals.

### Michael Poniatowski Senior Environmental Scientist



Michael has 11 years of experience in wetland assessment, hydrologic monitoring, listed species surveys, and restoration compliance throughout Florida. He has supported hydrologic

enhancement and monitoring efforts for FWC and Charlotte County, including preconstruction listed species surveys, groundwater monitoring, mitigation compliance monitoring, and field investigations within Yucca Pens and the Charlotte Harbor region. Mike integrates field-based data collection with modeling and restoration design efforts to support permitting and implementation.

He will assist with ecological assessments, hydrologic monitoring coordination, and documentation supporting restoration and regulatory compliance.

### Bruce Bradley, PE Senior Structural Engineer



Bruce brings extensive structural engineering experience supporting water resources, hydraulic infrastructure, and heavy civil projects. His background includes structural analysis, design

development, and preparation of construction documents for facilities where hydraulic, geotechnical, and operational considerations intersect. Bruce routinely contributes to projects requiring careful coordination between structural systems, site conditions, and long-term performance objectives.

His project experience includes the Bond Farm Hydrologic Enhancement Phase I, C-44 Reservoir and Stormwater Treatment Area, Peace River Reservoir No. 3 Preliminary Design, and the C23/24 South Reservoir, Pump Station, and Associated Water Control Structures. Across these assignments, Bruce supported structural design efforts associated with water control features, hydraulic structures, and related infrastructure components.

### Mark Vincent, PE Senior Electrical Engineer



Mark brings extensive experience designing electrical systems that support water control structures, pump stations, and hydraulic infrastructure similar to those proposed for this projects. His

background in power distribution, motor control centers, and instrumentation and controls (I&C) is directly applicable to gated inflow/outflow structures, low-head pump stations, and automated water level management systems.

He has supported projects involving stormwater pump stations and storage facilities requiring reliable backup power, SCADA integration, and operational redundancy, critical for maintaining targeted hydroperiods and managing wet-season/dry-season conditions. Mark also has experience coordinating electrical components within multi-disciplinary design teams and navigating permitting requirements, ensuring that restoration infrastructure operates safely, efficiently, and in compliance with regulatory standards.

### Brett Solomon Senior Environmental Scientist



Brett has 24 years of experience managing environmental permitting and natural resource compliance for restoration, mitigation, and infrastructure projects across Florida. He leads

preparation of FDEP ERP, State 404, and USACE Section 404 applications and coordinates listed species permitting and agency negotiations. Brett has supported hydrologic enhancement and mitigation bank projects within the Charlotte Harbor watershed and has extensive experience in wetland delineation, UMAM analyses, and mitigation documentation.

He will lead state and federal permitting efforts, agency coordination, and responses to requests for additional information.

### Barry Lenz Senior Environmental Scientist



Barry brings decades of environmental consulting experience supporting complex infrastructure and ecosystem-focused projects. His background spans environmental resource permitting, wetland

delineation, mitigation planning, and regulatory coordination at the federal, state, and local levels. Barry has served in senior technical and project management roles, contributing to projects where environmental compliance, agency coordination, and practical implementation strategies are central to successful delivery.

Barry's relevant experience includes participation on the Bond Farm Hydrological Enhancement – Phase I, Myakka River Deer Prairie Creek Hydrological and Wetland Restoration, and Navum Valley Farms Wetland Restoration supporting environmental analyses, permitting coordination, and technical documentation.

**Deborah Daigle, PG**  
Senior Hydrogeologist



Deborah Daigle is a senior hydrogeologist with more than 40 years of experience supporting geologic and hydrogeologic site characterization for water resources and infrastructure projects across

Florida. Her work includes subsurface investigations, evaluation of karst-related hazards, aquifer testing, and interpretation of monitoring data to inform geotechnical and groundwater analyses.

Deborah has supported major reservoir and impoundment projects for the South Florida Water Management District, applying numerical modeling tools such as MODFLOW and SEEP/W to evaluate seepage, groundwater conditions, and embankment performance. Her experience with subsurface characterization and groundwater behavior supports geotechnical design decisions, seepage evaluation, and long-term system performance.

**Marcelo Lago, PhD, GISP, CFM**  
H&H Modeling



Dr. Marcelo Lago has over 25 years of experience in numerical modeling, having over the last 20 years dedicated himself to developing and applying integrated models to solve complex water management and

contaminant transport problems in and out of Florida. Prior to his current role as Vice-President of Lago Consulting & Services, Dr. Lago served as a Senior Water Resources Scientist at DHI-US dedicated to providing 2D/3D integrated H&H modeling projects for evaluation and protection of water resources and supporting environmental assessments. As a modeling expert, he provides software support to other modelers, teaches modeling courses, develops and calibrates models in multiple platforms, and conducts multiple external model reviews. Dr. Lago's skills include programming in C, C++, Fortran, MATLAB, etc., storm water management; ecosystem restoration; estuaries modeling; groundwater management studies; water quality modeling; 2D and 3D H&H Modeling and coastal modeling. Modeling software skills of Dr. Lago include MIKE 11, MIKE SHE, MIKE21, MODFLOW, MODHMS, GIS-ArcMap, HEC-RAS, HEC-HMS, EPA-SWMM, XP-SWMM, ICPR, RiverFlow2D, etc.

**David Dixon**  
CADD Technician



David brings over three decades of experience in civil design, CADD production, and GIS integration supporting complex water resources and wetland restoration projects. His background includes

preparation of detailed construction drawings, grading and drainage plans, embankment layouts, and water control structure plans for reservoir, stormwater, and wetland reserve projects throughout Florida.

David has supported large-scale efforts such as C-44 Reservoir and Stormwater Treatment Area and multiple Wetland Reserve Plan of Operations and Design (WRPO) projects, where he developed plan sets, coordinated survey and GPS data integration, and ensured consistency between engineering design and permitting documentation. His expertise in AutoCAD Civil 3D and GIS platforms will support accurate site modeling, design documentation, and clear graphical communication.

**Douglas Skurski, SPWS**  
QC Reviewer — Ecological



Doug is a Senior Professional Wetland Scientist (SPWS) with more than 25 years of experience leading environmental strategy, regulatory permitting, and multidisciplinary restoration initiatives throughout

Florida. His expertise spans wetland science, hydrologic restoration, NEPA compliance, Environmental Resource Permitting (ERP), and Section 404/401 authorizations. Doug has directed complex habitat restoration and water management programs for state and regional agencies, including FWC and the Southwest Florida Water Management District.

He integrates environmental compliance seamlessly into project delivery, guiding hydrologic modeling, mitigation planning, and agency coordination to advance restoration objectives while maintaining schedule certainty. Doug brings a deep understanding of Florida's regulatory landscape and ecological systems to this team.



### 3. Consultants



**Ardurra Group, Inc.**

**FIRM SERVICES**  
Archaeological

**Ardurra’s Cultural Resources Management (CRM) Group** is led by Registered Professional Archaeologists who exceed the Secretary of the Interior’s (SOI) Professional Qualifications Standards (36 CFR Part 61). Our core leadership team has over 39 years of combined experience in cultural resources, including preparing, managing, and mentoring the next generation of archaeological professionals. Our team routinely supports clients with project reviews; Phase I, II, and III archaeological surveys; historic resource surveys and evaluations; mitigation planning and coordination; and public outreach. Together, our core team has prepared over 550 cultural resource deliverables within the last three years. We combine deep local knowledge with national resources and proven CRM capability to deliver responsive, technically rigorous, and cost-effective solutions that support sound land use decisions while safeguarding significant cultural heritage.



**Environmental Science Associates Corporation**

**FIRM SERVICES**  
Engineering and Environmental

**Environmental Science Associates (ESA)** is a 100% employee-owned environmental consulting, engineering, planning, and design firm founded in 1969, with over 750 professionals nationwide and a strong presence across Florida and the Southeast. ESA supports water resources, coastal engineering, habitat restoration, and resiliency initiatives through integrated hydrologic and hydraulic analysis, shoreline and wetland restoration design, stormwater management, water quality evaluation, and regulatory permitting services. By combining national technical depth with regional expertise, ESA delivers practical, science-based solutions that enhance ecological function and strengthen coastal and watershed resilience.



**Lago Consulting & Services LLC**

**FIRM SERVICES**  
H&H Modeling

With a staff averaging over 20 years of experience in numerical modeling for water resources and environmental engineering projects, **Lago Consulting & Services LLC (LAGO)** has achieved the highest rate of recommendations and client return. Clients include local government entities (cities, counties, districts), federal agencies (DOI, DOD, USDA), the InterAmerican Development Bank, large engineering firms, and universities. LAGO’s services include developing and applying a wide variety of models to evaluate existing and future conditions, as well as identifying options and solutions needed to meet client goals. Among the many modeling platforms with which LAGO is experienced are EPA, SWMM, HEC-RAS, HEC-HMS, XP SWMM, MIKE11, ICPR, MIKE21, MODFLOW, and MIKE SHE. Integrated modeling software includes MIKE SHE/MIKE11 (surface water/groundwater), MIKE FLOOD, and others. LAGO performs 1D, 2D, and 3D surface water flow modeling for rivers, canals, and floodplains.



Surveying & Mapping, Inc.

**FIRM SERVICES**  
Surveying

For over thirty years, **Surveying And Mapping, LLC (SAM)** has built a reputation as a trusted, knowledgeable, and innovative partner. As the nation's largest Managed Geospatial Services (MGS) company, SAM provides industry-leading land surveying services that establish a reliable foundation for a wide range of project types across the United States. Hyatt Survey, now operating as SAM, is a full-service surveying and mapping firm with deep roots in Manatee County and the surrounding region. For more than three decades, our team has supported local governments and agencies throughout Manatee County, developing strong working relationships and an in-depth understanding of local standards, procedures, and expectations. In just the past five years, SAM has successfully completed over 40 projects within Charlotte County, demonstrating our continued commitment and responsiveness to the County's needs. Our proximity to Charlotte County enables rapid response and regular communication with project managers and County representatives.



Terracon Consultants, Inc.

**FIRM SERVICES**  
Geotechnical

**Terracon Consultants, Inc.** is a thriving, employee-owned, multidiscipline engineering consulting firm. Since its founding in 1965, Terracon has grown and evolved to support clients through every phase of the project lifecycle. More than 7,000 curious minds include engineers, scientists, architects, facilities experts, and field professionals focused on solving engineering and technical challenges. On-time and real-time data driven insights create an unmatched client experience that spans the lifecycle of any project from earth-to-sky. Terracon consistently ranks as a top 25 design firm by Engineering News-Record. A focused and uncompromising dedication to safety has been integral to how Terracon supports employees, clients, and communities. Wherever clients are on their project journey, Terracon's employee-owners are ready to meet them where they are and help them reach their goals.



Water Science Associates,  
an Apex Company

**FIRM SERVICES**  
Design

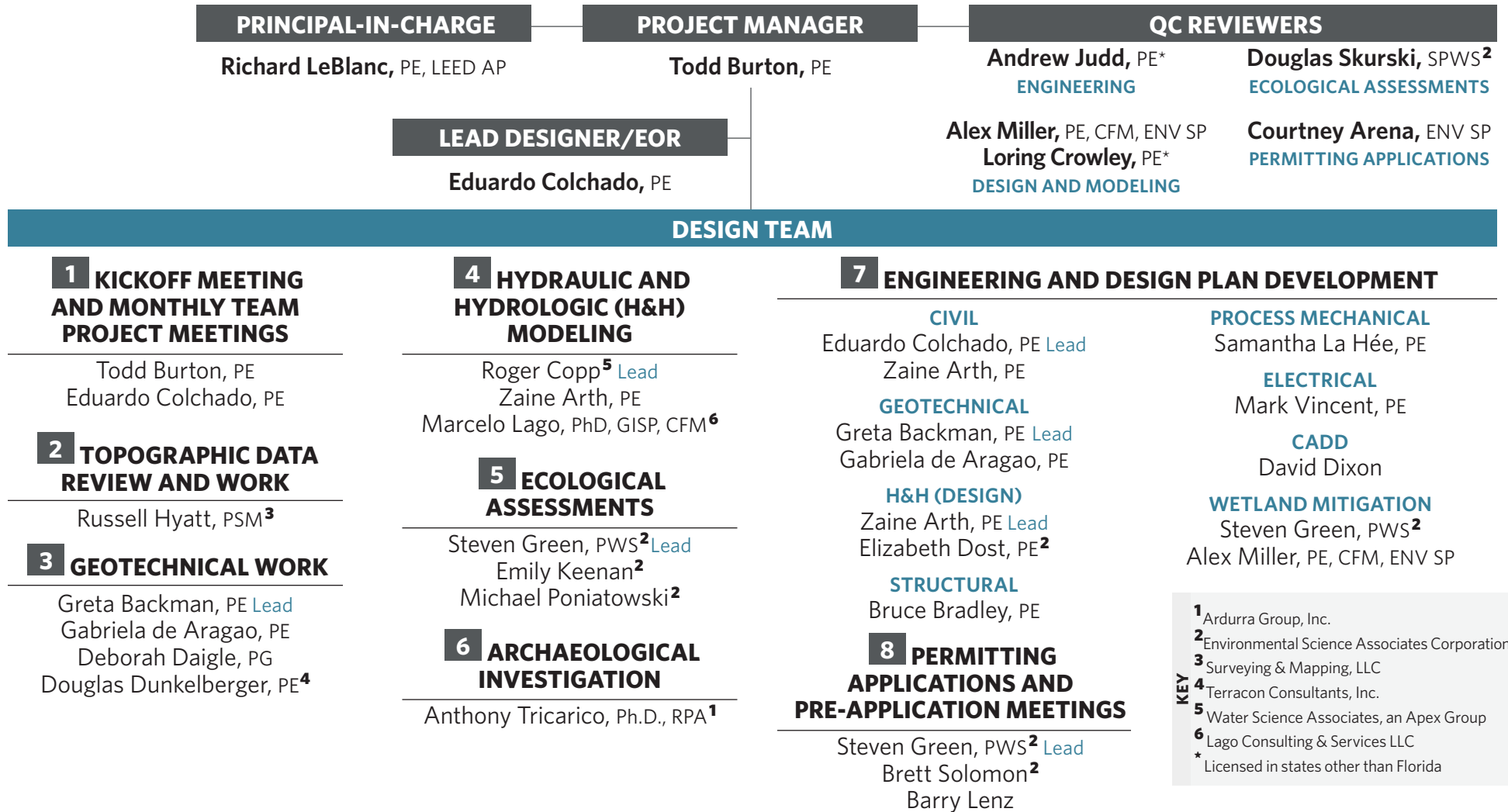
**Apex Companies, LLC** is a full-service firm with office in Fort Myers, Tampa, and Punta Gorda. Water Science Associates became part of Apex in 2023. Apex Florida staff have extensive experience in ecosystem restoration, hydraulic/hydrologic studies, hydrogeologic investigations, engineering design, and surveying. Apex Fort Myers staff have worked on One Water management projects since the 1980's, and have characterized the lithography of Southwest Florida through hundreds of hydrogeologic borings, aquifer performance tests, and implementation of surface water monitoring programs. Apex staff have worked for multiple government clients in the areas including Charlotte County, Lee County, Collier County, City of Cape Coral, Florida Fish & Wildlife Conservation Commission, Coastal & Heartland National Estuary Partnership, Lehigh Acres Municipal Services Improvement District, Fort Myers, Village of Estero, Naples, and National Audubon's Corkscrew Swamp Sanctuary. For this effort, Apex staff will be providing integrated surface/ground water resources modeling support.



|| PROPOSED  
MANAGEMENT  
PLAN

## Team Organization Chart

HDR has assembled an accomplished team of experts in their respective fields and experience in the required technical elements. Our local management allows us to mobilize efficiently and respond to the County's needs throughout the life of the project.



- KEY**
- <sup>1</sup> Ardurra Group, Inc.
  - <sup>2</sup> Environmental Science Associates Corporation
  - <sup>3</sup> Surveying & Mapping, LLC
  - <sup>4</sup> Terracon Consultants, Inc.
  - <sup>5</sup> Water Science Associates, an Apex Group
  - <sup>6</sup> Lago Consulting & Services LLC
  - \* Licensed in states other than Florida

## SUBCONSULTANTS

 CULTURAL RESOURCES	 ENGINEERING AND ENVIRONMENTAL	 H&H MODELING	 SURVEYING	 GEOTECHNICAL	 DESIGN
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# II PROPOSED MANAGEMENT PLAN



*Eduardo Colchado and Deborah Daigle providing field coordination at the C-44 Reservoir and Stormwater Treatment Area.*

Todd Burton will hold frequent coordination meetings with HDR’s Task Leads as they are leading active tasks to balance workload and plan for deadlines, thereby advancing multiple commitments simultaneously and efficiently.

## 1. PROJECT MANAGEMENT PLAN (PMP)

The PMP will be used to confirm that all project team members understand County project requirements and that all parties are starting the project with the same understanding. By working through the project planning process as a team, the project goals and objectives will be better defined and clearly understood. The PMP will identify issues that may be encountered throughout the duration. Identifying issues during the planning phase supports a more proactive approach and can avoid costly delays resulting from a reactive approach.

### Operations Plan

The Operations Plan component of the PMP integrates tracking and monitoring of the approved scope, budget, and project schedules for each task order and defines requirements for invoicing, document control, and subconsultant management. An Action Item Checklist is used as a management tool to track the project Team’s responsibilities and due dates.

HDR Task Managers use state-of-the-art tools including business intelligence platforms like PowerBI which provide critical, real-time project information, including labor costs, expenses, staff availability and assignments, accounts receivable, QC, scheduling, earned value reports, and project reviews. All are

available electronically on an internet-based platform. For all project assignments, we will provide the County’s Project Manager with a monthly Project Status Report, which will identify updated schedules as status (as appropriate), budget analysis, and projected monthly work tasks.

Task order contracts often demand periods of high activity, with multiple assignments running concurrently or at different points along the project pipeline. We will work with your Project Managers to provide a rapid response during multiple assignments and meet schedules.

HDR measures the progress of project objectives in real-time, which allows us to reach the objectives and, if necessary, take appropriate preemptive actions. This continuous process anticipates and prevents potential problems, keeping projects on schedule.

A Work Breakdown Structure (WBS) via an internal proprietary platform (Pronto) is developed for each project assignment to manage the budget and schedule, identifying individual tasks, each of which is tracked by the Task Manager to facilitate timely budget completion of individual project parts.

Microsoft Project software will be used to establish the master project schedules in accordance with the WBS so that cost, schedule, and responsibility can be integrated into each work element for budgeting and monitoring purposes. Detailed Task Breakdowns, including hours per task, provide a straightforward means of tracking the progress of the total scope and budget as well as the budget for each individual task. They also provide essential information to determine the project’s critical path and report project status.

### Communications Plan

The Communications Plan component of the PMP identifies the relationship of all key project stakeholders and establishes the protocol for team communications and documentation. Contacts will be established for County staff, external stakeholders, and the HDR Team, and all communications will be via that established conduit. This eliminates duplicate or contradictory communications and directives and allows for all decision documentation to be collected, stored, and acted upon as appropriate.

HDR centralizes all storage of technical and communication documentation in ProjectWise, an internet-based document management tool that uses a secured internet portal for viewing and editing information. HDR uses ProjectWise to manage electronic documents and facilitate the sharing of work among offices, subconsultants, and clients. With ProjectWise, the County’s staff can access updated project information at any time for any ongoing projects under this contract.

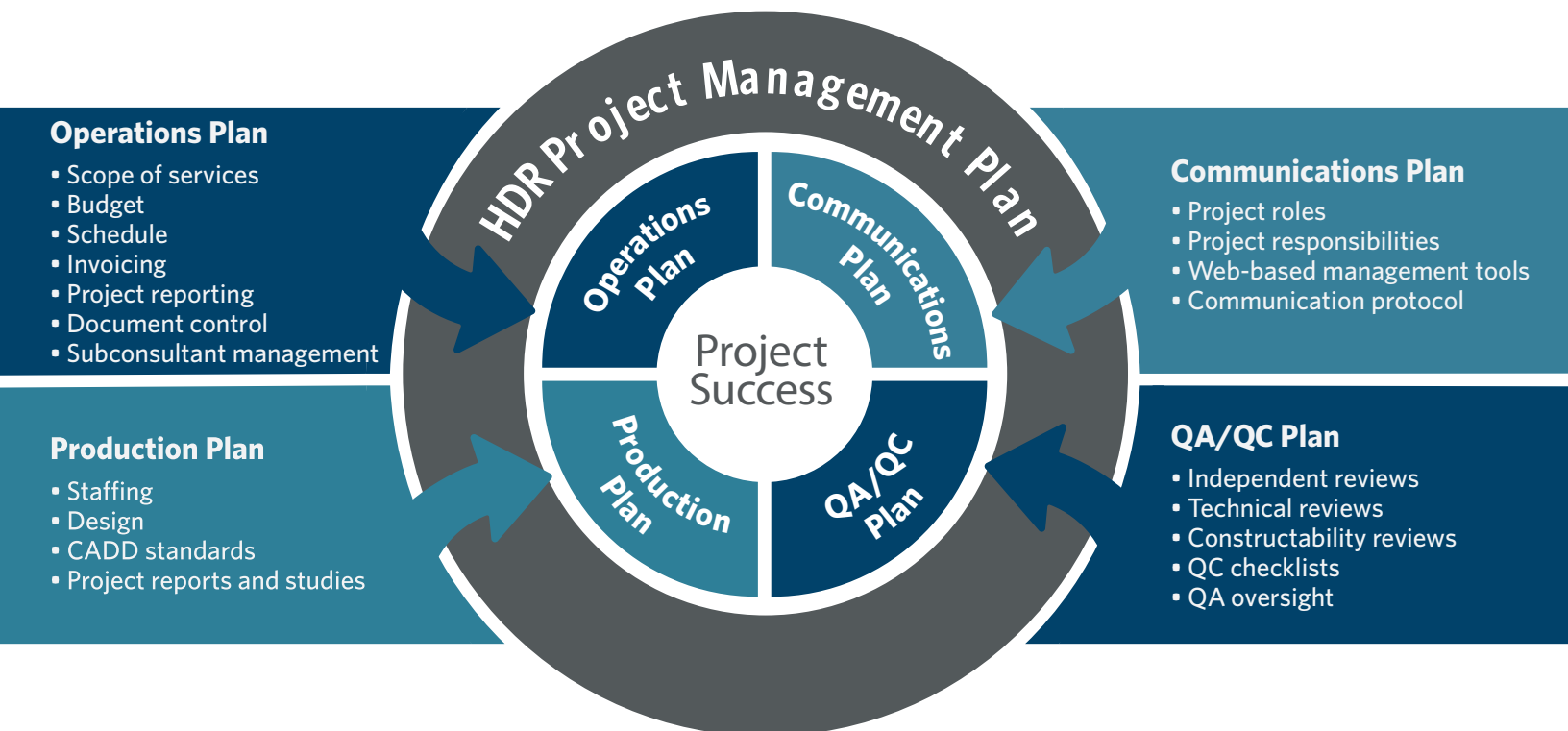
Throughout the duration, communication between the HDR Task Manager and the County’s staff is essential. We propose a scheduled monthly review meeting with the County’s Project Team to review the task order status and the plan for upcoming activities.

### Production Plan

The Production Plan identifies the task order scope, staffing plan and budgets, CADD and GIS requirements, technical standards, project schedule and critical path, and any other key assumptions and risks to be addressed. The staffing plan includes assignments of appropriate team members matched to the unique requirements of each task, utilizing HDR’s work planning tools to manage staff workload and availability. Work products will be developed by establishing an optimum workload balance between senior professionals providing guidance and oversight, with the support of other professional and technical staff as defined by the scope of each assigned task.

### Quality Management

Our focus on quality is a mindset shared by every member of our team. As such, our quality management is not just about deliverables, but also how to achieve it. This starts by clearly understanding expectations and making a commitment to meeting them with every deliverable on each individual project assignment through the County’s demand services contract.



## 2. DATA COLLECTION, SURVEY WORK, MODELING AND ANALYSES

This project requires coordinated management of multiple technical information streams, analytical tools, and discipline interfaces. The HDR team will structure these activities around a controlled workflow that integrates monitoring data, topographic information, groundwater observations, and hydrologic model development into a single analytical framework supporting restoration decision-making.

Data management efforts will begin with the compilation and organization of existing project resources, including prior Charlotte Harbor Flatwoods Initiative modeling outputs, available LiDAR and survey data, and regional hydrologic model files. Recently collected monitoring information from ESA and Apex, including groundwater and surface water level records from more than 60 monitoring stations within Yucca Pens and surrounding areas, will be incorporated into the project data structure. Extending the simulation period through 2025 allows the analytical tools to capture a broader range of hydrologic conditions and seasonal responses than were available during earlier studies.

Survey-derived inputs and updated topographic information play a central role in refining model behavior. Higher-resolution elevation data will be integrated to improve representation of overland flow processes, shallow gradients, and localized drainage pathways. These updates support the transition from the regional modeling framework to the refined local-scale model, which increases spatial resolution and strengthens the reliability of hydrologic predictions across the southern Yucca Pens landscape.

Model development and calibration activities will be managed as an iterative technical process. The team will build upon the existing MIKE SHE / MIKE 11 platform, using full-scale model outputs to define boundary conditions for the local-scale grid. Calibration efforts will incorporate continuous groundwater and surface water observations, spatially distributed NEXRAD rainfall inputs, and extended hydrologic records. Particular attention will be placed on reproducing seasonal groundwater fluctuations, seepage losses, and wet-season recharge dynamics that govern wetland hydroperiod behavior.

Analytical evaluations will be performed through both event-based simulations and multi-year continuous model runs. These analyses allow the team to assess peak water levels, flow connectivity, hydroperiod variability, and seepage behavior under varying hydrologic conditions. Scenario testing will be conducted to evaluate restoration measures including ditch blocks, low-water crossings, seepage reduction features, and supplemental freshwater strategies. Sensitivity testing will be applied where appropriate to examine structural configurations, hydraulic responses, and system performance under alternative assumptions.

Because surface water and groundwater interactions are a defining feature of Yucca Pens, seepage characterization and hydrogeologic parameter refinement will be managed as core analytical components. Monitoring-informed seepage coefficients and subsurface data will be incorporated to improve simulation accuracy and support evaluation of groundwater seepage barrier concepts.

Throughout the effort, modeling files, calibration datasets, and analytical outputs will be maintained within a controlled technical environment. This structure supports internal QA/QC procedures, interdisciplinary coordination, and traceability of model refinements. The resulting analytical framework provides the basis for restoration planning, engineering development, and regulatory documentation.

### RELEVANT MODELING EXPERIENCE

- **Lower Charlotte Harbor Flatwoods Hydrologic Investigation and Planning:** Developed and applied an integrated MIKE SHE/MIKE 11 surface and groundwater model supported by extensive monitoring data.
- **Bond Farm Hydrologic Enhancement:** Used system-scale hydrologic evaluation to advance restoration-focused water management strategies.
- **C-44 Reservoir and STA:** Applied modeling-driven analysis to support regional surface water management infrastructure design and calibration.

### **Subsurface Investigation and Seepage Barrier Considerations**

Seepage control and groundwater interaction are important considerations in evaluating restoration and hydrologic performance alternatives at Yucca Pens. HDR’s prior experience on Reservoir No. 3 included evaluation and design of a soil cement bentonite cutoff wall as part of a broader seepage mitigation strategy. That effort involved investigation of subsurface conditions, assessment of alternative seepage control technologies, and coordination of geotechnical, hydrogeologic, and design disciplines.

For Yucca Pens, any seepage barrier or groundwater control measure would be informed by appropriate subsurface characterization, laboratory testing, and evaluation of hydraulic performance relative to project objectives. Investigation data would be incorporated into the hydrologic and groundwater modeling framework to assess system-wide responses and potential impacts to adjacent features.

HDR’s experience integrating subsurface exploration, seepage mitigation alternatives, modeling, and permitting support provides a technically defensible foundation for evaluating potential groundwater control strategies, as warranted by the project.



*At the Sunrise Sod Wetland Reserve, field-based hydrologic evaluation and interdisciplinary coordination informed restoration grading and water management strategies.*

### **3. PROJECT MEETINGS**

HDR will conduct a Project Kickoff Meeting at the initiation of the Yucca Pens Wildlife Management Area project to establish a common framework for technical coordination, communication protocols, and project execution. The kickoff meeting will confirm:

- Project objectives, scope, and technical priorities
- Roles and responsibilities of HDR team members and teaming partners
- Project schedule, key milestones, and coordination interfaces
- Modeling assumptions, available datasets, and data gaps
- Restoration scenario evaluation strategy
- Permitting considerations and agency coordination needs
- Communication protocols, meeting cadence, and documentation procedures
- Identification of project considerations and potential risks

Following the kickoff meeting, HDR will lead regularly scheduled coordination meetings with the District and project participants to review progress, discuss upcoming activities, and address key technical considerations. Meetings will provide a structured forum for evaluating model development, calibration updates, monitoring data integration, ecological findings, restoration scenario assessments, and design considerations.

Meeting frequency will be aligned with project phases and activity levels. During periods of active model refinement, scenario evaluation, or design development, meetings may occur more frequently to support timely decision making and interdisciplinary coordination. Meetings may be conducted in person or virtually depending on project needs and participant availability.

Focused technical meetings will be conducted as needed to address specific project components, including hydrologic and hydraulic modeling

updates, seepage characterization, geotechnical findings, restoration feature evaluations, and permitting coordination. These meetings support efficient resolution of technical topics and maintain alignment among engineering, modeling, ecological, and permitting disciplines.

HDR will prepare and distribute meeting summaries documenting key discussions, decisions, and action items. Action item tracking and decision documentation will be maintained to support continuity, accountability, and traceability throughout the project lifecycle.

HDR will also provide periodic progress updates summarizing completed activities, upcoming tasks, milestone status, and coordination items. These updates support project visibility, schedule management, and informed technical decision making as the restoration analyses advance.

#### **4. DESIGN PLANS / PERMIT APPLICATION AND SUPPORT**

Design and permitting activities will be managed as an integrated, iterative process linking modeling, engineering, geotechnical evaluation, and ecological considerations. The refined hydrologic and hydraulic model will serve as the primary technical decision-support tool to evaluate, adjust, and prioritize restoration features within a consistent analytical framework.

Design development will proceed through coordinated evaluation cycles in which modeling results, field observations, and subsurface data inform refinement of restoration measures such as ditch blocks, low-water crossings, seepage reduction features, culvert improvements, supplemental freshwater strategies, and pump stations. This structure allows project components to be advanced based on system response rather than fixed assumptions.

For seepage control features, evaluation of potential groundwater barriers will consider stratigraphy, depth to competent or low-permeability horizons, hydraulic gradients, and anticipated performance criteria. Available technologies may include soil

bentonite, soil cement bentonite, diaphragm wall, or other cutoff systems, as appropriate to site conditions. Depth and alignment considerations would be informed by subsurface characterization and integration with groundwater modeling to assess potential seepage reduction, mounding effects, and system-wide hydrologic response.

Ditch block and grade-control features will be evaluated in relation to modeled stage-duration relationships, seasonal hydroperiod targets, overtopping thresholds, and erosion stability considerations. Design development would consider tie-in elevations, soil characteristics, constructability, and potential adaptive management flexibility.

Where pump stations or hydraulic control structures are evaluated, capacity considerations would be informed by modeled flow regimes, hydroperiod objectives, and operational scenarios. Evaluation may include redundancy concepts, intake configuration, fish and environmental considerations, and integration with existing drainage conveyance features.

Geotechnical investigations, groundwater monitoring, and seepage analyses will be aligned with design milestones so that subsurface conditions, hydraulic behavior, and stability considerations are incorporated into progressive design updates. Findings will be translated into design parameters and constructability considerations consistent with District standards and regulatory requirements.

Permitting efforts will proceed concurrently with design development. Ecological assessments, resource constraints, and regulatory considerations will be incorporated into design packages to support agency review and minimize later revisions. Coordination between engineering and environmental disciplines will maintain consistency between technical documentation, model outputs, and permit submittals.

Design deliverables and supporting documentation will provide a clear pathway from hydrologic evaluation through design refinement and regulatory coordination toward construction-ready materials, as warranted by the project phase.



PREVIOUS  
EXPERIENCE  
OF TEAM  
PROPOSED FOR  
THIS PROJECT

## PREVIOUS EXPERIENCE OF TEAM PROPOSED FOR THIS PROJECT



Barry Lenz at the Babcock Webb Wildlife Management Area.

The proposed team's ability to work as an integrated unit is grounded in a long history of shared project experience across complex hydrologic, ecological, and infrastructure-related efforts throughout Florida. Rather than being assembled solely for this assignment, the team reflects an established working relationship developed through multiple restoration, modeling, and water management initiatives that demanded close coordination, technical alignment, and adaptive problem solving. These past collaborations provide a strong foundation for this project, where the interplay between hydrology, ecology, and constructability requires both technical depth and team cohesion.



A clear example of this collaborative dynamic can be seen in the **Myakka River Deer Prairie Creek Hydrological and Wetland Restoration project**. This effort required balancing hydrologic analysis with

ecological restoration objectives across a large, environmentally sensitive landscape. Richard LeBlanc, Zaine Arth, and Barry Lenz were on this team and worked together in a coordinated capacity that emphasized interdisciplinary consistency and technical reliability. The project demanded careful consideration of surface water behavior, wetland function, and long-term system response, challenges that closely mirror conditions encountered at Yucca Pens. The experience reinforced not only shared technical understanding but also a common approach to resolving uncertainties inherent in restoration planning.



Team continuity is further demonstrated through the **Bond Farm Hydrological Enhancement — Phase I project**, which involved a broader cross-section of the proposed staff. Richard LeBlanc, Todd Burton, Eduardo Colchado,

Gabriela de Aragao, Zaine Arth, Bruce Bradley, David Dixon, and Barry Lenz contributed within a framework requiring sustained coordination among engineering, environmental, and design disciplines. The nature of the work required aligning hydraulic concepts with regulatory considerations, structural constraints, and evolving site conditions. This type of collaboration parallels the Yucca Pens environment, where restoration strategies must be technically sound, constructible, and environmentally compatible. The Bond Farm effort strengthened the team's collective ability to navigate multidisciplinary dependencies without fragmenting responsibilities.

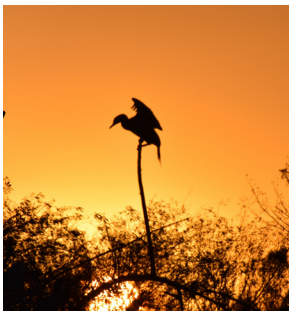
Additionally, ESA played a key role in helping FWC secure \$36 million in Deepwater Horizon NRDA funding for this multidisciplinary hydrologic and habitat restoration initiative for Bond Farm. The ESA team, including Steven Green, Brett Solomon, Michael Poniatowski and Emily Keenan, led development and submission of the full grant application package and supported all regulatory coordination necessary for pre-construction compliance and subsequent construction activities.

As part of project implementation, ESA obtained ERP permit extensions and modifications, performed required water-quality monitoring, and completed comprehensive listed-species surveys across the roughly 650-acre project area. ESA also provided redesign and permitting support to adjust berm and outfall configurations following the removal of a parcel from the project footprint, ensuring that restoration goals were met while maintaining schedule, constructability, and regulatory compliance.



Similarly, the **Navum Valley Farms Wetland Restoration project** illustrates recurring collaboration patterns among Barry Lenz, Richard LeBlanc, Andrew Judd, Gabriela de Aragao,

and Zaine Arth. The work emphasized hydrologic evaluation, restoration planning, and performance-driven design within a setting shaped by altered drainage characteristics. The technical themes of groundwater interaction, surface water distribution, and ecological response bear direct relevance to Yucca Pens, where restoration outcomes depend on understanding system behavior rather than isolated design features. The project environment required continuous dialogue among team members to maintain analytical consistency and reflect field realities in modeling assumptions.



Coordination history also extends to planning, and design-oriented restoration work, as demonstrated by the **Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design project**. Richard LeBlanc, Eduardo Colchado, Zaine Arth, David Dixon,

and Barry Lenz worked within a structured planning framework linking restoration objectives with engineering feasibility. The WRPO process inherently demands close alignment between ecological intent and hydrologic practicality, an approach directly transferable to this project. The project reinforced the team's shared methodology for translating restoration goals into technically defensible, implementable strategies without disconnect between disciplines.



The team's collaborative experience is not limited to restoration-specific efforts. The **C-44 Reservoir and Stormwater Treatment Area project** required sustained coordination across large-scale

infrastructure, hydraulic design, and environmental considerations. Richard LeBlanc, Todd Burton,

Eduardo Colchado, Gabriela de Aragao, Zaine Arth, Bruce Bradley, Samantha La Hée, and David Dixon contributed within a demanding technical and organizational environment. Projects of this scale introduce complexities related to modeling integration, structural design interfaces, and long-term system performance, coordination challenges similar to this project. Importantly, the project's recognition through multiple professional awards reflects not isolated technical achievements but the effectiveness of interdisciplinary collaboration and delivery consistency.



The **Peace River Reservoir No. 3 (PR3) Preliminary Design** required sustained collaboration across engineering, environmental, and geotechnical disciplines. Richard LeBlanc, Todd

Burton, Eduardo Colchado, Gabriela de Aragao, Zaine Arth, Greta Backman, Mark Vincent, Samantha La Hée, Bruce Bradley, Courtney Arena, Andrew Judd, David Dixon, and Barry Lenz contributed to a design effort centered on large-scale storage expansion, subsurface investigation, and seepage mitigation. Work on the soil-cement bentonite cutoff wall system demanded close integration of hydrogeologic characterization, hydraulic modeling, and constructability considerations to address long-term performance and regulatory requirements. The depth of coordination around groundwater interaction and infrastructure resilience mirrors the technical complexity anticipated at Yucca Pens.

Across these projects, a consistent pattern emerges: the proposed team members have repeatedly operated within environments requiring shared problem solving, synchronized technical perspectives, and adaptive responses to evolving project conditions. This continuity is particularly significant for Yucca Pens, where restoration strategies intersect with hydrologic variability, site constraints, and stakeholder considerations. The team's prior experience working together reduces the learning curve associated with new team formation and allows the project to benefit from established communication channels and mutual understanding of workflows.



## Demonstrated Yucca Pens Restoration Experience

2020

### Documented Wetland Hydroperiod Performance Expertise

This Team (Barry Lenz from HDR with Roger Copp from Apex) has conducted ecologic studies on Yucca Pens that have documented shortened wetland hydroperiods. Babcock Webb in 2016 and Yucca Pens in 2020-2021.

2018

### Detailed Subsurface and Hydrologic Characterization

This Team has conducted geotechnical borings on Yucca Pens and has a detailed understanding of Yucca Pens hydrogeology.

2016

### Foundational Yucca Pens Monitoring Network Development

Members of this Team provided advice for the establishment of the first staff gage monitoring stations in Yucca Pens (2011), and installed the first data loggers in 2016 to continuously measure water levels in Yucca Pens.

2014

### Sustained Stakeholder and Initiative Participation

Members of this Team have attended every meeting of the Charlotte Harbor Flatwoods Initiative since 2014, which has been the primary group advocating for hydrologic restoration of Yucca Pens.

2013

### Long-Term Restoration Planning and Modeling Continuity

This Team includes personnel who developed the hydrologic restoration concept for Babcock Webb and Yucca Pens and have been working to advance the implementation of that concept on a continual basis since 2013. HDR's 2013 roadway widening project for I-75 south of Tuckers Grade included modeling work (directed by Roger Copp, part of the current HDR Team) demonstrating that storage of water in Bond Farm would allow for partial restoration of hydrology in Babcock Webb and would provide a pathway to route water away from Babcock Webb to additional storage areas west of I-75.

2010

### Early Yucca Pens Hydrologic Restoration Design

Members of the HDR Team were part of the 2010-2011 design of channel blocks in Yucca Pens, which was one of the first efforts to begin restoration of Yucca Pens hydrology.

### Extensive Field Investigation and Site Familiarity

This Team includes staff from Apex that have been on Yucca Pens during a range of hydrologic conditions since 2010 and have conducted more than 50 field investigations in Yucca Pens over the past 15 years.

# **IV** PROJECT CONTROL

## IV PROJECT CONTROL

HDR Project Managers apply proven project control practices that provide timely, accurate project information, including budget status, schedule performance, staff assignments, and task progress. For this project, the County Project Manager will receive regular Project Status Reports summarizing completed activities, upcoming work, schedule updates, and any issues requiring coordination or resolution.

As a standard practice, HDR continuously monitors project progress against the baseline schedule. Task durations, sequencing, and dependencies are regularly reviewed so potential delays or conflicts can be identified early. This proactive approach allows the project team to address issues before they affect critical milestones or deliverables.

If unanticipated conditions arise that may affect the project schedule, HDR will promptly notify the County Project Manager. The notification will describe the condition, its cause, and the potential impact on ongoing or planned activities. HDR will evaluate available alternatives, including adjustments to task sequencing, resource allocation, or work methods, and present practical recommendations for County review.

Schedule modifications will be resolved through a collaborative process with the County. HDR will work closely with the County Project Manager to review impacts, discuss options, and agree upon appropriate corrective actions. Once concurrence is reached, the project schedule will be updated and incorporated into subsequent reporting cycles.

Specific techniques for monitoring and controlling schedule performance are described in this section. These procedures provide a clear and transparent framework for maintaining progress while accommodating necessary adjustments.

### A. Schedule Control

Following the initial project scoping and coordination activities, the HDR Project Manager will organize the work into a logical framework of individual tasks, durations, and sequencing relationships. This structure establishes the baseline schedule used to guide project execution, monitor progress, and evaluate performance throughout the project lifecycle.

HDR will routinely assess project activities relative to planned milestones and task dependencies. This ongoing evaluation supports early identification of schedule risks, resource conflicts, or external factors that may influence progress. Where appropriate, corrective actions may include task resequencing, workload adjustments, or refinement of activity durations.

When conditions arise that could affect the agreed project schedule, HDR will communicate directly with the County Project Manager to review the situation. Discussions will focus on understanding the cause, assessing the magnitude of the impact, and identifying practical response strategies. HDR will provide clear documentation of proposed adjustments for County consideration.

Upon County concurrence, approved schedule revisions will be incorporated into the project controls framework and reflected in subsequent status updates. This process maintains schedule transparency while preserving flexibility necessary for complex field, data collection, and analysis activities.



*Richard LeBlanc and team on site for the ribbon cutting of the C-44 Reservoir and Stormwater Treatment Area project, reflecting the disciplined coordination, schedule oversight, and sustained leadership that carried a complex, multi-agency effort from planning through successful completion.*

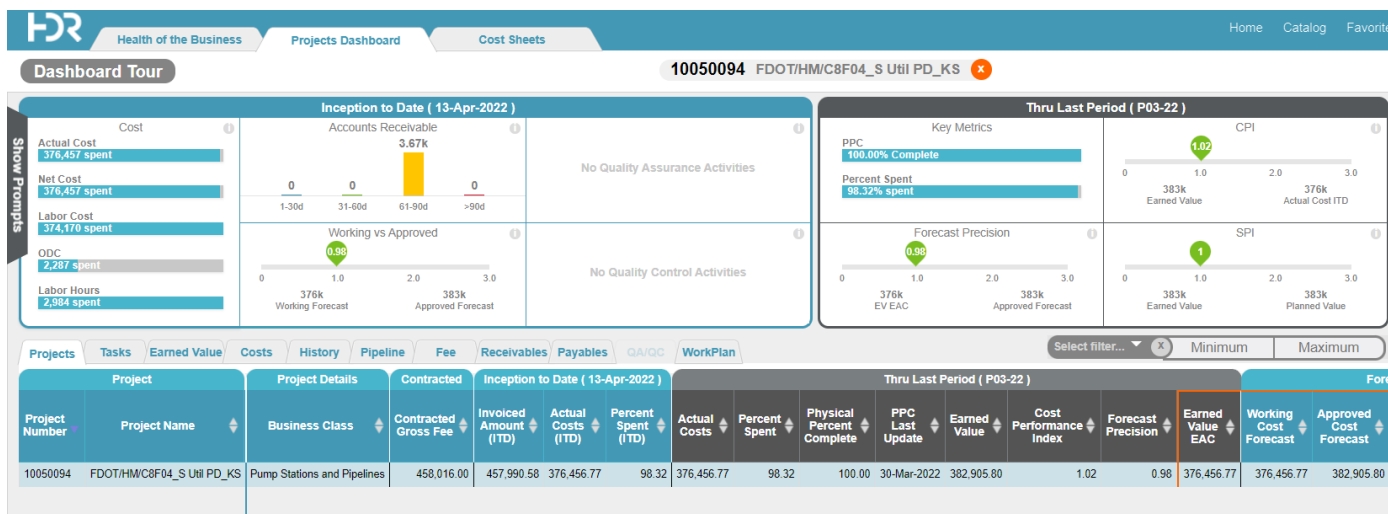


## Proposed Schedule

	DURATION (DAYS)	START	FINISH	2026		2027		
				Q3	Q4	Q1	Q2	Q3
<b>NTP</b>	<b>0</b>	<b>6/1/26</b>	<b>6/1/26</b>					
Kickoff Meeting	1	6/1/26	6/1/26					
Topographic Data Review and Work	120	6/1/26	9/29/26	■				
Geotechnical Work	120	6/1/26	9/29/26	■				
Hydraulic and Hydrologic Modeling	120	9/29/26	1/27/27		■			
Ecological Assessments	90	6/1/26	8/30/26	■				
Archaeological Investigation	90	6/1/26	8/30/26	■				
<b>ENGINEERING AND DESIGN PLAN</b>	<b>269</b>	<b>11/28/26</b>	<b>7/1/27</b>			■	■	
30% Plans	75	11/28/26	2/11/27		■			
60% Plans	75	2/11/27	4/27/27			■		
90% Plans	45	4/27/27	6/11/27				■	
100% Plans	20	6/11/27	7/1/27					■
Final Engineering Design Memorandum	65	4/27/27	7/1/27				■	
Cost Estimate	20	6/11/27	7/1/27					■
<b>PERMITTING APPLICATIONS</b>	<b>118</b>	<b>4/27/27</b>	<b>7/31/27</b>				■	■
Permitting Applications	50	4/27/27	6/16/27				■	
Permitting RAI Responses	45	6/16/27	7/31/27					■
<b>END POP</b>	<b>426</b>	<b>6/1/26</b>	<b>8/1/27</b>					■

## B. Cost Control

HDR uses Oracle E-Business Suite software, as depicted in the figure below to track all project costs (labor and expenses) on a task and subtask level. Timesheet and expense report data is automatically integrated into this system weekly. As a result, the HDR Project Manager, Todd Burton, will have real-time access to all cost data associated with this project on an easy to monitor dashboard. Given this timely data, Todd can quickly adjust staffing mix, individual workload assignments, and pace of delivery to keep the project progressing within the budgeted spend rate.



## C. Recent, current and projected workload

Our personnel are dedicated to providing sufficient time and effort to deliver high-quality services. With this commitment in mind, team members were intentionally selected based on both expertise and demonstrated availability to support this assignment. HDR utilizes Business Intelligence software to actively monitor project commitments, resource allocation, and projected staff workloads, allowing for proactive management of team capacity throughout the contract duration.

HDR’s depth of local and national subject matter expertise, together with the capabilities of our teaming partners, and supported by integrated task management systems, enables the team to respond efficiently to changing project demands and varying workload conditions.



**TABLE 3: AVAILABILITY CHART**

STAFF	FIRM	WORKLOAD*		
		RECENT	CURRENT	PROJECTED
Richard LeBlanc, PE, LEED AP	HDR	45%	40%	40%
Todd Burton, PE	HDR	55%	45%	45%
Eduardo Colchado, PE	HDR	60%	50%	50%
Roger Copp	Apex	50%	60%	50%
Andrew Judd, PE	HDR	40%	50%	45%
Elizabeth Dost, PE	ESA	55%	55%	55%
Steven Green, PWS	ESA	60%	55%	50%
Courtney Arena, ENV SP	HDR	50%	40%	40%
Alex Miller, PE, CFM, ENV SP	HDR	60%	50%	50%
Greta Backman, PE	HDR	45%	40%	45%
Gabriela de Aragao, PE	HDR	50%	45%	40%
Loring Crowley, PE	HDR	60%	50%	55%
Zaine Arth, PE	HDR	50%	45%	45%
Emily Keenan	ESA	50%	60%	55%
Deborah Daigle, PG	HDR	60%	50%	45%
Michael Poniatowski	ESA	55%	50%	55%
Bruce Bradley, PE	HDR	45%	35%	35%
Samantha La Hée, PE	HDR	50%	35%	40%
Mark Vincent, PE	HDR	45%	35%	35%
Brett Solomon	ESA	40%	35%	40%
David Dixon	HDR	60%	45%	45%
Douglas Skurski, SPWS	ESA	60%	60%	55%
Barry Lenz	HDR	40%	30%	30%

\* Estimated committed billable time

**V** PROPOSED  
DESIGN  
APPROACH FOR  
THIS PROJECT

# V PROPOSED DESIGN APPROACH FOR THIS PROJECT

## PROJECT UNDERSTANDING

In support of the restoration and water management objectives associated with the Yucca Pens Wildlife Management Area in Charlotte County, the project requires a technically rigorous evaluation of hydrologic and hydraulic processes governing surface water movement, shallow groundwater interactions, drainage pathways, and wetland hydroperiod behavior. Yucca Pens represents a highly sensitive system where minor changes in drainage, seepage, and freshwater distribution can influence flooding dynamics, seasonal water levels, and ecological function across interconnected wetland landscapes.

The project area is characterized by flatwoods, wetlands, constructed drainage features, shallow groundwater systems, and hydraulic connections to adjacent conveyance systems, including the Gator Slough Canal and downstream receiving waters. Restoration strategies within this environment must account for rainfall driven responses, overland flow behavior, seepage losses, seasonal groundwater fluctuations, and localized topographic controls. It is understood that prior modeling efforts conducted under the Charlotte Harbor Flatwoods Initiative (CHFI) provide an essential regional framework, while refined local scale modeling is necessary to accurately simulate site specific hydrologic behavior and restoration performance.

The objective of this effort is to update and enhance the baseline understanding of hydrologic conditions and evaluate restoration and enhancement scenarios that improve freshwater retention, moderate artificial drainage influences, and support wetland hydroperiod recovery. The modeling driven approach allows for quantitative assessment of ditch blocks, low water crossings, seepage reduction measures, and supplemental freshwater strategies while considering potential system wide responses and opportunities to improve the timing of flows to tide.



*Peace River Reservoir No. 3 expansion featured watershed-scale hydrologic modeling and conveyance design. We will apply this experience to this project.*

The HDR project team is prepared to advance this effort immediately, bringing the technical expertise, regional modeling experience, and interdisciplinary resources required to support hydrologic analysis, design development, and restoration planning for Yucca Pens.

## PROPOSED APPROACH

This team's goal is to take advantage of the extensive technical data, prior investigations, and available modeling resources developed for the project area to establish baseline conditions, characterize existing hydrologic and ecological patterns, and evaluate management or restoration measures that support flooding reduction and wetland function improvements. These analyses will provide a defensible technical basis for recommended project strategies.

### Approach Tasks:

**Kickoff Meeting** - The Team will host a Kickoff Meeting with the County and key project stakeholders to confirm the project objectives, scope, data needs, schedule, and coordination protocols. The purpose of this meeting is to determine and secure agreement on the parameters of the study, including technical assumptions, constraints, opportunities, and performance considerations relevant to hydrologic, environmental, and permitting factors.

Existing information, available mapping, and prior studies will be reviewed to confirm data sources, identify gaps, and refine technical priorities. The Team will coordinate closely with the County to verify site conditions, establish communication procedures, and confirm expectations for field activities, analyses, and deliverables. Where field investigations, monitoring, or data collection activities are required, HDR will work with the County to confirm access, sequencing, and logistical considerations. If regulatory coordination or agency interaction becomes necessary, HDR will support those discussions and assist in navigating approval or compliance processes consistent with project needs. Our experience supporting similar wetland, hydrologic, and water management projects will be invaluable in efficiently advancing early project decisions and establishing a clear technical direction.

### Establish Baseline Performance Measures

The proposed modeling effort focuses on developing a refined, local-scale hydrologic and hydraulic model for the southern portion of the Yucca Pens Wildlife Management Area (WMA) using the existing MIKE SHE/MIKE 11 model. The first step will be to extend the time series used in the model so that the model simulation period can run through 2025 to take advantage of monitoring data collected since the completion of the modeling conducted for the CHFI model used in the 2022 Modeling Study. ESA and Apex have been monitoring water levels at more than 60 monitoring stations in Babcock Webb, Yucca Pens, and the surrounding area and these data will allow the model calibration to capture a wider range of hydrologic conditions than were available for the 2022 study. More recent LiDAR and survey data are available that will be incorporated into the model that will allow for more accurate representation of overland flow processes. The 2022 effort utilized a composite topographic data set that was developed from a number of separate LiDAR survey efforts, and that topographic file exhibited linear topographic elevation breaks along the boundary between Lee and Charlotte Counties.



*The Myakka River Deer Prairie Creek Hydrologic and Wetland Restoration project required detailed analysis of surface water behavior, wetland response, and drainage connectivity across a complex landscape.*

Following the updated calibration effort of the full-scale model, a local-scale model for Yucca Pens will be developed that will utilize the full-scale model results for boundary conditions. The local-scale model will have a grid size of 125 feet (1/6 of the CHFI 750-ft grid), allowing for greater representation of overland flow processes and a more detailed representation of land use changes due to the smaller grid size.

This refined model will serve two purposes: first, to update and enhance the existing baseline understanding of hydrologic conditions using the latest monitoring data and improved rainfall representation; and second, to evaluate the performance of multiple proposed restoration and enhancement scenarios. Together, these efforts will provide a technically robust foundation for design, permitting, and prioritization of restoration features within Yucca Pens.

The modeling approach builds upon the existing regional model previously developed for Yucca Pens. While this larger-scale model offers an appropriate conceptual foundation, a more refined sub-model is necessary to accurately simulate local drainage pathways, ATV trail networks, shallow groundwater interactions, and hydroperiod patterns across the diverse wetland landscape. The refined model will incorporate higher-resolution topography, detailed conveyance features, local vegetative communities, and updated hydrologic monitoring data. These enhancements will improve the representation of water movement, surface, groundwater exchange, and seasonal water level fluctuations across the study area.

New monitoring data collected within and adjacent to Yucca Pens will be incorporated into the model to improve the accuracy of time-varying boundary conditions. Continuous groundwater and surface water level measurements, combined with site-specific rainfall and evapotranspiration records, will enable the model to reproduce seasonal dry-down behavior and wet-season recharge dynamics with greater precision. The calibration period will also be extended to include hydrologic observations collected after November 2021. This extension allows the model to replicate the elevated groundwater levels documented during late 2021 and the early 2022 wet season, an important test of the model's ability to simulate atypical seasonal responses under shifting climate conditions.

The model will use spatially distributed NEXRAD rainfall inputs, which offer a significant improvement over single-station or uniform rainfall assumptions. The use of NEXRAD allows rainfall patterns to vary across the landscape, providing a more realistic simulation of storm-driven hydrologic responses. As part of the evaluation, the model will simulate a significant recent storm event, such as Hurricane Ian in Fall 2022, to examine peak water levels, overland flow connectivity, and short-term hydrologic stresses. In addition, a multi-year continuous simulation will be conducted to capture hydroperiod variability across wet and dry years. These longer-term simulations are particularly important in Yucca Pens, where seepage losses, drought effects, and soil-moisture feedbacks can strongly influence habitat conditions. Simplifications to nonessential storm-event routing will be incorporated to ensure the model can run efficiently over an extended period without sacrificing hydrologic accuracy.

Because surface, groundwater interactions are a defining feature of the Yucca Pens landscape, the model will incorporate spatially variable seepage coefficients and hydrogeologic characteristics informed by monitoring data and supplemental field investigations. This will allow the model to replicate the lateral and vertical seepage processes that drive dry-season water losses and influence recession rates. Calibration of seepage parameters will be guided by observed groundwater gradients, recession curves, and groundwater mound responses to wet-season rainfall.

## FLOOD RISK MANAGEMENT PROJECTS

Upon completion of the existing conditions model, the refined tool will be used to evaluate three proposed project scenarios. The first scenario examines the use of ditch blocks, weirs, and low-water fords along existing ATV trails to reduce excess drainage from the cypress strands and associated wetland systems. The model will assess the hydrologic benefit of these structures, determine the optimal number and configuration needed to achieve meaningful hydrologic "lift," and help prioritize installations if construction funding is limited. Sensitivity testing will be conducted to refine the dimensions and placement of proposed structures, ensuring the greatest possible hydrologic benefit per unit of investment.

The second scenario evaluates the potential to reduce groundwater seepage losses to Gator Slough Canal through installation of a partial groundwater seepage barrier. This scenario requires a detailed understanding of the surficial aquifer system and its hydraulic connection to the canal. The refined model will incorporate new geotechnical data, including the depth and vertical layering of the surficial aquifer, to more accurately evaluate the effectiveness of a subsurface barrier constructed by drilling and grouting boreholes. This analysis will clarify the degree to which seepage losses can be reduced, the expected corresponding increase in wetland hydroperiod, and the feasibility of implementing such a barrier.

In addition, a variable grid MODFLOW model will be developed that will allow the modeling team to more accurately define the hydraulic gradient in Yucca Pens north of Gator Slough. MODFLOW is capable of simulating heterogenous 3D groundwater flow and supports coupled process modeling with its object-oriented design, such as surface and groundwater. The current version (MODFLOW 6) works with unstructured grids which are beneficial for simulating complex geology as well as varying resolution throughout the grid. The model flexibility is important for representing the Project seepage control measures.

The third scenario considers the introduction of supplemental freshwater into Yucca Pens during the dry season. Under this scenario, water would be delivered from the Bond Farm Hydrological Enhancement Impoundment at a constant rate of approximately 20 cubic feet per second during December and January. The model will evaluate the hydrologic effects of this additional dry-season flow, the capacity of the proposed flow-way, originally routed beneath US-41 via a 7-ft by 3-ft box culvert, and potential modifications needed to support long-term system performance. The model will also assess interactions with tidal creeks downstream of Yucca Pens to ensure that freshwater additions do not adversely alter tidal hydrodynamics or drainage behavior.

If funding allows, the refined model will further be used to assess the need for additional culverts beneath the Florida Power & Light (FPL) powerline. Ecological studies indicate that inundation tends to persist longer east of the powerline grade, suggesting that additional cross-drainage could provide hydrologic and ecological benefits. The model would help identify suitable culvert locations and sizes, supporting the design and permitting phases of any future improvements.

## PRELIMINARY ENGINEERING DESIGN

### Geotechnical Work

In order to successfully evaluate the appropriate engineering controls for the natural system enhancements at Yucca Pens, first the site must be adequately characterized with respect to geology and hydrogeology, and the geotechnical characteristics of the subsurface. The HDR geotechnical team will utilize a phased project approach to include 1) collection and analysis of existing data, 2) determining data needs, 3) developing a data collection plan, and 3) developing a site conceptual model and performing numerical modeling. The HDR geotechnical team will work with Terracon Consultants to plan and conduct the subsurface investigation to support the Wetland Habitat Enhancement and Flooding Improvements.

All data sources, information and reports will be reviewed to evaluate the technical merit and adequacy of the information relative to supporting future conclusions, recommendations, and decisions. Drilling has been performed at the site, along with long-

term monitoring of water levels which will provide vital subsurface information for the project. After reviewing the data HDR will develop and implement a field data collection plan as necessary to address any data needed to supplement the existing data and to further evaluate the site. The plan will also include the basis for determining that a specific type of data is needed, where it is needed, and how this data will be incorporated into the analysis.

The HDR geotechnical team will propose options for additional data collection and future monitoring where insufficient data exists. The additional data could include additional borings to evaluate stratigraphy and hydrostratigraphy, testing to determine geotechnical properties of soil material, surface geophysical methods to fill gaps between borings, monitoring wells to evaluate water levels, and/or aquifer performance tests to provide hydraulic conductivity. Instrumentation for groundwater monitoring will be installed and monitored during the design phase, allowing the design team to determine groundwater variations along different seasons and weather conditions. One obvious need will be geotechnical data collection along the 4.5 miles of the proposed cutoff wall along Gator Slough to support the design of the wall.



*Bond Farm Hydrological Enhancement Phase 1 involved evaluation of subsurface conditions, groundwater behavior, and site hydraulics to support restoration planning and infrastructure improvements. Experience from this work informs the geotechnical assessment, seepage evaluation, and design considerations applied to Yucca Pens.*

The data collected during the implementation of the field data collection program will be analyzed and interpreted and added to the previous site characterization and conceptual model of the site that is incorporated into the current models for the project. The conceptual model will be refined and incorporated into numerical models that will show the response to hydrologic stresses, including engineered features such as the proposed cutoff wall, ditch blocks, and proposed structures.

To support development and evaluation of the seepage control and natural system enhancement features at Yucca Pens, the project team will apply an integrated geotechnical and hydrogeologic analysis framework that combines regional scale groundwater modeling with local 2D seepage and stability modeling using GeoStudio SEEP/W and SLOPE/W. Regional groundwater outputs will define the far field groundwater boundary conditions for the 2D analyses. Seepage will be assessed at multiple cross-sections along the proposed barrier to establish phreatic conditions, determine required barrier depth, and support canal slope stability analyses. Cross sections will be selected to capture key variations in subsurface stratigraphy, site geometry, and hydraulic loading. SEEP/W will generate phreatic surface profiles, pore water pressure distributions, and localized seepage rates in areas critical to the design of the seepage barrier and canal improvements. These results will then be imported directly into SLOPE/W for evaluating the stability of canal banks and engineered features under design loading scenarios. This integrated workflow allows pore water pressure conditions computed in SEEP/W to be seamlessly carried into SLOPE/W, enabling more realistic stability evaluations—particularly where differential head conditions exist.

As part of the geotechnical scope, the team will complete an options analysis for the proposed cutoff wall, drawing directly on the results of the subsurface investigation and seepage modeling. Site-specific findings—including stratigraphy, hydraulic gradients, depth to low-permeability horizons, and seasonal groundwater behavior—will be incorporated into the evaluation of three primary seepage control alternatives. The analysis will address factors such as constructability, material compatibility, installation feasibility, performance under anticipated hydraulic conditions, and potential impacts to adjacent

features. Integrating the geotechnical data and seepage analysis into the alternatives evaluation will support identification of an appropriate wall alignment, target depth, and treatment method, providing a technically grounded comparison of options aligned with project objectives and long-term system performance.

The investigation will identify site stratigraphy, including physical characterization of the soil layers, hydraulic conditions, confining soil strata, and seasonal high-water table; support the design of the proposed cutoff wall; assess foundation conditions of the proposed structures and location of the ditch blocks; support dewatering permits; and determine groundwater elevations within the project area.

Instrumentation for groundwater monitoring will be installed and monitored during the design phase, allowing the design team to determine groundwater variations along different seasons and weather conditions. The subsurface investigation will be supplemented by reviewing data from the NRCS National Soil Survey Center for this area, and additional bibliographies available for the project area.

The final deliverable will include a Technical Memorandum of Geotechnical Borings and a Report documenting all geotechnical analyses performed for this project. Those documents will include, but will not be limited to, soil survey, soil boring logs, laboratory test results, identification of groundwater levels, installation details of the groundwater measurement instrument, and a description of site conditions, including potential deleterious materials, soil parameter derivation, seepage, and slope stability analyses, comprehensive discussion on the design approach and results, discussion on the seepage barrier selection, supporting the design development.





*Wetland conditions at Yucca Pens evaluated to inform ecological assessment and restoration planning.*

## ECOLOGICAL SITE ASSESSMENT & REGULATORY PERMITTING

### 1. Project Initiation, Data Review, and Regulatory Pathway Screening

The project goal is to restore more natural freshwater retention and sheet flow across the Yucca Pens Wildlife Management Area and downstream connections to Charlotte Harbor through a combination of hydrologic enhancement construction features including earthen ditch blocks, concrete low-water fords/weirs, reestablished tidal creek connections, seasonal flow-way and a 4.5-mile groundwater seepage barrier along the Gator Slough Canal. To support this effort, a review of existing data and project concepts focused on aligning ecological and permitting needs with the project’s hydrologic enhancement construction features and deliverables will be performed. To complete this task, the HDR Team will compile and index existing project resources already identified for use by the design team, including the Lower Charlotte Harbor Flatwoods Initiative planning outputs, monitoring data (which ESA and Apex currently supports), maps, and hydrologic modeling files hosted through the CHNEP/WaterAtlas repository in addition to other relevant publicly available data.

Concurrently, an early permitting pathway screening effort will be completed to identify regulatory approvals consistent with the project intent to deliver construction-ready plans in conjunction with all required federal, state and local permits.

This screening serves to streamline the project design, stakeholder coordination, and ensure a “shovel-ready” construction package. It is important to identify the appropriate regulatory agencies and types of permits required for the project, including programs that regulate activities affecting wetlands/surface waters and alterations to surface water flows, and listed species to avoid complications later during the project design effort.

Key outputs: a concise permitting strategy including agencies, authorization types, anticipated submittal content, decision points, and timeframes), and a data-gap list specifically tied to ecological impact evaluation and permit application needs.

### 2. Desktop Ecological Assessment – Habitats, Wetlands/Surface Waters, and Listed Species

Using existing project resources, monitoring information, and publicly available data, the HDR Team will develop an ecological characterization of the project impact areas, and areas likely to be affected by the project (including downstream tidal creeks and canal interfaces). The objective is to support design and permitting decisions that improve habitat and hydroperiod while minimizing unintended effects such as avoidable impacts to wetlands and listed species, erosion or offsite flooding, consistent with project goals.

The desktop ecological assessment will include:

- Review of available mapping, monitoring stations/ data, project documentation provided through the Charlotte Harbor Flatwoods Initiative repository (including existing conditions documentation and supporting materials), and publicly available data sources.
- Identification of wetlands/other surface waters likely present and potentially affected by construction activities, to support subsequent field verification and permitting narratives.
- Preliminary listed species/habitat evaluation to support impact analysis and permit consultations.

**Key outputs:** a working constraints/opportunities document and draft impact-relevant resource inventory that directly informs fieldwork and permit pre-application discussions.

### 3. Field Site Assessment — Targeted Verification for Permitting and Constructability

The HDR Team will conduct site visits and field assessments tailored to the restoration features under consideration (ditch blocks/weirs/low-water fords, tidal reconnections, flow-way delivery corridor interfaces, and seepage barrier alignment). Site assessments will build upon field investigations conducted by HDR and Water Science conducted in 2020-2021 and will focus on collecting defensible documentation for:

- Wetland and surface water boundaries as well as ecological assessments relevant to anticipated construction footprints and access routes.
- Habitat conditions and indicators of use by threatened/endangered/listed species where likely to occur, consistent with rules that call for documenting listed species and wildlife utilization and noting when targeted surveys may be warranted based on likelihood of use and potential impact.
- Photo documentation and georeferenced observations that tie directly to design elements and avoidance/minimization opportunities.

This field effort is designed to support the project's specific ecological assessment deliverable: an Ecological Assessments Technical Memorandum that includes maps of threatened and endangered/ listed species management plans and wetland areas with determinations and/or construction requirements, along with GIS deliverables to support the engineering team's geodatabase inputs.

#### Key Outputs:

- Ecological Assessments Technical Memorandum (draft/final) including exhibits and figures
- Geodatabase/GIS layers supporting design and permit submittals

### 4. Effects Analysis and Avoidance/Minimization Integration with Design Milestones

The HDR Team of ecologists and engineers will collaborate to distill field and desktop findings into a clear, permitting-aligned effects analysis for each hydrologic construction feature, focusing on



*Preparation of the Sunrise Sod Wetland Reserve Plan of Operations and Design required close coordination with regulatory agencies while developing ecological documentation and restoration plans for agency review.*

both wetland resource functions and listed species considerations. This analysis will be integrated into the initial design and carried forward through the design process and adjusted as needed, so avoidance and minimization are addressed early reducing permitting risk and rework.

Where unavoidable wetland resource impacts are identified, the approach will follow the established mitigation sequencing expectations reflected in federal compensatory mitigation principles (avoid minimize compensate), consistent with regulatory framing for impacts to waters of the United States.

#### Key Outputs:

- A feature-by-feature effects/constraints summary tied to plan sheets and construction sequencing assumptions
- Draft permit narrative language supporting restoration purpose/need, resource effects, and protective measures

### 5. Permit Strategy, Pre-Application Coordination, and Agency Engagement

The project scope anticipates permit pre-application meetings, preparation of permit documents/ applications, and responses to requests for additional information (RAIs). The HDR Team will implement a structured, stepwise process for engaging regulatory agencies as follows:

1. Pre-application package development: concise project description, figures, restoration elements, preliminary effects summary, and key questions for agencies.

2. Pre-application meetings: coordinate with local, state, and federal reviewers having jurisdiction to confirm application pathways, key data expectations, and review sequencing.
3. Documentation of outcomes: meeting notes, decisions, and action items to drive application completeness and schedule predictability (consistent with the project's emphasis on coordination and written documentation).
4. This engagement will be aligned to the programs that regulate work in wetlands/ surface waters and surface water flow alterations (Florida ERP framework) and, as applicable, Clean Water Act Section 404 permitting pathways and associated review expectations, as well as local regulatory agencies.

#### Key Outputs:

- Regulatory agency meeting minutes, outlining recommended application guidance provided by the agencies.

#### 6. Permit Application Preparation and Submittal (State/Local/Federal)

The HDR Team will prepare complete permit application packages that are consistent with the project design plan set prepared by the design team, incorporating ecological assessment findings and mapped exhibits.

Our submittal packages will be organized around:

- Design drawings and supporting documentation (coordinated with modeling, design and engineering leads)
- Ecological assessment memo, figures and exhibits illustrating and describing wetland areas, listed species considerations, and construction requirements/constraints
- Supporting narratives addressing impacts to ecological functions and wildlife use considerations where pertinent
- Mitigation plan for unavoidable wetland impacts, if needed

#### 7. RAI Management and Permit Closeout to "Shovel-Ready"

Agency RAIs are a normal part of complex restoration permitting. The project scope requires responses to permitting agency RAIs and incorporation of permit conditions into final plans/specifications. We will manage RAIs using an organized workflow:

- Centralized RAI log (question, lead discipline, due date, response status)
- Technical coordination with engineering and modeling teams to ensure consistency between permit narratives, modeling outputs, and plan sheets
- Formal response packages with revised exhibits and updated GIS deliverables as needed

Closeout will include incorporation of final permit conditions into the 100% bid package so the deliverable is truly construction-ready and consistent with the project intent to be "shovel-ready" at the end of the performance period.

#### 8. Team Roles and Integration (Ecology + Permitting)

The HDR team will implement clear internal roles, coordination points, and QA/QC checkpoints consistent with those responsibilities:

- Ecological Assessments led by Steven Green, PWS, supported by Brett Solomon, Emily Keenan and Michael Poniatowski.
- Permitting led by Steven Green, PWS, with support from Brett Solomon, Barry Lenz and Courtney Arena

This structure ensures that ecological constraints and effects determinations are translated efficiently into permit-ready narratives and exhibits, and that commitments made during agency coordination are tracked through final plan production. This team of qualified biologists and engineers coordinated for the design and permitting of the Bond Farm Hydrological Enhancement Impoundment project, anticipated to begin construction in December 2026.

**VI** EXAMPLES  
OF RECENTLY  
ACCOMPLISHED  
SIMILAR  
PROJECTS

# VI EXAMPLES OF SIMILAR PROJECTS

The HDR Team’s qualifications are demonstrated through applied experience delivering hydrologic, groundwater, and wetland restoration services within complex environmental systems. The representative projects summarized in this section reflect planning, modeling, field investigation, and restoration-oriented analyses performed under technical and regulatory conditions comparable to those associated with this project.

RELEVANT PROJECT	SERVICES PROVIDED									
	H&H MODELING	GW / SW ANALYSIS	RESTORATION DESIGN	CONTROL STRUCTURES	FIELD DATA	MODEL CALIBRATION	PERMITTING	FLOOD / STORAGE	WATERSHED PLANNING	RESILIENCE PLANNING
<b>Bond Farm Hydrological Enhancement - Phase 1</b> South Florida Water Management District   Charlotte County, FL	●	●	●	●	●		●	●	●	●
<b>Yucca Pens Wildlife Management Area Hydrogeologic Assessment</b> Coastal & Heartland National Estuary Partnership	●	●			●			●	●	●
<b>Environmental Restoration Professional Services Contract</b> Florida Fish and Wildlife Conservation Commission (FWC)   Statewide, Florida	●	●	●	●	●	●	●	●	●	●
<b>Deer Prairie Creek Hydrological and Wetland Restoration</b> Southwest Florida Water Management District (SWFWMD)   Sarasota County, FL	●	●	●		●		●	●	●	●
<b>Seventy Grove Wetland Reserve Easements Plan of Operations and Design</b> Natural Resources Conservation Service (NRCS)   Florida	●	●	●	●			●	●	●	●
<b>Russakis Ranch Wetland Reserve Program (WRP)</b> Natural Resources Conservation Service (NRCS)   Okeechobee County, FL	●	●	●	●	●	●	●	●	●	●
<b>Navum Valley Farms Wetland Restoration</b> Natural Resources Conservation Service (NRCS)   Desoto County, FL	●	●	●	●		●	●	●	●	●
<b>101 Ranch Wetland Reserve Easements Plan of Operations and Design</b> Natural Resources Conservation Service (NRCS)   Florida	●	●	●	●			●	●		●
<b>Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design</b> Natural Resources Conservation Service (NRCS)   Florida	●	●	●	●	●		●	●	●	●
<b>Highlands Ranch Wetlands Reserve Plan of Operations (WRPO) and Design</b> Natural Resources Conservation Service (NRCS)   Florida	●	●	●	●			●	●	●	●
<b>General Engineering Consultant (GEC) – Library of Services Support Contract</b> Southwest Florida Water Management District (SWFWMD)   Brooksville, Florida	●	●	●	●	●	●	●	●	●	●
<b>Lehigh Acres Municipal Services Improvement District ABSORB Project</b> Lehigh Acres Municipal Services Improvement District (LA-MSID)	●	●	●	●	●	●		●	●	●
<b>Wetland Mitigation Delineation &amp; Design</b> Peace River Manasota Regional Water Supply Authority   Florida	●	●	●	●	●		●			●
<b>C-44 Reservoir/Stormwater Treatment Area (STA) Project</b> South Florida Water Management District   Indiantown, FL	●	●		●	●	●	●	●	●	●
<b>Peace River Reservoir No. 3 Preliminary Design</b> Peace River Manasota Regional Water Supply Authority   Arcadia, FL	●	●		●	●	●	●	●	●	●



## RELEVANT ASPECTS

- Breach modeling
- 15,000 feet of canals and associated water control structures
- Geotechnical Investigations
- 538 acre above ground impoundment
- 2,150 acre-feet up to 4-feet in depth
- 4.5 miles of 8' high earthen embankment

## Bond Farm Hydrological Enhancement - Phase 1

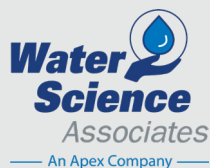
*South Florida Water Management District | Charlotte County, FL*

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Eduardo Colchado | Zaine Arth | Bruce Bradley | David Dixon | Barry Lenz

The HDR team helped perform the Phase I design for the for the Bond Farm Hydrologic Enhancement Impoundment in the Fred C. Babcock / Cecil M. Webb Wildlife Management Area (Webb WMA), which had been altered by farms, mining, highways, and residential lands, with perimeter berms blocking historic flow-ways. A key component of the effort is restoring more natural flow patterns. The Bond Farm, located within a historic flow-way, will be modified and converted to a water storage facility serving as a source of water to restore more natural wetland hydroperiods. Phase I includes construction of a gated inflow, perimeter berms, seepage canals, and outflow structures to facilitate downstream conveyance, significantly improving hydroperiods.

ESA supported FWC in securing \$36 million in Deepwater Horizon NRDA grant funding for this multidisciplinary hydrologic and habitat restoration project. The team prepared and submitted the grant application package and provided regulatory coordination to support pre-construction compliance and construction. ESA obtained ERP permit modifications and extensions, conducted required water quality monitoring, and completed extensive listed species surveys across the approximately 650-acre site. ESA also provided redesign and regulatory support to modify berm and outfall structures following exclusion of a parcel, maintaining restoration objectives while preserving schedule and constructability.



## RELEVANT ASPECTS

- Hydrogeologic Investigation and Groundwater Monitoring
- Surface Water Monitoring and Hydroperiod Analysis
- Subsurface Borings and Lithologic Characterization
- Installation of Monitoring and Water Supply Wells
- Hydrologic Data Collection and Instrumentation
- Surveying of Creek and Slough Cross Sections
- Flow Path and Surface, Groundwater Interaction Analysis
- LiDAR Topographic Validation and Field Survey Support

## Yucca Pens Wildlife Management Area Hydrogeologic Assessment

*Coastal & Heartland National Estuary Partnership*

### KEY PERSONNEL INVOLVED:

Roger Copp

This project was conducted by Southwest Engineering & Design with assistance from Water Science Associates. This project was initiated to provide additional information to aid in the design of the ecologic restoration plan for Cecil Webb and Yucca Pens Wildlife Management Areas. Cecil Webb and Yucca Pens are maintained by the Florida Fish and Wildlife Conservation Commission (FWC). Funding was provided by Charlotte County to compensate for the loss of lands in the Yucca Pens WMA due to widening of Burnt Store Road. Coastal & Heartland National Estuary Partnership (CHNEP) accepted funds from Charlotte County and contracted with Southwest Engineering & Design and Water Science Associates to conduct the project for the Babcock Webb Wildlife Management Area. Wetlands in the Yucca Pens Unit of the Babcock Webb Wildlife Management Area experience normal levels of flooding during the peak of the wet season, however manual readings of staff gages maintained by FWC staff indicated that the duration of inundation is less than optimal. FWC staff requested this work to assist in ecologic restoration planning and better manage the Yucca Pens unit. This project provided additional surface and groundwater

monitoring, hydrogeologic investigations of Yucca Pens, and installation of two low-capacity water supply wells that will be used to provide water for managing prescribed burns in Yucca Pens. In addition, the project including surveying of cross sections in creeks and sloughs of Yucca Pens to improve the accuracy of LiDAR topographic maps that are less accurate in densely vegetated areas and creeks that are permanently inundated. Monitoring wells were installed at 15 existing staff gages so that water levels could be monitored throughout the year. Borings were drilled at these locations down to the depth of a confining unit that was expected to be approximately 30 feet below ground. Lithologic logs were recorded at each location with a particular focus on identifying any shallow confinement due either to caprock or fine-grained sediments as well as any areas of higher permeability due to limestone or shell deposits. Borings were drilled at 18 additional locations to better understand hydrogeologic conditions. Cross sections were surveyed at 56 locations to better characterize flow pathways within Yucca Pens. The two fire wells were installed and are the main supply for the FWC fire control crews.



## RELEVANT ASPECTS

- Statewide Hydrologic Restoration
- H&H Modeling and Monitoring
- Stream & Hydraulic Structure Design
- Estuarine & Seagrass Restoration
- NRDA Grant Support
- ERP, USACE & WMD Permitting
- Climate Resiliency & Habitat Modeling
- Construction Phase Compliance

## Environmental Restoration Professional Services Contract

*Florida Fish and Wildlife Conservation Commission (FWC) | Statewide, Florida*

### KEY PERSONNEL INVOLVED:

Elizabeth Dost | Steven Green | Douglas Skurski | Michael Poniatowski | Brett Solomon | Emily Keenan

ESA serves as Prime Consultant under FWC's statewide Environmental Restoration Professional Services Contract, which began in 2019, delivering hydrologic modeling, restoration planning and design, regulatory permitting, grant support, and construction-phase services for aquatic and habitat enhancement initiatives across Florida. Since contract inception, ESA has successfully completed multiple task orders supporting development of comprehensive implementation masterplans for restoration projects spanning freshwater lakes, rivers and streams; forested and non-forested wetlands; estuarine systems; and coastal environments.

Project efforts include lake drawdowns and sediment management; stream and floodplain restoration; design of weirs, berms, culverts, and water control structures; hydraulic and mechanical dredging; bank stabilization; living shoreline installation; oyster reef and seagrass restoration; aquatic vegetation establishment; and large-scale ecological restoration to reestablish historic hydroperiods and improve habitat

connectivity. ESA leads environmental permitting and agency coordination with the Florida Department of Environmental Protection (FDEP), Florida's Water Management Districts, and the U.S. Army Corps of Engineers, integrating regulatory requirements into design to efficiently advance projects from planning through implementation.

As part of the effort, ESA worked closely with HDR and Apex, ensuring each partner's work was well integrated into the broader project goals. HDR contributed its expertise through the Bond Farm Hydrological Enhancement Impoundment, advancing design and engineering solutions that supported the water management objectives. Apex complemented this work by conducting hydrologic monitoring within the Babcock—Webb Wildlife Management Area and the Yucca Pens Preserve, delivering essential data to guide system evaluation and decision-making. Together, the team's coordinated approach enabled efficient communication, strong technical alignment, and high-quality deliverables across all project tasks.



## RELEVANT ASPECTS

- Preliminary Hydraulic and Hydrologic (H&H) Modeling (ICPR3)
- Conceptual Plan
- Regulatory Coordination and Environmental Permitting
- Site reconnaissance and analysis
- Wetland delineations and characterization

## Deer Prairie Creek Hydrological and Wetland Restoration

Southwest Florida Water Management District (SWFWMD) | Sarasota County, FL

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Zaine Arth | Barry Lenz

HDR worked with the District and Sarasota County to provide ecological, hydrological, and engineering support services for the design and implementation of hydrologic/wetland restoration treatments for Regions 7, 8, and 9 of the 10,128-acre Myakka River Deer Prairie Creek Preserve. Building on the recommendations in the Preliminary Engineering Report (PER), HDR developed a wetland restoration design for a 2,115-acre portion of the Preserve using a minimalist approach to restore hydrology by reducing unnatural drainage impacts to wetland functions, reinforcing low water crossings for land management, and relocating trails out of wetlands. Wetland limits and seasonal high-water conditions were field delineated with GPS and mapped to characterize pre-restoration conditions and support permitting.

HDR collected and reviewed available regional and site data to understand the contributing watershed and advance the conceptual design, including previous drainage studies, existing watershed and H&H models, survey and LiDAR data, historic and current imagery, soils information, resource inventories, wetland characteristics and hydroperiod indicators, and listed species data. Site reconnaissance and field investigations were performed to

document hydrologic features, habitat conditions, invasive species, and indicators of hydroperiods, with particular focus on proposed restoration treatment areas, potential staging locations, and areas expected to receive additional inundation post-restoration.

Hydrologic and hydraulic (H&H) modeling was performed using ICPR v3 and v4 and incorporated topographic survey, LiDAR, and GPS data to update the existing conditions model, evaluate watershed contributions, and establish design parameters for restoration scenarios. A proposed conditions model was developed to quantify hydrologic-related ecological benefits and to refine restoration features to enhance wetland systems and historical drainage patterns while avoiding adverse off-site impacts and remaining consistent with regulatory methodologies for the 25- and 100-year pre-/post-criteria. HDR also supported preparation of design specifications and permit applications, including coordination with regulatory agencies, development of wetland delineation mapping, and incorporation of environmental constraints and listed species considerations into the design to support efficient permitting and cost-effective implementation.



## RELEVANT ASPECTS

- Historic Hydrology Restoration
- Structural Restoration Measures
- Full H&H and Survey Integration
- Wildlife and Cultural Resource Sensitivity
- WRPO and O&M Planning

## Seventy Grove Wetland Reserve Easements Plan of Operations and Design

*Natural Resources Conservation Service (NRCS) | Highlands County, FL*

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Zaine Arth | David Dixon | Barry Lenz

HDR|KLF contracted with the NRCS through the WRP to develop a WRPO for the 293- acre Seventy Grove WRE. The objective of the project was to develop a restoration plan to re-establish historic hydrology and wetland characteristics and functions that existed prior to hydrological and agricultural manipulations.

The HDR|KLF team reviewed historic imagery and conducted wetland and wildlife field investigations; mapped habitats and existing land uses; managed topographic survey and geotechnical investigations; performed H&H modeling; and developed alternative restoration designs for the site. Restoration design graphics were created using GIS, as well as H&H drainage modeling maps. Three ecological communities were targeted for restoration including upland hardwood hammock, slough and freshwater marsh.

The restoration design considered benefits to state and federally protected wildlife including the Everglade snail kite, crested caracara, bald eagle, wood stork and Southeastern American kestrel and protections for known cultural resources. Unique features of the restoration design included extensive ditch filling and land smoothing; dike removal and enhancements; the installation of weirs; and land clearing. The WRPO also provided structural management practices; operation and maintenance costs; and habitat management practices with associated costs. A HMP was prepared to provide procedures for the short-term and long-term management of the site. After WRPO approval by NRCS, the HDR|KLF team developed the site plans to facilitate permitting through the SFWMD. The project is currently in the preliminary stages of permitting and design.



## RELEVANT ASPECTS

- Similar structural Components
- Full Technical Workflow
- Wildlife and Sensitive Species Coordination
- Hydrologic Restoration Objective
- SWFWMD Permitting Facilitation

## Russakis Ranch Wetland Reserve Program (WRP)

*Natural Resources Conservation Service (NRCS) | Okeechobee County, FL*

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Zaine Arth | Barry Lenz

The HDR | Kleinfelder Joint Venture (HDR|KLF) had contracted with the NRCS through the Wetland Reserve Program (WRP) to develop a Wetland Reserve Plan of Operations (WRPO) for the 474-acre Russakis Ranch Wetland Reserve Easement (WRE). The objective of the project was to develop a restoration plan to re-establish the historic hydrology and wetland characteristics and functions that had existed prior to hydrological and agricultural manipulations.

The HDR|KLF team reviewed historic imagery and conducted wetland and wildlife field investigations; mapped habitats and existing land uses; managed topographic survey and geotechnical investigations; performed hydrologic—hydraulic (H&H) modeling; and developed alternative restoration designs for the site. Restoration design graphics were created using GIS mapping tools as well as H&H drainage modeling maps. Four ecological communities were targeted for restoration, including South Florida flatwoods, swamp hardwoods, slough, and freshwater marsh.

The restoration design also considered benefits to state and federally protected wildlife, including the Florida sandhill crane, crested caracara, bald eagle, Sherman's fox squirrel, wood stork, and Southeastern American kestrel. Unique features of the restoration design included ditch back-filling and land smoothing; dike enhancement and creation; installation of equalizer pipes and a low water crossing; installation of two weirs; and brush management.

The WRPO also provided structural management practices; operation and maintenance costs; and habitat management practices with associated costs. A Habitat Management Plan (HMP) was prepared to provide procedures for the short-term and long-term management of the site. After WRPO approval by NRCS, the HDR|KLF team developed the site plans to facilitate permitting through the South Florida Water Management District (SFWMD).



## RELEVANT ASPECTS

- Stormwise modeling
- 2D Groundwater Flow, 1D Surface Water Features
- 20-Year Continuous Simulation
- Calibration/Validation Using Groundwater Wells
- Groundwater Exceedance Rasters/ Hydroperiod Analysis

## Navum Valley Farms Wetland Restoration

Natural Resources Conservation Service (NRCS) | Desoto County, FL

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Andrew Judd | Gabriela de Aragao | Zaine Arth | Barry Lenz

HDR developed a restoration plan to return this site to its historic, natural ecological condition. An ICPR4 model included a combination of an overland flow mesh and channel control volumes to interact with the two-dimensional groundwater flow and 1D surface water features to establish the surfaces water elevations and boundary conditions was used to assess the current and proposed performance of the restoration plan.

It was important to establish the current site condition groundwater and surface water depths to assess the various restoration plan strategies. This was done by running a 20-year continuous simulation and using these results to generate groundwater exceedance

rasters to determine a percent period of time the groundwater exceeded given elevations across the site. These results were compared with the existing site groundwater wells and ecological areas. Adjustments were made to the some of the parameters like the crop coefficients and soil infiltration rates to better match the existing site conditions.

The restoration plan features such as ditch blocks, dikes, and diversions were included in the model to assess the effects on the site groundwater exceedance rasters and estimate the changes to the ecological zones which included basin marsh, slough/wet prairie, and dry prairie.



## RELEVANT ASPECTS

- Large-Scale Wetland Restoration
- Ditch Blocks, Dike Removal, Water Control Structures
- Full Technical Workflow
- Wildlife and Protected Species Consideration
- Habitat Management Plan
- SWFWMD Permitting Coordination

## 101 Ranch Wetland Reserve Easements Plan of Operations and Design

*Natural Resources Conservation Service (NRCS) | Okeechobee County, FL*

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Zaine Arth | David Dixon | Barry Lenz

HDR|KLF contracted with the NRCS through the WRP to develop a WRPO for the 584- acre 101 Ranch WRE. The objective was to develop a restoration plan to re-establish the historic hydrology and wetland characteristics and functions that existed prior to hydrological and agricultural manipulations.

The HDR|KLF team reviewed historic imagery and conducted wetland and wildlife field investigations; mapped habitats and existing land uses; managed topographic survey and geotechnical investigations; performed H&H modeling; and developed alternative restoration designs for the site. Restoration design graphics were created using GIS, as well as H&H drainage modeling maps. Ecological communities targeted for restoration included South Florida flatwoods, upland hardwood hammock, slough, freshwater marsh, and swamp hardwoods.

The restoration design considered benefits to state and federally protected wildlife including the Everglade snail kite, Florida sandhill crane, crested caracara, limpkin, wood stork, and Southeastern American kestrel. Unique features of the restoration design included the removal of pumps and culverts; installation of ditch blocks and water control structures; dike removal and associated ditch filling; and dike enhancements.

The WRPO provided structural management practices; operation and maintenance costs; and habitat management practices with associated costs. A HMP was prepared to lay out procedures for the short- and long-term site management. After approval by NRCS, the team developed the site plans to facilitate permitting through the SFWMD. The project is in the preliminary stages of permitting and design.



## Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design

Natural Resources Conservation Service (NRCS) | Florida

### RELEVANT ASPECTS

- Restoration of Agricultural Drainage Systems
- Hydrologic and Hydraulic Modeling
- Wildlife and Protected Species Considerations
- Freshwater Marsh and Slough Restoration
- NRCS WRPO Development
- Federal Permitting Experience (USACE/CWA)

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Eduardo Colchado | Zaine Arth | David Dixon | Barry Lenz

The Sunrise Sod WRE Project located in Hendry County, Florida consisted of 318 acres of sod fields. Similar to the Navum Valley Farms 36 WRE project, the existing site included ditches and dikes to manage surface water. The goal of the project was to restore the natural hydrology and associated wetland characteristics, functions, and values that existed prior to hydrological manipulations and agricultural water management strategies, to the extent practicable.

Restoration was accomplished by ditch smoothing, creation of new dikes and reinforcement of existing dikes, and installation of water control structures. These activities were developed in accordance with the NRCS technical manuals including the National Handbook of Conservation Practices (NHCP), Technical Releases and the National Engineering Handbook (NEH) among others.

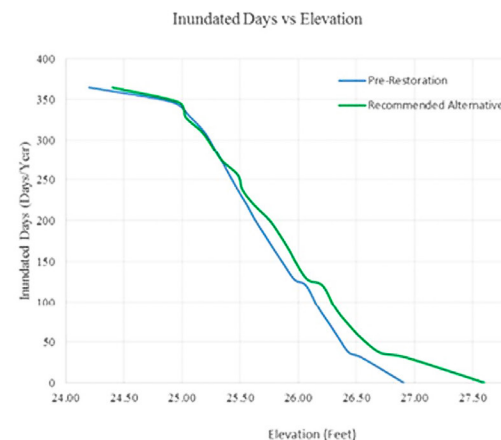
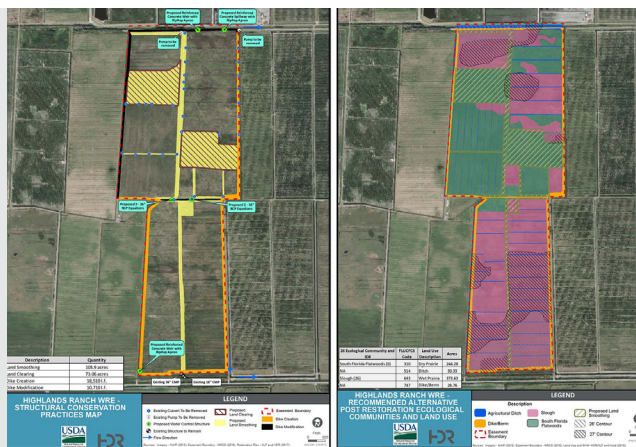
For this site, two ecological communities were identified with the greatest potential for successful restoration; Freshwater Marsh and Slough (Wet Prairie). This restoration plan was determined by review of the topographical survey, observations made during onsite habitat evaluations, and hydrologic and hydraulic modeling. Additionally, restoration communities were referenced to the NRCS SSURGO soil mapping database and historical aerial imagery.

During the onsite wildlife and habitat assessments, three federally-protected species were confirmed on-site including the Everglade snail kite, wood stork, and Eastern indigo snake. Additionally, state-protected

species including the little blue heron and kestrel were observed on-site. These protected species were considered in the restoration plan, particularly for the Eastern indigo snake by avoiding earthmoving impacts in the area where the snake was observed. For the kestrel and Everglade snail kite, since limited snags or perches were available on-site, existing power poles were left in place, with the conductors removed, to serve as avian perches. Finally, by restoring Freshwater Marsh and Slough, nearly all of the other federal and state listed wildlife species were expected to benefit from the project.

Deliverables and project phases include collection of survey and geotechnical data, development of a WRPO, and preparation of design and construction documents. Structural practices identified in the WRPO include Brush Management (Practice Code 314), herbaceous weed control (Practice Code 315), Prescribed Burning (Practice Code 338), and Firebreak (Practice Code 394).

For permitting, the project activities were authorized under the previous nationwide 27 permit (NWP-27) for aquatic habitat restoration, establishment, and enhancement activities. Accordingly, the project approved under the Clean Water Act (CWA) is based on the joint guidance between NRCS and USACE. The project was exempted from state ERP because there was no existing ERP for the site and improvements served the primary purpose of environmental restoration or water quality improvements on agricultural lands under Florida Statute (FS) 373.406(9).



## Highlands Ranch Wetlands Reserve Plan of Operations and Design

Natural Resources Conservation Service (NRCS) | Florida

### RELEVANT ASPECTS

- Large-Scale Hydrologic Restoration
- Ditch Blocking and Water Control Structures
- Hydrologic and Hydraulic Modeling
- WRPO and Technical Documentation
- Ecological Community Restoration
- Federal and State Permitting Experience
- Stakeholder Coordination

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Eduardo Colchado | Zaine Arth | David Dixon | Barry Lenz

The NRCS Highlands Ranch WRE Project, located in Highlands County, Florida, consisted of 675 acres of fallow agricultural lands and ruderal fields with a homestead and was used to support citrus and hay crops. Similar to the Navum Valley Farms 36 WRE project, the site contained agricultural ditches and dikes intended to manage surface water. The goal of the project was to restore the natural hydrology and associated wetland characteristics, functions, and values that existed prior to hydrological manipulations and agricultural water management strategies, to the extent practicable.

This was accomplished by executing restoration activities such as localized land smoothing and ditch grading, creation and modification of dikes, and installation of water control structures and equalizer culverts. These activities were developed in accordance with the NRCS technical manuals including the National Handbook of Conservation Practices (NHCP), Technical Releases and the National Engineering Handbook (NEH) among others.

Based on existing habitat evaluation, topography, and results from the hydrologic and hydraulic modeling, the South Florida Flatwoods (Dry Prairie) and Slough (Wet Prairie) ecological communities were selected as having the greatest potential for successful restoration of the site. These communities are consistent with the regional landscape and were referenced to the NRCS SSURGO soils mapping and historic aerial imagery collected during the project.

Additionally, selection of the post-restoration ecological communities considered the crested caracara, Everglade snail kite, and wood stork, which were all observed onsite during the wildlife and habitat assessments. Specifically for the crested caracara, removal of cabbage palms was avoided and natural recruitment of oaks and cabbage palms was promoted in the post-restoration condition. For the wood stork and Everglade snail kite, the restoration of slough/wet prairie ecological communities improved seasonal habitats for wading birds, increasing the likelihood of their use.

Deliverables and project phases include collection of survey and geotechnical data, development of a WRPO, and preparation of design and construction documents. Structural practices identified in the WRPO include herbaceous weed control (Practice Code 315), Prescribed Burning (Practice Code 338), and Firebreak (Practice Code 394).

With respect to permitting, the project activities were authorized under the previous nationwide 27 permit (NWP- 27) for aquatic habitat restoration, establishment, and enhancement activities. Accordingly, the project was approved under the Clean Water Act (CWA) based on the joint guidance between NRCS and USACE. For state environmental resource permitting (ERP), the existing permits were modified based on the changes to the surface water management system and restoration of the site.



## RELEVANT ASPECTS

- Coastal & Estuarine Restoration
- Hydrologic & Coastal Modeling
- SWIM Plan Development
- 30/60/100% Design & Cost Estimating
- ERP & Regulatory Permitting
- Construction Administration & Compliance
- Living Shorelines & Wave Attenuation
- Water Quality & Pollutant Load Modeling

## General Engineering Consultant (GEC) - Library of Services Support Contract

*Southwest Florida Water Management District (SWFWMD) | Brooksville, Florida*

### KEY PERSONNEL INVOLVED:

Elizabeth Dost | Steven Green | Douglas Skurski | Michael Poniatowski | Brett Solomon | Emily Keenan

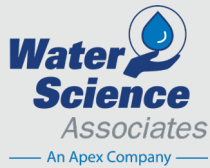
ESA serves as Prime Consultant under SWFWMD's multi-year General Engineering Consultant (GEC) Library of Services contract, providing coastal engineering, ecological restoration, hydrologic modeling, water quality analysis, regulatory permitting, and construction-phase services throughout Southwest Florida. Since 2018, ESA has supported SWFWMD's objectives to protect and preserve water resources through water management (i.e, flood protection, water supply) and protecting water quality and natural systems.

Under this contract, ESA delivers full lifecycle services—from feasibility evaluation and environmental assessment through 30%, 60%, and 100% design, cost estimating, technical specifications, bidding support, and construction administration. Technical services include site characterization and data collection, hydrologic and coastal modeling, Civil 3D design development, and regulatory coordination. During construction, ESA provides inspection and permit compliance oversight to ensure restoration objectives and regulatory requirements are met.

Assignments focus on improving hydrologic connectivity, shoreline stability, habitat function, and water quality in both estuarine and freshwater systems. Typical elements include submerged aquatic vegetation and oyster restoration, living shorelines and wave attenuation features, tidal reconnection through berm removal and culvert installation, wetland enhancement, and pollutant loading analyses to inform watershed-scale management decisions.

### Representative assignments under this contract include:

- Lemon Bay Preserve Fisheries Improvement — Charlotte County
- Redfish Hole Estuarine Restoration — Crystal River Preserve State Park
- Mobbly Bayou Habitat Restoration — Upper Tampa Bay
- Boyd Hill Preserve Ecosystem Restoration — Pinellas County
- Charlotte Harbor SWIM Plan Update



## RELEVANT ASPECTS

- Hydrologic and Hydraulic (H&H) Modeling (MIKE SHE / MIKE 11)
- Watershed Flood Reduction and Stormwater Management Planning
- Groundwater Recharge and Baseflow Enhancement Strategies
- Wetland Hydroperiod Improvement and Habitat Benefits
- Design of Inflow and Outflow Control Structures
- Regional Water Quality and Nutrient Load Reduction Analysis
- Surface Water Monitoring and Model Calibration
- Coordination with State and Local Agencies for Implementation

## Lehigh Acres Municipal Services Improvement District ABSORB Project

*Lehigh Acres Municipal Services Improvement District (LA-MSID)*

### KEY PERSONNEL INVOLVED:

Roger Copp

Water Science Associates directed the development of a plan for the 100-square mile Improvement District to reduce flooding and water quality impacts from current and future development. MIKE SHE/MIKE 11 was used for the hydrologic and hydraulic modeling and detailed evaluation of design projects to reduce flooding, promote additional groundwater recharge, improve dry season baseflows, enhance wetland hydroperiods, and improve water quality. Inflow and outflow structures for the 500-acre Harns Marsh were designed to allow for effective attenuation of runoff for the 10-year and 25-year design storms and safely convey the 100-year design storm without overtopping of levees. One of the recently constructed projects was the ABSORB Project, which was designed to store 1,000 acre-feet of runoff from southwest Lehigh Acres canals to reduce flooding and increase groundwater recharge.

WSA staff facilitated an agreement between LA-MSID and Florida Department of Transportation to capture additional runoff from the widening of SR 82. FDOT saved over \$8 million in construction costs and paid \$3.5 million to LA-MSID to construct the ABSORB project. Measured water level and water quality data before and after construction were analyzed, and the MIKE SHE/MIKE 11 model was updated to include the 24 additional gated weirs associated with the ABSORB project. The model was used to evaluate the water captured as part of the project, and nitrogen loads to the Caloosahatchee River estuary was calculated for pre- and post-construction periods. The constructed project captured over 1,300 acre-feet per year and reduced nitrogen loads by more than 50,000 lbs/year.



## RELEVANT ASPECTS

- Wetland Delineation Expertise
- Multi-Watershed Regulatory Coordination
- Impact Quantification and Mitigation Strategy
- Large Public Infrastructure Coordination

## Wetland Mitigation Delineation & Design

*Peace River Manasota Regional Water Supply Authority | Florida*

### KEY PERSONNEL INVOLVED:

Todd Burton | Andrew Judd | Zaine Arth | David Dixon

The Wetland Mitigation Delineation and Design project was completed in direct support of the Peace River Reservoir No. 3 (PR3) expansion, including the new river intake pump station, reservoir pump station, raw water transmission facilities, embankment features, and cutoff wall design elements. The mitigation effort was fully integrated into the overall reservoir and water supply infrastructure program to support Environmental Resource Permitting (ERP) and federal approvals while minimizing environmental impacts to the greatest extent practicable. Particular emphasis was placed on reducing wetland fill associated with pump station construction, conveyance corridors, reservoir embankments, and seepage control features.

Wetlands within the project limits were delineated within both the Myakka River and Peace River watersheds to support permitting for the PR3 intake, pump stations, cutoff wall, and associated infrastructure.

Field efforts included delineation within the south pasture, sand pit, and north pasture areas. Wetland flagging was used to label and demarcate wetland boundaries, and a handheld Trimble GeoXT 6000 GPS unit was utilized to support wetland data collection, mapping accuracy, and quality control.

The project identified anticipated wetland impacts within the Myakka River and Peace River watersheds to establish the impact assessment framework and mitigation strategy necessary for implementation of the larger PR3 project. Mitigation of wetland impacts was addressed through a combination of onsite permittee-responsible restoration within the North Pasture and Southwest areas of the RV Griffin Reserve, as well as through the purchase of mitigation bank credits. These restoration efforts were structured to offset project-related impacts while supporting long-term ecological enhancement consistent with watershed-level restoration objectives and the operational goals of the expanded water supply system.



## RELEVANT ASPECTS

- Constructed Wetland Design
- Extensive Hydraulic Infrastructure
- Multi-Agency Coordination
- Full Design Lifecycle
- Monitoring and Adaptive Infrastructure

## C-44 Reservoir/Stormwater Treatment Area (STA) Project

*South Florida Water Management District (SFWMD); US Army Corps of Engineers (USACE)- Jacksonville District | Indiantown, FL*

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Eduardo Colchado | Gabriela de Aragao | Zaine Arth | Samantha La Hée | Bruce Bradley

The C-44 STA project includes the design of six STA cells receiving water from the C-44 Reservoir. The project treats the water prior to discharge to the C-44 Canal by utilizing the constructed wetlands for sedimentation and transformation of nutrients to improve the quality of the Southern Indian River Lagoon.

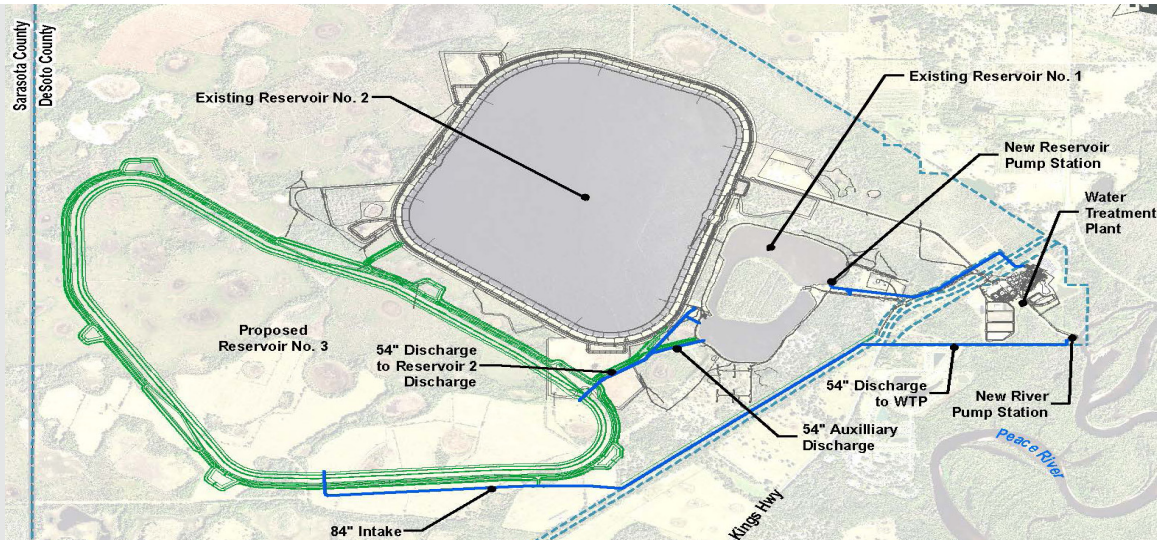
HDR has worked for the SFWMD since 2004 on this project, and our role has included developing the project from site evaluation through basis of design, to the detailed design plans and specifications for construction. Design efforts had to meet the requirements of the SFWMD and the US Army Corps of Engineers (USACE), as they determined which partner would be the lead and had the resources to construct.

The C-44 STA design includes approximately 6,300 acres of graded STA bottom; 32 miles of STA cell berms with shellrock roads; 38 miles of distribution, collection, and drainage canals; 59 structures including gated structures, fixed weir outlet structures, box culvert

road crossings, sump boxes and fixed crest spillways; placement and tracking of residual agricultural chemicals, impacted soils, installation of a groundwater monitoring system including a Floridan Aquifer monitoring well, and I&C that consists of a 300-foot-tall microwave communications tower for the entire site to be monitored and operated from the C-44 Pump Station.

### AWARDS

- National Association of Environmental Professionals (NAEP) 2022 Environmental Excellence Award
- American Academy of Environmental Engineers and Scientists (AAEES) Excellence in Environmental Engineering and Science Award
- American Council of Engineering Companies (ACEC) 2022 National Engineering Excellence Awards
- American Council of Engineering Companies of Florida (ACEC-FL) 2022 Florida Engineering Excellence Awards, Grand Award



### RELEVANT ASPECTS

- Advanced System-Wide Hydraulic Modeling
- Control Structure Design and Operational Water Level Management
- Large-Scale Storage Flow Balancing
- Multi-Agency Environmental Permitting
- Geotechnical Subsurface Investigations

## Peace River Reservoir No. 3 Preliminary Design

*Peace River Manasota Regional Water Supply Authority | Arcadia, FL*

### KEY PERSONNEL INVOLVED:

Richard LeBlanc | Todd Burton | Eduardo Colchado | Gabriela de Aragao | Zaine Arth | Greta Backman | Mark Vincent | Samantha La Hée | Bruce Bradley | Courtney Arena | Andrew Judd | David Dixon | Barry Lenz

The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide design and comprehensive permitting services, including Environmental Resource Permitting (ERP), wetlands permitting, and U.S. Army Corps of Engineers permitting, for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF). The project included a new river water intake and pump station on the Peace River, a raw water transmission main to the new and existing reservoir system, and a new reservoir pump station.

To support these efforts, HDR led the geotechnical investigations required to inform design and support regulatory submittals, including land and subsurface evaluations critical for permitting, construction feasibility, and long-term system performance. To provide additional raw water storage capacity within the PRWTF, the Authority undertook the Peace River Regional Reservoir No. 3 (PR3) Project. This initiative included a new 9.3-billion-gallon (BG) off-stream raw water storage reservoir supplied by a new 138 MGD river

intake pump station, which operated in parallel with the existing 120 MGD river intake pump station and Reservoirs No. 1 and No. 2. The new intake pump station was co-located with the existing facility. New pipelines were designed to convey water from the new river intake pump station to Reservoir No. 3 and the PRWTF. A new 79 MGD reservoir pump station, with associated pipelines, was designed to convey additional flows discharged from Reservoir No. 3 via Reservoir No. 1 to the PRWTF.

Throughout the planning and design phases, HDR placed particular focus on the successful completion of state and federal permitting requirements, including wetlands delineations, coordination with regulatory agencies for ERP and Core permit approvals, and alignment with environmental compliance strategies to maintain schedule and avoid construction delays. The PR3 Project was developed to meet the growing drinking water demands across a four-county area by interconnecting major water supplies and expanding alternative water supply (AWS) capacity.

**VII** EXPERIENCE  
AND  
CAPABILITIES IN  
NOTED AREAS

# VII EXPERIENCE AND CAPABILITIES IN NOTED AREAS

HDR's experience supporting complex hydrologic, hydraulic, environmental, and water resource projects provides a strong foundation for the requirements of this assignment. Our multidisciplinary team combines advanced modeling, geospatial analysis, ecological expertise, and practical design experience to address interconnected watershed, flooding, and habitat challenges. The capabilities summarized in this section reflect HDR's ability to deliver technically sound, defensible, and implementation-focused solutions across similar project conditions.

## A. ADVANCED H&H MODELING CAPABILITIES

HDR's team has extensive expertise in hydrologic and hydraulic modeling, including development of detailed rainfall-runoff, surface water, and groundwater models using a broad range of industry-standard software. The HDR team showcases the use of fully integrated hydrodynamic models developed with MIKE SHE and MIKE-11 integrated surface and groundwater modeling software. Integrated models consist of multi-layer groundwater systems coupled with rainfall, evapotranspiration, overland flow, control structure operations, and other related processes. Such models are powerful and precise and are particularly well suited for evaluating complex watershed behavior, storage dynamics, and hydraulic response under varying hydrologic conditions.

HDR develops detailed rainfall-runoff models using tools such as HEC-HMS, AdICPR, SWMM, and MIKE SHE, as well as simpler software packages where appropriate. Modeling proficiencies range from simplified screening analyses to highly detailed hydrologic and hydraulic simulations. The team specializes in techniques such as rain-on-mesh analysis using 2D models, joint probability analysis, and advanced sensitivity testing. HDR also specializes in model calibration and validation using historical events, sensitivity analyses, and advanced techniques including areal reduction factors and elliptical storm modeling for large watersheds.

HDR's hydrologic experts perform in-depth analysis of surface-water hydrology components of the hydrologic cycle, including hydrometeorology, evaporation and transpiration, and rainfall-runoff relationships. Accurate hydraulic and hydrologic computations require proficiency in both modeling and GIS applications necessary to organize and manage large spatial datasets. HDR is proficient in ArcMap, Spatial Analyst, 3D Analyst, ArcHydro, HEC-GeoHMS, and other GIS utilities, and has applied GIS tools in large-area models, including delineation of drainage areas using LiDAR surveys.

Hydrologic and hydraulic modeling requires a unique approach based on geography and watershed conditions. Whether addressing groundwater interactions, riverine processes, coastal influences, or pluvial urban stormwater behavior, HDR offers a team of experienced professionals capable of navigating these challenges. HDR's extensive experience in riverine, coastal, and compound flooding scenarios, combined with diverse modeling capabilities, enables delivery of flexible and tailored H&H modeling solutions aligned with project-specific needs.

## B. ADVANCED GIS CAPABILITIES

HDR was among the first consulting firms to recognize the value Geographic Information Systems technology offers to clients, resulting in decades of experience implementing, managing, and applying GIS as both a data management platform and an analytical decision-support tool. HDR has been working as an Esri Gold Business Partner for over 20 years, a partnership elevated to Platinum Level status, and has been recognized by Esri as a GIS leader. This long-standing relationship supports direct collaboration with Esri for technical support, troubleshooting, and refinement of GIS workflows to address complex project requirements.

HDR's GIS professionals are experienced in transforming large, complex datasets into clear, actionable information through mapping, spatial analysis, visualization, and application development. HDR operates under an Esri Enterprise License Agreement providing the full range of Esri desktop, mobile, and server technologies. The team

expertly uses enterprise tools including ArcGIS Server, ArcGIS Online, and multi-user geodatabases supported by SQL Server and Oracle environments. HDR develops and implements geoprocessing scripts using Python, Java, VB.NET, and related technologies to automate workflows, reduce quality control time, and increase productivity.

HDR's GIS capabilities extend beyond mapping to include advanced spatial modeling, weighted overlay analysis, terrain evaluation, network analysis, and development of web-based portals and dashboards. HDR regularly uses programming and scripting to customize GIS environments, including tools for ArcGIS Desktop, web mapping applications, and custom mobile applications. These capabilities support integration of spatial databases, tabular datasets, CAD files, and BIM information into cohesive, interoperable systems.

HDR's GIS professionals are well versed in CAD and GIS interoperability, survey-grade GPS data integration, and development of compliant geodatabases with associated metadata standards. GPS services include field location of map features and incorporation of location data into GIS datasets using survey-grade equipment. HDR's integrated GIS practice enables efficient organization, analysis, and visualization of spatial information, supporting technically defensible planning, modeling, and design decisions across complex infrastructure and environmental projects.



**UC Esri User Conference 2022**  
Special Achievement in GIS

*Esri President and Cofounder Jack Dangermond presenting HDR Team with Special Achievement Award in GIS at the 2022 Esri User Conference.*

## C. ADVANCED GEOTECHNICAL AND TOPOGRAPHIC SURVEY WORK

HDR has assembled a multidisciplinary team to support the geotechnical and surveying needs of the project through a partnership with Terracon Consultants, Inc. for geotechnical services and SAM for surveying and mapping. This collaboration brings together expertise in subsurface investigation, soil analysis, groundwater evaluation, and high-accuracy topographic data collection necessary to support engineering design and wetland restoration planning.

The geotechnical effort will be led by Greta Backman, PE, who has extensive experience evaluating soil stratigraphy, groundwater behavior, and seepage conditions for water resource infrastructure and earthen embankments. Her work includes managing subsurface investigations, interpreting geotechnical data, and supporting design decisions related to stability, settlement, and hydraulic performance of water management systems.

Senior geotechnical support will be provided by Douglas Dunkelberger, PE of Terracon, who brings more than four decades of experience working on complex water resource and infrastructure projects across Florida. His background includes evaluating subsurface conditions for reservoirs, embankments, and large earthwork systems, as well as performing seepage and stability analyses that inform practical and constructible design solutions.

Gabriela de Aragao, PE complements the geotechnical team with experience conducting soil characterization, subsurface investigations, and geotechnical analyses supporting infrastructure and water management projects. Her work frequently involves evaluating groundwater conditions, foundation support, and earthwork design considerations that influence long-term system performance.

Topographic and boundary survey services will be led by Russell Hyatt, PSM of SAM, who brings more than 37 years of surveying experience. His team provides high-accuracy topographic mapping, boundary surveys, hydrographic surveys, and control networks to support engineering design, hydrologic modeling, and construction planning.

## D. ECOLOGICAL ASSESSMENT WORK

HDR provides comprehensive ecological and biological assessment services that support technically sound project development, environmental compliance, and defensible regulatory coordination. HDR's Biological and Ecological Sciences professionals help survey and characterize biological and ecological systems, assess potential project impacts, navigate the regulatory process, and develop and implement mitigation and restoration activities. The team includes wildlife and fisheries biologists, threatened and endangered species specialists, ecologists, botanists, and aquatic scientists experienced across terrestrial, freshwater, and marine environments.

HDR has experience delivering a wide range of ecological services across diverse ecosystems, including plant, animal, and habitat surveys, wetland delineations, biological assessments, and monitoring programs. These evaluations are fundamental to understanding existing environmental conditions, identifying sensitive resources, and assessing how hydrologic or land-use modifications influence ecological function. HDR's specialists possess specialized training and thorough knowledge of threatened and endangered species, ecosystem characteristics, and species-habitat relationships, supporting accurate resource characterization and impact assessment.

HDR's ecological expertise is closely integrated with hydrologic, hydraulic, and engineering disciplines, allowing environmental considerations to inform planning, modeling, and design decisions. This multidisciplinary approach strengthens project strategies by aligning restoration objectives with ecosystem dynamics and regulatory requirements. HDR professionals assist clients in evaluating potential impacts, identifying avoidance and minimization opportunities, and developing mitigation or restoration measures consistent with agency expectations.

Through collaboration between biologists, environmental scientists, and regulatory specialists, HDR supports the preparation of technically robust documentation and analyses required for permitting and environmental compliance. These capabilities enable HDR to deliver ecological assessments that are scientifically grounded, regulatory-aware, and directly supportive of project feasibility, permitting efficiency, and long-term environmental performance.

## E. DEVELOPMENT OF DESIGN PLANS AND COST ESTIMATES

HDR routinely advances complex water resource and ecosystem restoration concepts into implementable engineering solutions by integrating hydrologic modeling, restoration design, and cost estimating into a coordinated design process. The firm's experience supporting watershed initiatives, flood risk management programs, and habitat restoration efforts provides a strong foundation for developing restoration projects that can move efficiently from planning through design and implementation.

HDR's engineers and water resource specialists regularly translate watershed-scale modeling results into preliminary engineering concepts that address flood risk, hydrologic connectivity, and ecological restoration objectives. This work often includes development of conveyance improvements, water control structures, culvert modifications, and restoration grading concepts that support improved hydrologic conditions while remaining practical to construct and maintain. Through iterative coordination with environmental scientists, surveyors, and geotechnical specialists, these concepts are refined into engineering design packages that support permitting, funding, and construction planning.

An important component of advancing restoration projects toward implementation is development of reliable construction cost estimates. HDR's Cost Estimating Practice Group (CEPG) provides firmwide expertise in preparing Opinions of Probable Construction Cost (OPCC) that correspond with the maturity of engineering design. CEPG estimators work closely with project engineers to develop conceptual, schematic, and detailed cost estimates using industry-standard methodologies, regional cost data, and productivity-based estimating techniques. These estimates incorporate key cost drivers such as earthwork quantities, water control structures, material costs, and construction access considerations, along with appropriate allowances for contingency and risk.

By combining watershed modeling expertise, restoration engineering experience, and disciplined cost estimating practices, HDR develops hydrological restoration projects that are technically sound, financially defensible, and positioned to advance efficiently toward construction.

## F. PREPARATION AND SUBMISSION OF PERMIT APPLICATIONS

HDR provides a structured, technically grounded approach to environmental permitting that supports efficient approvals and minimizes regulatory risk. Environmental permitting expertise is applied early during project planning and design to assess requirements, identify permitting pathways, and develop compliance strategies aligned with state and federal regulations. HDR's regulatory specialists and biologists collaborate to determine permit needs, evaluate potential impacts, and prepare clear, concise, and complete permit submittals designed to facilitate timely agency review.

HDR's staff develops effective permit strategies to obtain Clean Water Act Section 404 and 401 permits for impacts to surface waters, secure biological opinions and clearances through Endangered Species Act processes, and support hydrologic evaluations for projects within regulated floodplains or special hazard areas. The strategic application of permitting expertise during project development helps minimize coordination costs and schedule impacts while strengthening the technical defensibility of permit documentation.

HDR maintains extensive experience working and negotiating with regulatory agencies, including the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service, among others. This familiarity with agency procedures, expectations, and technical review criteria supports preparation of permit applications that anticipate common regulatory concerns and reduce iterative review cycles. HDR's multidisciplinary team integrates hydrologic, hydraulic, ecological, and GIS analyses into permit packages, providing agencies with consistent, technically supported information.

HDR also supports preparation of responses to agency questions, requests for additional information, and permit modifications. Technical analyses, modeling results, and resource assessments are applied to address regulatory comments and refine permit strategies where necessary. This comprehensive permitting approach promotes regulatory clarity, reduces approval uncertainty, and supports successful project advancement.

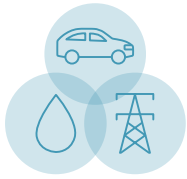
## G. PROJECT MANAGEMENT

HDR approaches project management for complex restoration and water resources projects through a structured process that aligns technical analysis, engineering development, and stakeholder coordination. At project initiation, the team conducts a kickoff meeting with the County and project partners to confirm objectives, define roles and responsibilities, review available data, and establish communication protocols. This early coordination allows the team to align expectations and identify key technical considerations that may influence modeling, field investigations, and restoration planning.

Following project initiation, HDR develops a Project Management Plan that integrates scope, schedule, staffing, and budget into a coordinated framework. Work Breakdown Structures and detailed schedules organize project activities across disciplines, including data collection, modeling, engineering evaluations, ecological assessments, and permitting support. Task leads use these tools to manage workload, coordinate interdisciplinary inputs, and track progress against project milestones.

Regular coordination meetings provide a structured forum for reviewing technical progress, discussing analytical findings, and resolving issues as they arise. These meetings support collaboration between modeling, engineering, geotechnical, ecological, and permitting specialists as restoration concepts are evaluated and refined. Meeting summaries and action item tracking maintain accountability and ensure continuity between project phases.

Throughout the effort, HDR maintains centralized document management and clear communication channels with County staff and project stakeholders. Technical memoranda, summaries, and presentations are prepared as needed to communicate analytical results, support decision making, and document responses to stakeholder or agency comments. This coordinated management approach helps maintain alignment between technical analysis, design development, and regulatory coordination as projects advance toward implementation.



We deliver **high-performance built environments** that value the economic, human, and natural environments.



**1,000+**  
 professionals working  
 in the environmental arena



**No. 5**  
 ranking by *ENR* magazine in  
**Environmental Science** in 2023



Contributed to the conservation of  
 globally important ecosystems

- Great Lakes
- Everglades
- Mekong River
- Arabian Sea

IN THE LAST FIVE YEARS, WE HAVE COMPLETED:



**NEPA/  
 IMPACT ASSESSMENT**

**300+**  
 EISs and **thousands**  
 of EAs and EIRs\*  
 for all major federal  
 agencies and  
 many states and  
 municipalities

\*Environmental Impact Statements, Environmental Assessments and Environmental Impact Reports



**CULTURAL RESOURCES**



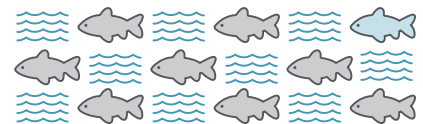
Ethnographic survey/  
 interview coverage area:  
**4.59M acres**



Architectural properties/districts  
 surveyed, evaluated and documented:  
**5,000 Properties/Districts**



**ECOLOGICAL RESTORATION**



**334,000**  
 linear feet of stream  
 channels designed

**200+** stream and  
 wetland mitigation  
 projects completed



**BIOLOGICAL AND  
 ECOLOGICAL SCIENCES**

Wetland surveys/  
 delineations:  
**+850,000 acres**

Natural resources  
 management planning:  
**1.38M acres**  
 military lands



Archaeological survey:  
**1100**  
 MILES  
 and  
**500,000**  
 acres

Tribes/communities  
 consulted:  
**650**

**3,500+ acres**  
 of restored and  
 enhanced wetlands



**ENVIRONMENTAL  
 PERMITTING**

Successfully negotiated thousands  
 of permits with U.S. agencies:

- Army Corps of Engineers
- Coast Guard
- National Marine Fisheries Service
- Environmental Protection Agency
- Fish and Wildlife Service



**COMPLIANCE MONITORING**

**500+**  
 MILES

**of pipelines, transmission  
 lines, and roadways monitored  
 during construction**

- Natural and cultural resource protection
- Best management practice (BMP) compliance
- Air quality, stormwater, and spill prevention inspection



**VIII** VOLUME OF  
WORK

## VIII VOLUME OF WORK

HDR's total payments received from CCUD within the last 24 months is \$2,136,321. This information is also reflected on the Proposal Submittal Signature Form.

# **IX** LOCATION

# IX LOCATION

HDR’s team composition, including the careful selection of teaming partners, was intentionally developed around proximity, availability, and the ability to respond quickly to County needs. This approach allows HDR to maintain consistent engagement, streamline coordination, and provide in-person support without the delays typically associated with remote project teams. Close geographic alignment directly benefits communication and day-to-day project execution. HDR’s experience on comparable assignments has demonstrated that frequent interaction, often through informal face-to-face discussions supplemented by structured working sessions, is critical to maintaining schedule control and resolving issues efficiently.



The ability for project managers and technical leads to meet regularly, sometimes on a weekly or bi-weekly basis, promotes faster decision-making, early identification of constraints, and clearer alignment with County priorities. Written meeting summaries and concise technical memoranda provide documentation continuity while keeping stakeholders informed of progress and active considerations.

HDR’s long-standing presence within Southwest Florida serves as the foundation of this responsiveness model. The Tampa and Sarasota offices provides immediate access to a deep bench of engineering, environmental, and technical specialists capable of supporting projects of varying size and complexity. Staff resources dedicated to utility clients, including water, wastewater, reclaimed water, structural, and I&C/controls disciplines, allow HDR to mobilize expertise rapidly and adapt to evolving project demands. Because project leadership and core technical personnel live and work in the region, the team remains accessible for same-day meetings, field coordination, and collaborative problem solving.

FIRM	ADDRESS
Ardurra Group, Inc.	4921 Memorial Hwy Suite 300, Tampa, FL 33634
Environmental Science Associates Corporation	5404 Cypress Center Drive, Suite 125, Tampa, FL 33609
HDR Engineering, Inc.	6901 Professional Parkway East, Suite 227, Sarasota, FL 34240
Lago Consulting & Services, LLC	4921 S West Shore Tampa FL 33611
Surveying & Mapping, Inc.	2012 Lena Road, Bradenton, FL 34211
Terracon Consultants, Inc.	8260 Vico CT, Unit B I Sarasota, FL 34240
Water Science Associates	5909 Breckenridge Parkway, Suite E, Tampa, FL 33610

**X** LITIGATION —  
LAST 5 YEARS

## X LITIGATION — LAST 5 YEARS



In today's legal environment, claims and litigation are a reality for any large company in the industry, regardless of performance or merit. When claims do occur, we are proactive and cooperative in reaching a resolution that is fair and reasonable to all. We value the confidences of our clients as well as our contractual commitments to confidentiality, and do not discuss with third parties the circumstances involving ongoing projects. We would take the same position with information regarding our work for this contract.

If necessary, we would be willing to meet in person with you to discuss the merits or background of past claims. There are no claims or litigation that could impede our ability to perform this project, and we have maintained professional liability insurance in force continually since 1958 for the protection of us and our clients.

**XI** MINORITY  
BUSINESS

# XI MINORITY BUSINESS

HDR is not a certified Minority Business Enterprise (MBE); however, when feasible, we often team with MBE firms on projects. For this project, we have partnered with Lago Consulting & Services, LLC (LAGO) to support this project with H&H Modeling expertise.

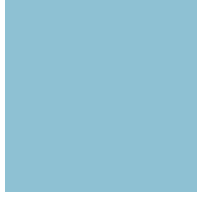
LAGO is a Woman & Minority-Owned Business Enterprise (WBE) and is currently certified by the State of Florida Department of Management Services, Office of Supplier Development.



## **XII** REQUIRED FORMS AND ADDITIONAL INFORMATION



HDR



FORMS



**PART IV - SUBMITTAL FORMS  
PROPOSAL SUBMITTAL SIGNATURE FORM**

1.	<b>Project Team Name and Title</b>	<b>Years experience</b>	<b>City of office individual will work out of for this project</b>	<b>City individual's office is normally located</b>	<b>City of individual's residence</b>
	Richard LeBlanc, PE, LEED AP, Principal-in-Charge	20	Tampa, FL	Tampa, FL	Tampa, FL
	Todd Burton, PE, Project Manager	16	Tampa, FL	Tampa, FL	Tampa, FL
	Eduardo Colchado, PE, Lead Designer/EOR	25	Tampa, FL	Tampa, FL	Tampa, FL
	Roger Copp, H&H Modeling Lead	45	Tampa, FL	Tampa, FL	Tampa, FL
	Elizabeth Dost, PE, Sr. Restoration Engineer	30	Orlando	Orlando	Clermont
	Steven Green, PWS, Sr. Scientist	19	Orlando	Orlando	Winter Garden
	Courtney Arena, ENV SP, Permitting QC	30	West Palm Beach	West Palm Beach	West Palm Beach
	Andrew Judd, PE, Engineering QC	26	Saint Louis Park, MN	Saint Louis Park	Saint Louis Park, MN
	Russell Hyatt, PSM, Surveyor	37	Bradenton	Bradenton	Bradenton
	Gabriela de Aragao, Geotechnical Engineer	20	Tampa, FL	Tampa, FL	Tampa, FL
	Douglas Dunkelberger, PE, Geotechnical Engineer	47	Sarasota	Sarasota	Sarasota
	Zaine Arth, PE, H&H Design Lead	11	Tampa, FL	Tampa, FL	Tampa, FL
	Emily Keenan, Sr. Environmental Scientist	24	Sarasota	Tampa	St. Peterburg
	Michael Poniatowski, Scientist	11	Sarasota	Tampa	St. Petersburg
	Anthony Tricarico, Ph.D., RPA, Archaeological	11	Tampa, FL	Tampa, FL	Tampa, FL
	Bruce Bradley, PE, Structural Engineer	30	Sarasota, FL	Sarasota, FL	Sarasota, FL
	Samantha La Hée, PE, Process Mechanical Lead	22	Doral, FL	Doral, FL	Doral, FL
	Mark Vincent, PE, Electrical Engineer	26	Orlando	Orlando	Orlando
	Brett Solomon, Scientist	24	Orlando	Orlando	New Smyrna Beach
	Barry Lenz, Permitting	45	Tampa, FL	Tampa, FL	Tampa, FL
	Marcelo Lago, PhD, H&H Modeling	25	Tampa, FL	Tampa, FL	Tampa, FL
	Greta Backman, PE, Geotechnical Engineering Lead	15	Saint Louis Park, MN	Saint Louis Park	Saint Louis Park, MN
	David Dixon, CADD Technician	37	Tampa, FL	Tampa, FL	Tampa, FL
	Douglas Skurski, SPWS, Ecological Assessments QC	25	Tampa, FL	Tampa, FL	Tampa, FL
	Alex Miller, PE, CFM, ENV SP, Design and Modeling QC	11	Tampa, FL	Tampa, FL	Tampa, FL
	Loring Crowley, PE, Design and Modeling QC	18	Winston Salem, NC	Winston Salem, NC	Winston Salem, NC
	Deborah Daigle, PG, Senior Hydrogeologist	44	Tampa, FL	Tampa, FL	Tampa, FL
<b>2.</b>	<b>Magnitude of Company Operations</b>				
	A) Total professional services fees received within last 24 months:				\$ 222,149,639*
	B) Number of similar projects started within last 24 months:				1*
	C) Largest single project to date:				\$ 15,339,329*
<b>3.</b>	<b>Magnitude of Charlotte County Projects</b>				
	A) Number of current or scheduled County Projects				5
	B) Payments received from the County over the past 24 months (based upon executed contracts with the County).				\$ 2,136,321

\* Numbers only calculated for the state of Florida

**PART IV - SUBMITTAL FORMS  
PROPOSAL SUBMITTAL SIGNATURE FORM**

4.	Sub-Consultant(s) (if applicable)	Location	% of Work to be Provided	Services to be Provided
	Ardurra Group, Inc.	Tampa, FL	5	Archaeological
	Environmental Science Associates Corporation	Tampa, FL	20	Engineering and Environmental
	Surveying & Mapping, LLC	Bradenton, FL	5	Surveying
	Terracon Consultants, Inc.	Sarasota, FL	5	Geotechnical
	Water Science Associates, an Apex Group	Tampa, FL	15	H&H Modeling
	Lago Consulting & Services	Tampa, FL	10	H&H Modeling
5.	<b>Disclosure of interest or involvement:</b> List below all private sector clients with whom you have an active pending contract and who have an interest within the areas affected by this project. Also, include any properties or interests held by your firm, or officers of your firm, within the areas affected by this project.			
	Firm	Address		
	Phone #	Contact Name		
	Start Date	Ending Date		
	Project Name/Description			

NAME OF FIRM HDR Engineering, Inc.

(This form must be completed and returned)

RFP No. 20260279

(This form must be completed and returned)

RFP No. 20260279



**DRUG FREE WORKPLACE FORM**

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that HDR Engineering, Inc.  
does: (name of business)

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

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

*Jeffrey B. Azuma*

Proposer's Signature

03/09/2026

Date

NAME OF FIRM

HDR Engineering, Inc.

(This form must be completed and returned)

**HUMAN TRAFFICKING AFFIDAVIT  
for Nongovernmental Entities Pursuant To FS. §787.06**

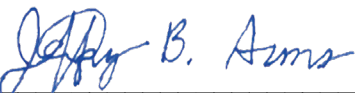
**Charlotte County Contract #20260279**

The undersigned on behalf of the entity listed below, (the "Nongovernmental Entity"), hereby attests under penalty of perjury as follows:

1. I am over the age of 18 and I have personal knowledge of the matters set forth except as otherwise set forth herein.
2. I am an officer or representative of the Nongovernmental Entity and authorized to provide this affidavit on the Company's behalf.
3. Nongovernmental Entity does not use coercion for labor or services as defined in Section 787.06, Florida Statutes.
4. This declaration is made pursuant to Section 92.525, Florida Statutes. I understand that making a false statement in this declaration may subject me to criminal penalties.

Under penalties of perjury, I declare that I have read the foregoing Human Trafficking Affidavit and that the facts stated in it are true.

Further Affiant sayeth naught.

  
\_\_\_\_\_  
Signature

Jeffrey B. Arms  
\_\_\_\_\_  
Printed Name

Vice President  
\_\_\_\_\_  
Title

HDR Engineering, Inc.  
\_\_\_\_\_  
Nongovernmental Entity

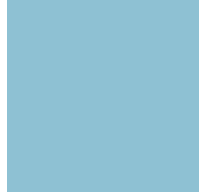
03/09/2026  
\_\_\_\_\_  
Date

**END OF PART IV**

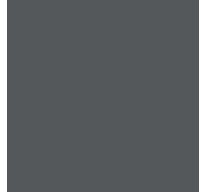
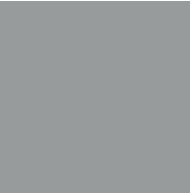
**NAME OF FIRM** HDR Engineering, Inc.  
(This form must be completed and returned)



HR



# RESUMES





## Richard LeBlanc, PE, LEED AP PRINCIPAL-IN-CHARGE

Richard is a Senior Project Manager, specializing in dams, levees, and civil works. His design experience includes site-civil, stormwater modeling and analysis, wetland restoration, water control structures, and retaining structures. In his 18 years of experience with HDR, he has led multiple projects as both a project manager and design manager, leading the development of construction plans and specifications, cost estimates, permits, management of subconsultants, and construction support. Richard's broad knowledge of civil infrastructure benefits projects that require a balance of competing goals, and his design and construction experience lend to an understanding of all phases of projects.



### EDUCATION

Bachelors, Civil  
Engineering, University of  
North Florida, 2007

Associates, Civil  
Engineering, University of  
North Florida, 2005

### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

Professional Engineer, FL,  
No. 74712

LEED Accredited  
Professional

American Concrete  
Institute

### YEARS OF RELEVANT EXPERIENCE

20

### RELEVANT EXPERIENCE

**Bond Farm Hydrological Enhancement - Phase I, South Florida Water Management District, Charlotte County, FL.** Principal-in-Charge. The Bond property will be transformed from a farm to a key component of Webb Wildlife Management Area (Webb WMA) in two phases. Phase I will be to construct a gated inflow from Webb WMA into the Bond Farm with the objective of storing water at depths of four feet or less during the wet season. Perimeter berms and seepage canals will be constructed to assure that containment will be secure. Outflow structures will also be constructed to facilitate conveyance to downstream waterways. Since a drainage easement west of I-75 has not been secured, the outflows from the Bond Farm will continue to drain to the headwaters of Powell Creek and Gator Slough via the Prairie Pines Preserve. This first phase will significantly improve hydroperiods in Webb WMA.

**Myakka River Deer Prairie Creek Hydrological and Wetland Restoration, Southwest Florida Water Management District, Sarasota County, FL.** Senior Water Resources Engineer. HDR assisted the District with the design and implementation of hydrological/wetland restoration for Regions 7, 8, and 9, as recommended in the Preliminary Engineering Report (PER) for the 10,128-acre Myakka River Deer Prairie Creek Preserve (MRDPC). HDR provided ecological, hydrological, and engineering support services to facilitate the preparation of final design specifications and permit applications for the implementation of hydrological/wetland restoration treatments for MRDPC Regions 7, 8, and 9.

**Navum Valley Farms Wetland Restoration, Natural Resources Conservation Service, DeSoto County, FL.** Water Resources Engineer. HDR developed a restoration plan to return this site to its historic, natural ecological condition. An ICPR4 model included a combination of an overland flow mesh and channel control volumes to interact with the two-dimensional groundwater flow and 1D surface water features to establish the surfaces water elevations and boundary conditions was used to assess the current and proposed performance of the restoration plan. The restoration plan features such as ditch blocks, dikes, and diversions were included in the model to assess the effects on the site groundwater exceedance rasters and estimate the changes to the ecological zones which included basin marsh, slough/wet prairie, and dry prairie. The initial restoration plan was then modified to increase the basin marsh and slough/wet prairie areas.

**Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Water Resources Engineer. The WRPO developed a plan of how the approximately 323-acre wetland reserve easement (WRE) area will be returned, to the greatest extent possible, to its historic, natural ecological condition which existed prior to agricultural manipulation of the site. Restoration of wetland functions and values will emphasize improving habitat for wetland dependent wildlife. All work was planned and designed to meet restoration goals with no adverse impacts to cultural resources, historic properties, state and federal protected species, off-site properties, and other special environmental concerns.



## RICHARD LEBLANC (CONTINUED)

**Highlands Ranch Wetlands Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Richard led production of engineering design drawings, specifications, 2D surface and groundwater modeling in ICPR4, calculations, cost estimates, design documentation, quality action plans, operation and maintenance manuals and federal and state permitting. The purpose of this Wetland Plan of Operations was to develop a plan of how the 682-acre Wetland Reserve Easement area will be returned to its historic, natural ecological and hydrological condition that existed before agricultural manipulation of the site. The project identified how wetland functions will be restored, enhanced, protected, and managed.

**101 Ranch Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** Richard led the production of engineering design drawings, specifications, 2D surface, and groundwater modeling in ICPR4, calculations, cost estimates, design documentation, quality action plans, O&M manuals, state permitting, and USACE permitting for five separate Wetland Reserve Easement projects involving over 2,300 acres of wetland restoration features such as dikes, water control structures, and land smoothing. managed the team of environmental scientists developing Wetlands Reserve Plan of Operations and Habitat Management Plans, delineating wetlands, and documenting exotic and invasive species, environmentally sensitive areas, and threatened/endangered species.

**Seventy Grove Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** HDR has been selected to: 1) develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 293-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and 2) prepare an engineering design with final engineering plans and specifications.

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Design Manager. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines. Richard served as the design manager for this project, coordinating structural, geotechnical, civil, I&C, mechanical, corrosion protection, H&H, and environmental discipline leads to prepare preliminary and permitting level design plans, calculations, reports, and specifications.



## Todd Burton, PE

### PROJECT MANAGER

Todd is a Project Manager with experience in site-civil, water distribution, sanitary sewer, stormwater, levee, and dam design. His varied project experience consists of modeling, analysis, and design of stormwater and water distribution systems; preparation of plans and specifications; cost estimating; permitting, management of subconsultants, scope development and construction support. He is proficient in AutoCAD Civil 3D, Microstation, and Interconnected Pond Routing (ICPR).



#### EDUCATION

Bachelors, Civil  
Engineering, University of  
South Florida, 2010

#### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

Professional Engineer, FL,  
No. 99395

#### YEARS OF RELEVANT EXPERIENCE

16 years

#### RELEVANT EXPERIENCE

**Bond Farm Redesign, South Florida Water Management District, Charlotte County, FL.** Project Manager. This project is the redesign of the Bond Farm Hydrologic Impoundment project, which was designed by HDR. The redesign involves adjusting the alignment of the proposed embankment to ensure it doesn't encroach on adjacent property since the client was unable to acquire the property rights it sought during the original design. The redesign also involved shifting the embankment alignment and culvert. Todd was the Project Manager and Civil Design Lead for this project. Duties included coordination with design team and disciplines, project management and client communications.

**Russakis Ranch Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, Okeechobee, FL.** Project Engineer. HDR was selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 474-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

**Above-ground Impoundment - Istokpoga Marsh Watershed Improvement District, Highlands County Florida.** Project Engineer. HDR provided design, permitting, and construction phase services for the IMWID's above-ground impoundment and ancillary facilities. The purpose of this project was to capture and store excess stormwater for future irrigation use within the Lake IMWID during dry periods. The primary intended goal for this project was to reduce stormwater flow and nutrient load to the C-41 canal directly and Lake Okeechobee indirectly. The project, which recently went into operations, includes a pump station, an above-ground impoundment, a gravity spillway, and electrical components.

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**C23/24 South Reservoir, Pump Station, and Associated Water Control Structures Design, South Florida Water Management District, FL.** Project Engineer. C-23/24 South Reservoir Project is part of the Indian River Lagoon-South PIR under CERP. HDR is currently providing design efforts for the project as part of a joint venture with Gannett Fleming under contract to USACE. The SFWMD as the local sponsor for CERP in conjunction with the USACE is transferring the lead agency for the project from the USACE to SFWMD in order for SFWMD to perform construction. The project includes a reservoir, pump station, structures, canals and similar features for a fully functional project.



## TODD BURTON, PE (CONTINUED)

**North Dale Mabry Substation Expansion, Tampa Electric Co., FL.** Project Engineer. TECO wanted to expand an existing substation located on a portion of its property (approximately 400 feet by 500 feet) on the south side of Hillsborough County Lake Park on North Dale Mabry Highway. TECO contacted HDR for scope and fees for the provision of site civil design and environmental permitting services. HDR developed a set of construction plans including general and specific notes and details depicting site features, grading, drainage conveyances, security fences, roadway, and ingress/egress. HDR also developed landscape construction plans including general and specific notes and details depicting landscape improvements. Work also included conducting a wetland delineation determination consistent with federal and state rules, as well as preparing permit application documents including design calculations and supporting figures and tables.

**Key West 1st Street Drainage Assessment, Monroe County, FL.** Project Engineer. HDR provided a drainage study to validate the results of a previous drainage study which determined that the existing 1st Street gravity drainage system in Key West would still function adequately without needing a pump station. As part of this study, HDR reviewed the previous drainage study, created an existing condition hydrologic/hydraulic model for the 1st Street drainage basin, ran future condition scenarios (2045 SLR and high tide) for a pump station, recommended conceptual pump station sizing and locations, recommended conceptual forcemain and injection well configuration, and developed a cost estimate for up to three (3) conceptual design alternatives.

**Preliminary Design of and Permitting for Reservoir No. 3 and Associated Infrastructure on the RV Griffin Reserve and Peace River Water Treatment Facility, Peace River Manasota Regional Supply Authority, Manatee County, FL.** Project Engineer. HDR provided the preliminary design of and permitting for a new third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve and Peace River Water Treatment Facility (PRWTF). This project included a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station.

**Dorsey Riverbend and Progresso Neighborhood Stormwater Improvements, City of Fort Lauderdale.** Pipeline & Site / Civil Support. HDR designed neighborhood stormwater improvements for the Dorsey-Riverbend and Progresso Village neighborhoods. Design elements included architectural, structural, electrical, mechanical, and instrumentation and controls (I&C). Surface improvements were made, such as grassed swales and other pervious surfaces, as well as infrastructure improvements, which included upsizing existing drainage infrastructure and incorporating new infrastructure, such as drainage pipes, exfiltration trenches, water quality structures, and pump stations. Stormwater pump stations were proposed in both the Dorsey-Riverbend and Progresso Village neighborhoods to alleviate flooding issues in upstream areas, which are caused by capacity and conveyance constraints within the existing drainage system. HDR provided data collection, final design, and permitting assistance.

**Weeki Wachee Dredging, Southwest Florida Water Management District, FL.** Project Manager. The Weeki Wachee River Channel Restoratin Project will remove accumulated sediment along approximately 1.6 miles of the Weeki Wachee River. Work includes engineering services for temporary facilities including the design of shoring systems, shores, earth and water retaining systems, forms, temporary erection supports, and similar items.

**Pensacola Downtown Drainage Study, Pensacola, FL.** General Engineering and CADD Support. HDR conducted a study of potential stormwater improvements in Pensacola's downtown business district. HDR modified the City's existing ICPR model, coordinated with City personnel, and included several design alternatives in a report to reduce flooding in areas of concern. Model calibration and design alternative comparison were performed for an unusually large storm event that caused severe flooding in the downtown district.



#### EDUCATION

Bachelors, Electrical Engineering, Universidad Nacional de Ingeniería, 2001

#### CERTIFICATIONS/

REGISTRATIONS/TRAINING/

#### AFFILIATIONS

Professional Engineer, FL, No. 68387

#### YEARS OF RELEVANT

EXPERIENCE

25 years

## Eduardo Colchado, PE

### LEAD DESIGNER / ENGINEER OF RECORD

Eduardo has longstanding experience with a variety of electrical and civil engineering projects. His experience includes construction of medium voltage substations, transmission lines, and low voltage facilities in Peru; site civil engineering design for large projects related to environmental restoration, nuclear power cooling ponds, and flood control in the states of Florida, South Carolina, and California; and land surveying field crew in the state of New Jersey. Eduardo routinely serves as Engineer of Record and performs and leads plan production, design, drafting, and quantity take-offs in support of large earthwork projects.

#### RELEVANT EXPERIENCE

**Bond Farm Hydrological Enhancement - Phase I, South Florida Water Management District, Charlotte County, FL.** Project Engineer. The Bond property will be transformed from a farm to a key component of Webb Wildlife Management Area (Webb WMA) in two phases. Phase I will be to construct a gated inflow from Webb WMA into the Bond Farm with the objective of storing water at depths of four feet or less during the wet season. Perimeter berms and seepage canals will be constructed to assure that containment will be secure. Outflow structures will also be constructed to facilitate conveyance to downstream waterways. Since a drainage easement west of I-75 has not been secured, the outflows from the Bond Farm will continue to drain to the headwaters of Powell Creek and Gator Slough via the Prairie Pines Preserve. This first phase will significantly improve hydroperiods in Webb WMA.

**Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Water Resources Engineer. The WRPO developed a plan of how the approximately 323-acre wetland reserve easement (WRE) area will be returned, to the greatest extent possible, to its historic, natural ecological condition which existed prior to agricultural manipulation of the site. Restoration of wetland functions and values will emphasize improving habitat for wetland dependent wildlife. All work was planned and designed to meet restoration goals with no adverse impacts to cultural resources, historic properties, state and federal protected species, off-site properties, and other special environmental concerns.

**Highlands Ranch Wetlands Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Project Engineer. The purpose of this WRPO was to develop a plan of how the 682-acre WRE easement area will be returned to its historic, natural ecological condition that existed before agricultural manipulation of the site. The project identified how wetland functions will be restored, enhanced, protected, and managed.

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** Project Engineer. The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

## EDUARDO COLCHADO, PE (CONTINUED)

**Grove Land Reservoir and Stormwater Treatment Area (STA) Owner's Representative Services, Vero Beach, FL.** Project Engineer. Evans Properties created a water and wastewater utility with a service area that includes all types of properties. The goal of this project is to construct an above-ground reservoir STAs and canal systems to store water in the wet season and sell it in the dry season. As Owner's Rep, HDR will work on behalf of Evans to oversee, monitor, and look for opportunities that add value to the ongoing preliminary design and permitting efforts.

**Reservoir No. 3 Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Civil Engineer. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. Performed site civil with the design of various sites around the reservoir footprint, including the alignment of the reservoir to provide the required reservoir storage necessary to achieve the project goals. Also performed with the H&H analysis of the primary service and auxiliary spillways to develop the maximum pool for use in the freeboard analysis and various operational scenarios.

**S-28 Forward Pumping Station and Structure Replacement, South Florida Water Management District, West Palm Beach, FL.** Civil Engineer. The S-28 coastal structure is a two-bay, reinforced concrete, gated spillway located in the City of Miami Shores, and provides flood protection. Designed the replacement of the S-28 coastal structure, which included replacement of the spillway and mechanical lift gate with elevated components to help mitigate the impacts of sea level rise and climate change, a new 1,500 cfs forward pumping station adjacent to the structure to help maintain basin discharge levels when downstream conditions do not allow for gravity discharge, a flood barrier tying the S-28 structure to higher ground elevations to mitigate impacts of sea level rise, and nature-based features, such as living shoreline along the C-8 canal and vegetated flood control berms to enhance flood protection.

**Raulerson Canal, National Park Service, Everglades National Park, FL.** Civil Engineer. The NPS proposes to replace the failed Raulerson Canal plug within the Cape Sable area of Everglades National Park (EVER) to restore natural ecological processes to the Cape Sable region by eliminating the unnatural exchange of salt and freshwater through this man-made canal. HDR provided engineering and administration services for the design of a replacement canal plug which will be comprised of heavy steel sheet piling, limestone Rip-Rap boulders, and earthen fill to block the 80-foot-wide canal. HDR was responsible for the initial site inspections, data collection, permitting, and engineering designs to assemble full construction documents for the National Park Service.

**C23/24 South Reservoir, Pump Station, and Associated Water Control Structures Design, South Florida Water Management District.** Civil Engineer. C-23/24 South Reservoir Project is part of the Indian River Lagoon-South PIR under CERP. HDR is currently providing design efforts for the project as part of a joint venture with Gannett Fleming under contract to USACE. The SFWMD as the local sponsor for CERP in conjunction with the USACE is transferring the lead agency for the project from the USACE to SFWMD in order for SFWMD to perform construction. The project includes a reservoir, pump station, structures, canals and similar features for a fully functional project.

**Mid-Barataria Sediment Diversion, Coastal Protection and Restoration Authority, Louisiana.** Civil Engineer. The Coastal Protection and Restoration Authority (CPRA) selected HDR to provide management and design services for the Mid-Barataria Sediment Diversion Project (MBSD), consisting of a 1.5-mile-long self contained outfall channel, which will connect at the Mississippi River and Tributary (MR&T) levee and flow through the north forced drainage area. The channel will flow under both the Hwy. 23 bridge and New Orleans Gulf Coast Railway bridge before discharging into Barataria Bay. Mr. Colchado was responsible for preparing the 15% design drawings for permitting purposes. He also coordinated with other disciplines involved with the project.



## Roger Copp

H&H MODELING LEAD

Roger Copp has 45 years of experience in environmental engineering with a strong emphasis in integrated surface/ground water modeling, innovative stormwater design, wetlands studies, water quality studies, watershed management, and water resources engineering design. Mr. Copp has directed numerous ecosystem restoration projects using creative win/win thinking to address challenging environmental problems. Mr. Copp has extensive experience using integrated surface/ground water modeling for water resources planning projects. Mr. Copp has conducted ecosystem restoration projects in the Yucca Pens Wildlife Management Area since 2010 and has directed surface and groundwater monitoring efforts in Yucca Pens since 2017.



### EDUCATION

MA, Water Resources Management, University of Michigan, 1978

BA, Biology, College of Wooster, 1976

CERTIFICATIONS/  
REGISTRATIONS/TRAINING/  
AFFILIATIONS

P.E. No. 03731,  
Pennsylvania, Inactive

YEARS OF RELEVANT  
EXPERIENCE  
45 years

### RELEVANT EXPERIENCE

**Emergency Water Delivery Project, Cape Coral, FL.** Mr. Copp directed an emergency water supply delivery project to Cape Coral during the drought of April – June, 2017. The source of water was inactive mining pits on the Southwest Aggregates Mine in southern Charlotte County. Permits were obtained in less than one month, and 17 MGD was pumped from the mine for 41 days (650 MG total volume delivered). A monitoring program and modeling analysis using MODFLOW and MIKE SHE/MIKE 11 was conducted to determine the groundwater response from the pumping project on lands surrounding the mining pits. The project provided over 400 MG to the City that significantly reduced the effect of the drought. Additional water supply deliveries were conducted in 2020, 2021, and 2022.

**Babcock Webb Wildlife Management Area Resiliency Pilot Project, Florida Fish & Wildlife Conservation Commission (FWC), Charlotte County, FL.** Mr. Copp is working with FWC to design and supervise construction of two culvert replacement projects to test the ability of utilizing gated weirs to control water levels during the dry season. Climate change modeling conducted of Babcock Webb WMA indicates that wetland hydroperiods may decrease in the future due to increased evapotranspiration. The gated weirs will be closed at the end of the wet season to maintain additional storage in the wetlands upstream of the gated weirs. The pilot project will test construction means and methods, determine implementation costs, and will measure effectiveness of additional upstream storage. Construction is slated to be completed during the 2024 spring dry season.

**Watershed Management Master Plan. Lehigh Acres Municipal Improvement District (LA-MSID), FL.** Mr. Copp directed the development of a plan for the 100-square mile Improvement District to reduce flooding and water quality impacts from current and future development. MIKE SHE/MIKE 11 was used for the hydrologic and hydraulic modeling and detailed evaluation of design projects to reduce flooding, promote additional groundwater recharge, improve dry season baseflows, enhance wetland hydroperiods, and improve water quality. Over a period of 14 years, Mr. Copp has led the hydraulic and water quality design for a number of completed restoration projects including the replacement of inflow and outflow structures in Harns Marsh, expansion of Harns Marsh, restoration of Halfway Pond, and ABSORB.

**Yucca Pens WMA Hydrologic Restoration Design. SFWMD/FL Fish and Wildlife Commission, Charlotte County, FL.** Mr. Copp directed the Design of channel blocks and a new water control structure to fill in ATV trails on the Yucca Pens WMA. The project will improve wetland hydroperiods and will reduce wet season flows to Gator Slough and Charlotte Harbor. Site investigations were conducted to determine the impacted areas, determine the need for measures to prevent off-site impacts, and identify appropriate restoration measures. An Environmental Resource Permit was obtained.



## ROGER COPP (CONTINUED)

**Lower Charlotte Harbor Flatwoods Hydrologic Investigation and Planning, Lee and Charlotte County, FL.** Mr. Copp is directing a detailed study of surface and groundwater hydrology of the Babcock Webb Wildlife Management Area and the Yucca Pens Unit to determine areas of altered wetland hydroperiods. Fifty ground and surface water monitoring stations were installed and were monitored for two years. An integrated surface/ground water model was developed and alternatives analysis was conducted to determine an appropriate restoration strategy to improve wetlands hydroperiods.

**Cape Coral Comprehensive Water Utility Update, Cape Coral, FL.** Mr. Copp conducted hydrologic analysis of the Cape Coral canal system to update a database of canal water levels and flows and provided recommendations for improvement in monitoring of surface water conveyance. One recommendation was to install flow monitoring in a canal upstream of the North-South Transfer pump station. The flow monitoring system would include side-looking ultrasonic velocity meters to provide a 3D representation of canal velocities. Combined with water levels measurements and development of a stage/discharge curve, this system could provide accurate measurements of the North-South Transfer pumped flows. As part of this project, Mr. Copp also is working with City staff to develop a dashboard of canal water levels, flows, and irrigation pump stations that can assist the City with improved management of the irrigation delivery system.

**I-75 Widening Stormwater Design/Babcock Webb WMA Hydrologic Restoration, Charlotte County, FL.** Mr. Copp Directed a hydrologic/hydraulic and water quality assessment of the Babcock Webb and Yucca Pens WMA to evaluate the impact of widening I-75 from 4 to 6 lanes on area hydrology and wetland hydroperiods. Alternative stormwater management approaches included stormwater ponds within the right-of-way, and regional conveyance improvements to improve the wetland hydroperiods of the two WMAs. FDEP and FDOT are purchasing and constructing a 600-acre reservoir to reduce extended hydroperiods in Babcock Webb and improve downstream water quality. The results of the study included recommendations for flow-way restoration to convey water from Babcock Webb to Yucca Pens WMA to extend the hydroperiod of wetlands.

**Edison Farms Hydrologic Restoration Design, Lee County, Estero, FL.** Mr. Copp conducted a modeling study of the Edison Farms (currently known as Kiker Preserve) property acquisition by Lee County to evaluate the impact of proposed water control structures on improving wetland hydroperiods. The impact of the project on adjacent water supply wellfields (Lee County Utilities Pinewood and Bonita Springs Utilities) was evaluated since there is a direct connection between the water table and the Lower Tamiami aquifer for approximately half of the property. The modeling results demonstrated that increasing wetland hydroperiods resulted in higher potentiometric elevations in the aquifer.

**Corkscrew Swamp Sanctuary Hydrologic Restoration, National Audubon Society, Collier County, FL.** Mr. Copp conducted a study of Corkscrew Swamp Sanctuary to determine the causes for decreased wetland hydroperiods near the Sanctuary Boardwalk. Alternatives analysis determined the pumping in public water supply wellfields did not have a measurable impact on Sanctuary hydrology. Widening of canals south of the Sanctuary was the primary factor impacting wetland hydroperiods. Recommended improvements to improve hydroperiods were provided to Audubon Florida.

**Water Quality Evaluation of Lakes in Bonita Springs. Private Client.** Mr. Copp directed the sampling and analysis of water and sediment nutrient quality for eight lakes in Bonita Springs. Nutrient inflows from treated wastewater and groundwater irrigation pumpage to the lakes were sampled, and nutrient inputs from turf fertilization was characterized to determine lake nutrient budgets. In addition, sediment nutrient fluxes were determined from laboratory flux measurements. Recommendations for lake water quality improvement were made and provided to assist with improved lake water quality management.

**Ecosystem Restoration Planning Study. Big Cypress National Preserve, U.S. Army Corps of Engineers.** Project Manager. Mr. Copp directed an ecosystem restoration planning study for 225 square miles of wetlands within Big Cypress National Preserve to determine the hydrologic and ecological effects of by levee L-28. He completed all aspects of a USACE Feasibility Study, including hydrologic and hydraulic modeling, water quality assessment, ecologic assessment, public and stakeholder involvement, plan formulation, alternatives analysis, real estate, and economics including cost estimating.



**EDUCATION**

Masters, Environmental and Water Resources Engineering, University of Texas, 2006  
Bachelors, Civil Engineering, University of Wisconsin, 1999

**CERTIFICATIONS/  
REGISTRATIONS/TRAINING/  
AFFILIATIONS**

Professional Engineer:  
IA, MN, TX, WI

**YEARS OF RELEVANT  
EXPERIENCE**

26 years

## Andrew Judd, PE

QC REVIEWER – ENGINEERING

Andrew is a water resources engineer and project manager with 20 years of experience in stormwater infrastructure, flood mitigation, stream/wetland restoration, and dam rehabilitation. He leads teams focused on dam, levee/floodwall, and other flood risk management projects. His experience spans the full project life-cycle including performing and providing technical oversight in the planning, analysis, design, and construction phases of project delivery. Andrew’s software capabilities include ArcGIS, HEC-RAS/HMS/GeoRAS, XPSWMM/SWMM, MS Project, AutoCAD, Excel (macro-enabled), HydroCAD.

**RELEVANT EXPERIENCE**

**PR3 Wetland Mitigation Delineation & Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Project Engineer. HDR with the assistance of subconsultants, will delineate the wetlands of the south pasture, sand pit, and north pasture. Wetland flagging will be used to label and demarcate wetland boundaries. A handheld Trimble GeoXT 6000 GPS will be used to support wetland data collection for quality.

**Reservoir No. 3 Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Project Engineer. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. Performed site civil with the design of various sites around the reservoir footprint, including the alignment of the reservoir to provide the required reservoir storage necessary to achieve the project goals. Also performed with the H&H analysis of the primary service and auxiliary spillways to develop the maximum pool for use in the freeboard analysis and various operational scenarios.

**2D Watershed Model Development, Minnehaha Creek Watershed District, Minnesota.** Project Engineer. 2D model build (ICM or ICPR4) of Minnehaha Creek Watershed District, covering 178 square miles. Project includes urban and suburban watershed modeling, model calibration, and climate future scenarios.

**C23/24 South Reservoir, Pump Station, and Associated Water Control Structures Design, South Florida Water Management District.** Project Engineer. C-23/24 South Reservoir Project is part of the Indian River Lagoon-South PIR under CERP. HDR is currently providing design efforts for the project as part of a joint venture with Gannett Fleming under contract to USACE. The SFWMD as the local sponsor for CERP in conjunction with the USACE is transferring the lead agency for the project from the USACE to SFWMD in order for SFWMD to perform construction. The project includes a reservoir, pump station, structures, canals and similar features for a fully functional project.

**Navum Valley Farms Wetland Restoration, Natural Resources Conservation Service, DeSoto County, FL.** Project Engineer. HDR developed a restoration plan to return this site to its historic, natural ecological condition. An ICPR4 model included a combination of an overland flow mesh and channel control volumes to interact with the two-dimensional groundwater flow and 1D surface water features to establish the surfaces water elevations and boundary conditions was used to assess the current and proposed performance of the restoration plan. The restoration plan features such as ditch blocks, dikes, and diversions were included in the model to assess the effects on the site groundwater exceedance rasters and estimate the changes to the ecological zones which included basin marsh, slough/wet prairie, and dry prairie. The initial restoration plan was then modified to increase the basin marsh and slough/wet prairie areas.



## ANDREW JUDD, PE (CONTINUED)

**New Surface Water Supply Reservoir Study and Preliminary Design, Clarke County Reservoir Commission, Iowa.** Lead H&H Engineer. HDR is updating the Watershed Plan - Environmental Document (Plan - ED) for the Clarke County Water Supply Project. This project builds upon nearly 30 years of prior planning and analysis for increased water supply in the region. The Plan - ED identifies, studies and addresses the resource concerns in the watershed that include providing adequate public water supply for rural communities and agricultural operations, stream degradation, flooding, increased baseflow in streams due to urban development, and water quality impacts due to nutrient and sediment loading. The Plan - ED will develop the Clarke County Watershed and Flood Prevention Operations (WFPO) Program Watershed Project to meet requirements for technical assistance and funding for the purpose of implementing necessary, eligible watershed protection measures to meet the purpose of the WFPO Watershed Project.

**Cedar Rapids Flood Risk Management Reach 1 - Levee, Floodwall, Pump Station and Gatewell Reaches/Pump Stations, USACE - St. Louis District, Iowa.** Water Resources Engineer. Andrew was responsible for management of the levee, site layout, interior drainage, and hydraulic design components of Reach 1 of the Cedar Rapids Flood Risk Mitigation Project. He led a team of geotechnical, structural, civil, and hydraulic engineers and technicians in the development of construction documents and supporting analysis for 1.3 miles of levee and floodwall and 3 pump stations. As part of the Reach 1 design team, Andrew coordinated tasks and deliverables, communicated with stakeholders, tracked the scope, schedule, and budget, and served as a technical resource on hydraulic design.

**Freeport Levee System Improvements and Ecosystem Restoration SATOC, TO 5 35% Design, USACE - Galveston District, Texas.** Water Resources Engineer. Andrew is the civil design lead for the level design for three project segments for the flood protection of the Freeport Coastal Storm Risk Management system. Improvements include raising 10 miles of the existing earthen levee system, construction/reconstruction of approx. 5 miles of floodwall, closures, & drainage replacement.

**Lake Delhi Sediment Trap, Lake Delhi Dam Trustees (LDDT), Iowa.** Project Manager. HDR assisted LDDT to receive grant funds for a dredging/sediment trap project from the Iowa DNR. As HDR and LDDT started planning to the project, it became apparent there was limited data and several concerns over the dredge disposal area that was constructed 12 years prior. It was decided the first project step would be to do an initial fatal flaw geotechnical investigation and analysis of the dredge disposal facility. HDR is providing PM and Geotech engineering services with Terracon providing drilling and testing. Once this analysis is completed, we will need to review with the client and review potential next steps which could include a major change in direction.

**Fountain City Service Base Steel Mooring Dolphin System Replacement Design, USACE - St. Paul District, Wisconsin.** Project Manager. Andrew was responsible for technical analysis, design, and construction document development for the mooring dolphin replacement project. Fountain City Service Base is located on the Mississippi River and is used by USACE to overwinter its maintenance fleet. This project designed a new mooring dolphin system for USACE. It involved the removal of the existing deficient timber dolphin system, the development of a new line attachment system that could work with 15-ft river fluctuations, the development of new steel dolphins (steel piling) meeting USACE criteria. Tasks included data collection and review, analysis, design, construction document preparation, cost estimating, and engineering during construction. Construction of the \$10.5M system was completed in early Summer 2023.

**New Surface Water Supply Reservoir Study and Preliminary Design, Clarke County Reservoir Commission, Iowa.** Lead H&H Engineer. HDR updated the Watershed Plan - Environmental Document (Plan - ED) for the Clarke County Water Supply Project. This project builds upon nearly 30 years of prior planning and analysis for increased water supply in the region. The Plan - ED identifies, studies and addresses the resource concerns in the watershed that include providing adequate public water supply for rural communities and agricultural operations, stream degradation, flooding, increased baseflow in streams due to urban development, and water quality impacts due to nutrient and sediment loading.



## Douglas Skurski, SPWS

### QC REVIEWER – ECOLOGICAL ASSESSMENTS

Douglas Skurski, SPWS, serves as ESA's Senior Vice President and Southeast Regional Director, leading environmental strategy, regulatory delivery, and multidisciplinary resource teams across the Southeast. With more than 25 years of experience in wetland science, NEPA compliance, and complex environmental permitting, Doug provides executive oversight and technical direction for high-profile transportation, water infrastructure, coastal resilience, and ecological restoration programs throughout Florida.



#### EDUCATION

MS, Biology, University of Central Florida

BS, Zoology, Washington State University

#### CERTIFICATIONS/

#### REGISTRATIONS/TRAINING/ AFFILIATIONS

Senior Professional Wetland Scientist #1719

FDEP Qualified Stormwater Management Inspector #29971

#### AREAS OF SPECIALIZATION

Quality Assurance/Quality Control

Ecological Analyses

Federal/State/Local Permitting

Habitat Assessments

Interagency Negotiations

Natural Resource Management Plans

Restoration/Mitigation Design

State of Florida and USACE Wetland Delineation

State/Federal Listed Species Surveys

#### YEARS OF RELEVANT EXPERIENCE

25 years

He holds a Master of Science in Biology and is a certified Senior Professional Wetland Scientist (SPWS). His expertise spans Environmental Resource Permitting (ERP), Clean Water Act Section 404 and State 404 authorizations, Section 7 consultation, biological assessments, mitigation planning, and advanced GIS-based environmental analysis. Doug has successfully directed agency coordination and negotiations with the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, and Florida's Water Management Districts—consistently securing approvals for corridor-scale, design-build, and programmatic initiatives under demanding schedules.

Doug is recognized for integrating environmental compliance seamlessly into project delivery—anticipating regulatory risks, resolving resource constraints early in design, and developing practical, defensible mitigation strategies that protect both natural systems and project schedules. His deep understanding of Florida's ecology and regulatory landscape, combined with decades of agency relationships, positions him as a trusted strategic advisor on large, complex infrastructure and restoration pursuits.

#### RELEVANT EXPERIENCE

**Florida Fish and Wildlife Conservation Commission (FWC), Environmental Restoration Professional Services MSA, Statewide, FL.** Contract Manager. Under a statewide Environmental Restoration Professional Services Master Services Agreement, Doug leads multidisciplinary teams delivering planning, hydrologic modeling, design, and permitting for complex aquatic and habitat restoration projects across Florida. ESA develops comprehensive implementation masterplans supported by hydraulic and hydrologic modeling for restoration initiatives in freshwater lakes, rivers and streams; forested and non-forested wetlands; marine and estuarine systems; and associated uplands. Assignments include lake drawdowns and sediment management; stream and floodplain restoration; design of weirs, berms, dams, and hydraulic control structures; dredging and excavation; bank stabilization; living shorelines; oyster reef and coral restoration; aquatic vegetation establishment; and large-scale ecological

and hydrologic restoration to reestablish historic hydroperiods and improve habitat connectivity. Doug directs regulatory strategy and agency coordination with FDEP, Florida's Water Management Districts, and the U.S. Army Corps of Engineers to advance restoration projects from planning through permitting and implementation.

- Bond Farm Hydrologic Enhancement Impoundment - Charlotte County. Served as environmental lead and senior regulatory advisor for this \$36 million NRDA-funded hydrologic and habitat restoration initiative designed to improve regional freshwater retention and ecological function. Led grant application development in partnership with HDR, resulting in successful award of \$36 million to support pre-construction compliance and construction. Directed environmental permitting strategy, including coordination with FDEP, USACE, and Charlotte County; secured permit extensions and modifications for expiring ERP and local approvals; and oversaw pre-construction compliance activities,



## DOUGLAS SKURSKI (CONTINUED)

including water quality monitoring and extensive listed species surveys across the approximately 650-acre site. Provided regulatory and redesign support to reconfigure berm and outfall structures following exclusion of the Zommel tract, ensuring continued constructability and consistency with restoration objectives while maintaining permit compliance and schedule.

- Tosohatchee WMA Hydrologic Assessment – Orange County. Effort included hydrologic modeling and conceptual restoration planning to evaluate historic drainage patterns and recommend improvements to restore natural flow pathways and wetland function.
- Boiling Creek Restoration – Eglin Air Force Base; Santa Rosa County. Project involved stream restoration design and permitting, including culvert replacement and hydraulic improvements to restore connectivity and sediment transport.
- Babcock Webb WMA & Yucca Pens Preserve Monitoring – Charlotte County. Long-term hydrologic monitoring at 52 stations to support future flatwoods restoration modeling and design.
- Florida Keys Abandoned and Derelict Vessels (ADV) Overflight Survey – Monroe County. This project included aerial overflight mapping and GIS database development to support marine debris removal and coastal habitat restoration.
- Richloam Bass Hatchery Eelgrass Restoration Design and CEI – Sumter County. This effort included engineering design and construction oversight to expand eelgrass propagation capacity for statewide aquatic habitat enhancement efforts.

**Southwest Florida Water Management District (SWFWMD), Library of Services, Brooksville, FL.** Contract Manager/Project Director. Doug serves as Contract Manager and Project Director under SWFWMD's multi-year General Engineering Consultant (GEC) Library of Services contract, providing coastal engineering, ecological restoration, water quality planning, and environmental permitting support across priority water bodies including Tampa Bay, Sarasota Bay, Charlotte Harbor, Lake Tarpon, and other estuarine and freshwater systems.

Under this contract, Doug provides executive oversight for projects spanning feasibility analysis, data collection, environmental assessments, hydrologic and coastal modeling, 30/60/100% design development, cost estimating, technical specifications, bidding support, and construction administration. He directs regulatory coordination and permitting, integrates restoration objectives into constructible design solutions, and supports SWFWMD through contractor selection, inspection, and permit compliance during implementation. Projects focus on resource management, habitat restoration, water quality improvement, and hydrologic enhancement in both coastal and freshwater environments.

- Mobbly Bayou Habitat Restoration - Pinellas County. Project included data collection, design oversight, and permitting for estuarine restoration. Utilized hydro-blasting techniques to backfill spoil mounds and mosquito ditches, restoring historic tidal exchange and improving saltern function.
- Boyd Hill Preserve Ecosystem Restoration - Pinellas County. This effort involved design, permitting, bid documentation, and construction management for freshwater wetland restoration within a 245-acre preserve. Improvements included culvert installation, ditch recontouring, wetland reconnection, and water quality enhancement consistent with SWIM and Tampa Bay Estuary Program objectives.



## Alex Miller, PE, CFM, ENV SP

### QC REVIEWER – DESIGN AND MODELING

Alex is a water resources engineer with over a decade of experience in stormwater design, H&H modeling, and flood risk projects. He is a graduate of the University of South Florida with a B.S. and M.S. in Civil Engineering and is a published researcher in the field of flood exposure estimation. Experienced in software such as StormWise (ICPR4), HEC-RAS, TUFLOW, and Infoworks ICM, Alex excels at solving complicated stormwater problems, especially in coastal communities around Florida.



#### EDUCATION

Masters, Civil Engineering, University of South Florida, 2020

Bachelors, Civil and Environmental Engineering, University of South Florida, 2015

#### CERTIFICATIONS/

REGISTRATIONS/TRAINING/  
AFFILIATIONS

Professional Engineer, FL,  
No. 90733

ISI Envision Sustainability  
Professional

Certified Floodplain  
Manager

YEARS OF RELEVANT  
EXPERIENCE

11 years

#### RELEVANT EXPERIENCE

**Bond Farm Hydrological Enhancement - Phase I, South Florida Water Management District, Charlotte County, FL.** Project Engineer. The Bond property will be transformed from a farm to a key component of Webb Wildlife Management Area (Webb WMA) in two phases. Phase I will be to construct a gated inflow from Webb WMA into the Bond Farm with the objective of storing water at depths of four feet or less during the wet season. Perimeter berms and seepage canals will be constructed to assure that containment will be secure. Outflow structures will also be constructed to facilitate conveyance to downstream waterways. Since a drainage easement west of I-75 has not been secured, the outflows from the Bond Farm will continue to drain to the headwaters of Powell Creek and Gator Slough via the Prairie Pines Preserve. This first phase will significantly improve hydroperiods in Webb WMA.

**Myakka River Deer Prairie Creek Hydrological and Wetland Restoration, Southwest Florida Water Management District, Sarasota County, FL.** Project Engineer. HDR assisted the District with the design and implementation of hydrological/wetland restoration for Regions 7, 8, and 9, as recommended in the Preliminary Engineering Report (PER) for the 10,128-acre Myakka River Deer Prairie Creek Preserve (MRDPC). HDR provided ecological, hydrological, and engineering support services to facilitate the preparation of final design specifications and permit applications for the implementation of hydrological/wetland restoration treatments for MRDPC Regions 7, 8, and 9.

**Navum Valley Farms Wetland Restoration, Natural Resources Conservation Service, DeSoto County, FL.** Project Engineer. HDR developed a restoration plan to return this site to its historic, natural ecological condition. An ICPR4 model included a combination of an overland flow mesh and channel control volumes to interact with the two-dimensional groundwater flow and 1D surface water features to establish the surfaces water elevations and boundary conditions was used to assess the current and proposed performance of the restoration plan. The restoration plan features such as ditch blocks, dikes, and diversions were included in the model to assess the effects on the site groundwater exceedance rasters and estimate the changes to the ecological zones which included basin marsh, slough/wet prairie, and dry prairie. The initial restoration plan was then modified to increase the basin marsh and slough/wet prairie areas.

**Melrose Design, City of Fort Lauderdale, Fort Lauderdale, FL.** Project Engineer. The Melrose Manors neighborhood lies within the North Fork New River (NFNR) and South Fork New River (SFNR) Watersheds (approximately 640 acres). The majority of Melrose Manors is low lying, ranging between 3' to 5' NAVONAVD. The area lacks stormwater infrastructure and has no positive outfall to a receiving water body. This task order is part of the larger RFQ No. 12632-626 Consultant Services for Melrose Manors Neighborhood Stormwater Improvements master agreement. As part of the efforts associated with the master agreement, HDR will provide conceptual engineering, final design, permitting, and bidding services associated with stormwater management improvements to the Melrose Manors neighborhood. These improvements include stormwater collection, treatment, conveyance, and discharge systems.



## ALEX MILLER (CONTINUED)

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Project Engineer. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**T P 608 Wetlands Mitigation, NAVFAC Pacific, Guam.** Project Engineer. HDR prepared wetland mitigation concept reports to address Executive Order (EO) 11990 requirements associated with the P-608 Project. The effort evaluated mitigation within the project site and at alternate locations across Naval Base Guam to support compliance with federal wetland protection requirements.

**Lake June-in-Winter Best Management Practice (BMP) Feasibility Study, SWFWMD, Lake Placid, FL.** Project Engineer. HDR performed a surface water resource assessment and watershed water quality assessment to identify sources of pollutant loading and prioritize watershed impacts to Lake June-in-Winter.

**Huie Constructed Wetlands High Rating Analysis, Clayton County Water Authority, Georgia.** Project Engineer. The purpose of this project is to perform analysis to determine if the Huie wetland cell network could be high-rated to increase wetland treatment capacity. This project would include identification of the infrastructure required to transport and treat additional flow and confirm the capacity of the existing cells. This study would be tied into EPD permitting discussions related to proposed waste streams from the Hicks Water Production plant as well as future capacity for the Casey WRRF effluent.

**Castillo de San Marcos Drainage Improvement, National Park Services, St. Augustine, FL.** Deputy Project Manager. HDR was selected to address drainage challenges and improve the level of service at Castillo de San Marcos, targeting no standing water after a 25-year, 24-hour storm. Alex modeled sea level rise projections for 2030, 2050, and 2090 to support the evaluation of drainage improvement alternatives. Due to projected tidal impacts, one option included a phased plan with a future stormwater pump station.



## Courtney Arena, ENV SP QC REVIEWER – PERMITTING APPLICATIONS

Courtney Arena is responsible for leading, managing, marketing, and executing a variety of environmental services for water resources and transportation infrastructure and engineering projects. Her experience and expertise includes National Environmental Policy Act (NEPA) documentation, Project Development and Environment studies (PD&E/NEPA), contamination screenings, wetland identification and delineation, and protected species and habitat assessments. Her water resources background and project experience includes working with the US Army Corps of Engineers, Natural Resource Conservation Service, and the South Florida Water Management District. Courtney's expertise extends to ecosystem restoration, protected species monitoring, and regulatory permitting with federal, state, and local agencies.



### EDUCATION

Master of Science,  
Marine Biology, Nova  
Southeastern University  
(NSU, Dania Beach)  
(Oceanographic Center),  
2005

Bachelor of Science,  
Marine Biology, University  
of North Carolina,  
Wilmington, 1997

**CERTIFICATIONS/  
REGISTRATIONS/TRAINING/  
AFFILIATIONS**

Envision Sustainability  
Professional, No. 52907

**YEARS OF RELEVANT  
EXPERIENCE**  
30 years

### RELEVANT EXPERIENCE

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Environmental. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**Big Creek Lake Invasive Species Study, Mobile Area Water & Sewer System (MAWSS), Mobile, AL.** Environmental. Investigation of invasive aquatic species in Big Creek Lake (MAWSS' drinking water source) and the impact of herbicides on water quality, treatability and public health.

**S-28 Forward Pumping Station and Structure Replacement, South Florida Water Management District, West Palm Beach, FL.** Environmental. The S-28 coastal structure is a two-bay, reinforced concrete, gated spillway located in the City of Miami Shores, and provides flood protection. Designed the

replacement of the S-28 coastal structure, which included replacement of the spillway and mechanical lift gate with elevated components to help mitigate the impacts of sea level rise and climate change, a new 1,500 cfs forward pumping station adjacent to the structure to help maintain basin discharge levels when downstream conditions do not allow for gravity discharge, a flood barrier tying the S-28 structure to higher ground elevations to mitigate impacts of sea level rise, and nature-based features, such as living shoreline along the C-8 canal and vegetated flood control berms to enhance flood protection.

**Melrose Design, City of Fort Lauderdale, Fort Lauderdale, FL.** Environmental Scientist. The Melrose Manors neighborhood lies within the North Fork New River (NFnR) and South Fork New River (SFNR) Watersheds (approximately 640 acres). The majority of Melrose Manors is low lying, ranging between 3' to 5' NAVONAVD. The area lacks stormwater infrastructure and has no positive outfall to a receiving water body. This task order is part of the larger RFQ No. 12632-626 Consultant Services for Melrose Manors Neighborhood Stormwater Improvements master agreement. As part of the efforts associated with the master agreement, HDR will provide conceptual engineering, final design, permitting, and bidding services associated with stormwater management improvements to the Melrose Manors neighborhood. These improvements include stormwater collection, treatment, conveyance, and discharge systems.



## COURTNEY ARENA, ENV SP (CONTINUED)

**SR 934/NE 79th Street from west of Pelican Harbor Drive to east of Adventure Avenue, Bridges 870083, 870549, 870084, 870550, FDOT District 6, Miami-Dade County, FL**  
Senior Environmental Scientist. HDR evaluated bridge replacement alternatives to address the structural deficiencies of four existing bridges (two bridge pairs) along State Road 934 (SR 934)/NE 79th Street (John F. Kennedy Causeway). The project limits extended from Pelican Harbor Drive to Adventure Avenue within the Cities of Miami and North Bay Village in Miami-Dade County. The purpose of the PD&E Study was to evaluate the bridge type and typical section elements of the replacement bridges in addition to evaluating intersection improvements at three existing intersections within the study limits. The study also involved the approval of a Type II Categorical Exclusion and the use of a Project Advisory Group for input into the replacement alternatives and intersection improvements.

**PGA Boulevard/SR 786 from SR 710 to the C-18 Canal, FDOT District 4, Palm Beach Gardens, FL.** Environmental Lead. Performed fieldwork, watershed modeling analysis, and supporting documents for evaluating roadway flooding improvements and associated effects to the Loxahatchee Slough Natural Area and the comprehensive Everglades restoration plan flow way. The results of the study supported the state and federal permitting process that would earn the FDOT mitigation credits and offset impacts associated with raising the roadway and a new bridge. Public and interagency coordination was a major component in accomplishing the goals of the project which coupled roadway improvements and environmental restoration.

**North Shore D Neighborhood Improvement Project (Phase I), City of Miami Beach, FL**  
Senior Environmental Scientist for proposed underground utility improvements, including the replacement of water, sewer, and stormwater systems, along with siting for a new pump station, as detailed in the Basis of Design Report. Led stakeholder engagement for a high-priority neighborhood within the North Beach CRA district. Reviewed and validated preliminary plans and cost estimates, and presented project milestones to City Commissions and community stakeholders.

**Jog Road Bridge Design Project, FDOT District 4, West Palm Beach, FL.** Environmental Scientist. Responsible for identifying and delineating natural resources, regulatory agency coordination with the SFWMD and the US Army Corps to obtain the Environmental Resource Permit (ERP) and Section 408 regulatory permits for a bridge widening project over the SFWMD C-51 Canal.



## Loring Crowley, PE

### QC REVIEWER – DESIGN AND MODELING

Loring is a senior water resources engineer with over 12 years of experience in dam instrumentation installations, monitoring plans, review and reporting, hydrology and hydraulics modeling related to dam design, construction dewatering analyses, groundwater flow and contaminant transport modeling, geothermal analyses, well construction oversight, and aquifer testing. Loring has specialized expertise in hydrology and hydraulic, and instrumentation monitoring evaluations required for FERC-regulated dams.



#### EDUCATION

Masters, Civil Engineering, University of Colorado, Boulder, 2007  
Bachelors, Mathematics, University of North Carolina, Asheville, 2005

#### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

Professional Engineer: CO, NC, VA

#### YEARS OF RELEVANT EXPERIENCE

18 years

#### RELEVANT EXPERIENCE

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Project Engineer. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** Project Engineer. The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA

embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**ADAS Engineering Design for 2 Dams, Colorado Parks and Wildlife, Colorado.** Lead Engineer. Loring led a team to implement automatic data acquisition systems (ADAS) and Early Warning Systems (EWS) at two high hazard embankment dams. The design process included evaluating multiple options for the remote system including automating inclinometers and wireless versus wired systems. Design consists of automation of select piezometers, a reservoir and downstream sensor with float switches, tiltmeters, rain gage, and foundation drain weir flow monitoring, and seepage weir monitoring, and determining thresholds for alarming.

**Rampart Dam Comprehensive Assessment FERC Tesla Hydroelectric Facility, Colorado Springs Utilities, Colorado.** Project Engineer. Rampart Dam of the Tesla Hydroelectric project is owned and operated by Colorado Springs Utilities and is licensed by the Federal Energy Regulatory Commission as Project 9195-CO. The scope of work includes conducting a Part 12D Comprehensive Assessment (CA) for the dam, located along West Monument Creek, northwest of Colorado Springs. The following tasks were also included: develop and submit 12D inspection plan, review of prior reports, pre-inspection preparation report, field inspections, potential failure modes analysis, Level 2 risk analysis (L2RA), comprehensive assessment report, review meeting and presentation, and updated hydraulics and hydrology analysis.



## Zaine Arth, PE

H&H DESIGN LEAD

Zaine's experience includes multiple water resource projects involving reservoirs and levees. Zaine applies water resources engineering to design systems that manage and protect Florida's water resources. His experience includes modeling stormwater systems to assess flooding and sea-level rise, designing control structures, supporting Everglades restoration, and providing construction-phase engineering. He also conducts inspections and develops feasibility studies for multidisciplinary water resource project.



### EDUCATION

Bachelors, Civil  
Engineering, University of  
Florida, 2016

### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

Professional Engineer -  
Civil, FL, No. 93274

### YEARS OF RELEVANT EXPERIENCE

11 years

### RELEVANT EXPERIENCE

**Bond Farm Hydrological Enhancement - Phase I, South Florida Water Management District, Charlotte County, FL.** Project Engineer. The Bond property will be transformed from a farm to a key component of Webb Wildlife Management Area (Webb WMA) in two phases. Phase I will be to construct a gated inflow from Webb WMA into the Bond Farm with the objective of storing water at depths of four feet or less during the wet season. Perimeter berms and seepage canals will be constructed to assure that containment will be secure. Outflow structures will also be constructed to facilitate conveyance to downstream waterways. Since a drainage easement west of I-75 has not been secured, the outflows from the Bond Farm will continue to drain to the headwaters of Powell Creek and Gator Slough via the Prairie Pines Preserve. This first phase will significantly improve hydroperiods in Webb WMA.

**Myakka River Deer Prairie Creek Hydrological and Wetland Restoration, Southwest Florida Water Management District, Sarasota County, FL.** Project Engineer. HDR assisted the District with the design and implementation of hydrological/wetland restoration for Regions 7, 8, and 9, as recommended in the Preliminary Engineering Report (PER) for the 10,128-acre Myakka River Deer Prairie Creek Preserve (MRDPC). HDR provided ecological, hydrological, and engineering support services to facilitate the preparation of final design specifications and permit applications for the implementation of hydrological/wetland restoration treatments for MRDPC Regions 7, 8, and 9.

**Navum Valley Farms Wetland Restoration, Natural Resources Conservation Service, DeSoto County, FL.** Project Engineer. HDR developed a restoration plan to return this site to its historic, natural ecological condition. An ICPR4 model included a combination of an overland flow mesh and channel control volumes to interact with the two-dimensional groundwater flow and 1D surface water features to establish the surfaces water elevations and boundary conditions was used to assess the current and proposed performance of the restoration plan. The restoration plan features such as ditch blocks, dikes, and diversions were included in the model to assess the effects on the site groundwater exceedance rasters and estimate the changes to the ecological zones which included basin marsh, slough/wet prairie, and dry prairie. The initial restoration plan was then modified to increase the basin marsh and slough/wet prairie areas.

**Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Project Engineer. The WRPO developed a plan of how the approximately 323-acre wetland reserve easement (WRE) area will be returned, to the greatest extent possible, to its historic, natural ecological condition which existed prior to agricultural manipulation of the site. Restoration of wetland functions and values will emphasize improving habitat for wetland dependent wildlife. All work was planned and designed to meet restoration goals with no adverse impacts to cultural resources, historic properties, state and federal protected species, off-site properties, and other special environmental concerns.



## ZAINE ARTH, PE (CONTINUED)

**Highlands Ranch Wetlands Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Project Engineer. The purpose of this WRPO was to develop a plan of how the 682-acre WRE easement area will be returned to its historic, natural ecological condition that existed before agricultural manipulation of the site. The project identified how wetland functions will be restored, enhanced, protected, and managed.

**101 Ranch Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** Project Engineer. HDR has been selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 584-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

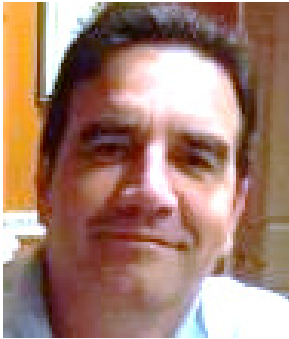
**Seventy Grove Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** Project Engineer. HDR was selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 293-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Design Manager. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**Russakis Ranch Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, Okeechobee, FL.** Project Engineer. HDR was selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 474-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

**North Dale Mabry Substation Expansion, Tampa Electric Co., Mulberry, FL.** Project Engineer. TECO wanted to expand an existing substation located on a portion of its property (approximately 400 feet by 500 feet) on the south side of Hillsborough County Lake Park on North Dale Mabry Highway. HDR developed a set of construction plans including general and specific notes and details depicting site features, grading, drainage conveyances, security fences, roadway, and ingress/egress. Zaine developed ICPR (Stormwise) model to evaluate stormwater runoff and provided design and plans production assistance for the expansion. Additionally, assisted on responding to ERP permit RAI comments.



## Marcelo Lago, PHD, GISP, CFM H&H MODELING

Dr. Lago has over 20 years of experience in numerical modeling, having the last 16 years dedicated to developing and applying integrated models to solve complex water management and contaminant transport problems in and out of Florida. Prior to his current role as Vice-President of Lago Consulting & Services, Dr. Lago served as a Senior Water Resources Scientist at DHI-US dedicated to providing 2D/3D integrated H&H modeling projects for evaluation and protection of water resources and support environmental assessments. Dr. Lago coded an integrated modeling program from scratch to support research for the Everglades National Park. As a modeling expert, he provides software support to other modelers, teaches modeling courses, develops and calibrates models in multiple platforms, and conducts multiple external model reviews. He developed the methodology required to apply particle tracking in MIKE SHE platform and contributed to several improvements to the software. Dr. Lago main skills include programming in C#, VB, MATLAB, and Python; water flow and species and sediments transport modeling; eutrophication modeling; storm water management; ecosystem restoration; estuaries modeling; groundwater management studies; water quality modeling; 2D and 3D H&H Modeling and coastal modeling. Modeling software skills of Dr. Lago include MIKE 11, MIKE SHE, MIKE21, ECOLab, MODFLOW, MODHMS, GIS-ArcMap, HEC-RAS, HEC-HMS, EPA-SWMM, XP-SWMM, ICPR, and RiverFlow2D.

**FIRM**



**EDUCATION**

Ph.D., Marine Physics,  
 University of Miami,  
 Miami, FL., 2009

**CERTIFICATIONS/  
 REGISTRATIONS/TRAINING/  
 AFFILIATIONS**

GIS Professional # 91763.  
 Certified Floodplain  
 Manager (CFM) # US-17-  
 09601.

Professional Hydrologist  
 (PH) # 23H05019

**YEARS OF RELEVANT  
 EXPERIENCE**  
 20 years

### RELEVANT EXPERIENCE

**Modeling Support for the Village of Estero Vulnerability Assessment (APTIM, 2025)**  
 Developing existing and proposed conditions model and analyzed the impacts of different design storm conditions. StormWise and MIKE SHE/MIKE11.

**Seepage Modeling of the C-51 Reservoir (SFWMD, subconsultant to Terracon, 2024)**  
 Using high-resolution MODFLOW modeling to estimate groundwater heads around the C-51 Reservoir Pump under construction and to support the geotechnical work.

**Sabal Ridge Wetland Restoration Evaluation (USDA, NRCS, sub-consultant to The Trust for Tomorrow, 2023-2024)**  
 Using ICPR4 to evaluate potential benefits and offside impacts of the proposed restoration of the easement located in Hendry County, FL.

**O’Neal Wetland Restoration Evaluation (USDA, NRCS, sub-consultant to The Trust for Tomorrow, 2023-2024)** Using ICPR4 to evaluate potential benefits and offside impacts of the proposed restoration of the easement located in Highlands County, FL.

**LOMR Applications (Mattamy Homes, 2024)**  
 H&H modeling in ICPR to support LOMR applications to FEMA for the Volanti and Twin Creeks Developments in Pasco County, FL.

**LOMR and CLOMR Applications (LevelUp Consulting, LLC, 2023-2024)** H&H modeling in ICPR to support LOMR and CLOMR applications to FEMA for various developments in Hillsborough and Pasco Counties, FL.

**LOMR Application (Northbrook Holdings, LLC, 2023-2024)** H&H modeling in ICPR and HEC-RAS to support LOMR and CLOMR applications to FEMA for phases of the Brightwater Development in Lee County, FL.

**C-43 Reservoir - MODFLOW Modeling (SFWMD, subconsultant to Terracon, 2021-2024)** Using high-resolution MODFLOW modeling to estimate groundwater heads around the C-43 reservoir berm at the Townsend Canal and to support the geotechnical work.



## MARCELO LAGO (CONTINUED)

**No-rise Certification (private clients, 2024)** Using HEC-RAS and ICPR modeling to support No-rise Certification applications in Lee and Pasco Counties.

**MIKE SHE Modeling Support and Review (SFWMD, subconsultant to Tetrattech, 2023-2024)** Conducting MIKE SHE modeling support to the SFWMD in various projects in Collier and Lee Counties, FL.

**CLOMR Application (GradyMinor, 2023)** H&H modeling in ICPR to support CLOMR application to FEMA for a Golf Course redevelopment adjacent to the Golden Gate Main Canal in Collier County, FL.

**Atlas 15 (NOAA, subconsultant to IBSS, 2023-2024)** Evaluating methods for nonstationary precipitation-frequency estimations for continental US and other territories.

**I75W2 Replacement (SFWMD, R. J. Behar & Company, Inc., 2023)** MIKE SHE modeling to support the replacement of the I75W2 structure in Collier County, FL.

**Hideaway Beach Permitting (GradyMinor, 2023)** H&H modeling in ICPR to support the permit application of the Hideaway Beach Development in Collier County, FL.

**ABC Flaghole Enhancement (USDA, NRCS, sub-consultant to The Trust for Tomorrow, 2022-2024)** Using ICPR4 to better model the easement area, propose enhancements in the restoration plan, and evaluate potential offsite impacts. An application for exemption was completed with the SFWMD.

**MIKE SHE Modeling Support (WSA, 2022-2023)** MIKE SHE modeling support to WSA in various modeling projects in Lee County, FL.

**Pre-design Study (Collier County, 2022)** Conducting a pre-design study to identify and evaluate the feasibility of potential stormwater management improvements by using ICPR4 modeling, as well as conversion of domestic septic systems, roadway improvements, and restoration of historic flowways in a residential area along Lake Park Blvd and Auto Ranch Road in East Naples, FL.

**ABC Flaghole Wetland Reserve Program Modeling Review (USDA, NRCS, sub-consultant to The Trust for Tomorrow, 2022)** Evaluating that the original WRP model of the ABC Flaghole easement in Hendry County, FL was correctly designed to accurately represent the hydrologic-hydraulic and wetland characteristics of the area.

**Telescoped Hydrologic Model around Seaboard Atlantic Ditch in Babcock-Webb Wildlife Management Area (Florida Wildlife Conservation Commission Babcock-Webb Wildlife Management Area , 2022)** Building a telescoped higher-resolution model of the area contributing to SAL ditch to represent existing conditions. The telescoped model is used later to evaluate scenarios and alternatives for stabilization of the SAL ditch, reducing over-drainage, and increasing water table elevations in the affected areas.

**South Lee County Watershed Initiative Hydrological Modeling Project (Coastal and Heartland National Estuary Partnership (CHNEP), 2021)** Identify opportunities to restore natural hydrology that include restoring wetland water levels and hydroperiods. A new MIKE SHE/MIKE 11 model was built around South Lee County areas by using the information from other models for the area. Calibration and sensitivity tests to different parameters were conducted.



**EDUCATION**

MS, Water Resources Engineering, University of Central Florida, 2004

BS, Hydrology & Water Resources Engineering, University of Arizona, 1995

**CERTIFICATIONS/  
REGISTRATIONS**

Professional Engineer (PE): FL #71127, AL #PE27637, TX #95926

Florida Interagency Prescribed Fire Training ICS 100, S-110, S-130, S-190, L-180

**YEARS OF RELEVANT EXPERIENCE**  
30 years

## Elizabeth Dost, PE

SENIOR RESTORATION ENGINEER

Elizabeth has more than 30 years of experience primarily focused on water resources with an emphasis on site restoration, wetland mitigation design and implementation, as well as passive park design and hydrologic computer modeling and analysis. Additional areas of expertise include GIS analysis and construction resident inspection services. Elizabeth’s duties include advanced hydrologic computer modeling analysis, restoration and mitigation bank design and permitting, assessment of probable upland and wetland mitigation opportunities, and permit compliance. She has served clients in both the private and public sectors and has significant experience in all aspects of water resource—related projects including stormwater needs assessments, master plans, feasibility studies, hydrologic structural improvements, hydrologic modeling, and drainage basin evaluations.

### RELEVANT EXPERIENCE

**Lee County 20/20 Conservation Program, Lee County, FL.** Water Resources Engineer.

- **Pine Island Preserve** – hydrologic enhancement, littoral zone creation via ditch blocks, weirs and hardened control structures as well as and flow way creation.
- **Pine Island Shrimp Ponds Enhancement** – hydrologic enhancement to capture and retain on-site runoff and provide hydration to the former shrimp ponds creating surface water storage areas.
- **Galt Preserve** – passive park design including roadway and drainage design, fishing and observation piers, boardwalk, kayak launch and clivus Galt Preserve (mangrove restoration) – hydrologic restoration utilizing low water crossings of tidally influenced system that was served via an elevated access road.
- **Caloosahatchee Creeks Preserve** – hydrologic restoration via select earthen berm removal locations and ditch blocks.
- **Caloosahatchee Creek Preserve West** – restoration and enhancement of historic flow way, berm removal, upland restoration.
- **Charlotte Harbor Buffer Preserve** – hydrologic restoration and enhancement design of tidally influenced system utilizing select earthen ditch blocks and berm breeches.
- **Imperial Marsh** – recontouring, berm removal and the installation of water control structures of a 45-acre parcel characterized by shallow ditching to create depressional marshes and a panther pathway/corridor.
- **Yucca Pens Preserve** – Hydrologic modeling, engineering design, and construction oversight of ditch blocks due to erosive ATV trails.

**Horse Creek Mitigation Bank, DeSoto County, FL.** Senior Water Resources Engineer. Elizabeth performed H&H modeling as well as developed the construction drawings and performed construction and resident inspection oversight activities associated with the permitted hydrologic improvements at the Horse Creek Mitigation Bank. Initial field efforts included extensive field review of the property mapping all hydrologic infrastructure as well as the identification of opportunities for ecological enhancement and restoration. An extensive H&H model was developed for the site which included design storms as well as a continuous simulation model. Hydrologic improvement activities included the construction of numerous water control structure (weir, low water crossings and drop structures) as well as berm removal activities and the recontouring of two formerly upland areas for wetland creation. The construction layout and construction oversight services were completed in 2020 with all hydrologic monitoring locations showing significant increases in depth and duration of water levels post construction.

## ELIZABETH DOST, PE (CONTINUED)

**Myakka Mitigation Bank, Sarasota County, FL.** Senior Water Resources Engineer. Existing hydrologic alteration and identification of existing hydrologic conditions was provided to the Myakka Mitigation Bank project team. Although the Myakka Mitigation Bank project site encompasses approximately 350 acres, existing, historic, and proposed future drainage basin characteristics included vast areas surrounding the project site. As a result, advanced hydrologic computer modeling analyses were performed to calibrate and verify existing conditions. Once the hydrologic computer model was verified, a system of restorative hydrologic improvements were designed and modeled to provide for the return of native/historic hydrology. Engineering design drawings were then developed for the site to allow for construction-level use.

**Private Client, Tippen Bay Mitigation Bank, Highlands County, FL.** Senior Water Resources Engineer. Lead engineer in the development of The Tippen Bay Wetland Mitigation Bank. The project area is approximately 1,430 acres in size, located in the southeastern portion of DeSoto County, Florida, and is within the Peace River Drainage Basin. The primary focus of the proposed Tippen Bay Wetland Mitigation Bank was to enhance the hydrologic characteristics within the site to a more historic/natural condition. H&H modeling was performed to determine existing and proposed conditions. Proposed hydrologic enhancement design included the replacement of culverts (with riser control structures), and the installation of multiple weir structures to restore/mimic native hydrologic control elevations. The proposed design would reduce hydrologic drawdown effects and re-establish native/historic hydrologic regimes within the project site.

**Peace River Manasota Regional Water Supply Authority, R.V. Griffin Regional Reservoir and Mitigation, DeSoto County, FL.** Water Resources Engineer. Development of a 640-acre, above ground, water supply reservoir in DeSoto County, Florida, required innovative stormwater designs. Elizabeth provided the restoration design including modeling, engineering design plans, and permitting support along with construction oversight services for the enhancement and restoration of approximately 900 acres to compensate for the wetland impacts associated with the reservoir impacts. For the R.V Griffin Mitigation Project, an extensive Hydrologic Computer Model (i.e., R.V. Griffin HCM) analysis was performed to predict the quantifiable ecological/hydrological improvements proposed for the site. Using the detailed digital project database, cross-sections related to existing channel/ditches, were modified to reflect approximate historic topographic conditions prior to construction of the channels/ditches. Design components included ditch blocks along with earthen berm/swale and existing roadway removal which resulted in the provision of cross-sections similar to those approximated in the Historic Condition scenario.

**United States Department of Agriculture, Natural Resources Conservation Service, Multiple Locations.** Senior Water Resources Engineer. Project manager and lead engineer for all H&H modeling as well as the Basis of Design Report and Construction plans, specifications and cost estimates for the project site as well as provided the engineering support for the environmental resource and State 404 permits required to implement the ecological restoration.

- Bullrich Wetland Reserve Easement, Highlands County, FL – 400+ acres
- KBarD Cattle LLC, Wetland Reserve Easement, Highlands County, FL – 80+ acres
- Sullivan Wetland Reserve Easement, Highlands County, FL – 175 acres



## Russell Hyatt, PSM SURVEYOR

As a Department Manager for SAM, Russell is responsible for the Bradenton office operations as well as overseeing many of the boundary, hydrographic and topographic surveys projects. He couples over 37 years of surveying experience with a four-year degree in Surveying and Mapping. His project experience has includes commercial/ municipal development surveys and geodetic surveys and beach/channel/ port hydrographic surveys. Russell has extensive experience providing survey services to local, state and federal agencies such as Pinellas, Hillsborough, Manatee, Sarasota, and Charlotte Counties, Florida Department of Transportation, Florida Department of Environmental Protection and the U.S. Army Corps of Engineers-Jacksonville District. administration and overall quality control.

**FIRM**



**EDUCATION**

B.S., University of Florida,  
 1990

**CERTIFICATIONS/  
 REGISTRATIONS/TRAINING/**

**AFFILIATIONS**  
 FL PSM #5303

**YEARS OF RELEVANT  
 EXPERIENCE**  
 37 years

### RELEVANT EXPERIENCE

**Ringling Blvd. & Pine Place, Sarasota County, FL.** Hyatt Survey successfully completed the topographic survey at 50-foot intervals along Ringling Boulevard, extending from east of Orange Avenue to east of Indian Place, covering approximately 630 linear feet. The survey also included Pine Place, from approximately 130 feet south of Ringling Boulevard to 60 feet north of Ringling Boulevard. The survey area spanned from Right-of-Way to Right-of-Way, with an additional 10 feet beyond the existing Right-of-Way line. Horizontal project control was established using RTK GPS and conventional methods, including RTK GPS-VRS-OPUS. Vertical control was established via NGVD 1929, utilizing a 6,000-foot bench run. The survey results were compiled into a CAD map using ACAD Civil 3D, followed by a final project review and thorough QA/QC process.

**Legacy Trail Extension, Sarasota County, FL.** Hyatt Survey provided the surveying services required for a Design Survey consisting of recovering/Establishing H/V control, Alignment and existing ROW lines, setting approx. 60 reference points, topography/DTM (3D) survey of ROW, Drainage Survey of approx. 100 storm structures, topographic survey of 2 pedestrian bridge locations, a Jurisdictional survey consisting of approx.. 10,000LF of wetland delineation, geotechnical support for surveying approx. 25 geotechnical borings and review/ research ROW maps provided by the county and prepare approx. 10 legal descriptions/ sketches as requested.

**Englewood Artist Area - Topographic Route Surveys, Sarasota County, Florida.** Hyatt Survey successfully completed the topographic route survey for the Englewood Artist Area in Sarasota County, Florida, covering 3 miles of proposed sidewalk routes and 1.5 miles of unimproved road rights-of-way (ROWs). Visible aboveground site improvements, utilities, and appurtenances were verified and located, and trees with a 4-inch or greater diameter at breast height (DBH) were included. The survey extended 15 feet beyond each ROW line, and the client was responsible for homeowner notification prior to fieldwork. Hyatt Survey provided parcel legal descriptions, sketches, and field staking for each proposed right-of-way taking, drainage easement, and temporary construction easement. The survey included a total of 60 primary parcel sketches and 120 secondary parcel sketches. Hyatt Survey successfully completed the topographic route survey for the Englewood Artist Area in Sarasota County, Florida, covering 3 miles of proposed sidewalk routes and 1.5 miles of unimproved road rights-of-way (ROWs). Visible aboveground site improvements, utilities, and appurtenances were verified and located, and trees with a 4-inch or greater diameter at breast height (DBH) were included. The survey extended 15 feet beyond each ROW line, and the client was responsible for homeowner notification prior to fieldwork. Hyatt Survey provided parcel legal descriptions, sketches, and field staking for each proposed right-of-way taking, drainage easement, and temporary construction easement. The survey included a total of 60 primary parcel sketches and 120 secondary parcel sketches.



## Steven Green, PWS ECOLOGICAL ASSESSMENTS LEAD

Steven Green has 19 years of experience in vegetation surveys, vegetation monitoring, ecological restoration, and land management in south and central Florida. As a senior scientist with Environmental Science Associates, Steven's duties include ecological site assessments, listed species surveys, Uniform Mitigation Assessment Method (UMAM) evaluations, wetland delineations, wetland restoration design, state and federal wetland permitting, and GIS analysis.

Steven's primary area of specialization is in vascular plant identification, and he has managed or participated in a myriad of botanical related projects in south and central Florida, including status surveys of federally listed or candidate plant species for the U.S. Fish and Wildlife Service (FWS); mapping of invasive exotic plants and rare/endangered native plants for various county and state agencies; long-term rare plant monitoring in Everglades National Park; and floristic inventories for local government entities. Steven has vouchered several county and state records to the flora of Florida and has led plant identification courses taught to the general public.

Steven has worked with both public and private entities to design, permit, and successfully implement numerous wetland restoration projects. These projects include small wetland restoration projects for private landowners, wetland mitigation banks encompassing thousands of acres, and Wetland Reserve Easements for the Natural Resources Conservation Service (NRCS).

### RELEVANT EXPERIENCE

**Florida Fish and Wildlife Conservation Commission, Environmental Restoration Contract, *Statewide, FL.*** Senior Scientist supporting a wide variety of environmental resource projects throughout the state, including for Little Boiling Creek (interpretation of technical ecological data for project engineers for use in hydrologic modeling) and Charlotte Harbor Habitat Evolution Model (review of field photos and GIS desktop land use mapping for community determination). FWC requires the development of complete project implementation master plans with associated hydrologic modeling for a variety of aquatic habitat restoration and enhancement projects.

**United States Department of Agriculture, Natural Resources Conservation Service, *Multiple Locations.*** Senior Scientist/Ecologist, Project Manager, and sUAS Pilot.

- **Boney Repair and Maintenance, Highlands County, FL** – Senior Scientist responsible for field review of water control structures and other drainage infrastructure and environmental resource permit (ERP) exemption verification.
- **Lott/5L, Highlands County, FL** – Senior Scientist responsible for field review of water control structures and other

drainage infrastructure and ERP exemption verification.

- **Tippen Bay Maintenance and Repair, Highlands County, FL** – Senior Scientist responsible for land management contractor coordination and oversight, water control structure geodetic survey.
- **John Paul LWC, DeSoto, FL** – Senior Scientist. Investigated permitting options for agricultural exemptions.
- **Bullrich Wetland Reserve Easement, Highlands County, FL** – Senior Ecologist. Steven authored the ecological components of the Wetland Reserve Plan of Operation for the Bullrich Wetland Reserve Easement. This plan guided the implementation of hydrologic and ecological restoration practices to be implemented on the 400+-acre project. The project aims to restore agricultural wetlands associated with the headwaters of Fisheating Creek, improve water quality, and improve habitat for wetland dependent wildlife. Steven also obtained environmental resource and State 404 permits required to implement the ecological restoration.
- **Bullrich Construction, Highlands County, FL** – Senior Scientist. Assisted engineers



#### EDUCATION

Graduate Certificate,  
 Wetland & Water  
 Resources Management,  
 University of Florida, 2012

BS, Biology University of  
 South Florida, 2004

#### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

FAA Remote Pilot  
 Certificate #4002848

Prescribed Fire Training  
 ICS 100, S-110, S-130,  
 S-190, L-180

Professional Wetland  
 Scientist (PWS) Certificate  
 #2504

U.S. Army Corps of  
 Engineers Wetland  
 Delineation Training

Research Associate: The  
 Institute for Regional  
 Conservation

Society for Wetland  
 Scientists

#### YEARS OF RELEVANT EXPERIENCE

19 years

## STEVEN GREEN, PWS (CONTINUED)

with evaluation and approval of recently completed hydraulic construction in the context of ecological restoration.

- **Fisheating Creek – Gopher Tortoise Permitting, Highlands County, FL** – Project Manager for project management, gopher tortoise permitting field support, technical report writing, and GIS data management.
- **KBarD Cattle LLC, Wetland Reserve Easement, Highlands County, FL** – Senior Ecologist. Steven authored the ecological components of the Wetland Reserve Plan of Operation for the KBarD Cattle, LLC Wetland Reserve Easement. This plan guides the implementation of hydrologic and ecological restoration practices to be implemented on the 80+-acre project. The project lies within the footprint of the Istokpoga Marsh and had been severely degraded by drainage, land conversion, and landscape-level hydrologic alterations. Steven worked with project engineers to design a restoration plan that worked within these limitations. The K BarD Cattle LLC WRE aims to restore freshwater marsh and wet prairie communities that will be ecologically sustainable, despite the landscape-level alterations. Steven also obtained environmental resource and State 404 permits required to implement the ecological restoration.
- **Sullivan Wetland Reserve Easement, Highlands County, FL** – Senior Ecologist. Steven authored the ecological components of the Wetland Reserve Plan of Operation for the Sullivan Wetland Reserve Easement. This plan guides the implementation of hydrologic and ecological restoration practices to be implemented on the 175+-acre project. The project aims to restore agricultural wetlands associated with Arbuckle Creek, improve water quality and improve habitat for wetland dependent wildlife. Steven also obtained environmental resource and State 404 permits required to implement the ecological restoration.

**Forest Investment Associates, Bear Creek Mitigation Bank (BCMB), Bay and Calhoun Counties, FL.** Senior Ecologist. Steven provides environmental consulting services and mitigation oversight for BCMB, which aims to restore large areas of pine plantation back to wet prairie and mesic pine flatwoods communities. The BCMB property was devastated by Hurricane Michael in 2018 and poses unique challenges for restoration and regulatory compliance. Steven conducts quarterly monitoring of the 3,000+ acre

property including reconnaissance for exotic species. He provides oversight for contractors conducting mitigation activities including exotic species management, mechanical vegetation treatments, and prescribed fire management. Steven also conducts annual quantitative monitoring to gauge the current condition of the BCMB relative to mitigation success criteria and provides guidance for any necessary adaptive management actions required to maintain compliance. Steven is currently working on revising the BCMB permitted plans to adapt to post-hurricane realities and challenges.

**Eco Capital Advisors, Fox Branch Ranch Wetland Mitigation Bank, Polk County, FL.** Senior Ecologist. Steven permitted, designed, and implemented the 1,000+ acre wetland mitigation bank. Initial field efforts included wetland delineations, natural community mapping, biological inventory, and identification of opportunities for ecological enhancement and restoration. Steven worked closely with regulatory agencies including the Southwest Florida Water Management District and the U.S. Army Corps of Engineers to develop Uniform Mitigation Assessment Method scores and obtain necessary permits and authorizations to implement the mitigation bank. He designed the mitigation plan that outlines specific goals, objectives, and methods for restoration of the on-site natural communities. Steven also designed and implements the ongoing monitoring program, which measures restoration success and guides adaptive management decisions. He provides oversight of contractors performing land management activities including exotic species management, supplemental planting, and prescribed fire management.

**TCPII Reedy Creek, LLC, Reedy Creek Mitigation Bank, Polk and Osceola Counties, FL.** Senior Ecologist. Steven provides environmental consulting services for Reedy Creek Mitigation Bank, one of the oldest operating wetland mitigation banks in Florida. Steven conducts periodic monitoring of the 3,000+ acre property and conducts reconnaissance for exotic species. He provides oversight for contractors conducting exotic species management and prescribed fire management. Steven also conducts annual quantitative monitoring to ensure the on-site natural communities are maintaining mitigation success criteria and provides guidance for any necessary adaptive management actions required to maintain compliance.



## Samantha La Hée, PE

PROCESS MECHANICAL LEAD



Samantha is a project manager with experience in hydraulic modeling; stormwater and pipeline design; water and wastewater treatment and design; pump stations; membrane systems; water supply master planning; regulatory compliance; permitting; and preparation of specifications, reports, and evaluations. Her hydraulic modeling experience includes EPA SWMM5, InfoWorks CS, Storm and Sanitary Sewer Analysis (SSA), Visual Hydraulics, and HydroCAD.



### EDUCATION

Masters, Civil  
Engineering, Howard  
University, 2005  
  
Bachelors, Civil  
Engineering, Howard  
University, 2003

### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

Professional Engineer -  
Civil and Environmental,  
FL, No. 82667

### YEARS OF RELEVANT EXPERIENCE

22 years

### RELEVANT EXPERIENCE

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**Turtle Creek Wet Weather Planning Basin Program, Allegheny County Sanitary Authority, Pittsburgh, PA.** Task Leader and Project Engineer. Samantha developed, calibrated, and validated the Basin hydrologic and hydraulic (H&H) model using EPA's SWMM5 to create a predictive tool for use of characterizing and evaluating the sewer collection system under existing and future conditions for the 57-square-mile basin area. She used the validated model to develop and model basin alternatives for future conditions to prevent and reduce combined and sanitary overflows. These alternatives included storage tanks, pumps, and new collection and relief sewer systems.

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Design Manager. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**S-28 Forward Pumping Station and Structure Replacement, South Florida Water Management District, West Palm Beach, FL.** Project Engineer. The S-28 coastal structure is a two-bay, reinforced concrete, gated spillway located in the City of Miami Shores, and provides flood protection. Designed the replacement of the S-28 coastal structure, which included replacement of the spillway and mechanical lift gate with elevated components to help mitigate the impacts of sea level rise and climate change, a new 1,500 cfs forward pumping station adjacent to the structure to help maintain basin discharge levels when downstream conditions do not allow for gravity discharge, a flood barrier tying the S-28 structure to higher ground elevations to mitigate impacts of sea level rise, and nature-based features, such as living shoreline along the C-8 canal and vegetated flood control berms to enhance flood protection.



## SAMANTHA LA HEE, PE (CONTINUED)

**C23/24 South Reservoir, Pump Station, and Associated Water Control Structures Design, South Florida Water Management District, FL.** Project Engineer. C-23/24 South Reservoir Project is part of the Indian River Lagoon-South PIR under CERP. HDR is currently providing design efforts for the project as part of a joint venture with Gannett Fleming under contract to USACE. The SFWMD as the local sponsor for CERP in conjunction with the USACE is transferring the lead agency for the project from the USACE to SFWMD in order for SFWMD to perform construction. The project includes a reservoir, pump station, structures, canals and similar features for a fully functional project.

**Melrose Design, City of Fort Lauderdale, Fort Lauderdale, FL.** Project Engineer. The Melrose Manors neighborhood lies within the North Fork New River (NFNR) and South Fork New River (SFNR) Watersheds (approximately 640 acres). The majority of Melrose Manors is low lying, ranging between 3' to 5' NAVONAVD. The area lacks stormwater infrastructure and has no positive outfall to a receiving water body. This task order is part of the larger RFQ No. 12632-626 Consultant Services for Melrose Manors Neighborhood Stormwater Improvements master agreement. As part of the efforts associated with the master agreement, HDR will provide conceptual engineering, final design, permitting, and bidding services associated with stormwater management improvements to the Melrose Manors neighborhood. These improvements include stormwater collection, treatment, conveyance, and discharge systems.

**Stormwater Neighborhood Improvements (Progresso Village), City of Fort Lauderdale, FL.** Project Engineer. The project included the design of a 16,200 GPM stormwater pump station to improve the flood protection level of service of the Dorsey-Riverbend Neighborhood. This neighborhood encompasses an area of approximately 300 acres. Water quality is met via grass swales and approximately 1,200 linear feet of exfiltration trenches and two drainage wells. Alex developed the 90% and 100% design documents for the proposed improvements and led the quality control review.

## **Lower and Middle RDP CSO Controls System Improvements, St. Louis, MO.**

Project Engineer. Lower & Middle River Des Peres (LMRDP) CSO Controls System Improvements is the largest of five Watershed Consultant design contracts in Metropolitan St. Louis Sewer District's (MSD's) wet weather program. This contract includes design of approximately \$1 billion of CSO solutions identified in the District's Long-Term Control Plan. Jacobs Engineering Group is the prime consultant and HDR is their subconsultant responsible for task management and facility design.

Lemay Stress Test - MSD's Consent Decree requires a stress test be conducted on the Lemay WWTP to verify improvements have increased the wet weather primary treatment capacity from 290 to 340 MGD and the secondary treatment capacity from 167 to 210 MGD. As part of the project HDR developed a hydraulic model of the entire plant and a process model for the secondary treatment system. HDR also prepared a stress test plan that was approved by EPA. Stress testing was conducted January through September of 2016. Hydraulic and performance data collection were conducted independently of each other over this time frame. Based on the results of the stress testing, a maximum hydraulic and a maximum process performance limitation, where applicable, were defined for each unit process. The maximum wet weather treatable flow rate for each treatment process was then determined by identifying the lower of the maximum hydraulic capacity and the maximum process performance capacity. This project required extensive planning and coordination between HDR, its subconsultants, equipment supplier, laboratory, and MSD to coordinate necessary equipment, sampling locations, sampling schedules, manpower, and monitoring of weather and flow conditions.



## Greta Backman, PE GEOTECHNICAL ENGINEERING LEAD

Greta is a geotechnical engineer and team leader with experience on both private sector and government agency projects. She specializes in water-related geotechnical investigations including dams, levees, and stormwater systems. Her technical experience is focused on the design and analysis of existing and proposed dam and levee systems. Her work includes planning and overseeing multi-phased geotechnical investigations, instrumentation installation, inspection of dams and levees, construction oversight and quality control, risk analysis, and performing slope stability, seepage, seismic and deformation analysis. Greta's work for the USACE affords her insight into a wide range of regulatory perspectives and requirements.



### EDUCATION

Masters, Civil  
Engineering, Iowa State  
University, 2012  
  
Bachelors, Geological  
Engineering, University of  
Minnesota, 2010

### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

Professional Engineer, FL,  
No. 99933

### PROFESSIONAL MEMBERSHIPS

United States Society on  
Dams (USSD), formerly  
USCOLD

Monitoring Dams and  
Their Foundations  
Committee - YP Vice  
Chair, 2019-2023

### YEARS OF RELEVANT EXPERIENCE

15 years

### RELEVANT EXPERIENCE

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Geotechnical Design Lead. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. Greta served as the geotechnical design lead.

**Cities of Hoquiam and Aberdeen, North Shore Levee and North Shore Levee West Segment Design, WA.** Senior Geotechnical Engineer. HDR provided design services for the planned North Shore Levee and North Shore Levee West Segment. Together, the design encompasses nearly eleven miles of new earthen and floodwall levee systems to reduce flood hazards for the cities of Hoquiam and Aberdeen. Greta served as the geotechnical technical lead managing the geotechnical analysis and modeling tasks and coordinating efforts across the multidisciplinary project team.

**National Park Service, NPS WASO Dam Safety Program, Various States.** Senior Geotechnical Engineer. The National Park Service (NPS) is responsible for the safety of dams and levees at National Parks across the US and has selected the HDR team to perform a range of services at more than 50 dams. Greta services as the Dam Inspector and Geotechnical Engineer. Greta's work includes participating interim and formal inspections as well as completing Comprehensive risk-based reviews.

**Clarke County Reservoir Commission, New Surface Water Supply Reservoir Study and Preliminary Design, IA.** Senior Geotechnical Engineer. HDR is working with the Osceola Water Works Board of Trustees (Board) and the Clarke County Reservoir Commission (CCRC) on a new surface water reservoir that will supplement the water supply for Clarke County for nearly 30 years. As lead geotechnical engineer, Greta oversaw the geotechnical investigation and subsequent preliminary design and analysis for the proposed dam. The dam features a clay core, chimney drain, blanket drain, soil-bentonite wall seepage barrier, and seepage collection trench and is approximately 70 feet high.

**Ohio Department of Natural Resources, Hargus Lake Dam, OH.** Senior Geotechnical Engineer. HDR was selected by ODNR to bring the Hargus Lake Dam into compliance with ODNR Dam Safety regulations. These improvements included the installation of chimney and blanket drains as well as flattening of the slope to 3:1 to enhance the stability of the earthen embankment, removal of the current primary spillway which was in the embankment, design of a new concrete spillway and stilling basin, addition of an access bridge to the control tower, as well as site improvements to enhance the public experience at the park including trails and reconnection to a fishing pier. Additional services included update of the dam breach modeling, inundation mapping, Emergency Action Plan, and Operations and Maintenance Manual. As project geotechnical engineer, Greta focused on supporting the foundation design for the principal spillway.



## GRETA BACKMAN (CONTINUED)

**Cedar Rapids Flood Risk Management Reach 1 - Levee, Floodwall, Pump Station and Gatewell Reaches/Pump Stations, USACE - St. Louis District, Cedar Rapids, IA.** Senior Geotechnical Engineer. Since 2014, HDR has worked with the City of Cedar Rapids in coordination with the US Army Corps of Engineers (St. Louis District), along with partner Stanley Consultants, to provide the City with a comprehensive and certified flood risk reduction system. This project has been in response to a record 2008 flood when the Cedar River crested to its highest level in Cedar Rapids history and was declared the sixth largest FEMA declaration in US history. As part of the flood protection system, HDR's primary responsibilities included interior stormwater drainage modeling & analysis, pump station design, program management assistance, risk assessment, floodwall design, floodgate design and stormwater design. Key projects in this phase focus on North Industrial Reach (Reach 1) and Pump Station improvements. The system will provides flood protection equivalent to the June 2008 flood level.

**Freeport Hurricane Flood Protection 2020, USACE - Galveston District, Freeport, TX.** Senior Geotechnical Engineer. Greta provided geotechnical engineering support as part of a joint venture providing site investigations, survey, engineering, design, and construction phase services for the implementation of the Sabine to Galveston, Freeport and Vicinity coastal storm risk management and ecosystem restoration project. This project provided improvements to an existing levee system including 5 miles of new and replacement floodwalls, 11 miles of earthen levee raises, a sector gate, closure gates, pump station capacity upgrades, and drainage structures.

**Watershed Plan - Environmental Document Update, Clarke County Reservoir Commission, Iowa.** Senior Geotechnical Engineer. HDR is updating the Watershed Plan - Environmental Document to continue to build upon nearly 30 years of prior planning and analysis for increased water supply in the region. This plan identifies, studies and addresses the resource concerns in the watershed that include providing adequate public water supply for rural communities and agricultural operations, stream degradation, flooding, increased baseflow in streams due to urban development, and water quality impacts due to nutrient and sediment loading.

**LaPrele Dam Rehabilitation Final Design and CMAR Coordination, LaPrele Irrigation District, Douglas, WY.** Senior Geotechnical Engineer. HDR is providing structural and environmental services in support of advancing the design to 100% of the new LaPrele roller-compacted concrete (RCC) dam and appurtenant facilities (spillway, outlet works, access roads). The final design phase includes analysis, preparation of design documents (drawings and specifications), as well as constructability reviews, development of an Engineers Opinion of Probable Construction Costs (OPCC), and anticipated construction schedule considering the CMAR interrelated tasks with the overall project.

**USACE - Saint Paul, Fountain City Service Base Dolphin Replacement, MN.** Senior Geotechnical Engineer. The purpose of the project is to prepare design documents for the design, manufacture, removal, and replacement of the Fountain City Service Base (FCSB) mooring dolphins in the Fountain City, Wisconsin area on the Mississippi River. Greta oversaw the geotechnical design and analysis of the proposed mooring dolphin structure.

**Consumers Energy, FERC Seepage and Stability Analyses, MI.** Senior Geotechnical Engineer. Greta led the geotechnical team in analysis of several FERC regulated high hazard hydropower dams. Work involved coordinating a team of engineers in analysis and interpretation of recent and historic geotechnical drilling investigations and slope stability and seepage model development based on historic record drawings. Model results were incorporated into the respective dams' Dam Safety and Surveillance Monitoring Plans (DSSMP) in the form of monitoring thresholds.



**EDUCATION**

Bachelors, Civil  
Engineering, University  
of Illinois at Urbana-  
Champaign, 1995

**CERTIFICATIONS/  
REGISTRATIONS/TRAINING/  
AFFILIATIONS**

Professional Engineer, FL,  
No. 79125

**YEARS OF RELEVANT  
EXPERIENCE**  
30 years

## Bruce Bradley, PE

SENIOR STRUCTURAL ENGINEER

Bruce Bradley has decades of structural consulting engineering experience including fish hatchery projects. Bruce's responsibilities include structural design for both building and bridge type structures. He prepares staged construction plans, estimates of probable costs; and project reports, as well as structural engineering planning, design, and construction documents. He also provides structural engineering for new buildings including manufactured buildings. His experience includes design and plan preparation of buildings and other structures including concrete water holding tanks, circular and rectangular clarifiers, water control and other miscellaneous structures on a variety of building and fish hatchery projects, including new construction and rehabilitations.

### RELEVANT EXPERIENCE

**Bond Farm Hydrological Enhancement - Phase I, South Florida Water Management District, Charlotte County, FL.** Structural Engineer. The Bond property will be transformed from a farm to a key component of Webb Wildlife Management Area (Webb WMA) in two phases. Phase I will be to construct a gated inflow from Webb WMA into the Bond Farm with the objective of storing water at depths of four feet or less during the wet season. Perimeter berms and seepage canals will be constructed to assure that containment will be secure. Outflow structures will also be constructed to facilitate conveyance to downstream waterways. Since a drainage easement west of I-75 has not been secured, the outflows from the Bond Farm will continue to drain to the headwaters of Powell Creek and Gator Slough via the Prairie Pines Preserve. This first phase will significantly improve hydroperiods in Webb WMA.

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** Structural Engineer. The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Structural Engineer. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**C-23/24 South Reservoir, South Florida Water Management District (SFWMD), St. Lucie County, FL.** Senior Structural Engineer. Project is part of the Indian River Lagoon-South PIR under CERP. HDR is currently providing design efforts for the project as part of a joint venture with Gannett Fleming under contract to USACE. The SFWMD as the local sponsor for CERP in conjunction with the USACE is transferring the lead agency for the project from the USACE to SFWMD in order for SFWMD to perform construction. The project includes a reservoir, pump station, structures, canals and similar features for a fully functional project.

**S-193 Navigation Lock Gate Replacement, SFWMD, Okeechobee, FL.** Senior Structural Engineer. South Florida Water Management District (District) requires support to complete the Design Process for the S-193 Navigation Lock Gate Replacement Project. The Project

## BRUCE BRADLEY, PE (CONTINUED)

includes the design efforts for new lakeside gates supported by a new pintle arrangement at the base, new lakeside gate operating machinery, two new crane access pads with connecting roads, a public pedestrian pathway across the S-193NL structure with access security gates, and a new central lock-tender control building. Prior to the design HDR completed the basis of design/feasibility study for this project.

**Sanganois Conservation Area Comprehensive Wetland Mitigation Plan, Capital Development Board, Illinois.** Senior Structural Engineer. As part of the rehabilitation and repair of the Barkhausen Levee within the 10000 acre Sanganois Conservation Area in Mason and Cass Counties HDR developed a 50 acre wetland mitigation site design including a Comprehensive Wetland Mitigation Plan for impacts associated with the necessary levee repairs. The final report was required to secure the necessary 404/401 permits from the St Louis District Army Corps of Engineers and Illinois Environmental Protection Agency.

**Gillette Fishing Lake Forebay Design, City of Gillette Wyoming, Gillette, WY.** Senior Structural Engineer. Completed a topographic survey and geotechnical borings to evaluate existing conditions. Generated a Technical Memo outlining options for the sediment control forebay and wetland construction. The final design incorporated hydraulic modeling; a new sedimentation facility and weir structure; shoreline stabilization along the lake; and a modular wall at the pedestrian bridge to protect the bridge embankment from erosion. Provided structural design for a helical pile supported structural steel and timber walkway through a forebay area. The project included construction of five new ponds and installation of over 7,000 sf of sheetpile.

## **Nelson Dam Replacement Project Phase 1 (Design), City of Yakima, Yakima, WA.**

Senior Structural Engineer. Starting in 2011, HDR partnered with the City of Yakima and Yakima County Flood Control Zone District starting to replace the 80-year-old Nelson Dam which had outlived its useful life and was contributing to interruption of natural river processes, diminished flood conveyance capacity, and was an impediment to fish migration. We provided a full range of services including engineering analysis, environmental permitting, construction documentation, and bidding support including management of an early material procurement program. HDR facilitated multi-stakeholder engagements to set objectives, identify opportunities, and solutions that represent key values held by project stakeholders. After ten years of development and completion of numerous studies, the selected alternative included elements targeted to improve and protect public infrastructure, increase water supply reliability, and restore ecological habitat across a range of conditions experienced today and in the future. Bruce provided the structural design for removal of Nelson Dam, a known barrier to fish passage, and removal of the left bank former Powerhouse Bridge abutment and approach, and construction of several new project elements that are intended to provide more effective natural fish passage route.



## Mark Vincent, PE

### SENIOR ELECTRICAL ENGINEER

Mark's experience includes power distribution and lighting design, construction plan preparation, permitting, construction administration, and project coordination for a diverse range of projects from public infrastructure projects, commercial and industrial facilities, multi-phased residential developments, hospitality resorts, and federal complexes. He provides project management services from feasibility studies through to engineering design and permitting and to final construction completion.



#### EDUCATION

Masters, Business Administration, University of Nebraska, Lincoln, 2017

Bachelors, Electrical Engineering, University of Wisconsin, Madison, 2001

#### CERTIFICATIONS/

REGISTRATIONS/TRAINING/

#### AFFILIATIONS

Professional Engineer, FL, No. 98111

#### YEARS OF RELEVANT

EXPERIENCE

26 years

#### RELEVANT EXPERIENCE

**West Port Water Reclamation Facility Expansion, Charlotte County Utilities, Florida.** Senior Electrical Engineer. This project involves initial multi-criteria decision analysis (MCDA) of expanding or consolidating Rotonda WRF flows to West Port WRF based on 20-year flow projections. Afterward, West Port or both WRFs will be designed and permitted to accommodate future projections and improve their treatment processes to meet advanced wastewater treatment regulations. HDR will also perform services during construction.

**Dorsey Riverbend and Progresso Neighborhood Stormwater Improvements, City of Fort Lauderdale, Fort Lauderdale, FL.** Pipeline & Site / Civil Support. HDR designed neighborhood stormwater improvements for the Dorsey-Riverbend and Progresso Village neighborhoods. Design elements included architectural, structural, electrical, mechanical, and instrumentation and controls (I&C). Surface improvements were made, such as grassed swales and other pervious surfaces, as well as infrastructure improvements, which included upsizing existing drainage infrastructure and incorporating new infrastructure, such as drainage pipes, exfiltration trenches, water quality structures, and pump stations. Stormwater pump stations were proposed in both the Dorsey-Riverbend and Progresso Village neighborhoods to alleviate flooding issues in upstream areas, which are caused by capacity and conveyance constraints within the existing drainage system. HDR provided data collection, final design, and permitting assistance.

**Southside Water Reclamation Facility Replacement and Capacity Upgrade Design-Build (Owner's Advisor), Cape Fear Public Utility Authority, North Carolina.** Senior Electrical Engineer. Served as owner's advisor to assist CFPWA staff in the design-build procurement process for expansion of the Southside Water Reclamation Facility from 12 to 16 mgd. Improvements included: (1) headworks facility, including fine screens, grit removal equipment, and supporting equipment (washer compactors for screenings, grit pumps, grit classifiers, and separate collection bins for screenings/grit); (2) primary clarifiers and primary sludge pump station; (3) biological treatment process with blowers, recirculation pumps, mixers, and aeration equipment; (4) secondary and waste activated sludge pumping stations; (5) filters with new backwash and air scour components; (6) ultraviolet (UV) disinfection facility; (7) new outfall infrastructure; (8) biosolids and gas handling facility, including new digesters, digester control building, odor control, belt filter press dewatering, cake conveyance, and expanded cake storage area; (9) potable and non-potable water reuse facility; (10) Chemical feed facilities; (11) power generators to accommodate power demands; (12) expansion and retrofit of the operations building and laboratory facility; (13) sustainability solutions (beneficial reuse of biogas, solids, and potential nonpotable reuse of effluent water, and options for reserving space for future potable reuse of effluent water); and (14) other miscellaneous improvements.

## MARK VINCENT (CONTINUED)

### Lift Station No.2 and Force Main

**Replacement, City of Fort Walton Beach, Fort Walton Beach, FL.** Senior Electrical Engineer.

HDR is currently providing professional engineering design services for the replacement of Lift Station #2 and the sanitary force main from the lift station that crosses under Highway 98. The existing lift station is beyond its useful life, and HDR is providing process, site civil, and electrical designs to construct a new sanitary lift station. HDR is also designing approximately 500 feet of new force main that will cross under Highway 98 and then tie-back into the existing force main. The force main crossing under Highway 98 will require a trenchless pipe installation approach. In addition to design, HDR is providing permitting services through the Florida Department of Transportation and the Florida Department of Environmental Protection. HDR is also tasked with bidding phase services.

### Well No. 3A Pipe Replacement, City of Fort Walton Beach, Fort Walton Beach, FL.

Senior Electrical Engineer. HDR is currently providing professional engineering design services to provide building and process piping improvements to the existing Well #3A water treatment facility for the City of Fort Walton Beach. Design services for this task order include the removal and replacement of the process piping, valves, and appurtenances within the building, and the replacement of the process yard piping within the area. In addition, HDR is tasked with designing miscellaneous building improvements that include new windows, doors, and adding an HVAC system. HDR's scope of work also includes permitting services through the City of Fort Walton Beach Building Department and the Florida Department of Environmental Protection (FDEP). HDR is also tasked with bidding phase services for the advertisement and award of the project.

### AOWTP Operations Center, Miami Dade

**Water & Sewer Dept., Miami, FL.** Senior Electrical Engineer. This change order includes an increment in building size, relocation of PS529, modifications to the plant's egress and ingress, relocalization of existing infrastructure (48" Discharge Line and Flow Meter), and modifications to the control room.

### James River Treatment Plant Centrifuge Replacement and Atlantic Treatment Plant Refurbished Centrifuge, Hampton Roads Sanitation District, Newport News, Virginia.

Senior Electrical Engineer. Provided basis of design, final design, and bid phase services for the replacement of the existing Sharples Centrifuge No. 1 and Centrifuge No. 3 units with Centrisys CS26-4 dewatering centrifuges to match Centrifuge No. 2 at the James River Treatment Plant to improve reliability and reduce repair, as well as improve power efficiency for dewatering with more modern equipment. One of the salvaged Sharples DS-706 centrifuges was refurbished and installed as pre-dewatering Centrifuge No. 3 at the Atlantic Treatment Plant pre-dewatering building. Pre-dewatering Centrifuge No. 3 controls were provided to match pre-dewatering Centrifuges No. 1 and No. 2.



## Deborah Daigle, PG

### SENIOR HYDROGEOLOGIST

Deborah has extensive experience in project management and technical leadership for water resources and environmental restoration projects throughout the state of Florida. Her project experience includes geologic and hydrogeologic site characterization for large impoundments, including evaluation of karst related hazards, development of monitoring programs, development of groundwater models, evaluation of monitoring program data, aquifer testing and analysis, and permitting support.



#### EDUCATION

Masters, Geology,  
University of Memphis,  
1985

Bachelors, Geology,  
Nicholls State University,  
1983

**CERTIFICATIONS/  
REGISTRATIONS/TRAINING/  
AFFILIATIONS**

Professional Geologist,  
FL, No. 01333

**YEARS OF RELEVANT  
EXPERIENCE**  
44 years

#### RELEVANT EXPERIENCE

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Senior Hydrogeologist. Task manager for the field data collection and subsurface characterization of a 1,200-acre aboveground reservoir site for the storage of water diverted from the Peace River to be used for drinking water supply. Work includes interpretation of field and lab data to develop a conceptual site model for seepage and stability modeling, evaluation of potential karst risk, development of an embankment instrumentation plan, and a comprehensive site characterization report. MS. Daigle also led the development of a MODFLOW model to assess offsite seepage in the area of the new reservoir.

**C-44 Reservoir and Stormwater Treatment Area (STA) - Site Characterization and Modeling, South Florida Water Management District, Martin County, FL.** Senior Hydrogeologist. Project task manager and technical team member for the design and permitting of the C-44 Reservoir/STA project. Responsible for the geologic and hydrogeologic site characterization of the 12,000-acre C-44 project site, collection of geotechnical data, development of a conceptual site model, aquifer testing and analysis, development of numerical models to evaluate seepage losses, including MODFLOW and SEEP/W, and preparation of a detailed site characterization report.

**C-23/C-24 South Reservoir, Groundwater Model Development, South Florida Water Management District, St. Lucie County, Florida.** Senior Hydrogeologist. Technical team lead for the development of a numerical groundwater model to evaluate seepage losses utilizing MODFLOW from the proposed C-23/C-24 South Reservoir. The reservoir will be utilized to protect the downstream St Lucie Estuary. The model will evaluate the potential effects of seepage on adjacent water supply wells, wetlands and canals.

**McIntosh Park Treatment Wetland Expansion and Aquifer Recharge Project, City of Plant City, Plant City, FL.** Project manager and technical lead evaluate the feasibility of improving the functionality of the current Enhanced Stormwater Treatment Wetland (ESTW), the ability to discharge reclaimed water to the wetland to supplement the hydrology in the dry season, and the feasibility of diverting some of the City's reclaimed water to an expanded wetland for treatment. In addition, the quality of the blended reclaimed/stormwater was evaluated to better understand what treatment would be necessary to recharge the Upper Floridan Aquifer during times when excess water is available, providing aquifer recharge in the Northern Tampa Bay area.

**Istokpoga Marsh Watershed Improvement District Aboveground Impoundment Project, South Florida Water Management District, Highlands County, FL.** Technical lead for an evaluation of seepage from a 300-acre impoundment in Highlands County. The project involved the design of an earthen embankment approximately 6 feet high for the purpose of impounding local stormwater runoff to be used for irrigation. The overall goal of the project was to reduce flows and nutrient loading to C-41 Canal and Lake Okeechobee.

**EDUCATION**

Bachelors, Biology,  
University of Tampa, 1980

**YEARS OF RELEVANT****EXPERIENCE**

45 years

## Barry Lenz

### SENIOR ENVIRONMENTAL SCIENTIST

Barry is a senior environmental scientist with decades of diverse environmental consulting experience including federal, state, and local environmental resource permitting; large-scale wetland delineation and mitigation/restoration designs; and federal and state listed species surveys, habitat assessments, and take permits. He has also managed and performed environmental impact assessments and other NEPA-type studies. Barry has participated in hydrologic and ecological field investigations within Yucca Pens and the greater Babcock-Webb landscape, supporting wetland assessments, restoration planning, and hydroperiod evaluations. Barry has served as project and task manager for environmental assessments and permitting associated with watershed restoration initiatives, wetland mitigation projects, and water resource management efforts requiring coordination with federal, state, and regional agencies.

**RELEVANT EXPERIENCE**

**Bond Farm Hydrological Enhancement - Phase I, South Florida Water Management District, Charlotte County, FL.** Senior Environmental Scientist. The Bond property will be transformed from a farm to a key component of Webb Wildlife Management Area (Webb WMA) in two phases. Phase I will be to construct a gated inflow from Webb WMA into the Bond Farm with the objective of storing water at depths of four feet or less during the wet season. Perimeter berms and seepage canals will be constructed to assure that containment will be secure. Outflow structures will also be constructed to facilitate conveyance to downstream waterways. Since a drainage easement west of I-75 has not been secured, the outflows from the Bond Farm will continue to drain to the headwaters of Powell Creek and Gator Slough via the Prairie Pines Preserve. This first phase will significantly improve hydroperiods in Webb WMA.

**Myakka River Deer Prairie Creek Hydrological and Wetland Restoration, Southwest Florida Water Management District, Sarasota County, FL.** Senior Environmental Scientist. HDR assisted the District with the design and implementation of hydrological/wetland restoration for Regions 7, 8, and 9, as recommended in the Preliminary Engineering Report (PER) for the 10,128-acre Myakka River Deer Prairie Creek Preserve (MRDPC). HDR provided ecological, hydrological, and engineering support services to facilitate the preparation of final design specifications and permit applications for the implementation of hydrological/wetland restoration treatments for MRDPC Regions 7, 8, and 9.

**Navum Valley Farms Wetland Restoration, Natural Resources Conservation Service, DeSoto County, FL.** Senior Environmental Scientist. HDR developed a restoration plan to return this site to its historic, natural ecological condition. An ICPR4 model included a combination of an overland flow mesh and channel control volumes to interact with the two-dimensional groundwater flow and 1D surface water features to establish the surfaces water elevations and boundary conditions was used to assess the current and proposed performance of the restoration plan. The restoration plan features such as ditch blocks, dikes, and diversions were included in the model to assess the effects on the site groundwater exceedance rasters and estimate the changes to the ecological zones which included basin marsh, slough/wet prairie, and dry prairie. The initial restoration plan was then modified to increase the basin marsh and slough/wet prairie areas.

**Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Senior Environmental Scientist. The WRPO developed a plan of how the approximately 323-acre wetland reserve easement (WRE) area will be returned, to the greatest extent possible, to its historic, natural ecological condition which existed prior to agricultural manipulation of the site. Restoration of wetland functions and values will emphasize improving habitat for wetland dependent wildlife. All work was planned and designed to meet restoration goals with no adverse impacts to cultural resources, historic properties, state and federal protected species, off-site properties, and other special environmental concerns.



## BARRY LENZ (CONTINUED)

**101 Ranch Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** Senior Environmental Scientist. HDR has been selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 584-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

**Seventy Grove Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** Senior Environmental Scientist. HDR was selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 293-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

**Melrose Design, City of Fort Lauderdale, Fort Lauderdale, FL.** Senior Environmental Scientist. The Melrose Manors neighborhood lies within the North Fork New River (NFNR) and South Fork New River (SFNR) Watersheds (approximately 640 acres). The majority of Melrose Manors is low lying, ranging between 3' to 5' NAVONAVD. The area lacks stormwater infrastructure and has no positive outfall to a receiving water body. This task order is part of the larger RFQ No. 12632-626 Consultant Services for Melrose Manors Neighborhood Stormwater Improvements master agreement. As part of the efforts associated with the master agreement, HDR will provide conceptual engineering, final design, permitting, and bidding services associated with stormwater management improvements to the Melrose Manors neighborhood. These improvements include stormwater collection, treatment, conveyance, and discharge systems.

**Highlands Ranch Wetlands Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Senior Environmental Scientist. The purpose of this WRPO was to develop a plan of how the 682-acre WRE easement area will be returned to its historic, natural ecological condition that existed before agricultural manipulation of the site. The project identified how wetland functions will be restored, enhanced, protected, and managed.

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Senior Environmental Scientist. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.



# Emily Keenan

## SENIOR ENVIRONMENTAL SCIENTIST

Emily brings 24 years of experience in environmental science, including 19 years specializing in environmental consulting for public (local, state, and federal), private, and non-profit clients. Her core expertise lies in the collection, analysis, and interpretation of water quality data across estuarine, riverine, and lake systems. She has led the development of water quality management plans, conducted evaluations of impaired waters and Total Maximum Daily Loads (TMDLs), and performed advanced quantitative analyses of hydrobiological datasets. Emily has successfully managed numerous monitoring initiatives that have supported regulatory compliance and guided restoration strategies aimed at improving water quality through data-driven insights. Her project portfolio spans a wide range of objectives—from safeguarding source water for critical drinking water supplies to establishing water clarity targets that promote healthy seagrass habitats. Emily is also a published author and coauthor of several technical papers and has delivered expert presentations at industry conferences and stakeholder meetings.



### EDUCATION

MS, Oceanography and Coastal Sciences, Louisiana State University, 2004

BS, Zoology, Louisiana State University, 2001

### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS

FWC Authorized Gopher Tortoise Agent  
 #GTA-17-00052D

American Water Resources Association

Florida Lakes Management Society

Florida Stormwater Association

### YEARS OF RELEVANT EXPERIENCE

24 years

### RELEVANT EXPERIENCE

**Florida Fish and Wildlife Conservation Commission, Environmental Restoration Contract, Charlotte County, FL.** Senior Environmental Scientist supporting a wide variety of environmental resource projects throughout the state. FWC requires the development of complete project implementation master plans with associated hydrologic modeling for a variety of aquatic habitat restoration and enhancement projects.

#### Bond Farm Hydrologic Enhancement Impoundment (HEI) – Charlotte County.

- **Pre-Construction Permit Compliance** – ESA performed preconstruction services necessary for compliance with environmental permits, obtaining permit modification extensions for two expiring permits, performing water monitoring sampling as specified in permit conditions of the FDEP ERP Permit, and conducting preconstruction listed species surveys for caracaras, bald eagles, sandhill cranes, Everglade snail kites, state-listed wading birds, least tern and shorebirds, nesting cavities for red-cockaded woodpecker (RCW), Florida bonneted bats (FBBs); and gopher tortoise burrow surveys, within the approximately 650-acre Bond Farm property. ESA also obtained permit modifications to extend permit expiration dates for FDEP and Charlotte County permits.

- **Zemmel Tract Redesign** – ESA and HDR provided regulatory and redesign support for the Bond Farm HEI Restoration project to incorporate the exclusion of identified parcel. Redesign of the exterior berm and southwest outfall structure was necessary to remove the project footprint from the 0.70-acre Zemmel tract, which FWC was not able to acquire. Reconfiguration of the berm and outfall modified the design in a manner consistent with the intent of the project, allowing construction to proceed on lands controlled by FWC.

- **Yucca Pens Hydrologic Connection Desktop Analysis** – This effort evaluates the feasibility for hydrologic connectivity of seasonal flows provided by the Bond Farm Hydrological Enhancement Improvement Project through a 600-acre parcel to support restoration of the historical hydroperiod within Yucca Pens and Babcock Webb Wildlife Management Area.

**Coastal and Heartland National Estuary Partnership (CHNEP), Charlotte Harbor Habitat Restoration Needs Master Plan, Punta Gorda, FL.** Senior Scientist responsible for QA/QC of deliverables. This project developed a comprehensive habitat master plan for the Charlotte Harbor watershed. Habitats addressed in the plan included mangroves, salt marshes, salt barrens, coastal uplands, freshwater wetlands, and upland forests. Emily assisted with the completion of habitat status

## EMILY KEENAN (CONTINUED)

and trends analysis for the period 1990–2017; summary existing conservations lands and habitat restoration and enhancement projects; assessment of restoration paradigms; GIS analysis of habitat protection opportunities and restoration potential; development of 2030 quantitative habitat protection and restoration targets; and the evaluation of habitat monitoring and assessment needs. The project also involved coordination with the CHNEP Technical Advisory Committee and presentations to the Tampa Bay Estuary Program Management and Policy Committees.

### **Southwest Florida Water Management District (SWFWMD), Charlotte Harbor Surface Water Improvement and Management (SWIM) Plan Update, Charlotte Harbor, FL.**

Environmental Scientist. In collaboration with SWFWMD, ESA is assisting with the update of the Charlotte Harbor SWIM Plan as mandated in Florida Statute 373.453. ESA's role in this project was to assist in the identification of issues and drivers across three major focus areas: water quality, hydrologic alterations, and natural systems. Additionally, ESA assisted in identifying strategic initiatives to address the primary Issues and Drivers and provide Management Actions designed to help restore, maintain, and preserve the ecological balance of the Charlotte Harbor System. Project development and initiatives were drafted to support the management actions outlined. Specifically, Emily analyzed the water quality data to identify impairments while also characterizing the status and trends within waterbodies to inform the identification of primary issues and drivers.

**Pinellas County, Joes Creek Restoration Phase II, Pinellas Park, FL.** Project Director for this feasibility, design, and permitting project along the downstream section of Joes Creek. The project includes the evaluation of existing conditions, design and permitting of needed drainage improvements, preparation of an Invasive Species Management Plan, and a feasibility study and ranking of potential restoration opportunities and conceptual designs. The project is funded through Bipartisan Infrastructure Law (BIL) funding awarded to TBEP through EPA.

**Southwest Florida Water Management District, Boyd Hill Nature Preserve Habitat and Hydrologic Restoration Project, St. Petersburg, FL.** Environmental Scientist. ESA was tasked with designing and permitting the enhancement, restoration, and creation of freshwater habitats in the Boyd Hill Nature Preserve, an approximately 245-acre tract of land located in south-central Pinellas County, Florida. Ecosystem restoration of the Preserve includes freshwater wetlands, adjacent upland communities, and a potential Living Shoreline component along Lake Maggiore, to help offset habitat impacts and losses suffered throughout the Tampa Bay watershed. Restoration of the site will meet management plans and goals of the Surface Water Improvement Management (SWIM) Program, the Tampa Bay Estuary Program, and the City. ESA's tasks included project design and permitting, preparation of bid documents, and construction management services. The project was subdivided into four individual work areas that focused on replacement and installation of new culverts, re-contouring ditch banks and connection of isolated wetland areas to preserve existing stormwater function and increase residence time and nutrient removal while creating habitat.

**ENLACE, Feasibility Report and EIS for the Caño Martin Peña Ecosystem Restoration Project, San Juan, Puerto Rico.** Technical Analyst. This project was completed for ENLACE, a public corporation formed to implement the restoration of the Martin Peña Canal. This highly polluted waterway connects San Juan Bay and the San José Lagoon, within the city of San Juan. The project involved developing an environmental assessment of the ecological benefits that could occur via restoration of the historical tidal connection between San Juan Bay and the San José Lagoon, Puerto Rico. The assessments involved quantification of the positive and potentially negative consequences of activities associated with canal restoration and re-establishment of historical circulation patterns. Emily was responsible for coordinating logistics, field work, data compilation and analysis, and report writing.



## Gabriela de Aragao, PE

### SENIOR GEOTECHNICAL ENGINEER

Gabriela is a Senior Geotechnical Engineer with extensive experience in providing solutions for demanding infrastructure projects. She has experience in highway construction and specializes in geotechnical investigations, including pile load tests (PIT, static axial, and dynamic loading), geotechnical laboratory analyses, calculation of geotechnical parameters, and the design, construction, and inspection of both deep and shallow foundations. Gabriela has also led graduate classes in soil mechanics in Brazil and served as an adjunct professor at City University of New York, the largest urban public university in the United States, where she taught undergraduate classes in Soil Mechanics for Construction Management and Engineering Technology as well as civil engineering technology courses.



#### EDUCATION

Master of Science,  
Geotechnical  
Engineering,  
Universidade Federal do  
Rio Grande do Sul, 2014

Bachelor of Science,  
Civil Engineering,  
Universidade Federal do  
Rio Grande do Sul, 2009

**CERTIFICATIONS/  
REGISTRATIONS/TRAINING/  
AFFILIATIONS**

Professional Engineer, FL,  
No. 100934

**YEARS OF RELEVANT  
EXPERIENCE**  
20 years

#### RELEVANT EXPERIENCE

**Bond Farm Redesign, South Florida Water Management District, Charlotte County, FL.** Project Engineer. This project is the redesign of the Bond Farm Hydrologic Impoundment project, which was designed by HDR. The redesign involves adjusting the alignment of the proposed embankment to ensure it doesn't encroach on adjacent property since the client was unable to acquire the property rights it sought during the original design. The redesign also involved shifting the embankment alignment and culvert.

**Engineering During Construction (EDC) Services for C-44 Reservoir and Stormwater Treatment Area, South Florida Water Management District, Indiantown, FL.** Project Engineer. The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Project Engineer. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**Navum Valley Farms Wetland Restoration, Natural Resources Conservation Service, DeSoto County, FL.** Project Engineer. HDR developed a restoration plan to return this site to its historic, natural ecological condition. An ICPR4 model included a combination of an overland flow mesh and channel control volumes to interact with the two-dimensional groundwater flow and 1D surface water features to establish the surfaces water elevations and boundary conditions was used to assess the current and proposed performance of the restoration plan. The restoration plan features such as ditch blocks, dikes, and diversions were included in the model to assess the effects on the site groundwater exceedance rasters and estimate the changes to the ecological zones which included basin marsh, slough/wet prairie, and dry prairie. The initial restoration plan was then modified to increase the basin marsh and slough/wet prairie areas.



## GABRIELA DE ARAGAO (CONTINUED)

**Weeki Wachee SW DRA Retrofits, Hernando County, Spring Hill, FL.** Project Engineer. The County plans to reduce nitrogen inputs into Weeki Wachee Springs by retrofitting 10 urban drainage retention areas with denitrification cells using biosorption-activated media (BAM). This project aims to remove 700 pounds of nitrogen annually and is consistent with the SWIM Plans for Tampa Bay. HDR completed the design, permitting, and construction of stormwater pond retrofits to reduce nitrogen loads to the Weeki Wachee Springs groundwater regime.

**Ft. Bragg Dam Repairs, USACE - Savannah District, North Carolina.** Project Manager. The work is to design repairs to the seven dams at Ft. Bragg. Deliverables include a complete set of construction documents including but not limited to: Construction Scope of Work, Drawings, Design Calculations, Specifications, Project Manual, Cost Estimates and permits for high-hazard dams located on the installation. The scope of work shall include all services required to complete the design effort, including but not limited to: Surveying and Mapping, Geotechnical, Civil, Structural, Hydrologic and Hydraulics analysis. In addition to construction documents, an EAP (Emergency Action Plan) needs to be developed for each dam as a part of mandatory requirement. Completed designs should meet compliance to the provided regulatory guidelines provided in the enclosures (Section 9 of this document). DOR will need to make determinations as to whether the project site is located under FEMA special flood hazard areas or not. Scope of work may require on-site demarcation of the toe of the dam / perimeter for timber assessment based on vegetation removal.

**Hoquiam North Shore Levee, City of Hoquiam, Hoquiam, WA.** Project Engineer. The Aberdeen-Hoquiam Flood Protection project comprises the North Shore Levee and the North Shore Levee West Segment, which are designed to provide flood protection to hundreds of homes, businesses, and critical infrastructure that experience chronic flooding in Aberdeen and Hoquiam. HDR is leading design, right-of-way, and environmental permitting for both projects. The completed levee system will provide comprehensive flood protection to large areas, including fire stations, city hall, police station and jail, schools, and other essential infrastructure.

**C23/24 South Reservoir, Pump Station, and Associated Water Control Structures Design, South Florida Water Management District, FL.** Project Engineer. C-23/24 South Reservoir Project is part of the Indian River Lagoon-South PIR under CERP. HDR is currently providing design efforts for the project as part of a joint venture with Gannett Fleming under contract to USACE. The SFWMD as the local sponsor for CERP in conjunction with the USACE is transferring the lead agency for the project from the USACE to SFWMD in order for SFWMD to perform construction. The project includes a reservoir, pump station, structures, canals and similar features for a fully functional project.

**Raulerson Canal, National Park Service, Everglades National Park, FL.** Project Engineer. Provided the design of a sheet pile to be installed in the Canal plug replacement, including limit-equilibrium analyses, sheet pile deflection, bearing moment, and shear analyses. Also developed a soil profile for this area. This project included design of a replacement canal plug which will be comprised of heavy steel sheet piling, limestone Rip-Rap boulders, and earthen fill to block the 80-foot-wide canal.

**Savannah Bluff Lock and Dam Structural Assessment, USACE - Savannah District, Georgia.** Project Manager. Architectural-Engineering Services are required to: perform a structural assessment of the current condition of the New Savannah Bluff Lock and Dam structure by reviewing existing inspection reports, extrapolating the necessary repairs likely to repair the structure and if possible, perform a physical inspection above and below water. Deliver a report, 5 concept designs (15%) along with MII Class 5 estimates, and a presentation on the full repair costs.



# Michael Poniatowski

## SENIOR ENVIRONMENTAL SCIENTIST

Mike Poniatowski has a broad technical background to support identifying solutions for wide range of environmental considerations that impact our clients. He has strong skills and experience in the coastal marine realm, which give him a unique perspective in wetland delineation, species surveys, permitting, GIS, and the other facets of the environmental services. Prior to working for consulting firms, Mike spent 6 years at the Florida Fish and Wildlife Conservation Commission as part of the optical water quality and seagrass survival and restoration group. He currently supports the implementation of several comprehensive hydrobiological monitoring programs as well as developing innovative solutions to water quality/water quantity issues impacting estuaries, rivers, and/or springs throughout the Southeast United States.



### EDUCATION

BS, Marine Science,  
 Florida Gulf Coast  
 University, 2012

### CERTIFICATIONS/ REGISTRATIONS/TRAINING/ AFFILIATIONS/AWARDS

Florida Boating Education

American Academy of  
 Underwater Sciences,  
 National Association  
 of Underwater  
 Instructors Scuba  
 Certified

Central Florida/  
 Tampa Bay/Florida/  
 National Associations  
 of Environmental  
 Professionals (CFAEP/  
 TBAEP/FAEP/NAEP)

2020 Florida Fish and  
 Wildlife Conservation  
 Commission Service  
 Award

### YEARS OF RELEVANT EXPERIENCE

11 years

### RELEVANT EXPERIENCE

**Florida Fish and Wildlife Conservation Commission (FWC), Babcock Webb Bond Farms Water Monitoring, Statewide, FL.** Project Manager/Field Scientist responsible for project management, downloading water level data, and working with WSA (subconsultant) and FWC to meet deliverables. These task orders support project design, survey, modeling, permitting, construction administration, and other related professional engineering services necessary to complete a wide variety of environmental resource projects throughout Florida. Overall contract scope includes development of complete project implementation master plans with associated hydrologic modeling for a variety of aquatic habitat restoration and enhancement projects. Listed project includes freshwater lakes, rivers and streams, forested, non-forested and ephemeral wetlands, marine systems, and bays, estuaries and other wetland or upland areas. Project activities include, but are not limited to, lake drawdowns and accumulated sediment removal; stream-course restorations; weir, berm and dam construction; hydraulic and mechanical dredging; pumping; excavation; bank stabilization; living shorelines establishment, oyster reef and coral restoration, aquatic vegetation planting and ecological/hydrologic restoration to return areas to a more historic hydroperiod.

**FWC, Continued Data Downloads – Babcock Webb and Yucca Pens Monitoring Stations, Punta Gorda, FL.** Project Manager/Field Scientist responsible for project management, downloading water level data, and working with WSA (subconsultant) and FWC to meet deliverables. These task orders support

project design, survey, modeling, permitting, construction administration, and other related professional engineering services necessary to complete a wide variety of environmental resource projects throughout Florida. Overall contract scope includes development of complete project implementation master plans with associated hydrologic modeling for a variety of aquatic habitat restoration and enhancement projects. Listed project includes freshwater lakes, rivers and streams, forested, non-forested and ephemeral wetlands, marine systems, and bays, estuaries and other wetland or upland areas. Project activities include, but are not limited to, lake drawdowns and accumulated sediment removal; stream-course restorations; weir, berm and dam construction; hydraulic and mechanical dredging; pumping; excavation; bank stabilization; living shorelines establishment, oyster reef and coral restoration, aquatic vegetation planting and ecological/hydrologic restoration to return areas to a more historic hydroperiod.

**FWC, Babcock Webb Bond Farms Threatened and Endangered Species Preconstruction, Charlotte, FL.** Lead Field Scientist responsible for vegetation surveys and piezometer construction install and routine downloading. ESA is conducting preconstruction services necessary to stay in compliance with environmental permits. ESA is obtaining permit modification extensions for two expiring permits, performing water monitoring sampling as specified in permit conditions of the FDEP ERP Permit, and conducting preconstruction listed species surveys for caracaras, bald eagles, sandhill cranes, state-listed wading birds, least tern and shorebirds,



## MICHAEL PONIATOWSKI (CONTINUED)

nesting cavities for red-cockaded woodpecker, Florida bonneted bat; and gopher tortoise burrow surveys, within the approximately 650-acre Bond Farm property.

**Manatee County, Duette Preserve FDOT Mitigation Compliance, Manatee County, FL.** Lead Field Scientist responsible for mitigation monitoring. The project team conducted site assessments to support the restoration design. These assessments included jurisdictional wetland delineations, habitat assessments, hydrology assessment, soil assessment, and species surveys. Other tasks included the assessment of adjacent preserve lands to identify target habitat types and determine the hydrologic influence from the adjacent lands. The assessments were used to prepare the restoration design, to acquire Southwest Florida Water Management District and U.S. Army Corps of Engineers permits for the construction of the mitigation project, and to document the quantity of wetland credits created by the project. The firm provided ecological construction observation services that included design adjustments to account for unfavorable soil conditions in some areas, coordination with the contractor to preserve existing mature trees, review of wetland grading, and review/acceptance of installed plant materials. Many issues were identified and remedied based on the consultant's feedback during construction. Following construction completion, the team also completed mitigation construction and first-year compliance monitoring, which included semiannual quantitative vegetation monitoring and hydrology assessment. As part of the compliance monitoring, the firm installed, calibrated, and downloaded data from real-time groundwater level monitoring sondes to support compliance monitoring and adaptive management.

**Manatee County, Perico Preserve Mangrove Habitat Restoration, Bradenton, FL.** Field Scientist. Identified issues related to mangrove die off. Installed and maintained water level recorders. This work was conducted with Manatee County staff to establish project goals, determine and document pre-restoration conditions, identify future management methods, conceptualize a restoration project, and develop and permit a large-scale restoration plan. This plan encompasses habitats from coastal scrub to mangroves and includes large-scale direct seeding to establish ground cover and more than 100 species of plants specified to return botanical diversity to this site. Some of the challenges associated with this site included implementing

an overall restoration of the property while accommodating constantly changing uses of the property (including off-site mitigation projects), volunteer planting of a wetland creation area, identifying a potential seagrass mitigation site, and maintaining high standards for the ecological quality of planned upland habitats to be created from relatively low-quality uplands.

**Charlotte County, Charlotte County Ambient Water Monitoring, Punta Gorda, FL.** Project Manager (2026) and Lead Field Scientist (2022–2025). This contract supports Charlotte County in the design and implementation of an ambient water quality monitoring program. The intent of the monitoring program is water quality monitoring, water sample collection, and laboratory analytical services to support the submission of data to the Florida Department of Environmental Protection (FDEP) Watershed Information Network as an effort to meet data sufficiency requirements for impaired surface water evaluations and total maximum daily load (TMDL) development. Specifically, ESA completes field sampling and data collection; coordinates laboratory analyses, data reduction, qualification, and management; performs data formatting and reporting; and performs other activities required for initiation and continued implementation of the County's ambient water quality monitoring program. As part of this effort, Mike coordinates the collection and documentation of surface water samples within the Mid, West, and East municipal stormwater business units.

**Charlotte County, Charlotte County Ian Response, Punta Gorda, FL.** Field Scientist for Charlotte Harbor water quality sampling, rapid response field sampling. ESA provided monthly water quality profile and grab sample collection, lab analyses, data quality assurance/quality control, and uploaded to state WIN database at 92+/- locations in Charlotte County, Florida. ESA also provided as-needed special study or response-driven water quality sampling.

**Charlotte County, Sunshine Lake Water Quality – TWO 3 – 2022–2023, Tampa, FL.** Field Scientist. Mike assists in the collection, analysis, and interpretation of water quality and benthic sampling efforts used to characterize the waterbody and watershed-derived inputs.



## Anthony Tricarico, PH.D., RPA ARCHAEOLOGICAL INVESTIGATION

Anthony is a Senior Archaeologist and Cultural Resource Coordinator at Ardurra, where he manages the Cultural Resource Management (CRM) Group. He has eleven years of experience managing and delivering cultural resource projects across North America, the Caribbean, and Europe within both cultural resource management and academia. Anthony previously served as Office Principal for an international CRM firm, where he developed the Southeast region proposal team and oversaw the growth of the Tampa Bay and Caribbean markets. Anthony specializes in assisting clients navigate federal, state, and local cultural resources laws and regulations and has assisted clients across the preservation, transportation, land development, telecommunications, renewable energy, and transmission sectors. He has demonstrated subject matter expertise in Section 106 of the National Historic Preservation Act and Chapter 267, Florida Statutes. Throughout his career, Anthony has served as principal investigator overseeing the development of scopes and budgets, fieldwork, and deliverables for cultural resource compliance projects. Dr. Tricarico excels at conducting effective consultations with Local, State, and Federal agencies.



**EDUCATION**

Doctor of Philosophy in Applied Anthropology, University of South Florida, 2019

Master of Arts in Anthropology, University of Central Florida, 2015

Bachelor of Science in Evolutionary Anthropology, Rutgers University, 2013

Bachelor of Arts in History, Rutgers University, 2013

**CERTIFICATIONS/REGISTRATIONS/TRAINING/AFFILIATIONS**

Register of Professional Archaeologists (RPA), 4726

**YEARS OF RELEVANT EXPERIENCE**  
11 years

### RELEVANT EXPERIENCE

**Rhythm Residential Development Phase I Survey, DeKalb County, Georgia.** Senior Archaeologist and Project Manager. Dr. Tricarico served as the Senior Archaeologist and project manager for this Phase I Cultural Resource Survey (CRS) on behalf of a proposed residential development in Doraville, DeKalb County, Georgia. The intent of this CRAS was to identify and document any cultural resources within the project Area of Potential Effects (APE), evaluate them for listing in the National Register of Historic Places (NRHP), and assess project effects to significant resources, if present. As a result of the CRS, seven previously unrecorded historic structures were identified within the project APE. Ardurra recommended that all of the resources be determined eligible for listing in the NRHP and found that the project undertaking would have an adverse effect on the seven structures.

**City of Lakeland Historic Resources Survey, Polk County, Florida.** Project Manager and Subject Matter Expert. The purpose of this on-going project is to prepare a historic resources survey of approximately 1,342 historic resources within the Munn Park and Dixieland Historic Districts within the City of Lakeland. This project is a component of a larger effort by the City to resurvey all resources across their seven historic districts. The intent of the survey is to reassess buildings considered contributing and noncontributing to the districts at the time of the original surveys (1993 and 1979/1997, respectively) due to either their age or condition, as well as record buildings that have since come of historic age. The results of the historic resources survey will be utilized by the City of Lakeland as an important component of their comprehensive community planning efforts.

**FDOT District Three Cultural Resources Districtwide Support Contract.** Principal Investigator. Dr. Tricarico serves as a Principal Investigator on this three-year districtwide on-call contract to provide cultural resource services to District Three. The District encompasses 16 counties and 11,500 square miles between Escambia and Jefferson Counties, FL. Dr. Tricarico is also responsible for providing support to the Contract Manager, Matt Marino who is responsible for contract and budget management, scoping, establishing processes and standard operating procedures, reviewing project engineering plans to determine levels of effort, client communication, responding to proposal requests, meeting fieldwork standards, reporting, quality control, and DHR/SHPO approval of all projects and reviews.

**Southside and Cannon Parcels Phase I Survey, Mobile County, Alabama.** Senior Archaeologist and Project Manager. Dr. Tricarico served as the Senior Archaeologist and project manager for this Phase I CRS in Theodore, Mobile County, Alabama. The client proposed to enhance wildlife habitat across 1,099 acres by removing exotic vegetation and restoring historic wetland hydrology. The intent of this CRS was to identify and document any cultural resources within the project APE, evaluate them for listing in the NRHP, and assess project effects to significant resources, if present. As a result of the CRS Ardurra identified one previously unrecorded structure. The Ranch-style structure was recommended ineligible for listing in the NRHP. Ardurra recommended that the proposed project undertaking would result in no historic properties affected.



## ANTHONY TRICARICO, PH.D., RPA (CONTINUED)

**Mixon Farms Phase I Survey, Manatee County, Florida.** Senior Archaeologist and Project Manager. Dr. Tricarico served as the Senior Archaeologist and project manager for this Phase I CRAS on behalf of a proposed residential development within Bradenton, Manatee County, Florida. The intent of this CRAS was to identify and document any cultural resources within the project APE, evaluate them for listing in the NRHP, and assess project effects to significant resources, if present. As a result of the CRAS, Ardurra identified one previously unrecorded structure (8MA02652). The Masonry Vernacular style building was recommended ineligible for listing in the NRHP. Ardurra recommended that the proposed project undertaking would result in no historic properties affected.

**Alachua Solar Phase I Survey, Alachua County, Florida.** Senior Archaeologist and Project Manager. Dr. Tricarico served as the Senior Archaeologist and project manager for this Phase I CRAS on behalf of a proposed solar development project in Alachua County, Florida. The intent of this CRAS was to identify and document any cultural resources within the project APE, evaluate them for listing in the NRHP, and assess project effects to significant resources, if present. As a result of the CRAS, Ardurra identified two previously recorded archaeological sites (8AL07596 and 8AL07597). Site 8AL07596 was recommended as ineligible for the NRHP, while site 8AL07597 was recommended as insufficient information. Overall, Ardurra recommended that the proposed undertaking will result in no adverse effect to historic properties. The Florida DHR concurred with this recommendation in January 2025.

**Suwannee River State Park Phase I Survey, Suwannee County, Florida.** Senior Archaeologist. Dr. Tricarico served as the Senior Archaeologist for this Phase I CRAS within the Suwannee River State Park in Suwannee County, Florida. The intent of this CRAS was to identify and document any cultural resources within the project APE, evaluate them for listing in the NRHP, and assess project effects to significant resources, if present. As a result of the CRAS, two previously recorded archaeological sites (8SU00199 and 8SU00355) and three previously recorded historic structures (8SU00410, 8SU00411, and 8SU00414) were reidentified. None of these resources were recommended as individually eligible for the NRHP. Ardurra recommended that the proposed project undertaking would result in no adverse effect to historic properties within the project APE. The Florida DHR concurred with this recommendation in November 2024.

**Wabasso Causeway Hydrologic Survey, Indian River County, FDOT District Four.** Project Manager and Subject Matter Expert. The purpose of this project was to restore the hydrologic connection under both tidal relief channels along Wabasso Causeway (SR 510), as well as install a living shoreline to stabilize areas where mangroves had been previously removed. Dr. Tricarico served as the project manager and client lead during the preparation of the supporting Phase I CRAS. The intent of this CRAS was to identify and document any cultural resources within the project APE, evaluate them for listing in the NRHP, and assess project effects to significant resources, if present.

**Holopaw Solar Phase I Survey, Suwannee County, Florida.** Senior Archaeologist and Project Manager. Dr. Tricarico served as the Senior Archaeologist and project manager for this Phase I CRAS on behalf of a proposed solar development project in Palm Beach County, Florida. The intent of this CRAS was to identify and document any cultural resources within the project APE, evaluate them for listing in the NRHP, and assess project effects to significant resources, if present. As a result of the CRAS, one historic resource group (8PB19577) and two associated historic structures (8PB19559 and 8PB19560) were identified within the project APE. All three identified historic resources were recommended as ineligible for the NRHP. Overall, the CRAS recommended that the proposed undertaking would have no effect on resources listed or eligible for listing in the NRHP. The Florida DHR concurred with this recommendation in March 2023.

**Tarpon Center Drive Resiliency Project, Sarasota County, Florida.** Project Manager and Subject Matter Expert. The purpose of this project was to monitor all-ground disturbing activities associated with the replacement of 370 linear feet of seawall, as well as utility relocations, within the boundaries of the Venice Beach (8SO00026) archaeological site in Venice, Sarasota County, Florida. As a result of monitoring, Ardurra reidentified the Venice Beach (8SO00026) archaeological site. However, it was recommended that the project had no effect on the site or other cultural resources listed or eligible for listing in the National Register of Historic Place (NRHP).



## Douglas Dunkelberger, PE

### SENIOR GEOTECHNICAL ENGINEER

Since receiving a master's degree in civil engineering (Soil Mechanics) in 1979, Doug has specialized in the practice of geotechnical engineering progressing from staff level to senior project management level responsibilities for studies pertaining to subsurface characterization, foundation design, slope stability, ground settlement / subsidence, embankment design, earthworks, pavement design, seepage / dewatering, and geosynthetics.

Doug provides 47 years of experience in the role of chief geotechnical engineer for water resource-related projects, planning and coordinating field exploration efforts and laboratory soils testing programs. He has had hands-on involvement with the geotechnical engineering analysis pertaining to embankment stability, geosynthetic-reinforcement of levees atop soft ground, shallow and deep-seated seepage analyses in the Everglades Agricultural Area (EAA), mass earthwork planning for large-scale impoundment projects, and blasting (seismic) evaluations related to excavation of hard limestone. His knowledge of local subsurface conditions has been formed through more than 40 years of engineering practice in Florida.

#### FIRM



#### EDUCATION

M.S., Geotechnical Engineering, UF, 1979  
B.S., Civil Engineering, University of Florida (UF), 1977

#### CERTIFICATIONS/

#### REGISTRATIONS/TRAINING/

#### AFFILIATIONS

Professional Engineer, Florida #33317

#### YEARS OF RELEVANT

#### EXPERIENCE

47 years

#### RELEVANT EXPERIENCE

**STA-2, Palm Beach County, FL.** Principal Engineer for the surface water impoundment project that involved miles of levee (earthen embankment), pump stations, and multiple culverts. Implemented field use of the vane-shear test (VST) to measure strength of surficial organic (peat) deposits to evaluate geo grid reinforcement options for the overlying embankment. Earthwork planning efforts addressed blasting, thick-lift construction, and nesting of over-size materials in earth fills. Monitored a large-scale, field test to estimate deep-seated seepage flows and compare with published (USACE) data.

**G-311 Control Structure, STA 1 East (STA-1E), Palm Beach County, FL.** Principal. This project involved subsurface exploration, laboratory soils testing, and geotechnical engineering analysis for a gated control structure to be constructed on the western fringe of STA-1E. The firm's work involved the mobilization of track-mounted drilling equipment to the site, exploratory borings and field permeability tests, measurement of the shear strength of the in-situ muck, laboratory testing of samples from the borings, and development of a design memorandum for structure support, excavations, backfill, lateral earth pressures, blasting, sheet piles, and embankments.

**Taylor Creek Reservoir Improvements, Orange and Osceola Counties, FL.** Principal Engineer. Provided engineering site reconnaissance, subsurface exploration, piezometer installation, field permeability testing, laboratory testing, embankment seepage and stability modeling for the project which consisted of an evaluation of the existing reservoir embankment and its integrity when subjected to existing permitted reservoir pool elevations as well as for potential increased pool elevations.

**C-43 West Storage Reservoir Project, Hendry County, FL** Principal Engineer. The reservoir project was designed to regulate flows along the Caloosahatchee River (C-43 Canal) to protect the downstream coastal estuaries from the effects of high freshwater discharges from Lake Okeechobee and to limit potential for saltwater intrusion during periods of drought or low flows in the C-43 Canal. A perimeter earthen dam was planned to be constructed to contain the water. The firm completed the subsurface exploration, laboratory testing, and geotechnical engineering analysis and design for the perimeter dam.

## DOUGLAS DUNKELBERGER, PE (CONTINUED)

**Central Everglades Planning Project (CEPP) New Water Everglades Agricultural Area Stormwater Treatment Area (EAA-STA-A-2), Palm Beach County, FL.** Principal Engineer/APR/Quality Reviewer. The CEPP New Water EAA-STA-A-2 consists of approximately 6,500 acres of STA as part of the Tentative Selected Plan (TSP) for the EAA Storage Reservoir and Treatment Wetland project. Geotechnical engineering services are needed during the preliminary design phase of the project. Terracon provided geotechnical engineering design work. The firm participated with the Brown and Caldwell Team in the design of the typical levee section and Inflow/Outflow Canal. Terracon provided a geotechnical design report for the levees, Inflow/Outflow Canal, and associated structures.

**PRECO Pole Encroachment, Levee L-78, Indian River County, FL.** Principal Engineer/APR/Quality Reviewer. The project consisted of 3 miles of power line poles which were installed adjacent or on the embankment of Levee L-79. The USACE and St. Johns River Water Management District (SJRWMD), which own and maintain the levee, requested that a geotechnical engineer be retained to evaluate the as-built poles to confirm they were installed to the proper embedments. This was critical to the USACE as fallen poles may damage the levee during severe weather. The scope of work included subsurface exploration using a low-profile drill rig to reduce surface disturbance to the levee and avoid overhead powerlines. Geotechnical information was provided to the client to assist in the analysis of the as-built poles.

**Peace River Reservoir #2, Desoto County, Florida** Senior Geotechnical Engineer. The project involved Quality control (QC) inspection and testing of various components of a new upland reservoir near the existing Peace River Reservoir #1. The project increased the existing stored raw water from the Peace River by an additional six billion gallons. The reservoir involved 3.65 million CY of dam embankment that ranges from 34.5 to 38.5 feet high with a perimeter length of 3.75 miles.

**Dona Bay Conveyance Improvements, Sarasota County, Florida.** Senior Geotechnical Engineer. The project involved construction quality assurance (QA) and geotechnical engineering support for the Construction Engineering Inspection (CEI) team. This project includes stormwater attenuation, wetland rehydration to reduce pollutant loading and improve water quality in the downstream estuary and Dona Bay. The project included the construction of a stormwater storage facility requiring over 1.7 million cubic yards of earthmoving, construction of stormwater control structures and associated pipes, large scale dewatering and soil management activities, and demolition of an existing stormwater structure.

**SFWMD C-25 Reservoir and Stormwater Treatment Area (STA), St. Lucie County, FL** Principal Engineer/Quality Assurance/Quality Control (QA/QC) Reviewer. The planned project will consist of a reservoir and STA within an approximately 1,600-acre site. The project will include a 647-acre, 4 to 6-foot normal pool depth, 5,176-acre-feet-storage aboveground reservoir, and a 142-acre, 2-foot normal pool depth, 284-acre-feet-storage STA. A Terracon senior geotechnical engineer is managing the project, which will include geotechnical evaluation of the planned perimeter earth dam and interior levees and canals (including evaluation of seepage, stability, and dam/levee settlement). Preliminary evaluations by Terracon included estimates of settlement and bearing capacity and development of lateral earth pressure parameters for water control structures. Terracon will help the design team evaluate and develop erosion protection for the embankments/levees as well as the perimeter dam's internal seepage control features. Fieldwork included the drilling of Standard Penetration Test (SPT) borings to depths of 124 feet below grade as well as the installation of monitoring wells at different depths across the site to assess the groundwater elevation and for performing permeability testing of the different soil strata. Laboratory testing for evaluation of material permeability was also completed.



# Brett Solomon

## SENIOR ENVIRONMENTAL SCIENTIST

Brett Solomon is a project manager responsible for managing all aspects of environmental and natural resource permitting including preparation of local municipality/county environmental documents, Statewide Environmental Resource Permit (SWERP), U.S. Army Corps of Engineers (USACE) Section 404 Clean Water Act applications, and state and federal listed species permitting. Brett has managed permitting and construction of restoration, roadways, and residential/commercial development projects. He has authored numerous implementations, monitoring, and long-term management plans for restoration and mitigation lands, as well as technical reports in support of local, State of Florida, and federal permit applications. Brett has analyzed numerous freshwater and saltwater wetlands, bays, and nearshore impact and mitigation/restoration areas, pursuant to the State of Florida and USACE Uniform Mitigation Assessment Method (UMAM) and Wetland Rapid Assessment Procedure (WRAP). He has expertise in submerged aquatic vegetation (SAV) and coral identification and mapping, marine invertebrate identification, environmental constraints analysis of parcels, wetland delineations, protected habitat mapping, hydric soils determinations, threatened and endangered wildlife permitting, and mitigation and restoration design.



### EDUCATION

MS, Marine Ecology,  
 Florida Atlantic  
 University, 1999

BS, Marine Biology,  
 Florida Atlantic  
 University, 1997

### AREAS OF SPECIALIZATION

- Ecological Analyses
- Federal/State/Local Permitting
- Habitat Assessments
- Interagency Negotiations
- Natural Resource Management Plans
- Restoration/Mitigation Design
- State of Florida and USACE Wetland Delineation
- State/Federal Listed Species Surveys

### YEARS OF RELEVANT EXPERIENCE

24 years

### RELEVANT EXPERIENCE

**Florida Fish and Wildlife Conservation Commission (FWC), Babcock Webb Bond Farms Threatened and Endangered Species Preconstruction, Charlotte County, FL.** Deputy Project Manager/Field Scientist responsible for project management, leading species compliance surveys and permitting of this 650+ AC hydrologic enhancement reservoir project. ESA provided preconstruction wildlife surveys in accordance with state and federal permit conditions. Species-specific surveys included red-cockaded woodpecker, bald eagle, gopher tortoise, Everglade snail kite, sandhill crane, crested caracara, Florida bonneted bat, protected wading and shoreline birds, and Southeastern American kestrel.

**FWC, Bond Farm Hydrological Enhancement Impoundment Project – Zimmel Tract Redesign Support, Charlotte County, FL.** Project Manager for Zimmel Tract Redesign. The ESA Team provided regulatory and redesign support for the Bond Farm HEI Restoration project to incorporate the exclusion of identified parcel. Redesign of the exterior berm and southwest outfall structure was necessary to remove the project footprint from the 0.70-acre Zimmel tract, which FWC was not able to acquire. Reconfiguration of the berm and outfall modified the design in a manner consistent with the intent of the project, allowing construction to proceed on lands controlled by FWC.

**FWC, TM Goodwin-Dock ADA Improvements – 7601.006, Fellsmere, FL.** Project Manager responsible for FDEP and USACE dock permitting.

**Charlotte County, Burnt Store Water Reclamation Facility (WRF) Expansion, Punta Gorda, FL.** Project Manager. Brett functioned as both project manager and lead permitting coordinator, overseeing complex regulatory processes. Charlotte County Government is proposing an expansion of their existing water treatment facility immediately east of Burnt Store Road. As project manager, Brett managed and directed negotiations with state, federal, and local agencies to secure approvals, ensuring compliance and advancing project objectives. As lead permitting coordinator, he led all natural resources components of State of Florida and federal permitting—listed species surveys including gopher tortoise, Florida bonneted bat, red-cockaded woodpecker, bald eagle nests, and rare plants—and served as the lead permitter for FDEP ERP and State 404 permit.

## BRETT SOLOMON (CONTINUED)

**Charlotte County, FBB and RCW Species Surveys, Punta Gorda, FL.** Project Manager responsible for leading environmental permitting and listed species compliance for ERP and State 404 applications, including GIS updates from design CAD files, scope and contract management, preparation and QC of technical memoranda and reports, and execution of RCW, FBB, and listed plant surveys with associated data analysis. Directed coordination with FDEP, FWC, FWS, USACE, mitigation banks, engineers, and geotechnical teams to address RAIs, develop biological assessments and BO support, finalize mitigation documentation, and advance permits through agency approval.

**Florida Department of Environmental Protection (FDEP), South District, Rookery Bay National Estuarine Research Reserve (RBNERR) – Henderson Creek Flatwoods & Low-Water Crossing Hydrologic Enhancement Project, Collier County, FL.** Project Analyst/Lead Permitter. FDEP proposes hydrologic habitat restoration within the RBNERR. Improvements include roadway removal, replacement, or repair of multiple undersized or damaged low-water crossings, addition of new hydrologic connections, and estuarine/essential fish habitat restoration design. Brett has led all State of Florida and federal wetland delineations, habitat type and quality evaluations, and listed species surveys. He will be one of the lead permitters for all State of Florida and federal environmental resource and listed species permit applications.

**Long Bar Pointe Mitigation Bank, Manatee County, FL.** Senior Scientist. This project is for the permitting and implementation of 263-acre private mitigation bank within the Southern Coastal and Manatee River/Lower Tampa Bay Watersheds. The mitigation bank consists of owned submerged lands supporting seagrass beds and oyster reefs, as well as mangroves swamps, salt tern, freshwater wetlands and uplands dominated by Brazilian pepper, and maritime upland hammock. Brett completed all habitat mapping, conducted listed species surveys, and documented a potentially new bald eagle nest.

Brett was the project manager and one of the lead permitters that prepared all technical report, UMAM analyses, and conducted field reviews and conference calls with FDEP. Brett was also one of the coauthors for the prospectus submitted to the USACE Inter-agency Review Team (IRT) for the federal mitigation bank application process. The Long Bar Pointe Mitigation Bank would be the first private mitigation bank permitted in the Southern Coastal Watershed.

**Flatwoods & Low-Water Crossing Hydrologic Enhancement Project, Collier County, FL.** Project Analyst/Lead Permitter. FDEP proposes hydrologic habitat restoration within the RBNERR. Improvements include roadway removal, replacement, or repair of multiple undersized or damaged low-water crossings, addition of new hydrologic connections, and estuarine/essential fish habitat restoration design. Brett has led all State of Florida and federal wetland delineations, habitat type and quality evaluations, and listed species surveys. He will be one of the lead permitters for all State of Florida and federal environmental resource and listed species permit applications.

**Coastal and Heartland National Estuary Partnership (CHNEP) Habitat Restoration, Punta Gorda, FL.** Project Analyst. Brett analyzed the Habitat Restoration Needs (HRN) data sources including the State of Florida's historical and current Florida Land Use and Cover Classification System (FLUCCS) coverage for the CHNEP watershed, as well as created pivot tables, and developed formulas to quantitatively determine habitat gain/loss changes within the CHNEP watershed. Brett created tables to summarize significant habitat losses that could then be used as targets for restoration and/or preservation. The HRN will guide habitat conservation, sustainability, resiliency, and connectivity throughout the CHNEP study area.



YEARS OF RELEVANT  
EXPERIENCE  
37 years

## David Dixon

### SENIOR CADD TECHNICIAN

David has several decades of experience in the Civil Engineering field faithfully serving as a senior designer, computer-aided drafting and design technician (CADD), and Geographic Information Systems (GIS) specialist. As a senior designer, he led in the design of facilities projects for various government clients. He has been involved with numerous civil projects as a design technician for both public and private clients. David has performed mapping projects involving the collection and assimilation of GPS and survey data, creation of GIS data links using various database types, and production of clear and concise graphic and data outputs. David is also a computer software applications specialist and is experienced with using many engineering and GIS software programs including those developed by Autodesk, Bentley, and ESRI.

#### RELEVANT EXPERIENCE

**Istokpoga Marsh Watershed Improvement District, Highlands County, FL.** Senior Civil Designer/GIS Analyst. Mr. Dixon produced a full set of construction drawings using AutoCAD Civil 3D 2014 software including demolition; impacted soils and borrow plan; embankment layout; grading and drainage plans with design sections and profiles; and pump station plans, sections, and details. The project consists of constructing an above-ground impoundment on an approximate 300-acre site to reduce the volume and total phosphorus loading of water discharged from Lake Istokpoga and the local watershed to the South Florida Water Management District (SFWMD) C-41 canal and Lake Okeechobee.

**Bond Farm Redesign, South Florida Water Management District, Charlotte County, FL.** Senior CADD Technician. This project is the redesign of the Bond Farm Hydrologic Impoundment project, which was designed by HDR. The redesign involves adjusting the alignment of the proposed embankment to ensure it doesn't encroach on adjacent property since the client was unable to acquire the property rights it sought during the original design. The redesign also involved shifting the embankment alignment and culvert. Todd was the Project Manager and Civil Design Lead for this project. Duties included coordination with design team and disciplines, project management and client communications.

**PR3 Wetland Mitigation Delineation & Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Senior CADD Technician. HDR with the assistance of subconsultants, will delineate the wetlands of the south pasture, sand pit, and north pasture. Wetland flagging will be used to label and demarcate wetland boundaries. A handheld Trimble GeoXT 6000 GPS will be used to support wetland data collection for quality.

**Sunrise Sod Wetland Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Senior CADD Technician. The WRPO developed a plan of how the approximately 323-acre wetland reserve easement (WRE) area will be returned, to the greatest extent possible, to its historic, natural ecological condition which existed prior to agricultural manipulation of the site. Restoration of wetland functions and values will emphasize improving habitat for wetland dependent wildlife. All work was planned and designed to meet restoration goals with no adverse impacts to cultural resources, historic properties, state and federal protected species, off-site properties, and other special environmental concerns.

**Highlands Ranch Wetlands Reserve Plan of Operations (WRPO) and Design, Natural Resources Conservation Service, FL.** Senior CADD Technician. The purpose of this WRPO was to develop a plan of how the 682-acre WRE easement area will be returned to its historic, natural ecological condition that existed before agricultural manipulation of the site. The project identified how wetland functions will be restored, enhanced, protected, and managed.

**T P 608 Wetlands Mitigation, NAVFAC Pacific, Guam.** Senior CADD Technician. This Technical Proposal describes the HDR Team's proposed approach for preparing wetland mitigation concept reports to address Executive Order (EO) 11990 wetland mitigation requirements within the P-608 Project site and at alternate sites within Naval Base Guam (NBG).



## DAVID DIXON (CONTINUED)

**101 Ranch Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** Senior CADD Technician. HDR has been selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 584-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

**Seventy Grove Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, FL.** Senior CADD Technician. HDR was selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 293-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.

**C-44 Reservoir and Stormwater Treatment Area (STA), South Florida Water Management District, Indiantown, FL.** Senior CADD Technician. The C-44 Project is one component of the Indian River Lagoon South Project which will attenuate flows and improve the quality of the Southern Indian River Lagoon. HDR's role, which began in late 2004, has included developing the project from site evaluation to the basis of design, as well as the detailed design and specifications (1,000 plan sheets and 2,000 pages of specifications), which was initially completed in 2007. Efforts included developing the site characterization to determine in-situ soil and groundwater conditions of the site for constructability and operations concerns, as well as analysis and design of the reservoir and STA embankments. Development of multiple plans and specifications packages for bidding and construction, as well as the development of engineering opinion of probable construction costs.

**Peace River Reservoir No. 3 Preliminary Design, Peace River Manasota Regional Supply Authority (PRMRWSA), Arcadia, FL.** Senior CADD Technician. The Peace River Manasota Regional Water Supply Authority retained HDR Engineering, Inc. to provide the preliminary design of and permitting for a new, third reservoir (Reservoir No. 3) and associated infrastructure on the RV Griffin Reserve (Reserve) and Peace River Water Treatment Facility (PRWTF), including a new river water intake and pump station on the Peace River, raw water transmission main to the new and existing reservoir system, and new reservoir pump station. The reservoir will consist of a 5-milelong earthen above ground reservoir that will store 9 billion gallons of raw water. The two pumping stations are designed with an interim capacity of 158 mgd and 112 mgd. These new facilities will be connected by nearly 6 miles of new large diameter steel pipelines.

**Russakis Ranch Wetland Reserve Easements Plan of Operations and Design, Natural Resources Conservation Service, Okeechobee, FL.** Senior CADD Technician. HDR was selected to develop and prepare a final Wetland Reserve Plan of Operations (WRPO) that provides for cost-effective restoration enhancement management and maintenance of the 474-acre easement area while maximizing natural wildlife benefits and wetland functions and values; and prepare an engineering design with final engineering plans and specifications.



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PERSONS OR ENTITIES INTERESTED IN  
THE PROPOSALS AS PRINCIPALS

## CERTIFICATE

The undersigned hereby certifies that she is the Assistant Secretary of HDR Engineering, Inc., a Nebraska corporation (the "Corporation"), and that, as such, has custody of the minute books of the Corporation, and that, by Consent and Agreement of the Board of Directors, the following resolution was unanimously adopted:

1. **"RESOLVED**, that effective immediately, and until termination of said individual from the Corporation, or until rescission by the Corporation's Board of Directors, whichever occurs first, the following individuals are hereby granted the nondelegable authority to execute or approve on behalf of the Corporation, contracts, amendments or change orders for engineering services and architectural services incidental to engineering services to be rendered by the Corporation, . . . , or releases of claim or lien in connection with such services, such contracts, amendments, change orders or releases so executed or approved shall be binding upon the Corporation:

. . . Jennifer E. Hunt – Executive Vice President . . .  
. . . Patrick P. Hickox – Senior Vice President . . .  
. . . Eli R. Khoury – Senior Vice President . . .  
. . . Harold E. Lewis, Jr. – Senior Vice President . . .  
. . . Maria J. Molina – Senior Vice President . . .  
. . . Jeffrey B. Arms – Vice President . . .  
. . . Melanie E. Fowler – Vice President . . .  
. . . George W. McGregor – Vice President . . .  
. . . Erki Suarez – Vice President . . ."

2. **"RESOLVED**, that the following are elected officers of the Corporation until their successors are elected and qualified:

. . . Jennifer E. Hunt – Executive Vice President . . .  
. . . Robert J. Beduhn – Senior Vice President . . .  
. . . Kevin Delange – Senior Vice President . . .  
. . . Katie E. Duty – Senior Vice President . . .  
. . . Stephen J. Ferrell – Senior Vice President . . .  
. . . Patrick P. Hickox – Senior Vice President . . .  
. . . Eli R. Khoury – Senior Vice President . . .  
. . . Chance V. Lauderdale – Senior Vice President . . .  
. . . Andre E. Lauzier – Senior Vice President . . .  
. . . Harold E. Lewis, Jr. – Senior Vice President . . .  
. . . Maria J. Molina – Senior Vice President . . .  
. . . Jay C. Nagle – Senior Vice President . . .  
. . . Gregory J. Stonehouse – Senior Vice President . . .  
. . . Guillermo J. Suero – Senior Vice President . . .  
. . . Jeffrey B. Arms – Vice President . . .

... Brian A. Blanchard – Vice President ...  
... Kevin M. Burke – Vice President ...  
... Samuel D. Cobb – Vice President ...  
... Ted E. Davidson – Vice President ...  
... Miguel Dieguez – Vice President ...  
... Stephen W. Dortch – Vice President ...  
... Melanie E. Fowler – Vice President ...  
... Mark E. Hall – Vice President ...  
... John M. Hansen – Vice President ...  
... Rhonda S. Hanson – Vice President ...  
... Keith A. Howard – Vice President ...  
... Colin Henderson – Vice President ...  
... Keith A. Howard – Vice President ...  
... John B. Hyre – Vice President ...  
... Javier Manso – Vice President ...  
... George W. McGregor – Vice President ...  
... David A. O’Connor – Vice President ...  
... Kristina M. Price – Vice President ...  
... Juan C. Prieto – Vice President ...  
... Marlin A. Register II – Vice President ...  
... Joshua M. Rodgers – Vice President ...  
... Santanu Roy – Vice President ...  
... Steven J. Schnell – Vice President ...  
... Erki Suarez – Vice President ...  
... Mari C. Albertson Bonbrest – Associate Vice President ...  
... W.D. D. Baldwin – Associate Vice President ...  
... Lisa C. Bell – Associate Vice President ...  
... Michele B. Brennan – Associate Vice President ...  
... Jonathon D. Burchfield – Associate Vice President ...  
... William J. Burke – Associate Vice President ...  
... Jorge I. Camacho Monserrate – Associate Vice President ...  
... Brad B. Collins – Associate Vice President ...  
... Emilio F. Corrales – Associate Vice President ...  
... Raphael C. Costa – Associate Vice President ...  
... Benjamin B. Ellis – Associate Vice President ...  
... Lu Ann Fritz – Associate Vice President ...  
... Heath E. Hardy – Associate Vice President ...  
... Richard J. LeBlanc – Associate Vice President ...  
... Samantha R. Ryan – Associate Vice President ...  
... Daniel S. Suarez – Associate Vice President ...  
... Rick Tavares – Associate Vice President ...  
... David A. Vinson – Associate Vice President ...  
... Matthew T. Wiesenfeld – Associate Vice President ...  
... Leonel A. Zapata – Associate Vice President ...  
... Elizabeth C. Hoffman – Assistant Secretary ...  
... Jill M. Lorkovic – Assistant Secretary ...”

The undersigned further certifies that the foregoing resolution has been spread in full upon the minute books of the Corporation and is in full force and effect.

DATED February 17, 2026.

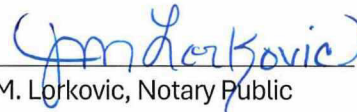


Elizabeth C. Hoffman, Assistant Secretary

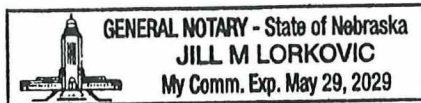
STATE OF NEBRASKA  
COUNTY OF DOUGLAS

On this 17<sup>th</sup> day of February, 2026, before me personally appeared Elizabeth C. Hoffman, known to me to be the person who executed the within instrument as Assistant Secretary of and on behalf of the corporation therein named and acknowledged to me that the corporation executed it.

(NOTARY SEAL)



Jill M. Lorkovic, Notary Public





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**[hdrinc.com](http://hdrinc.com)**

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