



West Virginia Department of Natural Resources

Elk River Boating Access Improvements to Five Boating Access Sites

Solicitation No.

CEOI 0310 DNR1700000006

June 15, 2017

The background of the document is a photograph of a wooden canoe on a blue lake. The canoe is in the foreground, with its bow pointing towards the center of the frame. The water is dark blue with some ripples. In the background, there are green trees and a range of mountains under a clear sky. A large, semi-transparent blue graphic element, resembling a stylized 'C' or a partial circle, is overlaid on the right side of the image.

06/15/17 09:25:23
WV Purchasing Division



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Bid Clerk
Department of Administration
West Virginia
Division of Natural Resources
2019 Washington Street East
Charleston, WV 25305

**Re: Elk River Boating Access-Improvements to Five Boating Access Sites
Solicitation No. CEOI 0310 DNR1700000006**

June 15, 2017

Dear Members of the Selection Committee,

Design and construction of the Elk River Boating Access Sites is an important project to continue West Virginia Division of Natural Resources' (WVDNR) pursuit in providing public access sites throughout the state to its residents. Mott MacDonald is pleased to present our Statement of Qualifications for engineering of the Elk River Boating Access project.

Mott MacDonald is a multi-disciplined engineering, architectural, and surveying firm employing highly qualified staff with many years of experience in marine facility site planning, design, construction management, inspections, and surveying. Our vast project experience ranges from repair/restoration projects to multi-million dollar expansion and greenfield construction projects.

The Mott MacDonald team is ready to work collaboratively with WVDNR's management and operations staff to provide the utmost quality service and deliverable for this project. We commit to WVDNR highly responsive services from our Charleston-based team, backed by national coastal, marine structures, and civil/site experts of Mott MacDonald. We believe that the Mott MacDonald team is the best firm for this project, and we offer you multiple benefits:

- ✓ **Proven local Charleston-based project management team (Gary Facemyer, PE, PS, and Eric Bess, GISP) with extensive experience with West Virginia municipalities and utilities to ensure responsive service and to deliver all project phases on-schedule and on-budget.**
- ✓ **Unmatched team experience and knowledge of boating facility design and construction in a riverine environment.** All of the project examples provided in this Statement of Qualifications were completed by the same team as proposed for this project. Furthermore, our team has working knowledge of important guidelines including State Organization for Boating Access (SOBA) and ADA accessibility.
- ✓ **Hydrodynamics and morphology experts with the capability to model and analyze sedimentation travel and deposits** using our proprietary software in order to identify the ultimate design solutions.
- ✓ **An exceptional history of teamwork and people you can trust.** The Mott MacDonald team has outstanding working relationships with similar clients and on similar projects, including multiple on-call contracts with other state and county agencies to provide boating, park and recreational facility maintenance design.
- ✓ **Strong technical leads fully committed to meeting the design deadlines and who have routinely executed similar projects on-time and on-budget.** Our core team will be supported by other design engineers and professionals who are all committed, excited, and ready to assist promptly to your needs.

In summary, Mott MacDonald understands that it is essential to the success of this project that WVDNR staff select a team with a complete understanding of the project needs, standards, and preferences as well as extensive recent and relevant design expertise. On behalf of our entire team, we thank you for your consideration and look forward to the opportunity to continue building on our successful experience in West Virginia and with WVDNR.

Sincerely,

Mott MacDonald

A handwritten signature in blue ink, appearing to read 'Stephen Polen'.

Stephen Polen, PE
Senior Vice President
412.497.2950
Stephen.polen@mottmac.com

A handwritten signature in blue ink, appearing to read 'Gary Facemyer'.


Gary Facemyer, PE, PS
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	Purchasing Division 2019 Washington Street East Post Office Box 50130 Charleston, WV 25305-0130	State of West Virginia Centralized Expression of Interest 02 – Architect/Engr

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BID RECEIVING LOCATION			
BID CLERK DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION 2019 WASHINGTON ST E CHARLESTON WV 25305 US			

VENDOR	
Vendor Name, Address and Telephone Number: Garry Facemyer, PE Mott MacDonald 201 Pennsylvania Avenue, 4th Floor Charleston, WV 25302-2315 304-356-3010	

FOR INFORMATION CONTACT THE BUYER Guy Nisbet (304) 558-2596 guy.l.nisbet@wv.gov		
Signature X 	FEIN # 16-1006700	DATE 6/13/17
All offers subject to all terms and conditions contained in this solicitation		

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Team qualifications

The Mott MacDonald team proposed includes the very best technical and management staff, all dedicated to the successful delivery of the Elk River Boating Access project. We understand WVDNR's need to select a consultant who will deliver the project on-time, cost-effectively, and with the appropriate level of leadership and guidance. Our team has extensive design and construction experience in marine environments and associated recreational facilities, and have successfully delivered this type of project for state agencies and local municipalities throughout the U.S.

Mott MacDonald's staff and subconsultants have strong technical capabilities as well as a clear understanding of the design, permitting, and construction process for this type of project, which enables this team to efficiently and cost-effectively execute the project to the satisfaction of WVDNR. We look forward to partnering with you to provide creative and reliable measures to install the new boat launch facilities so that the improvements are engineered and constructed to last for the long-term.

Mott MacDonald strongly believes our proposed project manager and client liaison, Eric Bess, GISP, paired with our technical advisors, Lowry Denty, PE, SI and Shane Phillips, PE, and overseen by project director Gary Facemyer, PE, creates the most capable, dedicated, and experienced leadership to deliver these objectives to the WVDNR team. Mr. Bess is a native to West Virginia and has spent considerable energy and effort in assisting local municipalities, utilities, and energy companies on important projects throughout the State. In addition, Mr. Denty and Mr. Phillips have considerable marine structure and boating facility experience throughout the U.S. Therefore, with the Mott MacDonald team, there will be no learning curve. In addition to the leadership team's responsibilities and commitment to WVDNR will be to ensure that Mott MacDonald is dedicating the proper resources needed to complete the project to meet your schedule. The team we've committed in this RFQ will complete the work to your complete satisfaction.



Eric Bess, GISP
Project Manager

- ✓ Dedicated and proven local project manager
- ✓ 15 years of field experience managing large teams
- ✓ GIS expert
- ✓ Local to Charleston, WV



Gary Facemyer, PE, PS
Project Director

- ✓ Has provided permitting, design, and construction services on WV public works projects for over 40 years
- ✓ Located in Charleston, WV



Lowry Denty, PE, SI
QA QC Technical Advisor

- ✓ Over 20 years of experience as a structural engineer
- ✓ Strength in permitting and ADA compliance
- ✓ Construction quality manager for contractors



Shane Phillips, PE
QA QC Technical Advisor

- ✓ Engineer and/or technical advisor on dozens of boating facility projects
- ✓ Coastal engineer with 20+ years of experience



Steven White, PE
Civil Site Engineer

- ✓ Over 20 years' experience with site planning and design
- ✓ Outstanding knowledge of boat launch facilities, parking, and drainage

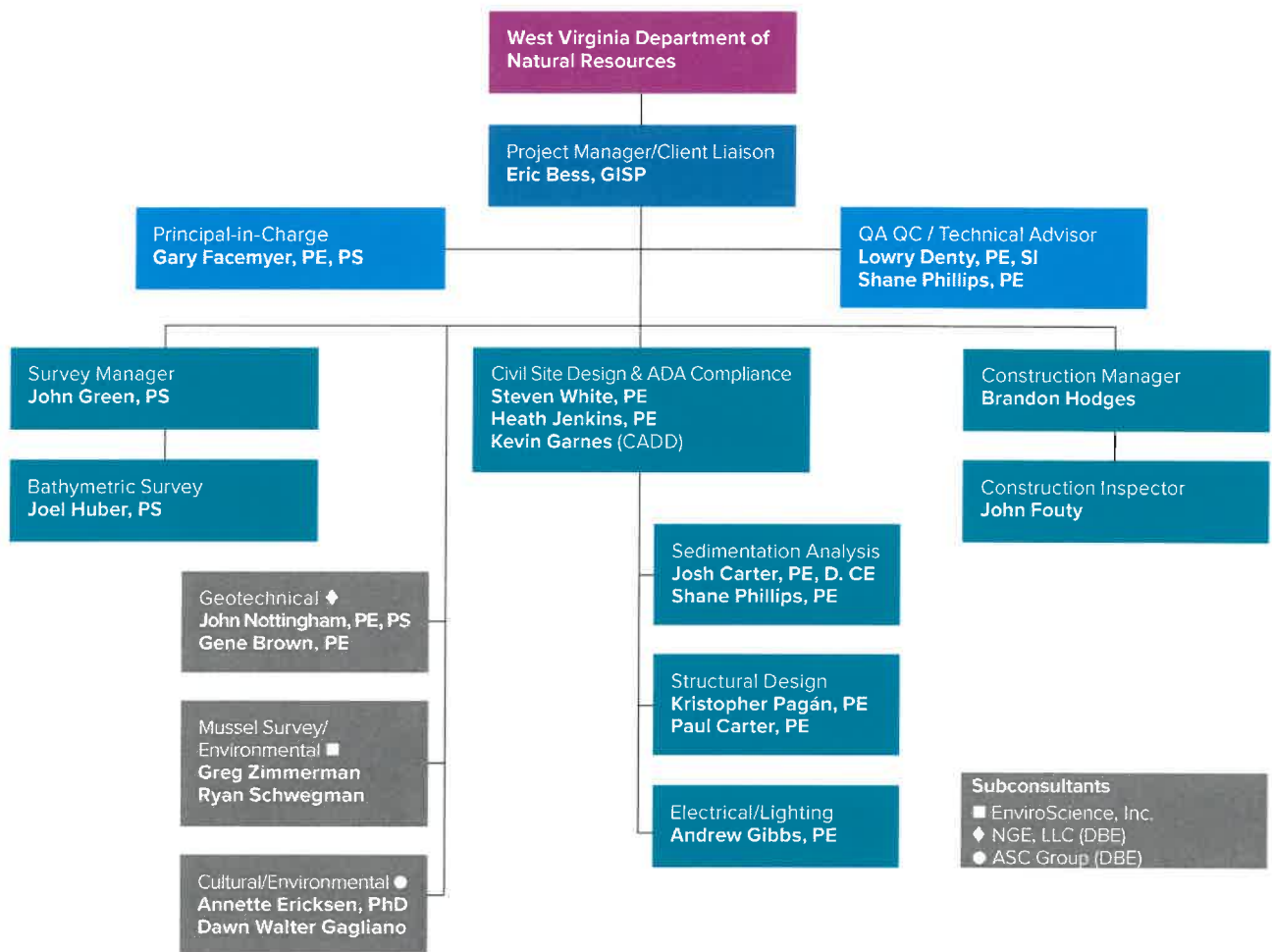


Josh Carter, PE, D.CE
Coastal Process Engineer

- ✓ Riverine and coastal process expert with 15 years' experience
- ✓ Strength in hydrodynamics and morphology of coastal and riverine environments

Team organization

Our team will be led by a Charleston-based senior project director and management and supported by highly experienced national experts in all aspects of marine planning, design, permitting, and construction. Our complete project team is reflected in our organization chart below. Detailed resumes of key staff members are also included.



Subconsultants

Mott MacDonald has carefully selected subconsultants that we have worked with in the past, have a very good professional reputation, and have direct relevant experience. We have also selected subconsultants that are Certified Woman-Owned Disadvantaged Business Enterprise (DBE), which include NGE and ASC Group.

NGE, LLC (DBE) is a full-service geotechnical engineering firm with an office in St. Albans, West Virginia. Led by an experienced management team, NGE provides high quality consulting services to a variety of clients in both private industry and government sectors. Their staff includes professional engineers, geologists, scientists, construction manager, and foreman with experience in a broad range of technical disciplines. The professional staff of NGE has extensive experience in analyzing and evaluating the natural complexities and variabilities present in the subsurface. With in-house drilling and laboratory equipment, NGE has the tools to investigate soil, bedrock, and groundwater conditions and evaluate their effect on a given project. Whether it's foundation bearing capacity, site grading/slope configurations, or retaining wall design, NGE has the resources to obtain and analyze the subsurface data necessary for project completion. NGE is a **Certified DBE/WBE**.

ASC Group, Inc. (ASC) (DBE) specializes in cultural and environmental resources consulting. Their headquarters is in Columbus, Ohio with a regional office in Hurricane, West Virginia. The company is composed of three divisions: Archaeological Services, Historical/Architectural Services, and Ecological and Environmental Services. ASC uses 30 years of experience to provide appropriate solutions to Section 106 and NEPA compliance needs. The ability to achieve environmental compliance, while serving their clients particular project goals is embedded in their methodology. Their professional staff have direct experience with the cultural resources of the project areas and the unique archaeology of large river systems such as the Ohio and Kanawha. ASC is a **Certified DBE/WBE** and currently holds an On-Call agreement with the West Virginia Dept. of Highways.

EnviroScience employs six full time malacologists with well over 100 years of combined experience collecting and identifying freshwater mussels throughout North America. Five of our six malacologists are permitted to work in West Virginia with federally listed species and have completed hundreds of freshwater surveys in West Virginia over the past two decades. EnviroScience also maintains a full time staff of four and a part time staff of ten or more commercial divers who have all been specifically trained in-house to search and locate freshwater mussels. In order to meet the demands of an ever-changing technical and regulatory environment, EnviroScience maintains an inventory and access to state-of-the-art technology and equipment to satisfy the needs of any size project. This includes a fleet of sampling and diving vessels, electrofishing gear for any application, water quality meters, work trailers, GPSs, depth temperature and flow survey equipment, and extensive hardhat, surface-supplied diving equipment, and underwater construction equipment.

Communication, schedule, and budget

Effective communication

Mott MacDonald believes communication is the key to a project's success. Open, frequent communication of project progress, beginning with the design through completion of the construction phase, enables the client to stay engaged and knowledgeable on the projects status and allows for client feedback at critical milestones to avoid duplicated efforts or re-work that can negatively impact a project's budget and/or schedule. At the onset of the project, Mott MacDonald will work with the client to identify the project stakeholders and communication parameters. Meeting agendas, topics, minutes, and action items will be documented and distributed to the stakeholders for review and acceptance to ensure everyone agrees and is unified in the understanding of the meeting topics and action item responsibilities. Any deviation from scope that may arise during the project will be documented and discussed with the client as to the deviation's impact to budget and schedule so the client is aware of these situations immediately.

Design reviews will be conducted at each stage of the design process; schematic design, design development, and construction documents. The schematic design phase will document the development of each project and its major components. This phase will include a project narrative that describes the Owner's goals and objectives; existing conditions; ecological, cultural, and environmental resources; legal/regulatory approvals needed; description of proposed solutions, and basis of design. A site/landscape plan will be developed along with a construction cost estimate and project schedule. Owner will approve the schematic design before progressing on to the design development phase. The design development phase is intended to further develop the project design with greater detail. At this stage, investigations will be made to establish the topographic, bathymetric and boundary information; ecological, cultural, and environmental resources to be protected; and the geotechnical information all needed for the final design. Owner will approve the design development documents before progressing on to the final design phase. The development of final design, construction documents, bidding and contract documents will be reviewed at 30%, 60%, 90% and 100% to keep the Owner engaged throughout the project design.

Upon Owner approval of the bidding and contract documents, Mott MacDonald shall coordinate and cooperate with the Owner and WV Purchasing Division to facilitate the bidding process, including issuance of addenda, if necessary. Upon contract award, Mott MacDonald will provide construction phase engineering services, a full or part-time resident project representative, and material testing services, if requested. Mott MacDonald will attend a pre-construction meeting, if requested. Construction phase services will include material submittal reviews, project site visits, written periodic reports on progress and quality of work, resolve field conflicts, prepare change orders for actual field conditions encountered, recommend approval of progress and final applications for payment and make final recommendations on acceptance of work.

Tools for Efficiency and Working Across Offices

Bentley ProjectWise: Provides a platform for integration and collaboration of remote teams allowing them to function as a single project unit. The ProjectWise system is designed to work with complex linked or referenced engineering, GIS, CAD, and BIM content. The system allows project work to be fully managed and available to project contributors without the traditional delays or format changes that can cause errors and slow production schedules. ProjectWise allows project teams to review, perform quality control, administer redline documents, and manage all project files and content between office locations electronically without the need to ever remove files or content from the system.

Microsoft 365 with Skype: Mott MacDonald invested in a major technology upgrade to our IT systems and bandwidth at all offices over the past 12 months that included the deployment of Microsoft Office 365 communication software. This software, which incorporates Skype and is integrated with Microsoft Outlook, combines contact management, email, telephones, instant messaging and presence technology, video conferencing, and internet-based meetings through laptop and desktop users, plus deployment to all popular mobile devices including iPads and Surface tablets in the field. This technology allows our project manager to know the status of all the team members and be able to contact and coordinate in real-time with everyone, hold impromptu meetings, share files and computer desktops with other Mott MacDonald professionals.

GoToMeeting: GoToMeeting is an online meeting, desktop sharing, and video conferencing software that enables Mott MacDonald to meet with our clients and subconsultants via the Internet in real-time.

BIM: Building Information Modeling (BIM) is an intelligent 3D model-based process that equips architecture, engineering, and construction professionals with the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure. Commonly our engineers will demonstrate their design in BIM to help the Client and Contractor visualize the work and ensure conflicts do not exist.

Ability to meet schedules and budget estimates

WVDNR requires services from qualified consulting firms to provide professional expertise for the various engineering components of the Elk River Boating Access Sites. These services will be identified by WVDNR but likely include master planning, surveying, environmental impact analysis, geotechnical exploration, coastal processes analysis, civil/site design, marine structures design, regulatory permitting, and construction administration. When each task is scheduled, it is the expectation of WVDNR that the A/E Design Team will be suitably staffed and available with experienced professionals who can meet the immediate needs of WVDNR.

This Mott MacDonald team has completed dozens of like projects, including boat launches, waterside recreational parks, and associated roadways, drainage, and lighting. We are also familiar with WVDNR's project delivery requirements and have developed processes and procedures to effectively deliver the required services on time and with a high degree of success. To meet your expectations, Mott MacDonald has assembled a team with the management skills and expertise needed to address this project effectively the identified areas. Each team member brings specific, direct and pertinent experience as well as an in-depth understanding of working with waterside environments for boating and recreational facilities.

The Mott MacDonald Team's plan for conducting and providing the services requested by WVDNR involves both managerial and technical competency and processes. These include:

- An efficient organization structure that is responsive and flexible to client requests
- Experience in management similar boat launch facilities for federal, state, and local governments
- Effective assignment implementation plan
- Unequaled knowledge of the project requirements
- Ability to deliver deadlines
- Meet or exceed the WVDNR's project objectives on time and on budget, within established funding parameters
- Superior technical expertise
- An emphasis on stakeholder consultation and communication
- Maintain comprehensive, in-depth reporting on all elements of an assignment
- Integral quality control / quality assurance plan
- Commitment to delivering value to WVDNR

The elements identified above are addressed herein and in the sections that follow to demonstrate our understanding of this project assignment.



Staffing structure to meet schedules

The Mott MacDonald Team's organizational structure is designed to be flexible and is tailored to be responsive to WVDNR's specific requirements at each unique site location and for each assigned design task. Expert leadership is available in depth for all technical disciplines identified under this solicitation. These resources will be quickly mobilized and assigned to efficiently complete each task and maintain the project schedule. The Mott MacDonald Project Manager will assign the requisite resources for an assignment to control scope, schedule, budgets and perform quality assurance on all project deliverables. This Mott MacDonald team provides the following:

- A team of managers, architects, and engineers who have knowledge of the WVDNR's standards and procedures, and who will apply this knowledge to the project.
- Responsiveness to keep the project on-schedule.
- A project organization that provides dedicated teams for the various tasks to allow for multiple deliverables to be performed simultaneously.
- A compact team that can provide 100% of all A/E/CA services.
- Thorough knowledge of the tasks expected within the project scope.
- A quality control / quality assurance plan that allows review of all deliverables of varying size and complexity.
- Cost estimating and scheduling capabilities that focuses on the unique construction environment at each site location and affords this focus on both a general and detailed level.

It is mandatory that projects be executed in a timely manner, within budget, and delivered seamlessly with no surprises. This will be accomplished with an active risk management program through design and construction and using our proven management and quality assurance techniques. A successful project requires a keen focus and excellent communications to assure smooth and efficient operations. The Mott MacDonald Team realizes effective collaboration with WVDNR's Project Manager will be crucial. Hallmarks for each deliverable will be constructability, safety, security and added-value while minimizing inconvenience to the local residents and traveling public. This Team will endeavor to exceed WVDNR's expectations for sustainability by incorporating a high degree of sustainable design and construction practices.

Our approach to a project's undertakings is to provide ample client review opportunities, so that WVDNR's project management team fully understands the project approach, relevant criteria and sees project progression many times during its development. This affords two-way dialog between the project and client leading to active comment and suggestion incorporation as the project develops. This collaborative effort strengthens initial concepts and leads to comprehensive and well thought out work products.

Effective communication

A critical component of a successful project is to ensure that all participants work to the same plan. This project will include a specific Project Plan of Work (PPW) that is a key part of our project control and quality management system and includes sections on contacts, communication protocols, reporting, task assigned individuals, scope, budget, schedule, work breakdown structure, deliverables and specific project criteria. The PPW will be updated during the course of the assignment to incorporate any changes as necessary. The purpose of the PPW is to ensure that all project participants have a clear understanding of the assignment goals before any work begins and enables Mott MacDonald to best utilize the skills of its staff and identify if any additional resources are required.

Regular internal meetings, monitoring progress and corrective actions, will be held to maintain the schedule, and we will keep WVDNR informed of the status of the assignment to enable WVDNR to maintain control of the decision-making process.

The Mott MacDonald Team Project Manager, Eric Bess, GISP, will be responsible for overall Contract Management, ensuring the team meets its commitments for the project and would be the direct point of contact for assigned tasks. Eric will lead the effort and be supported by the various discipline experts to complete specific work required under the contract. Eric will assure that each task has appropriate levels of support and resources for successful completion of assignments. Eric will communicate regularly with the WVDNR Project Manager to assure work is progressing in a manner that meets or exceeds expectations.

This team approach has worked effectively to manage Mott MacDonald's previous experience with similar projects and has taught us that the availability of qualified technical and support staff is essential to effectively serve clients. Having a diverse breadth of staff both locally and corporate-wide, affords flexibility to assign the appropriate technical staff.

Managing a multi-firm team

Over the years, Mott MacDonald has developed an approach to subconsultant management that has proven successful. This approach is based on lessons learned from previous projects and incorporates the most successful aspects of each. Subconsultant control will be accomplished on a weekly basis, as necessary, with periodical review meetings. The review schedule will depend on the specific area of involvement of the subconsultant. A key component is the development of mutual trust between all project participants and establishing open and honest communication at the outset.

Eric Bess, GISP will develop a task proposal and work plan, based on input from the appropriate discipline specialists and team resources. In accordance with the proposal and schedule, he will also be responsible for the execution of each task assignment for the project.

Implementing proven budgeting and scheduling solutions

The key to on-time and on-budget performance lies in successfully combining the scope/deliverables, budget and schedule, into a Work Breakdown Structure (WBS). However, as we have experienced on previous projects, we must also continuously communicate with WVDNR as the work is executed and collectively agree to adjust scope and schedule as necessary to deal with unanticipated conditions or events. We believe it far more important to deliver the right project rather than meet a schedule but for the wrong project. The WBS is critical to the successful execution of the project as it establishes what is to be done, who is to do it, how / who will check it, when it will be done, and the budget for the work. Mott MacDonald's Business Management System includes policies on project execution and a suite of project control tools Eric Bess will employ to control, responding to each project task with qualified and experienced staff and produce quality work products delivered on time and within budget.

Eric will be responsible for preparing and administering a Project-Specific Project Management Plan. He will use Mott MacDonald's proprietary Project Management Desktop for defining task budgets and real-time tracking of actual costs.

Each task schedule will be updated on a bi-weekly basis and submitted with monthly progress reports to WVDNR. All stakeholders will be kept informed on a timely basis with respect to the current progress, critical activities, potential delays, mitigation strategies, and corrective actions.

Any change to scope will be immediately assessed by the Mott MacDonald team to consider impacts on current and completed work and to determine the most effective way to integrate the additional scope into the current schedule. If schedule problems develop, our Project Manager will coordinate with our team to assess the problem and develop a revised schedule that all team members can buy into and move forward with to meet the project goals.

Mott MacDonald will use appropriate scheduling software (MS Project) to prepare and monitor the approved assignment schedule and resources. Weekly updates will be tracked to indicate adherence to assignment targets and also provide early warning of activities that are not in compliance with the schedule thereby enabling resource, budget, and scope decisions to be made.

All of the projects described in section 2 for our past project experience were completed on-time and on- or under-budget. Our well-defined and regulated internal processes and procedures, paired with a seasoned management team, will ensure that the WVDNR boating facilities project will be a success.

Learn by example

There's no better way to prove these capabilities than with an example of past experience. The following project was lead by the same leadership team, Eric Bess, GISP and Gary Facemyer, PE, PS; is a project that you likely find familiar; and finally one that demonstrates our team's abilities to successfully lead a project where effective communication results in positive project outcomes and client satisfaction. We will apply this same level of care and dedication to the WVDNR Elk River Boating Access project.



Client
WV American Water

Location
Clendenin, WV

Duration
2016-2017

Queen Shoals PSD water main replacement

Mott MacDonald was contacted by WV American Water (WVAW) to assist with a water main replacement in Queen Shoals, WV created by unprecedented flooding in June 2016. This project involved multiple agencies such as FEMA, WVDOH, WVDEP, and was high priority due to the damage extent and subsequent out-of-service status of the water supply to the community.

In June 2016 an unprecedented flood ravaged the community of Clendenin and Queen Shoals, WV. The main water line feeding the community was destroyed along with the access roads and most structures. WVAW quickly installed a temporary line to get the water back in service, but needed a more permanent relocation as a final solution. To address this infrastructure project, WVAW called upon Mott MacDonald for assistance with damage data collection and documentation, relocation design, construction administration, and construction inspection services.

Mott MacDonald was initially engaged to GPS and photo document the infrastructure damage for FEMA reimbursement of the final replacement solution. All data was archived in a standard data structure for transmittal to FEMA upon request. Mott MacDonald then worked closely with the client on design layout, and coordination with other utilities in the damaged area including gas utilities and the WVDOH to coordinate efforts as much as possible to benefit all parties involved. Mott MacDonald also provided inspection and documentation services to the construction effort and handled construction administrative duties such as pay app verification and approval. All inspection documentation was electronically signed daily by the inspector and the construction foremen and stored electronically in the project files for quick access as needed and for archiving purposes.

The resultant infrastructure design and replacement provides the community with a more reliable water supply that is no longer in the recently expanded flood plain. The permanent replacement was completed ahead of schedule, which not only benefited the client but the residents as well due to minimized construction time along their roadways. Coordination efforts with the permitting and WVDOH repairs also minimized duplicated efforts and material costs for road bank restoration.

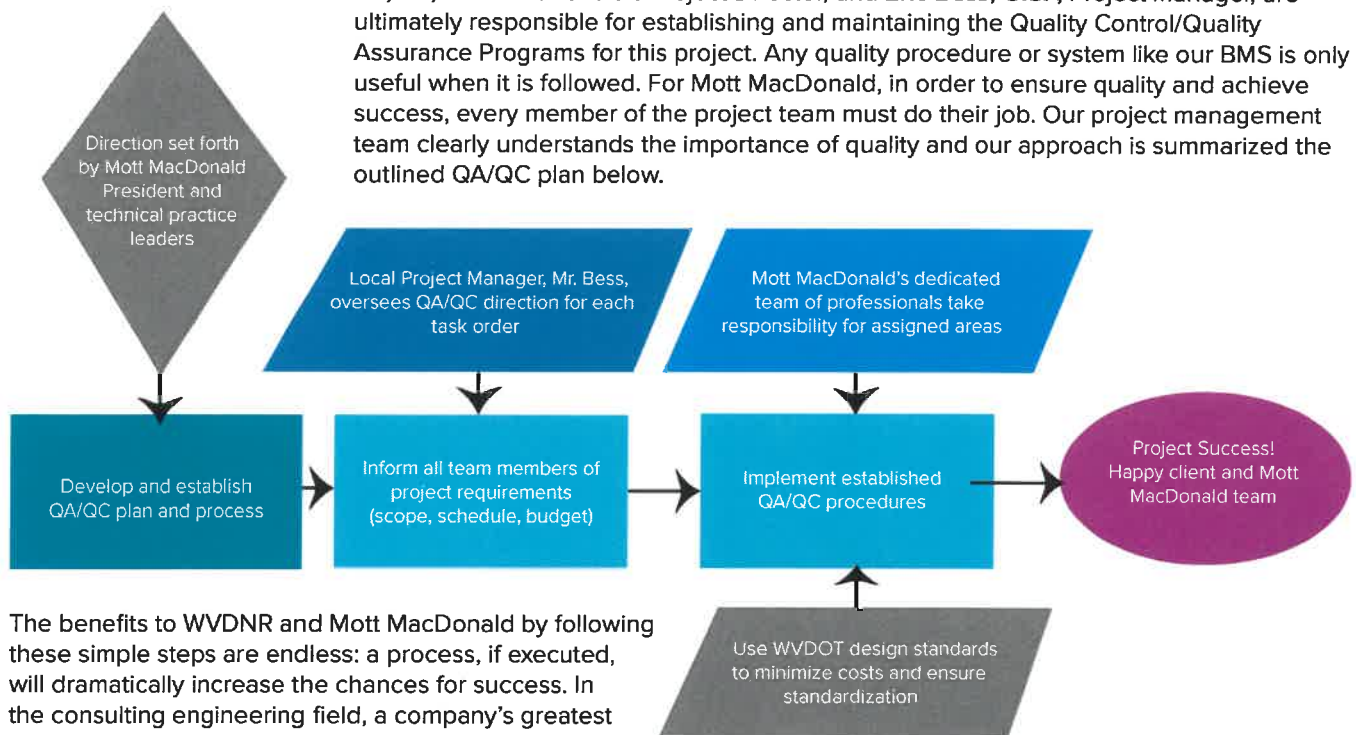
Quality assurance

The Mott MacDonald QA/QC goes beyond checking deliverables prior to submittal. It is a daily work ethic instilled into all of our managers, designers, and technicians.

We understand that WVDNR is making a major capital investment on this five-site construction project. As with any major purchase, buyers want the most for their money. They want quality, durability, reliability, and all for a fair and reasonable price. Regardless of size or scope, it will require close coordination between multidisciplines, designers, and construction personnel under unique site characteristics. The Elk River Boat Launch Access project will require a plan to control quality – a plan that not only addresses quality of the design but also establishes a process to promote quality of conformance, and quality of performance.

Mott MacDonald’s process to quality is based on a well-established process, called our Business Management System (BMS). As a part of our commitment to quality, Mott MacDonald submits our procedures to external assessments carried out by independent nationally accredited assessors. This assures an independent evaluation of our policies and procedures and substantiates Mott MacDonald as an ISO 9001 accredited firm. The ISO 9001 accreditation is an independently verified certification that Mott MacDonald has established a formal Quality-Assurance program and verifies that we actually follow those procedures. We have invested in this certification as a commitment to our clients that quality will be upheld throughout our work product.

Mott MacDonald and the entire project team are committed to providing WVDNR with the highest quality of services for this project. We take the approach that quality control begins even before the Notice to Proceed is issued. It begins once the project manager thoroughly understands the scope of services for the project, and then assigns and dedicates the very best personnel suited to the tasks that are required. **Gary Facemyer, PE, PS**, Mott MacDonald’s Project Director, and **Eric Bess, GISP**, Project Manager, are ultimately responsible for establishing and maintaining the Quality Control/Quality Assurance Programs for this project. Any quality procedure or system like our BMS is only useful when it is followed. For Mott MacDonald, in order to ensure quality and achieve success, every member of the project team must do their job. Our project management team clearly understands the importance of quality and our approach is summarized the outlined QA/QC plan below.



The benefits to WVDNR and Mott MacDonald by following these simple steps are endless: a process, if executed, will dramatically increase the chances for success. In the consulting engineering field, a company’s greatest assets are its employees. **We firmly believe that no one is better or more equipped and dedicated to providing you with quality projects and services than our local project manager, Mr. Facemyer and Mr. Bess.**

Resumes



Eric R. Bess, GISP
Project Manager/Client
Liaison

BS, Engineering
Technology, West Virginia
University, Institute of
Technology, 1996
AS, Civil Engineering
Technology, West Virginia
University, Institute of
Technology, 1995
NICET Certified Civil
Engineering Technician,
██████████
Certified Geographic
Information Systems
Professional (GISP)
Member of American Water
Works Association (AWWA)
American Society of
Certified Engineering
Technicians (ASCET)
West Virginia Association of
Geographic Professionals
(WVAGP)

Mott MacDonald Group
2013 – Present

Mr. Bess has over 20 years of experience and will serve as the local project manager and client liaison for this project. His range of experience covers a multitude of tasks including database development, workflow and dataflow process management, training, analysis, asset management, and field personnel management. Prior to working at Mott MacDonald, Mr. Bess worked for five years in the coal industry and 13 years in the natural gas industry where he gained experience with data creation, compilation, reporting and analysis, and QA/QC of various datasets for business needs. During this time he also gained experience working with inspectors, surveyors, and maintenance activities in a high-risk environment. Additionally, he assisted with permitting, projection development, managing water treatment systems and facilities, and reporting requirements to state agencies. He also performed on-site IT support and human resource functions, as needed, for a union workforce of over 200 individuals.

Selected projects

Stormwater Surface Runoff Analysis, City of Huntington, Huntington, WV: Served as Senior GIS Specialist on this project involving digitization and data management for surface features in a small pilot area of the city. Responsible for GIS data acquisition and workflow development, proper data attribution for impervious vs. pervious areas, acreage calculation for runoff analysis, and map generation for client review.

Stormwater Pollution Prevention Plans (SWPPP), City of Charleston, Charleston, WV: Served as Senior GIS Specialist on this project involving 24 SWPPP plans and ten site assessments for 34 municipal sites owned by the City of Charleston. Responsible for template development, data management, and general location and site maps of all field inspection data.

Asset Data Management, West Virginia American Water Company, WV: Served as Senior GIS Specialist on this project consisting of data discovery, collection, process development, and integration to WVAW GIS System. Served as liaison with field operations to ensure field markups of data were delivered and assimilated into the WVAW GIS System. Developed a field data collection process with GPS technology for more efficient collection and integration.

Water System Acquisition Due Diligence, West Virginia American Water Company, WV: Served as Senior GIS Specialist on this project. Client requested due diligence to be done on a smaller water system that may be acquired. Work consisted of creating a GIS linkage between a master easement spreadsheet and parcel outlines in GIS. Assets were digitized from scans that were georeferenced, and buffer calculations performed based on the easement criteria to make a mapbook of the coverage area with various information displayed.

AMR/AMI Phase I, West Virginia American Water Company, WV: Served as Project Manager and Senior GIS Specialist on this project that involved field data collection with sub-foot GPS for a client program to replace probe and manual read meters with AMR/AMI read systems. Responsible for field crew coordination, deliverables for 3rd party contractors who performed the meter change-outs, and progress reporting. Also, the data was provided to the client as coordinates linked to each premise number for updating their master service address database.

Upper Kanawha Valley Phase III, West Virginia American Water Company, Kanawha County, WV: Served as Senior GIS Specialist on this project consisting of multiple waterline extension and upgrade contracts. Responsibilities included managing project documentation, data acquisition, GPS data processing, one call design tickets and third party utility contact on project area for proper utility line marking, and crossing procedures and requirements.

Upper Kanawha Valley Phase II, West Virginia American Water Company, Kanawha County, WV: Served as Senior GIS Specialist on this project consisting of four waterline extension and upgrade contracts. Responsibilities included georeferencing legacy utility maps, one call design tickets and third party utility contact on project area for proper utility line marking, and crossing procedures and requirements.

Various Projects, Chesapeake Energy Corporation, Various Locations, United States: Right-of-Way Process and Mapping: Managed the efforts to standardize the GIS support processes and end products for Pipeline Right-of-Way (ROW). This project entailed working with IT and the ROW group to gain access to their ROW database, and working out a process for automated jobs to update the company's ROW GIS layer each night based upon the previous day's data at end of business. Standard mapping products were then created to relate to that layer with a specialized color code for each parcel status for an up to date view into the project and acquisition status along Pipeline projects in the major shale plays in the U.S. A separate web viewer was also developed with assistance from IT to give a digital view, as well as any hard copy needs the business may have.

Various Projects, Chesapeake Energy Corporation, Various Locations, United States: Field Mapping Products: Performed data gathering, creation, analysis, and generated digital and hard copy products for management and field personnel. Examples include system maps, pipeline inventory maps, asset vintage and flow direction maps, leak maps, location source maps, and ad hoc requests for various permits, agency requests, third-party needs etc.

Various Projects, Chesapeake Energy Corporation, Various Locations, United States: Standardized Work Flows and Data Flows Throughout Field Operations: Coordinated efforts across seven field offices to streamline and standardize data flows and work flows on how data was received and in what format, how it was processed and loaded, and how the other functional groups tied together in their work flows to ensure no data or communication gaps existed to make the business process more efficient and eliminate duplicated efforts and siloed data so all information is in a common process and data repository.

Various Projects, Chesapeake Energy Corporation, Various Locations, United States: Mobile Field Data Collection: Coordinated efforts for what business needs and requirements were for a specified dataset. Upon review of those needs, methods were explored, tested, implemented, and training provided for mobile field data collection in a standardized manner for consistency and control of the data received for operations and management needs. Some solutions were completely in-house, and others included third-party software and solutions to achieve the required goals. In reaching the acceptable solutions, considerations for cost, time, training, and ease of use for the end users and field personnel were reviewed for a proper balance to ensure solution adoption and support among the field data collectors, and also management's data needs and cost limitations.

Various Projects, Chesapeake Energy Corporation, Various Locations, United States: Regulatory Waters Review with Time Lapse Imagery: Performed dataset review and data mining to acquire information on waters of the U.S. and streams classifications to compare to third party and agency interpretation of potential impacted waters on pad site construction. In order to do a proper review, several images of the site at various times were acquired thru data mining public information and third party aerial providers to utilize in heads-up analysis for acceptance or denial of claims on site construction procedures and boundaries.

Various Projects, Chesapeake Energy Corporation, Various Locations, United States: Coordination of Data Between Internal and External Sources for Single Source of Truth Repository: Coordinated standard data needs with third party entities to ensure standardized and comprehensive data was coming in from each contractor utilized. Meetings would be held both with internal business leads, and external contractors as needed to demonstrate the need and benefits of non-siloed work flows and stand-alone datasets.



Gary Facemyer, PE, PS
Principal-in-Charge

BS, Civil Engineering,
WV Institute of Technology,
1975

Professional Engineer

KY, [REDACTED], 1995

OH, [REDACTED], 1993

PA, [REDACTED], 1992

VA, [REDACTED], 1993

WV, [REDACTED], 1980

Professional Surveyor

WV, [REDACTED], 1995

American Society of Civil
Engineers (ASCE) Fellow

American Water Works
Association (AWWA)

Water Environment
Federation (WEF)

WV Society of Professional
Surveyors (WVSPS)

Mott MacDonald Group
2009 – Present

Mr. Facemyer has been responsible for planning, permitting, design, and construction of public works projects for 40 years. He has served as Principal Project Manager and Project Engineer for various water, wastewater, site development, solid waste landfills, earthen dams, geotechnical investigations, abandoned mine reclamation projects, hazardous waste sites, and many other miscellaneous civil engineering projects. His duties have included project planning and design, managing construction bids and awards, construction oversight and inspection, and project closeout. His responsibilities have included managing quality assurance/quality control, schedules, personnel, company resources, business/market development, clients, and profit.

Selected projects

Asset Field Locations, West Virginia American Water, Statewide, WV: Project Director for an ongoing project to field locate 160,000 water meter tiles using sub-foot GPS data collectors to implement a data management system and SAP/GIS integration. Manages and assists installation contractors to replace these meters with AMR/AMI technology.

Yeager Airport Facility Improvements, Charleston, WV: Project Manager for terminal and ramp improvements, consisting of new passenger boarding bridges, pre-conditioned air units, fixed ground power units, HVAC rooftop unit replacements, and electrical upgrades, including emergency power. Responsible for contract management and construction phase services, and project closeout with FAA.

Asset Data Management, West Virginia American Water, Statewide, WV: Project Director for an ongoing project to develop a GIS system that integrates with client's SAP enterprise resource management system. Responsible for office and field data collection, GPS field location of assets, reconciliation between systems, and asset data management.

Stormwater Pollution Prevention Plans (SWPPP), City of Charleston, WV: Project Manager for 24 SWPPP and 10 site assessments for municipally-owned sites in the city. Responsible for resource planning, schedule compliance, final reporting, and certifications.

Upper Kanawha Valley Water Main Reinforcement and Extension, West Virginia American Water, Kanawha County, WV: Principal Project Manager responsible for planning, design, permitting, bidding, and construction management of 15 miles of 20" and 16" ductile iron pipe, 1500 gpm water booster station, and one million gallon glass-fused-to-steel water storage tank to serve the communities of Pratt and Montgomery. Project includes an open cut crossing of the Kanawha River that impacted federally endangered mussels that had to be permitted and mitigated. Project allows the client to abandon two water treatment plants and serve the municipalities with reliable water from their regional water treatment plant.

Tank Painting, West Virginia American Water, Statewide, WV: Principal Project Manager responsible for providing engineering and project management related to development, management, and implementation of an annual water storage tank painting program.

Geographic Information System (GIS) Conversion, West Virginia American Water, Statewide, WV: Client Manager responsible for converting client's CAD and paper maps to GIS format. Project consists of 9,500 hydrants, 50,000 valves, and 3,350 miles of water main.

Resident Project Representatives, West Virginia American Water, Statewide, WV: Principal Project Manager responsible for furnishing and managing resident project inspectors for various capital improvement projects, primarily water distribution system renewal and replacement projects.

Technical Services, West Virginia American Water, Statewide, WV: Principal Project Manager responsible for providing engineering, surveying, and GIS services to the client's Engineering Group for capital improvements to water distribution system renewal and replacement projects.

Water Storage Tank Demolition, West Virginia American Water, Statewide, WV: Project Manager/Engineer responsible for locating and evaluating 20 existing ground level and elevated, abandoned water storage tanks to be demolished; preparing bidding documents, assisting client in the bidding process and contract negotiations with Contractor; and miscellaneous construction administration services, land research, easements, and right-of-way services.

Potassium Permanganate Chemical Feed, West Virginia American Water Charleston, WV: Project Director responsible for design, permitting, bidding, and construction management of a standalone chemical feed building and equipment for an 80 MGD water treatment plant.

Fayette County Advanced Metering Construction Management, West Virginia American Water, Fayette County, WV: Project Director and Client Manager for construction phase engineering services; resident project representation; mapping services using GPS locations; and GIS mapping of meters, tanks, booster stations, pressure reducing valves, fire hydrants, and gate valves. Responsible for progress monitoring, data management, and data cleansing for the replacement of 12,000 water meters with "smart meter" technology and installation of 1,200 acoustical monitors for leak detection in this municipal system.

SR 742 – Burgess Road – Hillburn Drive to US 29, Water Storage Tank Rehabilitation, Town of Wayne, Wayne, WV: Project Manager/Project Engineer responsible for tank inspection, and developing plans and specifications to rehabilitate a 150,000 gallon ground supported welded steel water storage tank. Rehabilitation consisted of cleaning,

sandblasting to near white, repairing pits, replacing the ladder/platform, replacing bolts/gaskets to manways/access hatches, and painting with a three coat epoxy paint system. Paint inspection was provided by KTA-Tator, Pittsburgh, PA. Contract performed by Welding, Inc., Charleston, WV.

Water Storage Tank Rehabilitation, Town of Gilbert, Gilbert, WV: Project Manager/Project Engineer responsible for tank inspection, and developing plans and specifications to rehabilitate two 100,000 gallon ground supported welded steel water storage tanks. Rehabilitation for Tank No. 1 consisted of complete demolition and construction of a new welded steel water storage tank on the existing foundation. Rehabilitation for Tank No. 2 consisted of cleaning, sandblasting to near white, repairing pits, replacing the ladder/platform, and replacing bolts/gaskets to manways/access hatches. Both tanks were painted with a three coat epoxy paint system. The work also included replacement of the yard piping system, including replacing valves to create a more flexible piping system to isolate and drain the twin tanks, fencing, and telemetry. Paint inspection was provided by KTA-Tator, Pittsburgh, PA. Contract performed by Welding, Inc., Charleston, WV. Telemetry contract performed by Patriot Services, Parkersburg, WV.

Slabtown, Tamcliff, Paynter Water Main Extension, Town of Gilbert, Gilbert, WV: Project Manager/Project Engineer responsible for planning, permitting, and design of a water main extension project for the Town of Gilbert. The project was funded by the USDA/Rural Utilities Service and HUD/Small Cities Block grant.

Water Storage Tank New Installations, West Virginia American Water, Statewide, WV: Project Manager/Project Engineer responsible for ten or more ground supported welded steel water storage tanks. Duties included planning, design, permitting, bidding, construction management, and inspection. Paint inspection provided by KTA-Tator, Pittsburgh, PA. Welding, Inc., Charleston, WV was the successful low bidder on all tanks.

Upper Fishers Branch Water Main Extension, Kanawha County Regional Development Authority, Kanawha County, WV: Project Manager/Project Engineer responsible for planning, permitting, and design of a water main extension project in cooperation with the Kanawha County Commission, Kanawha County Regional Development Authority and West Virginia American Water Company. The project is being funded by the KCC, US Army Corps of Engineers, IJDC grant, and WV American Water.



Lowry J. Denty, PE, SI
QA QC / Technical Advisor

BS, Civil Engineering,
Georgia Institute of
Technology, 1993
BS, University of Georgia,
1993 (Dual Degree
Program)

Professional Engineer

AL, [REDACTED], 2002

CO, [REDACTED], 2010

FL, # [REDACTED], 1998

GA, [REDACTED], 2007

LA, [REDACTED], 2013

MD, [REDACTED], 2010

MS, [REDACTED], 2005

NC, [REDACTED], 2012

TX, [REDACTED], 2011

Transportation Worker
Identification Credential
(TWIC)

Construction Quality

Management for

Contractors [REDACTED] 2014

Mott MacDonald Group

1996 – Present

Mr. Denty currently serves as Structural Design and QA/QC Manager for Mott MacDonald. As a senior structural engineer, project manager, and special inspector, he is involved in all aspects of project design, administration, and threshold inspections. His broad base of structural engineering experience includes structural design and construction administration for commercial, municipal, educational, and transportation projects throughout the Eastern United States and abroad.

Selected projects

Perdido Bay Boat Ramp, Escambia County, FL: Project Director. Overseeing the master planning, design, construction documentation, permitting, public involvement, geotechnical data, and survey services for this public boat ramp and multi-use area located at Perdido Bay in Pensacola, FL. The boat launch design incorporates accessory docks, which meet all ADA and universal accessibility requirements. Wave attenuators or breakwater will be incorporated and permitted by DEP and USACE. Additional site features include an ADA-compliant entrance, parking for approximately 75 vehicles, walkways, covered picnic area, restrooms, and a covered area for portable toilets.

Quietwater Beach Ferry Landing, Escambia County, FL: Project Manager. Managing the master planning, construction plans, permitting, public involvement, geotechnical data, and survey services for a fixed ferry dock beyond the existing Quietwater Pier at Pensacola Beach, FL. The project is divided into three phases. Phase I includes a new ferry landing dock, temporary ticket booth, and an ADA accessible route from the parking lot to the ferry loading/unloading dock. Phase II involved widening of the existing pier to 16 feet with required ADA upgrades and additional lighting. Phase III will add a shaded passenger queuing area located over an existing amphitheater with seating for approximately 100 passengers and ticket booth.

Perdido River Boat Ramp, Escambia County, FL: Project Manager. This 4.15 acre public facility was funded from the Deep Water Horizon Oil Spill and involved the design and permitting of a thirty foot wide two lane boat ramp, ADA compliant ramp single access piers, trailer/tow and vehicle parking spaces, kayak/canoe launch, picnic/pavilion area, and boardwalks.

Hurricane Sandy Waterfront Repairs, NAVFAC, Naval Station Guantanamo Bay, Cuba: Project Manager/Design Quality Control Manager/Structural Engineer: Design-Build project for repairs to the Guantanamo Bay public marina, public beaches, and restoration of the recreational dive park. Work includes floating fuel pier replacement, repair/replacement of boat ramp, repairs to damaged walls and roofs, demolition and construction of new cabanas. Dive area work includes a two-way ramp access with breakwater and a new elevated paved training area. Work also includes a new elevated training area, vehicle access and parking with wave run up and erosion protection for 50-year storm event.

Destin Shore at Crystal Beach, Destin, FL: Engineer of Record, New 1700sf pile supported pavilion with restrooms and 150ft of dune walkover along with dune restoration. The pavilion structure consists of heavy timber construction.

Pensacola Bay Fishing Pier, Escambia County, FL: Project Manager, Design Build of a new 24ft wide by 2,576 ft. long drive-on fishing pier to replace the one that was severely damaged by Hurricane Ivan. The replacement pier and approach are designed for a pedestrian / H-10 light traffic loading. The structure consists of precast concrete piles, caps and double-tee deck. Project manager for the engineering team responsible for the structural, civil, geotechnical and hydraulic design as well as FDEP and Corps of Engineer permitting.

Pensacola Community Maritime Park Bulkhead, Pensacola, FL: Engineer of Record, Permit documents for approximately 2,100 linear feet of new bulkhead on the east, west, and portion of south banks. The new bulkhead ties into the existing south bulkhead. The structure consists of steel sheet piles, concrete cap, and tie-rod anchoring system. The bulkhead also acts as a containment wall for the existing contaminated water to stay encapsulated on site by using welded joints and compression seals.

MC Blanchard Cooling Tower Surge Wall, Escambia County, FL: Engineer of Record, Approximately 300lf of new 8 ft. tall cast-in-place concrete walls surrounding the existing cooling towers at the MC Blanchard Judicial Building to protect them from future storm surge. The site is located across the street within 1500ft from Pensacola Bay.

Port St Joe Port Authority Bulkhead, Port St. Joe, FL: Peer Review, New Berthing Facility consisting of approximately 900lf steel sheet pile bulkhead wall to handle a future draft depth of twenty-two (22) foot to accommodate ocean-going barge vessels. The initial project includes the bulkhead wall with concrete cap and corresponding steel sheet pile tieback wall complete with tie rods at approximate nine foot centers.

Bayfront Auditorium Bulkhead Evaluation, Pensacola, FL: Engineer of Record, Structural engineering observations for the pile bulkhead surrounding the Bayfront Auditorium. The purpose of this evaluation was to observe the existing condition of the bulkhead and to document any visual conditions that may hinder the demolition of the Auditorium that was damaged by Hurricane Ivan. Mott MacDonald structural engineers examined the existing above water conditions of the bulkhead. This examination was limited to visual observations only. Lea Diving & Salvage Co., Inc., a commercial diving company, was retained to perform the underwater inspection and provide underwater site observations of the entire bulkhead.

Warehouse Building Improvements, Port of Pensacola, Pensacola, FL: Mott MacDonald's Architectural and Structural Staff conducted a preliminary analysis of required modifications to Warehouse #4 at the Port of Pensacola complex in downtown Pensacola, specifically including recommendations for building repairs, patching, painting, coating and roof inspections, as well as the enclosing of an existing canopy for railroad car unloading. Structural design calculations and recommendations were provided along with the proposed building improvements in a report to the Port of Pensacola. Following approval of the findings, Mott MacDonald prepared and submitted construction plans and project specifications to the Port for their use in bidding the construction of the project. Mott MacDonald will also provide post-design construction administration services during construction.

Wayne Dalton Plant Addition/Copter Road Drainage Improvements, Ellyson Industrial Park, Escambia County, FL: Structural Engineer. The civil site portion of this project consists of site development plans to accommodate the construction of a 175,000 square foot manufacturing building addition along with the associated utility services. Included in this project are: the demolition of a 204-space parking lot. The lot will be replaced with a 418-space parking lot to accommodate the new building addition, as well as a resurfaced existing 5-acre asphalt parking lot. The existing storm sewer system and detention ponds that are located on the site will be modified to provide service for the new facilities. The modified storm sewer system will tie into an offsite system that is to be constructed by the county.

Mosaic Faustina Ship Dock Evaluation, Repairs & Upgrades, St. James Parish, LA: Structural Engineer or Record to inspect, evaluate and provide repair and upgrade recommendations for Mosaic Fertilizer Faustina Plant's existing ship dock located on the Mississippi River. The purpose was that the existing dock was planned to be used for mooring and loading new anhydrous ammonia ocean barges that were larger than currently using the dock. Mott MacDonald engineers provided above water inspections to document the structural components condition. Divers were also retained and managed by Mott MacDonald engineers to perform the underwater inspections. Mott MacDonald determined the berthing and mooring loads for the new vessels to determine the upgrades need for the existing dock. Repairs included replacement of existing steel bracing and framing that was corroded or deformed beyond repair. Upgrades included new cone fenders to replace the existing shear fenders and addition steel pipe piles to strengthen the existing dolphins.



Shane Phillips, PE
QA QC / Technical Advisor
& Sedimentation Analysis

BS, Civil Engineering
Washington State
University, 1993
Professional Engineer
WA # [REDACTED], 1997
TX # [REDACTED], 2002
CA # [REDACTED], 1997
LA # [REDACTED], 2003
FL # [REDACTED], 2006
OR # [REDACTED], 2013
CT # [REDACTED], 2014

Mott MacDonald Group
2003 – Present
Project Manager

Mr. Phillips is a Coastal/Civil Engineer with 23 years of experience related to the marine and coastal engineering field. Specific engineering experience includes the feasibility evaluation, preliminary design, and final design of geotechnical, structural and civil components of coastal and marine construction projects. Mr. Phillips has applied his coastal engineering design expertise to a variety of coastal shore protection as well as recreational facility projects. Mr. Phillips has manages and executes feasibility studies, planning studies, engineering of coastal and marine projects for port facilities, marinas, navigation channels, and shoreline properties. His coastal design experience includes the layout and design of floating breakwaters, groins, piers, bulkheads, beach nourishment, shoreline stabilization, dredging, water quality improvement and nearshore restoration. He also has extensive structural design experience with marine terminals, piers, bulkheads, retaining walls, breakwaters, and marinas utilizing concrete, steel and timber materials.

Selected projects

Hat Island Marina Basin Rehabilitation, Hat Island, WA: Project Manager responsible for the preliminary engineering analysis and design for entrance breakwater modification, dredging, new shoreline protection structures, slip expansion, boat ramp and ADA access improvements.

Carpenter Island Boat Launch Preliminary Engineering Design, Douglas County, WA: Project Manager responsible for the engineering analysis and preliminary engineering design. He conducted alternatives evaluation of a grounding floating dock with concrete abutment, versus a fixed pier, gangway and non-grounding floating docks.

Brewster Columbia Cove Park Recreational Facilities Boat Launch, Brewster, WA: Project Manager who developed and documented in-water project element design criteria to be used in preliminary design of the facilities.

Bush Point Boating Access Improvement, Whidbey Island, WA: Project Manager who developed criteria and design loads on boarding floats for new boat launch.

Misery Point Boat Launch Improvement, Hood Canal, WA: Project Manager responsible for the coastal processes evaluation: wind analysis, wave hindcast, tidal range analysis, littoral processes study, and an operational statistical analysis.

Kittitas County Boat Launch Improvement, Vantage, WA: Project Manager for the feasibility engineering analysis and preliminary design for in-water components, primarily boat launch facility and navigation entrance channel.

Port of Anacortes Marine Area Beach Design and Recreational Improvements, Anacortes, WA: Project Manager responsible for the preliminary engineering design of beach construction and restoration, shoreline protection, new rock breakwater, small craft boating facility, navigation aids, and new fuel float.

Hat Island Marina Basin Rehabilitation Maintenance Dredging and Marina Expansion, WA: Project Manager from feasibility study through permitting, final design, and construction administration. For marina rehabilitation feasibility engineering, he provided a preferred marina work plan, schedule, and estimate of required budget. Project components included entrance breakwater modification, dredging, new shoreline protection, marina slip expansion, boat ramp and ADA access improvements. Feasibility engineering analysis included a marina condition survey, supplemental existing survey information, collection of soils information, utilities, historical dredging and site development, boat ramp, construction of existing bulkheads and wave protection structures, and bank stabilization. He assembled bid package, responded to contractor's questions, and reviewed bids. During construction, he assisted with periodic on-site project review, submittal review, and review of progress payments.

Port of Kingston Boat Launch Maintenance Dredging Preliminary Engineering, Kingston, WA: Project Manager who provided preliminary engineering design services for proposed maintenance dredging work at the Port of Kingston marina entrance and access channel to the boat launch facility. The objective of the engineering work was to conduct the dredging project with a modified configuration to minimize impacts to eelgrass beds and optimize the dredge area to result in a longer time period between dredging actions. He developed design criteria for preliminary engineering design and evaluated proposed project dimensions and alignment of dredging cut and advanced maintenance dredging requirements and developed dredge area alternatives including dredge location and depths.

Port of Poulsbo Marina Improvements, Poulsbo, WA: Project Manager responsible for the preliminary engineering design, permit application documents, data collection, and assembled grant application documents.

Port of Shelton Marina Timber Access Pier Condition Assessment, Shelton, WA: Project Manager who reviewed existing structures, assessed the current condition, and developed recommendations for maintenance and repair work.

Chelan Ridge Marina Structural/Coastal Engineering Design, Lake Chelan, WA: Project Manager responsible for the engineering analysis and preliminary design of marina facility.

Cama Beach State Park Float Dock Evaluation, Camano Island, WA: Project Manager who developed design criteria for water levels and wave forces impacting both fixed and floating structures.

Joemma Beach State Park Coastal Engineering Analysis & Design, WA: Project Manager who developed performance and design criteria for wave attenuator.

Seafarers' Memorial Park Small Craft Facility, Port of Anacortes, WA: Project Manager for the preliminary engineering design for concrete pier, aluminum gangway, and timber frame floating dock components as well as final engineering design of each float component, new concrete pier and aluminum gangway.

Prince Creek Dock Replacement Preliminary Engineering Design, Lake Chelan, WA: Project Manager who compiled all necessary structural design criteria, evaluated dock alternatives, and prepared preliminary drawings.

Chimacum Beach Shoreline Restoration, Irondale, WA: Project Manager responsible for the coastal engineering analysis and evaluation for the removal of an existing bulkhead and nearshore fill.

Puyallup River Levee Bank Stabilization Study, Puyallup, WA: Project Manager responsible for the hydraulic analysis of existing conditions and analysis and design of bank stabilization alternatives.

Duwamish River Bank Stabilization – Slip 2, Seattle, WA: Project Manager responsible for the bank stabilization assessment and alternatives evaluation to determine appropriate drainage control and bank stabilization measures required.

Johns River Habitat Restoration Dike Analysis, Markham, WA: Project Manager who reviewed and evaluated existing site conditions, and developed a project approach for the feasibility level engineering work.

Kelsey Creek Habitat Restoration, City of Bellevue, WA: Project Manager who reviewed contractor submittals and progress for conformance with PS&E, environmental permits, building permit and clearing and grading permit.

Little Fish Trap Nearshore Restoration Feasibility Study, WA: Project Manager for the conceptual level engineering analysis and design for a selected restoration action.

Fidalgo Bay Habitat Improvement, Port of Anacortes, WA: Project Manager who analyzed proposed dredge area to determine suitability of material in the construction of the mitigation site.

Log Pocket Dredging Excavation, Port of Anacortes, WA: Project Manager responsible for the mitigation analysis and design for creation of intertidal habitat and public shoreline access.



Steven D. White, PE
Civil/Site Design & ADA
Compliance

BS, Civil Engineering,
University of Central
Florida, 1996
Professional Engineer
FL [REDACTED] 2002
Society of American
Military Engineers
Florida Engineering Society
National Society of
Professional Engineers

Mott MacDonald Group
2006 – Present

Mr. White is a civil engineer and project manager with over 20 years of experience working on a variety of projects including site planning and site design, drainage improvements, roadway drainage design, municipal water distribution and storage facilities, and wastewater transmission/collection systems, regulatory agency permitting, contract administration, and project review. Mr. White has working knowledge of MicroStation, AutoCAD, ICPR, POND3 V3.2, HydroCad v.10.0, PondPack v8i, and ASAD.

Selected projects

Perdido Bay Boat Ramp, Escambia County, FL: Project Manager. Managing the master planning, design, construction documentation, permitting, public involvement, geotechnical data, and survey services for this public boat ramp and multi-use area located at Perdido Bay in Pensacola, FL. The boat launch design incorporates accessory docks, which meet all ADA and universal accessibility requirements. Wave attenuators or breakwater will be incorporated and permitted by DEP and USACE. Additional site features include an ADA-compliant entrance, parking for approximately 75 vehicles, walkways, covered picnic area, restrooms, and a covered area for portable toilets.

Hurricane Sandy Waterfront Repairs, NAVFAC, Naval Station, Guantanamo Bay, Cuba: Civil Engineer. Design-Build project for repairs to the public marina, public beaches, and restoration of the recreational dive park. Work includes floating fuel pier replacement, repair/replacement of boat ramp, repairs to damaged walls and roofs, demolition and construction of new cabanas. Dive area work includes a two way ramp access with breakwater and a new elevated paved training area. Work also includes a new elevated training area, vehicle access and parking with wave run up and erosion protection for 50 year storm event.

Perdido River Boat Ramp, Escambia County, FL: Civil Engineer. This 4.15 acre public facility was funded from the Deep Water Horizon Oil Spill and involved the design and permitting of a thirty foot wide two lane boat ramp, ADA compliant ramp single access piers, trailer/tow and vehicle parking spaces, kayak/canoe launch, picnic/pavilion area, and boardwalks.

Pensacola Bay Fishing Pier Design-Build, Pensacola, FL: Civil Engineer. Design Build of a new 24ft wide by 2,576 ft long drive-on fishing pier to replace the one that was severely damaged by Hurricane Ivan. The replacement pier and approach are designed for a pedestrian / H-10 light traffic loading. The structure consists of precast concrete piles, caps and double-tee deck. Project manager for the engineering team responsible for the structural, civil, geotechnical and hydraulic design as well as FDEP and Corps of Engineer permitting.

Fred B. Hedrick Recreation Center Master Plan, Fort Walton Beach, FL: Civil Engineer responsible for the master planning, building assessment, and design criteria package of an approximately 29 acre public recreation facility owned by the City of Fort Walton Beach. Improvements for the project included parking, stormwater management plans, and multiple soccer and baseball fields. Permitting for the project included a stormwater and wetland impact mitigation through the NFWFMD.

ECUA Emergency Operations Building, Escambia County, FL: Project engineer responsible for design and permitting of a square foot emergency operation center addition to the existing ECUA customer service building. Engineering services included design of asphalt parking and associated drives, stormwater collection/transmission and treatment facilities and site utilities required to service the new facilities. Services included obtaining all required permits including Escambia County Development Order and Environmental Resource Permit.

Sacred Heart Cancer Center Oaks Parking Lot, Pensacola, FL: Project Manager responsible for re-design of second phase of parking expansion for the Sacred Heart Hospital Cancer Center. Engineering services include redesign of parking facilities to avoid costly relocation of Gulf Power distribution lines and secondary power feed to existing Cancer Center as well as close out of all active permits with the City of Pensacola and Northwest Florida Water Management District.

Pensacola Country Club Tennis Center, Escambia County, FL: Project Manager responsible for the design and permitting of a new tennis center for the Pensacola Country Club. Engineering services included site design of asphalt parking, stormwater collection/transmission and treatment facilities and site utilities to support new Tennis Center building and 8 synthetic clay tennis courts. Services also included securing of permits from Escambia County and Northwest Florida Water Management District.

Ferry Pass Elementary School Parking Improvements, Escambia County, FL: Project Engineer responsible for design of parking lot expansion at existing Ferry Pass Elementary School. Engineering service included design and permitting of asphalt parking lot addition include stormwater management facilities.

Health, Leisure and Sports Facility, University of West Florida, Pensacola, FL: Project Engineer responsible for design, permitting and contract administration for a site design located on the University of West Florida campus located in Escambia County, Florida. The project consisted of site design, utility relocation/extension, regulatory agency permitting and contract administration services for the 108,000 square foot Health, Leisure and Sports facility and associated asphalt parking lot, driveways and infrastructure required to support the facility.

Pensacola Waterfront Development, Community Redevelopment Agency, City of Pensacola, FL: Project Engineer responsible for design and permitting of original Trillium Property re-development located in Pensacola, Florida. The project included site design and permitting for a new performing arts facility and surrounding public park including asphalt drives, parking, water, sanitary sewer, stormwater collection/transmission and treatment facilities as well as permitting of the site, utilities and stormwater management system with various regulatory agencies.

Lost Key Site 8, WCI Communities, Inc., Escambia County, FL: Project Engineer responsible for design and permitting for Site 8 within the Lost Key Golf & Beach Club property in Escambia County, Florida. The project consisted of the design of a 173-unit condominium with associated asphalt drives and parking, water, sanitary sewer, and stormwater collections/transmission and treatment facilities as well as regulatory agency.

Building 79 Erosion Control, University of West Florida, Pensacola, FL: Project Engineer responsible for the design of site features and drainage improvements in the vicinity of Building 79 on the University of West Florida Campus. The project included design of site grading, segmental unit retaining walls and stormwater collection/transmission facilities to repair existing eroded areas and to reduce the potential for future erosion.

ADA Sidewalk Improvements, University of West Florida, Pensacola, FL: Project Engineer responsible for the design of sidewalks to connect buildings 81, 72 and 78 located within the University of West Florida Campus. Engineering services included the site design of an ADA compliant sidewalk utilizing compliant ramps as necessary to connect various buildings in the location as well as installation of stormwater collection/transmission system components to control site runoff and reduce erosion potential in an area prone to erosion.

Miscellaneous Parking Lot Improvements, University of West Florida, Pensacola, FL: Project Engineer responsible for the design of improvements to various asphalt parking lots located throughout the University of West Florida campus. Engineering services included inspection of existing asphalt parking lots, identification of damaged/unsound areas therein and design of suitable repair methodologies including asphalt cutting and patching, overlaying and application of sand seal coat to restore/preserve the integrity of the parking surfaces.



T. Heath Jenkins, PE
Civil/Site Design & ADA
Compliance

BS, Architectural
Engineering, University of
Texas at Austin, 2004
MBA, University of Florida,
2010

Professional Engineer
FL, 2009
AL, 2010
MS, 2010
GA, 2010
IN, 2012
NC, 2012

ASCE Pensacola Branch
President – 2013-2016
ASCE Florida Section
Membership Chair 2016

Mott MacDonald Group
2004 – Present

Mr. Jenkins has participated in a variety of land development, transportation, and projects for over a decade. He has experience in project assessment, analysis, design, permitting and construction administration. His projects have included pavement rehabilitation, drainage improvements, roadway design, subdivision design, site planning, master planning and parcel rezoning. Prior to joining our firm, Mr. Jenkins' experience includes the Texas Department of Transportation, where he gained experience in the design and operation of the Intelligent Transportation System in Austin, TX. In addition, he has several years of experience in land surveying including FDOT, boundary and topographic.

Selected projects

Perdido River Boat Ramp, Escambia County, FL: Civil Engineer. This 4.15 acre public facility was funded from the Deep Water Horizon Oil Spill and involved the design and permitting of a thirty foot wide two lane boat ramp, ADA compliant ramp single access piers, trailer/tow and vehicle parking spaces, kayak/canoe launch, picnic/pavilion area, and boardwalks.

Perdido Bay Boat Ramp, Escambia County, FL: Civil Engineer for the design, construction documentation, and permitting of this public boat ramp and multi-use area located at Perdido Bay in Pensacola, FL. The boat launch design incorporates accessory docks, which meet all ADA and universal accessibility requirements. Wave attenuators or breakwater will be incorporated and permitted by DEP and USACE. Additional site features include an ADA-compliant entrance, parking for approximately 75 vehicles, walkways, covered picnic area, restrooms, and a covered area for portable toilets.

Shores at Crystal Beach Pavilion & Dune Walkover, Destin, FL: Project Engineer. Responsible for the design and permitting of an approximately .51 acre Gulf front public park owned by the City of Destin. Improvements for the project included parking, stormwater management plans, a public recreation pavilion and elevated dune walkover. Permitting for the project included a City of Destin Development Order, FDEP Stormwater and FDEP CCCL permit.

Twin Lakes Park, City of Destin, FL: Project Engineer responsible for the conceptual design and layout of a lakeside public park owned by the City of Destin. Improvements shown in the conceptual design for the project included parking, stormwater management plans, picnic area, public recreation pier and multi-use trail.

Hedrick Recreational Facility, City of Fort Walton Beach, FL: Project Engineer responsible for the design and permitting of an approximately 29 acre public recreation facility owned by the City of Fort Walton Beach. Improvements for the project included parking, stormwater management plans, and multiple soccer and baseball fields. Permitting for the project included a stormwater and wetland impact mitigation through the NFWFMD.

Rocky Branch Road, Escambia County, FL: Lead Design Engineer for a dirt road paving project in Escambia County, FL. The project consisted of paving an existing two lane residential street (1.2 miles). In addition to paving, the project required analysis of over 700 acres of stormwater drainage area that frequently flooded the roadway. The analysis resulted in design and installation of a 100 foot concrete bridge in order to convey the 100-year storm event of the contributing area. The paving project included the addition of roadside swales and associated conveyance structures to qualify for the dirt road paving exemption through FDEP. USACE and FDEP permits for wetland impacts in excess of 0.50 acres were accomplished for this project.

Ganges / Madura Stormwater Improvements, Santa Rosa County BCC, Santa Rosa County, FL: Project Engineer responsible for design, utility relocations and upgrades, permitting and construction administration for a stormwater improvement project for Santa Rosa County located in the Tiger Point Golf and Country Club residential development. The project was funded by a Hazard Mitigation Grant due to historical flooding of several homes in the area. The project consisted of preliminary analysis of the area drainage basin utilizing ICPR. Improvements included reconstructing the existing ponds to allow for the addition of littoral shelves and wetland plantings, addition of outfall structures to control flooding, new pipes and inlets along Ganges Drive and W. Madura Ave., and the design of a stormwater pumping station to convey water to the modified pond facilities. The project had a total construction cost of approximately \$1.0 million.

2nd Street Stormwater Improvements, Okaloosa County BCC, Okaloosa County, FL: Project Engineer responsible for design, utility relocations and upgrades, permitting and construction administration for a stormwater improvement project located in Shalimar, FL. The project consisted of construction of an underground stormwater drainage system 1,500 feet in length to a natural outfall. Retro-Fit permitting through the Northwest Florida Water Management District was obtained by incorporating stormwater treatment facilities in available right-of-way and County property. The project included reconstruction of the roadway.

12th Avenue and Bayou Boulevard, FDOT, Pensacola, FL: Project Engineer. Design of a stormwater treatment system for both the north and south outfalls. The treatment system will include mechanisms to reduce the gross pollutants currently entering Bayou Texar from these outfalls

FEMA Emergency Roadway Repair, CR 173 and Roping Road, Holmes County, Florida: Project Engineer for emergency design and construction administration of roadway reconstruction from flooding washout. Project consisted of replacement of three (3) 7'x10' culverts for CR 173. Roping Road reconstruction included road and stormwater conveyance repair and improvements.

John Clark Highway, Holmes County BCC, Esto, FL: Project Engineer for design surveys, roadway resurfacing plans and drainage structure replacements for the design of approximately 1.4 miles of rural roadway for Holmes County.

Commons Drive Extension, City of Destin: Lead Design Engineer for roadway extension of a 4-lane median divided roadway with round-about connection and multi-modal transportation for Commons Drive in Destin, FL. Project included approval through the City of Destin and design of stormwater conveyance, treatment and attenuation for 100-year storm event to meet closed basin retention permitting through NFWFMD.

Alcaniz Streetscape Improvement, Pensacola, FL: Project Engineer working with the City of Pensacola Community Redevelopment Agency (CRA) and local residents to design streetscape improvements for the Alcaniz Street from Intendencia St. to Garden St. and from Wright St. to Cervantes St. This project also included proposed improvements to include modification and relocation of stormwater collection and conveyance components; relocation of overhead utilities into underground duct banks, parallel parking and travel lane improvements to correspond with historic street sections, street tree and landscape improvements to include historically appropriate Seville Orange and Live Oak trees, site furnishing and lighting specifications, and pedestrian circulation design to incorporate site appropriate paving materials, while addressing accessibility and safety requirements.

Environmental Watershed Protection, Okaloosa County, FL: Provided design and construction administration for erosion control conveyance systems for College Boulevard, County Road 4A and New Ebenezer Road in Okaloosa County to rehabilitate existing erosion problems.



Kevin D. Garnes
Civil/Site Design & ADA
Compliance (CADD)

Various Engineering
Classes, West Virginia
State University, West
Virginia University Institute
of Technology 1982-1984

Mott MacDonald Group
2014 – Present

Mr. Garnes' has almost 40 years of experience in the civil and architectural design field including managing CAD systems network and personnel with an extensive working knowledge of AutoCAD. He has been responsible for design, specifications, cost estimates and quality control of construction documents for water and wastewater treatment plants, water storage tanks and distributions systems, sanitary sewer pump stations and collection systems, landfill design and permitting, bridge and highway design, right-of-way acquisition, mining and reclamation plans. Commercial, industrial and residential building design, site design, storm water hydrology and retention structures, planning and development of industrial parks and subdivisions.

Selected projects

Architectural Projects

- Warehouse Facility, City of Parsons, Tucker County, WV
- West Virginia Department of Health and Human Services Facility, Upshur County, WV
- Tele-Response Center Renovations, Upshur Co., WV
- Wood County Airport Hanger and Office Facility, Wood County, WV
- Phillipi 50,000 Sq. Ft. Multi-Tenant Facility, Barbour County, WV
- Charleston Job Corps Training Center, Kanawha County, WV
- Charleston Housing Authority, Kanawha County, WV
- Point Plesanant Housing Authority, Mason County, WV
- Williamson Flood Project – HUD – Mingo County, WV
- Matewan Flood Project – HUD – Mingo County, WV
- Zegeer Hardware Store, Kanawha County, WV
- Thermo King Maintenance Facility, Putnam County, WV
- Cussett Residence – Quarry Creek Subdivision, Kanawha County, WV
- Walker Machinery Wash Bay Facility, Kanawha County, WV

Wastewater Treatment Plant Projects

- Charlestown WWTP, Jefferson County, WV
- Rocky Fork WWTP, Kanawha County, WV
- Logan WWTP, Logan County, WV
- Montgomery WWTP, Fayette County, WV
- Shinnston WWTP, Harrison County, WV

- Flatwoods WWTP, Braxton County, WV
- Williamson WWTP, Mingo County, WV
- Elkins WWTP, Randolph County, WV
- Buckhannon WWTP, Upshur County, WV
- Sissonville WWTP, Kanawha County, WV
- Elk-Pinch WWTP, Kanawha County, WV
- Weirton WWTP, Hancock County, WV

Water Treatment Plant Projects

- Sutton/Gassaway WTP, American Water Company, Braxton County, WV
- Madison WTP, American Water Company, Boone County, WV
- Hooverson Heights WTP, Brooke County, WV
- Brunswick WTP, Frederick County, MD
- Charles Town WTP, Jefferson County, WV
- Beckley WTP, Raleigh County, WV

Site Design Projects

- Pray Construction Office Building, Putnam County, WV
- Walker Machinery, Jackson, OH
- One Stop/Ashland, Kanawha City, Kanawha County, WV
- One Stop / 7 Eleven, Kanawha City, Kanawha County, WV
- One Stop / Chevron, South Charleston, Kanawha County, WV
- James Burr Industrial Park, Jefferson County, WV
- Murrell Business Park, Jefferson County, WV
- Deer Creek Industrial Park, Cabell County, WV
- Deer Creek Subdivision, Cabell County, WV

Site Development Design/Build Projects

- Sedgely Medical Office Park, Kanawha City, Kanawha County, WV
- Smith Motor Car on Corridor "G", Kanawha County, WV
- Super America Station on Corridor "G", Kanawha County, WV
- Majestic Heights Subdivision, Kanawha County, WV
- Wood Haven Estates, Kanawha County, WV
- Golf Crossings, Kanawha County, WV

- Shinnston PSD, Harrison County, WV
- Elk-Pinch PSD, Kanawha County, WV
- Sissonville PSD, Kanawha County, WV
- Green Valley PSD, Kanawha County, WV
- Flatwoods-Canoe Run PSD, Braxton County, WV
- City of Charleston, Kanawha County, WV
- Union PSD, Kanawha County, WV
- North Gate Commercial Office Park, Kanawha County, WV

Water Distribution Systems

- City of Grafton, Taylor County, WV
- Evans PSD, Jackson County, WV
- Sissonville PSD, Kanawha County, WV
- Clay/Roane PSD, Clay County, WV
- Gandeeville PSD, Roane County, WV
- Hooverson Heights PSD, Brooke County, WV
- Century/Volga PSD, Barbour County, WV

Mine Reclamation Systems

- Upshur 10/15 Portals, Upshur County, WV
- Helen Refuse, Raleigh County, WV
- Dawmont Refuse, Harrison County, WV
- Lower Burning Creek Refuse, Mingo County, WV

Bridge and Highway Projects

- Cedar Creek Bridge, Jackson County, WV
- Green Valley Bridge, Kanawha County, WV
- Davis Creek Bridge, Kanawha County, WV
- Blue Creek Bridge, Kanawha County, WV
- Corridor "G", Logan County, WV

Landfill / Solid Waste Systems

- Montgomery Landfill, Fayette County, WV
- Disposal Services, Putnam County, WV
- Jackson County Landfill, WV
- Wyoming County Landfill, WV



John L. Green, PS
Survey Manager

Civil Engineering (2 years),
West Virginia Institute of
Technology, 1975-1976
Professional Surveyor
WV [REDACTED] 1991
West Virginia Society of
Professional Surveyors
National Society of
Professional Surveyors
CGIS/LIS Association
West Virginia Association
of Geospatial Professionals

Mott MacDonald Group
2009 – Present

Mr. Green is a Registered Professional Surveyor with over 30 years of experience in the engineering industry in surveying or survey related capacities and as an engineering design technician. He is expertly qualified in most conventional types of surveying and is also experienced in GPS surveying techniques. His specific project experience is primarily in transportation, site design and environmental infrastructure such as water and sewer system projects.

Selected projects

Marmet Bridge Monitoring Survey, HNTB/West Virginia Parkways Authority, Kanawha County, WV: Senior Designer responsible for high accuracy conventional survey services for I-64/I-77 bridge settlement monitoring project. Responsible for all survey activities required to establish high-stability conventional survey control and the installation of thirteen high accuracy survey targets on four separate bridges, including abutments, piers, and concrete slope monitoring monuments. High accuracy conventional surveys of the targets were repeated periodically for over a year to monitor the structures for movement in any direction. Duties also included reduction of survey data, preparation of a site plan, and survey data report submitted to the design team in the HNTB Scott Depot office after each monitoring survey visit.

Mile 24 Drainage Structure Survey, HNTB/West Virginia Parkways Authority, Mercer County, WV: Senior Designer responsible for mapping for analysis and design of drainage structure for I-77. Also responsible for all survey activities required for site mapping, including topography, existing structures, controlled access right of way locations, and ties to established Turnpike geometric control. Duties also included plotting of survey data, site plan preparation, and dissemination of data to the design team in the HNTB Scott Depot office.

Ghent Maintenance Facility Survey, HNTB/West Virginia Parkways Authority, Mercer County, WV: Senior Designer responsible for mapping for design of maintenance facility improvements. Responsible for all survey activities required for site mapping, including topography, existing structures, utilities, and controlled access right of way locations. Duties also included plotting of survey data, site plan preparation, and dissemination of data to the design team in the HNTB Scott Depot office.

Beckley South Acquisition/Disposition Survey, HNTB/West Virginia Parkways Authority, Raleigh County, WV: Senior Designer responsible for property acquisition and property disposition at the WVPA Beckley South Maintenance facility. Responsible for all survey activities required for boundary surveys, including research, field surveys, and plat and legal description preparation. Duties also included coordination with the WV Parkways Authority's attorney and adjoining property owners to facilitate the project.

Sharon Retaining Wall Survey, HNTB/West Virginia Parkways Authority, Kanawha County, WV: Senior Designer responsible for mapping for analysis and design of a slide remediation project. Responsible for all surveys activities required for site mapping, including topography, existing structures, controlled access right of way locations, and ties to established Turnpike geometric control. Duties also included plotting of survey data, site plan preparation, and dissemination of data to the design team in the HNTB Scott Depot office.

Multiple Projects, West Virginia Turnpike, WV: Senior Designer responsible for all survey operations for all West Virginia Turnpike projects since 1996, including engineering design and boundary surveys.

Forks of Cacapon Bridge, West Virginia Department of Transportation (WVDOT), Forks of Cacapon, WV: Senior Designer responsible for all survey operations, including existing baselines, centerlines, and rights-of-way, as well as proposed right-of-way plan development for this 0.5 mile bridge replacement project.

Race Track Access Road, WVDOT, Charles Town, WV: Senior Designer responsible for all design survey operations and right-of-way plans, including questionnaires and tract descriptions, for this 0.65 mile long project. The project involved the relocation and upgrade of county route 17/4, including a roundabout interchange connecting county routes 17, 17/4 and 17/7. This road provides access to the Charles Town Races and Slots horse racing and gaming facility, a major West Virginia tourist destination.

Route 35 Relocation, WVDOT, Hurricane Creek to Pliny, WV: Senior Designer responsible for all survey operations and right-of-way plans, including questionnaires and tract descriptions, for this 3.5 mile project through a remote mountainous region of the state. The project included one major bridge.

West Virginia Turnpike-Sign Inventory Project, West Virginia Parkways Economic Development and Tourism Authority (WVPEDA), Mercer, Raleigh, Fayette and Kanawha Counties, WV: Senior Designer responsible for survey and data collection operations for a WVPEDA comprehensive sign inventory project designed to collect detailed information such as type, condition, age, material, retro-reflectivity rating, etc. for use in a facilities maintenance management system. The information was also used to design a signage upgrade and rehabilitation project for the 88-mile West

Virginia Turnpike (Interstates 64 and 77). The project was broken into three separate contracts and involved over 3,000 signs, ranging from small u-channel mounted "No Parking" signs to large overhead and cantilevered structure mounted interstate directional signs.

Harper Road Interchange Improvements, WVDOT, Beckley, WV: Senior Designer responsible for all survey operations and right-of-way plans, including questionnaires, for this one mile project in a high traffic, commercially developed urban area.

Gateway Interchange, WVDOT, Fairmont, WV: Senior Designer responsible for all design survey operations, including coordination of a surveying subcontractor. Also responsible for right-of-way plans, plats, questionnaires, and tract descriptions for this 1.5 mile project through an urban area. This was the largest right-of-way project, in number of parcels (over 300), from the DOT in many years.

Relocation of WV 14 Interchange, WVDOT, Mineral Wells, WV: Senior Designer responsible for all survey operations and right-of-way plans, including questionnaires and tract descriptions. The project included an interchange and bridge over I-64 and the relocation or upgrade of five related area roads.

Woodlands Bridge, WVDOT, Woodlands, WV: Senior Designer responsible for all survey operations including site mapping and existing baselines, centerlines and rights-of-way for this .5 mile WV DOT bridge rehabilitation project.

Industrial Access Road, WVDOT, Mineral Wells, WV: Senior Designer responsible for all survey operations and right-of-way plans, including questionnaires for this one mile fast-track economic development project. The project schedule was so accelerated that clearing operations and structure demolition were started before the plans were complete, requiring surveys to update the mapping.

Kingmont Commercial Subdivision, Kingmont, WV: Senior Designer responsible for all mapping control, design and property surveys, CADD drafting and site grading design, subdivision plans and plats, street and minor storm and sanitary sewer design, and plan preparation for this private commercial development project.



Brandon Hodges
Construction Manager

Business Courses,
Parkersburg Jackson
Community College, 1995
Business Courses, Marshall
University, 1994
ACI certified Field Testing
Technician, Grade I
WVDOT Certified Portland
Cement Concrete Inspector
WVDOT Certified
Aggregate Sampling
Inspector
WVDOT Certified
Compaction Inspector
Heartsaver First Aid CPR
AED Certification
WV Notary Public

Mott MacDonald Group
2013 – Present

Mr. Hodges has 15 years of experience in the engineering and construction industries. He has gained experience in both the design and construction phases of utility, site, and building projects. Through a variety of projects and responsibilities, Mr. Hodges has continued an upward rise in the engineering field. Specializing in the utilities industry, he can perform a multitude of tasks in project management, from design and layout, to inspection and quality control testing. He has served as Resident Project Representative on a number of multi-million dollar projects, and has experience with client interface, site analysis, contracts, plan and code review, and all functions relative to construction administration from groundbreaking through project completion. With Mott MacDonald, he continues to fulfill multiple tasks and assignments for varying client needs, both in the field and in the office.

Selected projects

US Route 50 Bypass / Little Kanawha River Bridge, West Virginia Division of Highways (WVDOH), Parkersburg, WV: Co-Resident Project Representative on a \$25M, 2100 lf, four-lane bridge. Was involved in all aspects of bridge inspection, including excavation, piling, piers and abutments, steel work, and surfacing. He oversaw quality control testing and reporting, and calculated excavation and concrete work for payment. Project also included roadway construction and blasting. Documented work progress through detailed daily reports.

Various Projects, West Virginia American Water, Charleston, WV: Project Technician responsible for performing a variety of technical services for WVAW Engineering Department upon their request. Services include project design, estimation and layout, boundary and as-built surveys (both conventional and GPS), courthouse research, and right-of-way and easement acquisition. Mr. Hodges also prepares and submits multiple permit applications for WVAW, including West Virginia Department of Highways, United States Army Corps of Engineering, and West Virginia Office of Land & Streams. He was also requested by the client to serve as a Resident Project Representative on a water line relocation project needing an experienced ambassador due to sensitivity of affected customers.

Stormwater Pollution Prevention Plan (SWPPP), City of Charleston, Charleston, WV: Technician responsible for working with city employees to evaluate their respective site for potential stormwater contaminants, reports to team leaders, and assists in writing the SWPPP document. Part of Mott MacDonald's team was selected to assist the City of Charleston in site evaluations and mapping of 24 city-owned facilities as part of developing SWPPPs for each site.

FEMA Storm Sewer, Town of Man, Man, WV: Resident Project Representative for completion and tie in of a 60" HDPE storm drain, including a concrete and gabion inlet structure, drop inlets, and connection to existing facilities. The project was necessary due to floods overwhelming the existing facilities with debris. The project relocated the

storm sewer from private citizens' property onto town streets. Oversaw excavation, installation, backfill, and resurfacing. He communicated with necessary parties involved with utility relocation. Documented work progress and approved change orders and construction estimates.

East Main Street Upgrade, West Virginia American Water, Oak Hill, WV: Resident Project Representative on two different water main upgrade projects through a main traffic artery. Upgraded over 2500 lf of 6" cast iron to 12" ductile iron pipe. Projects required detailed traffic control, live taps, and tie-ins. Involved in all aspects of construction, from layout through sampling, testing, completion, and as-builts. Documented work progress through detailed daily reports.

Quality Control Testing, WV Department of Highways, Multiple Locations, WV: Performed aggregate sampling, concrete, and compaction testing on multiple projects throughout West Virginia. Worked with both contractors and state inspectors to ensure project materials met required specifications. Mr. Hodges assisted the Contractor in remediation of deficiencies. Documented test results and reported to Project Managers.

Surveying, WV Division of Environmental Protection/WV Department of Highways, Multiple Locations, WV: Performed general surveying duties on various survey projects. Highlights included abandoned mine site reclamation, highway design and layout, property lines, boundary surveys, topographic surveys, utility surveys, and subdivision lots. Was involved in all aspects of surveying, including brush cutting, rod work, operation of Theodolite / EDM and data collectors, and GPS. Gained experience in courthouse research.

Water System Upgrades, US Army/Virginia American Water, Fort Lee, VA: Resident Project Representative for the construction of upgrades and reinforcements to the Fort Lee US Army base water system. Strict work and time regulations required diligence and communication. Project included live tapping, valve insertions, and line stops. Required water outages were on a time schedule, and each was completed on time. He was involved in all aspects of construction, from layout through sampling, testing, and completion. Communicated with all stakeholders, including VAWC and US Army officials, contractors, and residents.

Asphalt Inspection, West Virginia Department of Highways (WVDOH), Charleston, WV: Acted as a Consultant for the WVDOH on a variety of paving projects throughout the district. He worked alone and along with a WVDOH inspector. Observed application, compaction, and quality control testing of asphalt. Also calculated application rate, documented quantities, and pay items.

20-Inch Water Relocation, West Virginia American Water, Institute, WV: As Resident Project Representative on a one mile-long water line relocation, removed a potable water line from potentially contaminated soil inside a chemical plant facility and relocated it to a suitable location. Project included hazardous material training and required diligence to avoid disruption of plant facilities. He was involved in all aspects of construction, from layout through sampling, testing, completion, and as-builts. Documented work progress through detailed daily reports.

US Route 35 Water and Sewer Relocation, South Putnam Public School District, Teay's Valley, WV: As Resident Project Representative, Mr. Hodges coordinated with contractor, engineer, school district, and WVDOH to relocate utilities for the widening of a main traffic artery from two lanes to three, which required multiple crews working on water and sewer. The project included live tapping, bypass pumping, multiple tie-ins, and an aerial sewer line crossing. It also involved in all aspects of construction, from layout through sampling, testing, completion, and as-builts. Documented work progress through detailed daily reports.

Sewage Upgrades, Hamlin Public Service District, Hamlin, WV: Resident Project Representative for various upgrades in the town's sanitary sewer system. The project involved rehabilitation or replacement of multiple pump stations and manholes. It also required bypass pumping to ensure uninterrupted service and replacement of valves, pumps, piping, and electrical. Project also included new embankment construction and dredging of the sewage treatment lagoon, followed by new outlet treatment facilities. Documented work progress and approved change orders and construction estimates.



Josh Carter, PE, D. CE
Coastal Process Engineer
Sedimentation Analysis

BS, Ocean Engineering,
Texas A&M University, 1999
MS, Civil and
Environmental Engineering,
Massachusetts Institute of
Technology, 2002

Professional Engineer

TX [REDACTED] 2006
LA [REDACTED] 2007
MS [REDACTED] 2008
AL [REDACTED] 2013

American Society of Civil
Engineers (ASCE)
Coasts, Oceans, Ports, &
Rivers Institute of ASCE
Academy of Coastal,
Ocean, Ports, and
Navigation Engineers
(ACOPNE)

Mott MacDonald Group
2004 – Present

Mr. Carter is a principal coastal engineer with 14 years of professional experience in the US and overseas. Mr. Carter's professional interests include in a broad sense the human influence on the hydrodynamics and morphology of coastal and riverine environments. This leads to an expertise in riverine and coastal processes, morphology, numerical modeling of coastal processes in order to understand the coastal setting, and implementing applications to coastal erosion control, restoration, flooding, and utilization. Areas of expertise include modeling and analysis of coastal processes such as wave transformation, coastal circulation, storm surge, sediment transport, coastal morphology, estuarine dynamics, water quality, and vessel induced hydrodynamics. Mr. Carter has performed all phases of project work from feasibility evaluation and coastal engineering design, to construction administration. Mr. Carter is experienced in preparation of engineering design for coastal protection structures including breakwaters, groins, revetments; Living Shoreline concepts; restoration such as beach and dune nourishment and marsh creation; and industrial applications such as marine terminals.

Selected projects

Adolph Thomae Park Boat Launch Improvement, Cameron County, TX: Coastal Engineer who performed site conditions assessment at the potential boat launch ramp including expected water elevation, wind and vessel-generated waves, and hydrodynamic conditions. These parameters were used to optimize the design, layout, and configuration of the boat ramp.

Grays Harbor North Jetty Sedimentation Analysis, Grays Harbor, WA: Coastal Engineer for study which assessed the feasibility of reducing maintenance dredging within the Grays Harbor entrance by controlling the sand bypassing the North Jetty. An additional criterion was that the solution should reduce ongoing shoreline erosion attributed to the short jetty length and inlet morphology. The site environment was extremely energetic, making construction and long-term maintenance considerations important to the success of the project. Responsible for analyzing the results of numerical coastal models, including ADCIRC and STWAVE.

Corpus Christi North Beach Project, Corpus Christi, TX: Coastal Engineer for shoreline protection project aimed to reduce and if possible, prevent the loss of property and public infrastructure as well as increase the usability and accessibility of the beach for recreational purposes. Responsible for site inspection, data collection, and statistical analysis of wind data. This data was used to hindcast wave conditions at the site, which were used for sediment transport analysis and preliminary design conditions. He coordinated surveying efforts by the city and the project surveyor to maximize efficiency and produce a high quality survey product.

Hurricane Sandy Waterfront Repairs, NAVFAC, Naval Station, Guantanamo Bay, Cuba: Coastal Engineer. Design-Build project for repairs to the public marina, public beaches, and restoration of the recreational dive park. Work includes floating fuel pier replacement, repair/replacement of boat ramp, repairs to damaged walls and roofs, demolition and construction of new cabanas. Dive area work includes a two way ramp access with breakwater and a new elevated paved training area. Work also includes a new elevated training area, vehicle access and parking with wave run up and erosion protection for 50 year storm event.

Hat Island Marina Design, Hat Island, WA: Coastal Engineer and part of the coastal engineering team which evaluated the marina entrance's ability to provide acceptable operating conditions inside the marina. His team developed the wind and wave at the project site and modeled wave growth and transformation to the marina entrance. Wave modeling was performed with a wave refraction/diffraction/reflection model to determine the wave characteristics inside the marina. Several alternative entrance configurations were developed and analyzed to determine the best-performing marina entrance configuration. The recommended alternative configuration was shown to be able to keep the wave heights below those defined for acceptable mooring conditions for both the existing and the proposed expanded marina for the 1-year and 50-year storms.

Maury Island Propwash Impact Study, Maury Island, WA: Coastal Modeler on the coastal analysis team which analyzed field data of propwash velocity data. The data was correlated to corresponding numerical modeling runs of the JETWASH numerical propwash model, and comparisons were made.

TAMUG Marine Terminal Sedimentation Control, Galveston, TX: Project Manager a coastal engineering analysis which included sediment transport numerical modeling to develop sedimentation reduction recommendations at the TAMUG campus berth. Responsible for directing sediment transport and morphology modeling and analysis for sedimentation reduction, directed the development of and evaluation of sedimentation reduction structures, and managed the preliminary design and permitting of the recommended project features. The recommended solution consisted of a T-head groin with pedestrian access.

Fort Livingston Wave Protection, Jefferson, LA: Coastal Engineer for project to protect the shoreline against severe storm events. Responsible for the development and evaluation of alternative shore protection schemes through extensive wave and hydrodynamic modeling, both numerical and analytical.

Kaufer-Hubert Memorial Park Shoreline Protection, Kleberg County, TX: Coastal Engineer for beachfront seawall project needed to preserve and restore the natural resources lost by erosion, and increase the quality of use and public safety of the park as well as economic development. Responsible for analyzing the local coastal climate including wind and storm surge and calculated design wave and water level parameters. He also used the design conditions to determine the crest height of the sheet-pile wall. Other duties included final design drafting and QA/QC of drafting products. In Phase II of this project, he was responsible for construction oversight.

Port of Corpus Christi Ship Channel Improvement, Ingleside/Corpus Christi Bay, TX: Coastal Engineer responsible for numerical modeling of vessel hydrodynamics to determine possible post-project effects. The Port planned to construct a breakwater at the junction of the Corpus Christi Ship Channel and La Quinta Channel. A revetment was proposed along the shoreline from the Ingleside bulkhead approximately 970 feet to the southeast. Other proposed channel improvements were to dredge, widen, and deepen the channel. These modifications would allow for larger ships to pass through the channels. The project analyzed impacts of channel improvements, potential structures, and increased vessel traffic on the surrounding areas.

Tuxpan Terminal Sedimentation and Maintenance Dredging Requirements, Veracruz, Mexico: Coastal Engineer for a study which evaluated sedimentation rates and the maintenance dredging that would be required to maintain navigable conditions in the navigation channel and turning basin of the proposed Terminal in Tuxpan, Mexico. He used different methods to develop estimates of sedimentation: historical data; morphological analysis; and numerical modeling.

Piper Channel Stabilization, Port Aransas, TX: Coastal Design Engineer for a navigation project which reopened the channel after a 200 foot section of both jetties breached allowing sediment to migrate into the channel resulting in closure of the channel. Due to environmental conditions and unique flared design, the jetty was designed with multiple components: rock revetments, rock jetties with an impermeable composite sheetpile core, steel sheetpile wall, and a combi-wall component with 30" king piles. Responsible for preparing permitting documents and overseeing the development of design plans specifically for the permitting process. The re-opened channel provided access from the Gulf and Corpus Christi Ship Channel to 350+ lot subdivision, marina and shallow intertidal habitat for recreation.

Port of Anacortes Seafarer's Memorial Park Small Craft Facility, Anacortes, WA: Project Engineer who assisted with preliminary and final engineering small boat facility components including the design of the pier, gangway, and timber frame floating dock. He provided engineering assistance with plans and specifications development. Final engineering design included finalizing the geometric layout of each float component and final design of the new concrete pier and aluminum gangway.

Port of Shelton Marina Timber Access Pier Condition Assessment, Shelton, WA: Project Engineer for a condition assessment of an existing timber access pier, located in Oakland Bay. Mr. Pagán, reviewed the existing structures, assessed the current condition, and developed recommendations for maintenance and repair work to ensure the pier could remain in service at the necessary level of safety. He also evaluated the existing vertical load structural capacity of the pier. Possible repair and maintenance work was assembled and summarized in a technical memorandum.

Rybovich Mega-Yacht Marine Facility, Access Channel Permitting, Riviera Beach, FL: Project Manager responsible for overseeing engineering work as well as the development of the dredging design revisions, vessel navigation assessment along the channel, as well as coordination with the environmental consultant to minimize impacts to the existing natural resources, and development of the permit drawings. The project provided continued coastal engineering analysis to support the permit application for construction of a new marine facility in Riviera Beach which is to service mega-yacht ships.

Akutan Island Ferry Terminal Engineering Design Services, Akutan Island, AK: Project Engineer who feasibility-level design of a 600-ft-long ferry terminal pier, fender support structures, passenger gangway infrastructure, and pile-supported wave barrier system at the proposed new Akutan Island Ferry Terminal location. His work helped in determining the most viable structural configuration (number of piles, pile orientation, pile size, decking size and thickness, pile cap size and dimensions) of the pier, pedestrian walkway and transfer span, and mooring and berthing structures. Structural analysis included hydrodynamic loads (waves, currents, and water levels), seismic loads, wind loads, and live (pedestrian, pickup) and dead loads.

O Avenue Mitigation Site Analysis and Design, Port of Anacortes, WA: Project Engineer for a beach protection project which included a new riprap slope and reinforced concrete beach stepped wall to protect the beach slope and prevent damage to existing upland structures due

to erosion including an existing storm drainage pipeline. Mr. Pagán developed final structural design drawings for the reinforced concrete stepped wall located within the new riprap geometric alignment along the shoreline. The design of the concrete stepped wall served as beach slope protection, protection to the existing upland structures including a roadway and retaining walls, and as the site's architectural feature providing a pedestrian walking and sitting area, due to the incorporation of stairs and railings into the design.

Port of Willapa Harbor Tokeland Marina Draft Masterplan, Raymond, WA: Project Engineer for the development of a conceptual plan for improvements and permit drawings for the Tokeland Marina. Numerical wave modeling was performed that determined floating dock configuration, the space between the floating and commercial docks, the floating breakwater alignment, and length of the rock breakwater extension. Mr. Pagán, assisted with development of permit drawings. The drawings included a vicinity map, marina plan view, and commercial dock plan view and cross-section.

Fairmont Hamilton Independent Design Review, Hamilton, Bermuda: Project Manager for an independent review of the wave force analysis calculations and marina breakwater design for the new Hamilton Marina in Bermuda. Mr. Pagán was responsible for the review of the analysis and engineering design performed by Entech Ltd. Review work performed included review and validation of the wave force analysis used as the basis of the loading criteria for the breakwater structure. Also, a review of the design approach and structural breakwater system frame (steel piles and CIP & Precast concrete) design and geotechnical considerations was reviewed for adequacy based on industry standards and US design criteria.

G&G Container Terminal Facility Bulkhead Repair, Dania Beach, FL: Project Manager for the replacement of an existing bulkhead wall which consisted of replacing the existing south bulkhead wall, providing a new crane pad, replacing existing bollards, and repairing the existing apron and yard areas. Mr. Pagán conducted a conditions assessment to determine the existing condition of the bulkhead wall and develop preliminary recommendations for bulkhead rehabilitation and operations adjacent to the bulkhead prior to implementing the rehabilitation work. A preliminary design, construction cost estimate, and request for design-build services was developed as well as jurisdictional regulatory permitting applications. Mr. Pagán also provided construction engineering services.



Paul S. Carter, PE
Structural Design

BS, Civil Engineering,
University of Alabama at
Birmingham, 2002

Professional Engineer:

- WV [REDACTED] 015
- FL [REDACTED] 07
- AL [REDACTED] 07
- PA [REDACTED] 009
- KY [REDACTED] 013
- NY [REDACTED] 2013
- OH [REDACTED] 014
- OK [REDACTED] 014
- TX [REDACTED] 015

American Institute of Steel
Construction

Masonry Association of
Florida-Structural Masonry
Inspector

American Society of Civil
Engineers

Mott MacDonald Group
2002 – Present

Mr. Carter has over 14 years of experience with expertise in structural engineering design, detailing, and inspection services. His experience includes structural design and inspection of natural gas pipeline and facility structures; bridge and highway structures; and residential, commercial, and industrial buildings. Additional technical experience includes design of concrete, steel, and timber structures, and preparation of technical specifications and contract documents.

Selected projects

NAVFAC Hurricane Sandy Waterfront Repairs, Guantanamo Bay, Cuba: Project Engineer for design/build project that includes the design and construction to remove, repair, and/or replace damage from the effects of Hurricane Sandy. The project is broken up into three main categories that include the Marina, Beaches, and Phillip’s Dive Park. Work includes replacement of damaged fuel pier, fixed piers, marina retail and boat repair buildings, cabanas, boat ramp, diver ramp, staging platform, bulkhead, and breakwater.

Nature Walk Welcome Center, Point Washington State Forest, FL: Project Engineer. New 2-story office and information center for the Nature Walk subdivision. Two story wood structure built above an existing lake with wood piles, wood stud walls, and special Glu-Lam trusses. Provided design of walls, foundations, and roof system, and prepared construction drawings and details.

Bob Sikes Bridge, Pensacola Beach, FL: Project Engineer for a new 20-foot diameter steel sheet pile and concrete dolphin, repairs to two existing dolphins along with replacement of 400 lf of steel fender system. Also, repairs to existing access ladders and platforms from bridge deck to fender system. Provided fender system and sheet pile analysis, ladder and platform analysis and designed repairs, and calculated quantities. Also provided bridge column analysis for damaged bridge column and provided repair recommendations. Performed inspections during construction for compliance with plans.

Crawfordville Highway, From North of Lost Creek Bridge to East Ivan Road, Florida Department of Transportation (FDOT), FL: Project Engineer. New gravity walls and temporary sheet pile walls and wale system. Provided design analysis and prepared construction drawings, and performed quality control review of quantity calculations.

HWY 98 and Blue Angel Parkway Intersection, FDOT, Pensacola, FL: Engineer of Record. The modification of an existing Mast Arm including light relocation and addition of a sign. Provided design analysis for the adequacy of the existing Mast Arm and a signed and sealed letter to the FDOT for required action.

Saltaire Development, Mobile County, AL: Project Engineer. The addition of roadway lighting for housing development roads. Provided design analysis and prepared construction drawings for foundation of pre-manufactured light poles.

State Road 87 Over Dean Creek, FDOT, Santa Rosa County, FL: Project Engineer. New 114 ft. long, 96 ft. wide, 3 span continuous cast-in-place concrete flat slab bridge. Provided design of bridge deck and substructure, wing walls and retaining walls; performed quality control checks on construction documents; and prepared quantities documentation.

State Road 87 from CR 184 to SR 10, FDOT, Santa Rosa County, FL: Project Engineer: New concrete retaining walls, concrete gravity walls, high mast lighting foundations and concrete strain poles for span wire signal supports. Provided design and analysis for concrete retaining and gravity walls, and performed quality control review checks for other aspects of the project including calculation and drawing review, and quantities calculations.



**Andrew K. Gibbs, PE
Electrical/Lighting**

BS, Electrical Engineering,
University of South Florida,
2008

Professional Engineer

AL [REDACTED] 13

CA [REDACTED] 14

FL [REDACTED] 14

GA [REDACTED] 14, 2015

MD [REDACTED] 14

NC [REDACTED] 14

NCEES, [REDACTED], 2014

Illuminating Engineering
Society of North America
(2014)

Aviation Lighting
Committee Member (2016)

Mott MacDonald Group
2009– Present

Mr. Gibbs is an electrical engineer with a broad range of technical experience, include interior, exterior area, roadway, and airfield lighting, medium and low voltage power distribution, overcurrent protective device coordination studies, short circuit analysis, load flows, arc flash hazard analysis, generator paralleling, demand control, power factor correction, lightning protection systems, industrial control systems and networks, SCADA, instrumentation systems, access security systems, airfield visual and navigational aids, and electrical inspection. This technical experience has been in the highways, ports and harbors, stormwater, aviation, pipelines, tunnels, water, and waste water sectors across North America. Some of his software experience includes Power Tools for Windows by SKM Systems Analysis, Inc., Visual Lighting Software, AGI32 and AutoCAD.

Selected projects

Pensacola Bay Fishing Pier Design-Build, Pensacola, FL: Electrical Engineer. Design Build of a new 24ft wide by 2,576 ft long drive-on fishing pier with area lighting to replace the one that was severely damaged by Hurricane Ivan. The replacement pier and approach are designed for a pedestrian / H-10 light traffic loading. The structure consists of precast concrete piles, caps and double-tee deck. Project manager for the engineering team responsible for the structural, civil, geotechnical and hydraulic design as well as FDEP and Corps of Engineer permitting.

East Port Development, Port Tampa Bay, Tampa, FL: Electrical Engineer of Record for the development of a cargo yard, berth, and relocated access road. The Electrical Design included power and controls for the yard as well as high mast yard lighting and berth lighting, as well as roadway lighting for the access roadway.

Improve Las Pulgas Gates East Ramp, NAVFAC, Marine Corps Base Camp Pendleton: Electrical Engineer of Record for the modifications to a Marine Corps Base access gate. The design includes modifications to the vehicle stopping device known as a catsclaw, an additional guard house, and the associated electrical infrastructure and access control lighting as required byt the Unified Facilities Criteria.

Interstate 10 Interchange Modifications from Texas Street (Exit 25A) to West Tunnel Entrance, Alabama Department of Transportation, Mobile, AL: Electrical Engineer of Record for the design of the Roadway Lighting for major modifications to an interstate, major collector, and associated interchanges in a downtown area, approaching a tunnel. The roadway lighting design included the use high mast lighting, offset lighting, and pendant lighting for the roadways to exceed the values of the Illuminating Engineering Society RP-8.

Main Street Streetscape, Denville Township, Denville, NJ: Electrical Engineering Designer for the roadway lighting design for the streetscape beautification of a town road.

Gene Brown, P.E.



Mr. Brown has served as Project Engineer on numerous projects for clients in private industry as well as for state and federal agencies. He has performed a variety of roles in various projects from office management activities to coordination of field activities. Duties on these projects have included foundation investigation report production, slope stability analysis, dam analysis, AutoCAD drafting, supervision of subsurface drilling programs, field activity coordination, environmental site assessments, operation and maintenance of groundwater extraction and remediation systems, structural inspections, GPS and conventional surveys, laboratory data computation and processing, performance of fieldwork, client relations, and supervision of staff.

Fields of Competence

- Foundation Investigations
- Landslide Analysis & Remedial Design
- Seismic Site Class evaluation, per International Building Code (IBC) 2000 edition.
- Construction Monitoring
- Personnel Management
- Project Management (schedule and budget)
- Project Estimating

Education

- BS, Civil Engineering Technology, Bluefield State College, 2000
- BS, Architectural Engineering Technology, Bluefield State College, 2000

Registration/Certifications

- Registered Professional Engineer, West Virginia
- Licensed Remediation Specialist (LRS), West Virginia
- OSHA 1910.120 40-hour HAZWOPER Training, 2005
- Certified WVDOT-DOH Compaction Inspector
- Certified WVDOT-DOH Portland Cement Concrete Inspector

Employment History

- October 2008 - Present
Project Engineer, NGE, LLC
- October 2006 - October 2008
Staff Engineer, NGE, LLC
- 2001 - 2006
Staff Engineer, Terradon Corporation
- 2000 - 2001
Survey Technician, John E. Chance & Associates, Inc
- 1999
Engineer Intern, Burgess & Niple, Ltd.



GREG ZIMMERMAN

Vice President / Endangered Mussel & Fisheries Biologist / Water Quality Specialist

As Vice President at EnviroScience, Inc. Mr. Zimmerman oversees and manages the operations of the company, with direct oversight of the Marine Services group including ESA endangered mussel and fish consultations, and underwater construction / inspection projects. Mr. Zimmerman has over 19 years of diving experience, including surface-supplied and hardhat diving, and he maintains a number of specialty dive certifications.

EDUCATION

M.L.S. Biology and GIS, Kent State University, 2004

B.A. Environmental Biology, Hiram College, 1996

CERTIFICATIONS

Approved USFWS / State Mussel / Fish Contractor in >16 States

Association of Diving Contractors International, Commercial Air Diver

Kirby Morgan Helmet and Mask Operator / User Training

Advanced Diving Openwater / Drysuit / Search and Recovery Certifications

40h HAZWOPER / eRailSafe

CPR / AED / First Aid / Oxygen Administration

YEARS OF EXPERIENCE

EnviroScience, Inc.: 19

Hiram College Instructor: 2

RELEVANT EXPERIENCE

Natural/Cultural Resources

Endangered Mussels

Endangered Fishes

Biological Assessments

Water Quality Monitoring

GIS of Biological Systems and Water Quality Data

Mr. Zimmerman has 20 years of experience in the fields of aquatic survey and freshwater mussel and fish identification. He has been approved by the USFWS as a mussel and fish contractor in various regions since 1997 including PA, OH, WV, NY and NJ. Mr. Zimmerman has worked extensively with over 90 species of freshwater mussels, including 12 federally-listed and numerous state-listed species. He has also designed and managed some of the largest ESA and biological monitoring survey projects completed to date in North America. Additionally, he has completed 22 Biological Assessments (BA) for transportation-related projects where endangered mussels were an issue, and he has assisted numerous other clients with projects where aquatic impacts were anticipated.

SELECTED PROJECT EXPERIENCE

PennDOT Various Bridge Replacements, Districts 1-0, 10-0, and 11-0, Project Manager, 1999 – Present. Mr. Zimmerman has assisted PennDOT with over 20 bridge replacement-related freshwater mussel surveys and translocations. Many of these projects also required the development of a Biological Assessment, for which Mr. Zimmerman was the lead author. These surveys were completed for ESA compliance and included both qualitative and quantitative components. On average, approximately 500 quadrat samples and 100 hours of dive hours were expended during each project. One survey included the collection of 1,400 quadrat samples and the management of 12 divers. Survey reports included the calculation of density estimates of federally endangered species for multiple alternative alignments. Fish surveys were also completed at many locations.

Pratt-Hansford Emergency Waterline Replacement, Hansford, WV, Project Manager / BA Preparer, 2013 – 2017. Beginning in the fall of 2013, Mr. Zimmerman coordinated intensively to meet the project needs of constructing a critical waterline before water temperatures dropped below acceptable survey temperatures for a translocation. This emergency waterline construction was

Greg coordinated the needs of T&E fish, mussels, water quality and construction to develop the Miller Station BA.

RELEVANT EXPERIENCE (CONT'D):

T&E Species Surveys, Permitting and Agency Coordination for a variety of DOTs, Oil & Gas, Drinking Water, and Corridor Projects

PennDOT Bridge Replacements and Programmatic Agreements

USACE Diving Projects for Habitat Mitigation, Navigational Dredging, Endangered Species, and Flood Control

Underwater Maintenance / Inspection Projects for Gas and Coal Power Plants

FERC Studies for Hydropower

GIS Studies for Fish Passage and Habitat Modeling

Expert Witness for Water Rights and Endangered Species Issues

Manager of One of the Largest T&E Mussel Mitigation Projects on Record, involving 6 States and 10 Agencies

Mr. Zimmerman managed mussel surveys of multiple alignments to develop the Pratt-Hansford emergency waterline BA. A BO was issued in record time and Mr. Zimmerman managed the relocation and monitoring of T&E mussels using 10 divers, allowing 1,500 residents to obtain safe drinking water.

necessary to ensure the health of over 1,500 residents due to an unsafe water condition, however 4 federally endangered species were known from the project area. Mr. Zimmerman developed a survey plan and ES surveyed multiple alignments to determine the best practical alternative. Mr. Zimmerman developed an approved Biological Assessment and Biological Opinion in less than one month (record time for the USFWS Elkins office) as ES personnel worked non-stop with USFWS / WVDNR and USACE to achieve an approved BA and publish the Biological Opinion (BO). Once the BO was issued, ES immediately began translocating mussels from the project area at Mr. Zimmerman's direction, which was over 5,000 sq. m. Construction began immediately following the translocation, and Mr. Zimmerman also developed water quality, sediment monitoring and construction oversight throughout the construction, as well as long-term mussel monitoring to 2017.

Susquehanna / Chemung / Delaware River Mussel Survey and Relocations (PA/NY), Project Manager / Malacologist, 2009 - 2013.

Since 2009, Mr. Zimmerman completed 15 mussel survey / relocations to investigate the feasibility of surface water intakes. Surveys were performed on 11 sites on the Susquehanna River, two sites on the upper Delaware River, and two sites on the Chemung River. These surveys were completed for state and ESA compliance and included both qualitative and quantitative components. EnviroScience was able to provide guidance to clients regarding avoidance and minimization measures for sport fish, protected fish and mussel resources. Mussels were relocated to suitable habitat when no avoidance was practicable. Mr. Zimmerman conducted extensive coordination with the PFBC, Susquehanna River Basin Commission, and the Delaware River Basin Commission.

Expert Witness ESA Consultation for the ACF Water Rights, Florida, Mussel / Aquatic Biologist, 2005 – Present.

Mr. Zimmerman is Florida's lead malacologist for the ongoing water rights case between the states of Florida, GA, and AL. Mr. Zimmerman provided expert testimony regarding water management for endangered mussels and fish habitat on this nationally-recognized project including endangered freshwater mussels and the federally threatened Gulf Sturgeon. Greg also led diving field surveys of over 200 locations within the watershed and coordinates extensively with the USFWS, USACE, FWC, TNC, and other stakeholders.





RYAN SCHWEGMAN

Marine Services Manager / Malacologist

As Manager of Marine Services, Mr. Schwegman oversees the operations of EnviroScience, Inc.'s (ESI) underwater projects primarily focusing on ESA endangered mussel consultations and underwater inspection, construction, and engineering projects. His project management experience includes over 75 projects ranging from large corridor projects to commercial diving jobs. Mr. Schwegman is an approved USFWS mussel contractor and has completed mussel surveys in 11 states throughout the U.S. Mr. Schwegman has worked extensively with over 80 species of freshwater mussels, including ten federally-listed and numerous state-listed species. Additionally, he has completed and/or assisted in the completion of seven Biological Assessments for transportation and private industry projects. He is a member of the Freshwater Mussel Conservation Society (where he serves as co-chair on the Guidelines and Techniques Committee) and is an active member of the Ohio River Valley Ecosystem Mollusk Subgroup. Mr. Schwegman has eight years of experience in OSHA and ADOC-compliant surface supplied diving operations. In addition to his scientific training and consulting experience, Mr. Schwegman is a NOLS certified Wilderness (EMT) and Certified Diver Medic (DEMT).

EDUCATION

B.A. Zoology, Miami University, 2010

CERTIFICATIONS

Approved USFWS / State Mussel Contractor (OH, PA, WV, IN, NY, +12 States)

PADI Open Water Diver

40HR Hazwoper

Ohio Division of Watercraft
NASBLA Approved Boating
Education Course

10 hour OSHA training

e-RAILSAFE

MSHA 40h hour Course

Nationally Registered EMT

NOLS Wilderness EMT

Diver Medic Technician

YEARS OF EXPERIENCE

EnviroScience, Inc.: 8

Ohio Dept. of Natural Resources: 4

RELEVANT EXPERIENCE

Federally Permitted Malacologist

Endangered Mussels

Hellbender Surveys

Freshwater Mussel Surveys

Mussel Translocation and
Monitoring

SELECTED PROJECT EXPERIENCE

USFWS Erie National Wildlife Refuge Freshwater Mussel Surveys of Muddy Creek, Pennsylvania, 2015. As the Project Manager and Senior Scientist, Mr. Schwegman oversaw the completion of 17 survey sites in Lake, Dead, and Muddy Creeks. Surveys were conducted to assist the USFWS in a freshwater mussel inventory of the Erie National Wildlife Refuge. Four different federally listed species, as well as many different state listed T&E species, were collected in the study.

Rover Pipeline Mussel Surveys, Ohio and West Virginia, 2015. Project Manager and Senior Scientist for 34 different mussel surveys on various streams and rivers throughout Ohio and north central West Virginia. All surveys were conducted at future pipeline crossing locations as part the FERC licensing. Survey sites in many cases were remote and required substantial planning and coordination. Sampling consisted of qualitative habitat and mussel surveys that required agency coordination in both West Virginia and Ohio.

ODOT Freshwater Mussel Bridge Surveys, 2013 – Present. EnviroScience has completed over 12 bridge-related freshwater mussel surveys and population studies for ODOT under Mr. Schwegman's direction since 2013. Projects range from detecting the federally endangered rayed bean with a three-man crew on Swan Creek to completing a two-week long survey and relocation effort with an eight man crew on the Maumee River. These surveys were completed for ODNR compliance and funded by ODOT through various contracts.

Ryan leads a team of malacologists and commercial divers and is an approved mussel contractor in over 12 states.

RELEVANT EXPERIENCE (CONT'D):

- Side Scan Sonar Survey
- Stream Substrate or Habitat Surveys
- Certified Dive Medic
- Commercial Diving
- Diving / Scuba / Snorkeling
- Underwater Inspection / Construction
- Various Ecological Evaluations for CSX Transportation
- Stream Assessment
- Deep Water Horizon MC 252 Oil Spill in the Gulf of Mexico
- Held Scientific Collection Permits in AR, OH, PA, MI, NY, KY, MO, IA, IL, FL, and WV

Mr. Schwegman has overseen the management and the execution of over 200 freshwater mussel surveys nationally, reinforcing his expertise in project management, agency coordination and all aspects of freshwater mussel surveys, relocations and monitoring.



PennDOT Bridge Surveys, Allegheny River Drainage 2009 – Present. Mr. Schwegman has contributed to the completion of 11 different PennDOT surveys and/or relocations within the Allegheny River and French Creek, where he has served in various roles from diver to project manager. Additionally, Mr. Schwegman has contributed to the completion of Biological Assessments for many of these projects. These surveys were completed for ESA compliance and included qualitative and quantitative components, as well as several relocation and monitoring events.

ODNR Freshwater Mussel Surveys of the Big and Little Darby Creeks, Ohio, 2015. Mr. Schwegman served as a field manager for 10 survey sites of Big and Little Darby Creeks. This was part of a larger effort by ES to survey 40 sites along the Darby Creeks. Several federally and state protected species were collected in the study. This project's funding was provided by ODNR.

Atlantic Sunrise Pipeline Mussel Survey, Susquehanna River, Pennsylvania, 2015. Project Manager and Senior Scientist for two mussel surveys in the Susquehanna River as part of a contingency for a failed HDD attempt. This was a week long project that required agency coordination for survey methods. Diving was conducted with both surface supplied haphal and SCUBA methods.

ASCENT Project Mussel Survey, Ohio River, West Virginia, 2014. Project and field manager for a large-scale mussel survey in the Ohio River for the construction of a new natural gas cracker facility. Developed a detailed scope of work for a project with several different types of impacts. This was a two week long project that required coordination with a coal loading facility, barge traffic, and changing river conditions. All diving was conducted with surface supplied haphal methods. Survey protocols had to be modified onsite based upon sampling conditions and was coordinated with West Virginia Division of Natural Resources.

GAI Pipeline Mussel Surveys, West Virginia, 2014. Senior Scientist and field manager of an 8 man crew for 4 different mussel surveys on various streams and rivers throughout central West Virginia. All surveys methods followed the West Virginia Mussel Survey Protocols.

ODNR Freshwater Mussel Surveys of the Pymatuning Creek, Ohio, 2013. Mr. Schwegman assisted for 3 field days surveying Pymatuning Creek for Clubshell. Tactile and visual timed searches were conducted using snorkels. No recent evidence of the federally protected Clubshell was collected in the study area although many Ohio State threatened and species of concern were found. This project was funded by the ODNR.



Annette G. Ericksen, Ph.D. West Virginia Regional Manager

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PROFESSIONAL RESPONSIBILITIES

Dr. Ericksen applies three decades of experience in heritage resources, business development, and marketing to provide clients with solutions to their environmental needs. As the manager for ASC's West Virginia Region, she is responsible for the preparation of Federal, State and private industry proposals and the successful execution of awarded projects. Dr. Ericksen works to foster client success through the thoughtful management of staff, the application of appropriate methods of environmental regulation, agency collaboration, and community involvement.

Education

The Ohio State University
Ph.D. Anthropology
1995

Certifications

Principal Investigator,
Ohio (1995)

Principal Investigator,
West Virginia (1998)

Principal Investigator,
Indiana (1995)

ADIA – Archaeological
Damage Investigation and
Assessment

EXPERTISE

- Heritage Resources – 25 plus years of experience working with agencies, individuals and organizations to bring Section 106 and NEPA compliance to projects and undertakings. Community service, education and training experience to foster local stewardship of cultural resources.
- Business Development – 10 years of service as West Virginia regional manager.
- Marketing – 30 years marketing experience connecting people to solve client needs.

SELECTED PROJECT EXPERIENCE

- WV Department of Highways Mason County Headquarters. Served as Project Manager and Principal Investigator for archaeological survey.
- Blennerhassett Island Proposed Boat Dock Facility, Wood County, WV. Served as Principal Investigator and field supervisor for archaeological survey.
- Wellsburg Bridge Project, Brooke County, WV. Served as Project Manager.
- Mountain Valley Pipeline (MVP), Multiple Counties, West Virginia. Archaeological Studies. Served as Project Manager.
- Old Hi Carpenter Bridge Rehabilitation, Pleasants County, WV. Served as Project Manager, worked with multiple agencies; including WVDOH, and Fish & Wildlife.
- Elkins Rail-Trail Connector Project, Randolph County, West Virginia. Served as Project Manager and Principal Investigator, Archaeology for the Phase I Cultural Resources Survey.
- Mouth of Seneca Bridge Replacement, Pocahontas County, WV. Served as Project Manager for cultural resources survey that included both archaeology and historic architecture.
- Williamstown Development Project, Wood County, WV. Served as Principal Investigator and Field Supervisor for archaeological survey.
- Thornhill Mansion, Wood County, WV. Served as professional liaison for the Friends of Mountwood Park, assisted with heritage tourism, public participation and outreach.



Dawn Walter Gagliano

Principal Investigator, Archaeology

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PROFESSIONAL RESPONSIBILITIES

Ms. Walter Gagliano utilizes her two decades of experience in heritage management and curation to execute awarded projects and bring projects to completion for clients. As the Principal Investigator in Archaeology for the West Virginia Region, she is responsible for managing clients and field staff on both large and small Section 106 review projects. Ms. Walter Gagliano has specialized training in remote sensing, (magnetometer and resistivity); lithic and microwear analysis; historic and prehistoric artifacts; conservation/preservation; and curation.

Education

West Virginia University
BA Anthropology
1992

University College, London
Institute of Archaeology
MA Archaeology
1997

Certifications

Principal Investigator
Archaeology: Prehistoric,
Ohio (2011)

Principal Investigator
Archaeology: Prehistoric/
Historic, West Virginia
(2011)

Principal Investigator
Archaeology: Prehistoric/
Historic, Kentucky
(2015)

EXPERTISE

- Archaeological Field Investigation
- Heritage Management
- Preservation and Curation
- Remote Sensing

SELECTED PROJECT EXPERIENCE

Summary Results of the Hocking College Investigations of the Stiles Mansion, Thornhill and Estate Grounds, 46WD239, Mountwood Park, Volcano, Wood County, West Virginia.

Phase I investigation of the Blennerhassett Island Historic Park Docking Facilities, Wood County, West Virginia.

Phase I Archaeology for the Mountain Valley Pipeline, Lewis, Doddridge, Braxton, Webster, Fayette, Nicholas and Greenbrier Counties, West Virginia.

Management Summary, Cultural Resources Management Plan for Strouds Run State Park, Athens County, Ohio.

Historic American Engineering Record Report: Sunday Creek Coal Company Mine No. 6 (Millfield Mine), RR1 CR 27 (Millfield Road), East Millfield, Athens County, Ohio.

Phase I Archaeological Investigations of the Mouth of Seneca Bridge Replacement project, Pendleton County, West Virginia.

Phase I Archaeological Investigations of the Old Hi Carpenter Bridge rehabilitation project, Pleasants County, West Virginia.

Phase I Archaeological Investigations of the Wellsburg Bridge, Brook County, West Virginia.

Past performance

Perdido River public access boating facility located in Escambia County, FL was completed in 2016.

Competence in professional disciplines

Mott MacDonald's proposed team is comprised of seasoned and proven Charleston-based management, national coastal, marine structural, and civil site experts, and quality subconsultants with strong working relationships with both Mott MacDonald and the State of West Virginia. We believe our bench strength is unmatched and that we are the best firm for this project. Below we have addressed our capabilities to provide the necessary services to complete this project on-time and on-budget. Furthermore, we have identified some "value-add" services that will ensure this project's success by conducting thorough investigations of the site area, environmental impacts, permitting and compliance issues, and future planning based on potential sedimentation issues, to name a few. Backed by our proposed team are 2,300 Mott MacDonald professionals throughout the U.S. where we can pull additional expertise and support services as needed to ensure a successful delivery of these boat launch facilities.

Access Roads, Parking, Utilities, Stormwater, and other Upland Facilities

Mott MacDonald has more than 20 years of experience with the design of roadways, parking facilities, utilities, stormwater collection and treatment systems, and other upland facilities. This experience allows Mott MacDonald to produce site layouts which utilize space efficiently while simultaneously providing excellent functionality. This blend of efficiency and function serve to reduce the percentage of the site lost to access management facilities and increase the amount of remaining property left for development of site amenities or the preservation of natural resources to enhance the user's experience. The depth of our experience in varying geographic settings has provided Mott MacDonald with an intimate understanding of how site geography and geology can impact a project. Mott MacDonald uses this understanding to select the most well-suited construction materials and to incorporate appropriate and pertinent provisions into the site design in order to deliver a superior product, within budget, while reducing potential for time consuming and costly change orders.



Our team has in excess of 20 years of experience in the design of roadways and parking facilities. Services offered encompass the entire design cycle for roadway facilities from Project Development and Environment (PD&E) studies to final design as well as full service Construction Engineering and Inspection (CEI). Mott MacDonald has successfully completed these services in the past for similar governmental agencies throughout the U.S. Roadway and parking facility designs have been completed for a variety of materials from graded aggregate to reinforced concrete pavement and from standard asphalt to pervious pavements. The Mott MacDonald team has strong familiarity and many years of experience applying the **States Organization for Boating Access (SOBA) guidelines** and recommendations for site improvements during the recent completion of the Perdido River Boat Ramp.

Additionally, Mott MacDonald has provided design services for stormwater collection and treatment systems for over 20 years. Many of these designs have been completed on projects for similar clients and at very similar sites. The diverse natural and geologic settings within the State and throughout the U.S. have provided Mott MacDonald with invaluable experience in the design and permitting of stormwater management facilities within varying types of geologic settings, including coastal and riverine areas. This experience provides Mott MacDonald with the insight to select the most advantageous stormwater management features to ensure functional performance and permissibility while limiting impact upon the site design. Mott MacDonald achieved just this type of harmony on the Perdido River Boat Ramp. This design expanded and enhanced an existing man-made pond of low functional and aesthetic quality for use in providing stormwater treatment for the project development. This approach allowed for the beautification, expansion, and functional enhancement of the existing pond while satisfying the stormwater management needs for the project sites in an integral and aesthetic aspect of the project sites.

Through our extensive site design experience over this same time frame, Mott MacDonald has encountered a diverse spectrum of site design needs. This experience has allowed Mott MacDonald to address site utilities in varying degrees from as little as installation of portable toilet enclosures to full site utility design involving sanitary sewer collection/transmission facilities, boat pump out facilities, potable water distribution system extensions, and installation of dedicated fire main loops. Mott MacDonald also understands the vital importance of site accessibility and the site accommodations/features necessary to comply with the **Americans with Disability Act (ADA)**. A thorough understanding of these requirements, specifically as they pertain to public boat ramps and docks, will be vital to this project. Mott MacDonald is keenly aware of all of these requirements having just completed similar projects.

Finally, our 20+ years of experience has included interface with a wide variety of regulatory agencies, including DEP, DOT, Water Management Districts, and United States Army Corp of Engineers, among others. This experience has given Mott MacDonald an unrivaled understanding of the specific requirements and regulations associated with each agency and permitting protocols but also has resulted in the development of close working relationships with each based upon mutual trust and respect. It is these types of working relationships which can be the difference between delivering a successful project on time or incurring costly delays.

Master planning

Mott MacDonald also has over 20 years of experience with master plans from large waterfront resort communities to County courthouse and large recreation facilities. Master plans encompass much more than site and building layouts. Our master planning professionals are experts in land use analysis, topographic studies, surveying and environmental assessments. Armed with this information, we are able to prepare plans for a phased site development, including traffic and pedestrian circulation and utility layouts.

The Mott MacDonald team will work with WVDNR to create the opportunity for appropriate development of this project. During the project we provide cost estimates to enable appropriate decision-making on land use alternatives. Reports are prepared to document the results of the functional analyses which are conducted. The importance of master planning cannot be overemphasized as the success of any facility or land use is directly related to the quality of the master plan on which is based.

The same proposed Mott MacDonald team also provided construction administration services on the Perdido River boating facility earlier this year.



Construction administration

Mott MacDonald staff in Charleston will be responsible for preparing the bidding and contract documents in accordance with WVDNR and WV Purchasing rules and regulations, processes and procedures. Mr. Gary Facemyer has worked with WV Purchasing for many years preparing documents for WVDEP Office of Abandoned Mine Lands and Reclamation construction contracts. Mr. Facemyer and Mr. Hodges have extensive experience managing construction phase engineering services for public entities such as WVDOH, WVDEP, county and municipal governments.

Wave attenuators, breakwater & living shoreline

Mott MacDonald provides research, analysis, design, and construction oversight for coastal, hydraulic, and hydrologic projects located in open coastlines, estuaries, marshes, rivers, and river deltas. Mott MacDonald has demonstrated extensive and successful experience in the execution of unique coastal projects including shoreline protection with traditional and nontraditional methods such as living shorelines for habitat and shoreline protection, marsh and ecosystem creation, barrier island restoration, inlet stability, and dredging.



Bio-engineered oyster reef demonstration project in southwest Louisiana (left) used modeling tools (right) to optimize design.

Within the past 10 years, Mott MacDonald has worked on hundreds waterfront projects throughout the U.S. Mott MacDonald routinely designs coastal structures using the US Army Corps of Engineer's Coastal Engineering Manual. Nearly all of Mott MacDonald's coastal projects fall within the coastal zone and require permits through local, state, and federal regulatory bodies that regulate construction in and near the coastal zone. Therefore we have a long history of experience with USACE, DEP, and other regulatory bodies including National Marine Fisheries, the US Environmental Protection Agency, and the US Fish and Wildlife Services, especially with regards to the Endangered Species Act. We understand the coordination and information that needs to be provided to these agencies to ensure a straight forward and efficient permitting process.

Mott MacDonald has been on the forefront of designing living shoreline solutions to prevent shoreline erosion, stimulate nearshore habitat development, promote ecosystem growth, and to survive extreme storms. For example, Mott MacDonald designed a living shoreline utilizing artificial oyster reef products for the Bio-Engineered Oyster Reef Demonstration Project (LA-08) in southwest Louisiana. In order to determine the required performance, Mott MacDonald utilized their advanced coastal modeling tools and coastal engineering experience to optimize the design for a more effective result. The project was successfully constructed in 2011 and has resulted in dramatic shoreline response (stabilization) and hit specified targets for wave attenuation and erosion reduction. Mott MacDonald's successful performance with the LA-08 project led our client, the Louisiana Coastal Protection and Restoration Authority, to contract with Mott MacDonald to evaluate 10 additional non-traditional living shoreline products and techniques, and recommend several to be used as part of a \$20M demonstration project. Mott MacDonald utilized our powerful numerical modeling tools and expertise to determine the performance characteristics of these non-traditional products in terms of their ability to attenuate waves in their lee and to remain stable under severe storm conditions.

Wilson Creek
Restoration and
Stabilization, Kittitas
County, Washington.

Sedimentation analysis - hydraulics, hydrology, & geomorphology

Modeling the behavior of rivers, lakes, and other inland waterways may be just as challenging as analyzing oceanfront phenomena.

Mott MacDonald uses standard USACE models such as SED2D and CMS, as well as the advanced 2D and 3D models MORPHO, FLOW3D, and others. Numerical modeling of sediment transport is followed by modeling of geomorphologic processes, including scouring, sedimentation, short-term and longterm bathymetry, and coastal form changes.

As part of an effort to restore the salmon fishery in the state of Washington, barriers to fish were removed from **Wilson Creek**. Mott MacDonald was retained to help increase complexity and enhance fish habitat in the creek. A specially-designed weir ensures the correct flow depth and velocity for fish to pass a decommissioned diversion structure.



Ecosystem enhancement

Successful projects reach their objectives while protecting and restoring the environment.

Our team works collaboratively with highly qualified biologists and ecologists to optimize aquatic habitat for the desired species, whether in coastal, estuarine, or riverine environments.

Our expertise includes nature-based solutions such as oyster reef technology, estuary restoration, floodplain reconnection, fish passage optimization, living shoreline development, and bioengineered shoreline protection.

The **Port of Oakland's Middle Harbor** was a shallow tidal marsh until it was dredged during World War II to accommodate ships docking at the Naval Supply Depot. The USACE retained Mott MacDonald to help recreate approximately 45 acres of eelgrass habitat, part of a 90-acre ecological reserve including deep water, shallow water, and shoreline environments.

45
acres of eelgrass
habitat were recreated
by Mott MacDonald



Middle Harbor Habitat Area,
Oakland, California.

Freshwater Mussel Survey and Ecological Services

Today, many recreational, bridge, and road rehabilitations and improvements require freshwater mussel services through the Federal Endangered Species Act. Mott MacDonald will once again subcontract anticipated freshwater mussel survey responsibility to EnviroScience, Inc., Stow, OH.

EnviroScience has extensive experience performing mussel surveys for federal, state, and local transportation projects, as well as surveys associated with NPDES permit modification, Federal Transit Administration, and USACE dredging projects. All of their mussel survey biologists are SCUBA certified and have surveyed streams ranging from small creeks to the Ohio River. EnviroScience's experience with regional regulations and regulators ensures compliance with all project specifications. EnviroScience is one of the few companies in the country with a team of ADCI divers and equipment certifications that can dive to the stringent EM-385-1-1 specifications required for USACE and Federal projects.

EnviroScience employs six full time malacologist with well over 100 years of combined experience collecting and identifying freshwater mussels throughout North American. Five of the six malacologist are permitted to work in West Virginia with federally listed species and have completed hundreds of freshwater surveys in West Virginia over the past two decades. EnviroScience also maintains a full time staff of four and a part time staff of ten or more commercial divers who have all been specifically trained in-house to search and locate freshwater mussels. To meet the demands of an ever-changing technical and regulatory environment, EnviroScience maintains an inventory and access to state-of-the-art technology and equipment to satisfy the needs of any size project. This includes a fleet of sampling and diving vessels, electrofishing gear for any application, water quality meters, work trailers, GPSs, depth temperature and flow survey equipment, and extensive hardhat, surface-supplied diving equipment, and underwater construction equipment.

EnviroScience and Mott MacDonald have maintained a successful working relationship on several high profile projects throughout West Virginia. All the projects they have teamed with have required coordination with both USFWS and WVDNR. Of these projects, one resulted in the successful completion of Section 7 consultation within extremely tight deadlines.



Photo courtesy of EnviroScience

Hydrographic survey

Mott MacDonald has the capabilities to perform hydrographic surveying in addition to topographic and boundary surveying. This system can be utilized to provide a precise depth profile for waterbody crossings and is well suited for corridor survey work given its portability compared to conventional boat systems.

A hydrographic survey crew is outfitted with both hydrographic survey equipment and a survey-grade GNSS system (RTK base/rover setup). As it pertains to field data collection, both onshore and offshore portions of the system are explored using in-house state-of-the-art equipment and software.

CEESCOPE echo sounder: This 'All in One' compact unit features integrated RTK GNSS positioning, a dual channel echo sounder, with full water column recording, internal data logging and a rechargeable NiMH battery. It can be easily deployed on small opportunistic platforms such as kayaks, canoes, personal water crafts (jet ski) and other small vessels. The echo sounder operates in automatic or manual mode and is capable of recording a high resolution (3200 spp) full water column acoustic envelope. This results in extremely detailed acoustic data for accurate post processing analysis. Wireless connectivity makes it easy to link with external hardware, including: Tablet PC, PDA and Notebook PC.

Mott MacDonald utilizes the latest hydrographic survey technology to provide the highest quality data to our clients. With this technology's flexible and versatile capabilities, Mott MacDonald can provide hydrographic survey services on a vast array of projects.

HYPACK® software: This hydrographic survey software provides all of the tools necessary to complete hydrographic, side scan and magnetometer survey requirements. It provides tools to design survey, collect your data, apply corrections to soundings, remove outliers, plot field sheets, export data to CAD, compute volume quantities, generate contours, create side scan mosaics and create/modify electronic charts.

Z-Boat™ 1800: To maximize shallow-water hydrographic survey efficiency, Mott MacDonald also deploys a remotely-operated autonomous hydrographic survey boat where conventional methods are not practical or safe. The Z-Boat™ uses advanced radio telemetry to offer remotely-operated hydrographic surveys with all data transmitted to the shore in real time, giving the operator total control over the survey process.





Photo courtesy of WCHS
WV Wildlife Eco-Friendly
Boat Ramps article,
October 5, 2016

Geotechnical exploration

The professional staff of NGE has extensive experience in analyzing and evaluating the natural complexities and variabilities present in the subsurface. With in-house drilling and laboratory equipment, NGE has the tools to investigate soil, bedrock, and groundwater conditions and evaluate their effect on a given project. Whether it's foundation bearing capacity, site grading/slope configurations, or retaining wall design, NGE has the resources to obtain and analyze the subsurface data necessary for project completion. A sampling of relevant geotechnical services NGE provides includes:

- Foundation design
- Commercial construction
- WVDOH bridge and roadway
- Airport geotechnical design
- Public and private utilities (water storage tanks, wastewater treatment plants, communications towers, etc.)
- Landslide investigation/remediation: slope design, retaining wall design
- Pavement analysis and design

Drilling: NGE is also equipped with a variety drilling equipment to meet the needs of their clients even in the most demanding of environments. All of their drill rigs are equipped with hollow stem augers and are capable of conducting Standard Penetration Testing (SPT) and wireline rock coring.

Construction monitoring and inspection: NGE offers inspection services to support a wide variety of construction projects. Their technicians are qualified and certified in a variety of services and will meet the specific needs of the client in an efficient and competent manner. NGE can provide materials testing and analysis (concrete, asphalt, fill placement), independent construction inspection, cost estimating and cost control monitoring, design review, and quality assurance monitoring.

Laboratory testing: NGE can provide laboratory geotechnical testing in accordance with ASTM standards under controlled conditions to further estimate the engineering properties of soil and rock materials. Typical laboratory soil testing includes natural moisture content, atterberg liquid and plastic limits, standard, modified and 1 point Proctor, and grain size distribution.

Benefit of NGE

- ✓ West Virginia Certified DBE and Federal Disadvantaged Business (8(a))
- ✓ Multi-disciplined firm - geotechnical, drilling, construction monitoring and inspection, laboratory testing capabilities
- ✓ Provides geotechnical services to Mott MacDonald on a regular basis. Benefit = cohesive team and no learning curve.



Cultural Resources and Assessment

ASC will provide cultural and archaeological expertise for this project. ASC is a woman-owned disadvantaged business enterprise (DBE) specializing in cultural and environmental resources consulting. The company is composed of three divisions: Archaeological Services, Historical/Architectural Services, and Ecological and Environmental Services. It was formed in 1986 and has steadily built a permanent staff, which includes both prehistoric and historic archaeologists, architectural historians, historians, ecologists, environmental scientists, and additional support personnel. Their commitment to excellence is apparent in their staff qualifications. Each senior member has more than 10 years of experience in archaeological, architectural, or environmental research. Clearly, ASC has the commitment, experience, resources, and logistical support necessary for the successful completion of cultural resources, ecological, and environmental surveys at any level.

ASC is responsible for a Phase I investigation of the Blennerhassett Island Historic Park Docking Facilities. Annette Ericksen served as Principal Investigator and field supervisor for the archaeological survey.

ASC has been conducting environmental surveys in the state of West Virginia since 1989. ASC is a Certified DBE/WBE and currently holds an On-Call agreement with the West Virginia Dept. of Highways.

Photos courtesy of
ASC Group

Past project experience

Perdido River public access boating facility



Client

Florida Department of Environmental Protection

Location

Escambia County, FL

Duration

2013-2016

Construction Cost

\$1.4M

Also known as the Wilson B. Robertson Boat and Canoe Launch, the 4.15 acre public facility has frontage on the Perdido River located in Escambia County. The project was funded under the Early Restoration Natural Resource Damage Assessment (NRDA) program administered by DEP for the enhancement of access to the waterways in Escambia County that were impacted from the Deep Water Horizon Oil Spill and its related cleanup efforts.

The project site is located on the north side of old Mobile Highway just east of the bridge approach to the Perdido River Bridge in Escambia County, Florida. The project includes one thirty foot wide two lane boat ramp located in the northwestern corner of the subject property. Along either side of the ramp single access piers are provided that follow the orientation of the ramp and then later transition parallel to the southern shoreline of Perdido River. The design provides 37 parking spaces for trailers/tow vehicles and 21 parking spaces. In addition the design includes a kayak/canoe launch, picnic area/pavilion, and boardwalks all in an effort to facilitate multiple uses of the property.

The scope of work included civil, structural, and architectural design along with permitting services.

Project Highlights

- ✓ Civil includes a site plan and storm water permitting through FDEP.
- ✓ This project serves as a needed boat launching facility for west Escambia County and Perdido River
- ✓ The project includes ADA access to boat ramp pier and kayak launch.
- ✓ The project includes picnic and restroom pavilions.
- ✓ The design meets States Organization for Boating Access (SOBA) Guidelines
- ✓ Wetland mitigation permitting through FDEP and USACE

Perdido Bay boat launch facility

Client

Escambia County

Location

Pensacola, FL

Duration

2016-2018



With a focus on maintaining the quality and accessibility of our coastline, Escambia County has budgeted for a number of coastal nourishment and waterfront recreation parks. One of these planned projects is to add a boat launch facility at the northern part of Perdido Bay, to enhance access to the public waterways within Perdido Bay and offshore areas.

The County hired Mott MacDonald to provide engineering design and consultancy services for the new site, which includes boat launch/recovery facilities, vehicular access and user amenities including a picnic area, parking lot, and access piers. The project is broken into Master Planning and Phased Design Services.

Mott MacDonald identified two options for the location of the boat ramp on the subject property. One location at the northerly tip of the property with direct launching into Perdido Bay and the other on the westerly edge of the property with boat ramp access into Heron Bayou/Bridge Creek. Through surveying, geotechnical exploration, and coastal engineer analysis including wave modeling and sedimentation transport processes, Mott MacDonald and Escambia County determined the Heron Bayou access location to be the ideal option.

Design services include a two-lane boat ramp with access and termination piers, navigation channel, landscaped parking, stormwater management facility, picnic area, multi-use area improvements, and access road as well as obtaining all local, federal, and state permits required. The facility meets all ADA and universal accessibility requirements. After submitting the final design plans and construction specifications, Mott MacDonald will provide bidding assistance and construction administration for the new boat launch site.

The project is on-schedule and on-budget, currently at the 50% design phase (as of June 2017). The boat launch will provide a much-needed access point to northern Perdido Bay, near the mouth of Perdido River, and is one of many coastal improvement projects underway for the residents and tourists who enjoy the beautiful beach community of Pensacola, FL.

Recreational facilities improvements at Brewster, Bridgeport, and Carpenter Island

As part of Douglas County PUD No. 1's Recreational Facility Improvements, Mott MacDonald was responsible for conducting engineering design services for in-water project components at two existing and one new proposed boat ramp facility for FERC relicensing requirements. Mott MacDonald conducted engineering analysis, preliminary and final engineering design services for in-water improvements at Brewster Columbia Cove and Bridgeport Marina Park facilities, and the new Carpenter Island Boat Launch Facility.

BREWSTER COLUMBIA COVE PARK: The City of Brewster Columbia Cove Park is located on the Columbia River approximately 14 miles upstream of Wells Dam. Park improvements included installation of a new second boat ramp lane, ADA accessible handling float, extension of the existing launch for improved usability and maintenance/repair to the existing nearby day use moorage float system. Mott MacDonald was responsible for preliminary and final engineering design of the in water improvements.

BRIDGEPORT MARINA PARK: The City of Bridgeport Marina Park is located on the Columbia River about 27 miles upstream of Wells Dam. The project consisted of a single-lane boat launch ramp and a swimming area with a swimming platform, approach gangway (with bulkhead and timber stair access structures). A recreational use boarding dock facility was provided as part of the boat launch ramp project to provide ADA accessible water access. Mott MacDonald was responsible for analysis,

Client

Douglas County Public Utility District (PUD)

Location

Columbia River, Douglas County, WA

Duration

2008-ongoing

Construction Cost

\$3.5M

preliminary and final engineering design of a new swimming float (including abutment, concrete block wall and aluminum access gangway) and handling float at the Bridgeport boat ramp. The work also included design of new ADA-accessible handling floats at the existing launch ramp. Mott MacDonald was responsible for preliminary and final engineering design.

CARPENTER ISLAND: Mott MacDonald was responsible for conducting preliminary and final engineering analysis and design of a navigation channel, navigation aids and ADA-accessible boat ramp facility at a location approximately 1 mile downstream of Wells Dam on the Columbia River. The project included a new two-lane boat launch and 25,000 cubic yards of dredging with upland disposal.



Top (left to right): Brewster Columbia Cove, Carpenter Creek, Bridgeport Marina Park
 Bottom (left to right): Brewster Columbia Cove, Brewster Columbia Cove, Bridgeport Marina Park

On-call services for Washington State marine facilities

Client

Washington State Parks & Recreation Commission

Location

Cornet Bay, James Island, Matia Island, Doe Island, WA

Duration

2014-2016



As part of the ongoing Washington State Parks Marine Facility Engineering and Permitting Services on-call contract, Mott MacDonald was responsible for conducting engineering design services and permitting support for in-water project components at three existing facilities. Services range from selective rehabilitation to complete replacement. Mott MacDonald conducted engineering analysis, preliminary and final engineering design services for in-water improvements at Cornet Bay Marina, James Island, Matia Island, and Doe Island.

Top: Matia Island;
Bottom: Doe Island

CORNET BAY MOORAGE IMPROVEMENTS: Cornet Bay Marina is located within Deception Pass State Park on Whidbey Island. The site is accessible by boat and an uplands parking area. The improvement project consisted of replacement of the existing moorage floats with new ADA accessible timber floats supported by galvanized steel pile in an expanded the marina layout, ADA-accessible gangway system with intermediate floating platform, and a new ADA accessible aluminum fixed pier system. Mott MacDonald was responsible for preliminary and final engineering design of the in-water improvements. Mott MacDonald performed wind and wave analysis and used the results to optimize the marina configuration.

JAMES ISLAND BAY MOORAGE IMPROVEMENTS: James Island State Park consists of a marine camping and moorage park along the Rosario Straights. The site is accessible only by boat. The improvement project consists of replacement of the existing moorage floats with new ADA accessible timber floats supported by galvanized steel pile in an expanded marina layout, and ADA accessible gangway, a new ADA accessible aluminum fixed pier system, and a new concrete abutment. Mott MacDonald performed wind and wave analysis and used the results to optimize the marina configuration for vessel moorage and loading/unloading of passengers.

MATIA & DOE ISLAND MOORAGE IMPROVEMENTS: Matia and Doe Island State Parks consists of a marine moorage and camping on small, remote islands. The sites are accessible only by boat. Park improvements will include as funding permits a new gangway lift system for offseason gangway storage, timber pier improvements, new galvanized steel pile, and float replacement. Mott MacDonald performed wind and wave analysis and used the results to verify that the new floats can be installed in the existing float footprint and meet requirements for vessel moorage and loading/unloading of passengers.

Crescent Bay recreational improvements

Client

Grant County Public Utility District (PUD)

Location

Crescent Bar Recreation Facility, Wanapum Reservoir, Grant County, WA

Duration

2008-2016

Construction Cost

\$9M



Mott MacDonald provided professional consulting and engineering services to Grant County PUD No. 2 as part of a Recreational Improvement Plan as required by their FERC operable license. PUD was planning on making upland and in-water recreational improvements to the Priest Rapids Project at Crescent Bar, located on Wanapum Lake near the Columbia River. Mott MacDonald completed condition and facility assessments, and feasibility engineering analysis through final design process for the in-water components at Crescent Bar. Mott MacDonald was responsible for the following elements:

- **BOAT LAUNCH:** Replacement of two lane boat launch with handling floats to improve usability at lower water level conditions.
- **DAY USE DOCK FACILITY:** Replacement of existing marina floats with new ADA compliant floating dock/abutment.
- **Navigation Channels:** Dredging of entrance channel from entrance buoys to boat ramp including vicinity of bridge and boat launch.
- **SHORELINE STABILIZATION:** Softshore stabilization along PUD property and existing campground (approximately 1,100 ft of shoreline).
- **FUEL FLOAT:** Evaluation of fuel float replacement.
- **Navigation Aids:** Evaluation & design of navigation aid requirements to improve boater safety.
- **SWIMMING BEACH:** Creation of new swim beach and buoy system.
- **TRAIL:** 4 miles of waterfront trail on pathways.

Feasibility Engineering: Developed baseline conditions of physical processes affecting the project site. Conducted a condition assessment of existing boat ramp, marina, bank stabilization and beach facilities. An hydrodynamic processes analysis evaluated causes of erosion including river currents, wind-wave and vessel wakes. Developed design criteria utilizing results of analysis and identification of operational and biological criteria requirements. An alternative analysis determined requirements of each project element.

Preliminary and Final Engineering Design: Mott MacDonald evaluated and optimized possible construction materials, construction methods, and configuration of the project elements in order to provide baseline information for permit and application document development, and for estimating construction costs. Design of preferred alternatives included:

- Evaluating demolition requirements for all existing structures.
- Developing type, size and layout for small craft seasonal float replacement including pile replacement for existing fuel float system include float, gangway and dredging requirements.
- Developing quantity and construction cost estimate for each project element.
- Developing channel dredging locations, volumes and disposal.
- **Construction Sequencing:** Developed plans, specifications, and estimates for bid package.

Adolph Thomae Park boat launch improvements



Cameron County Parks wanted to install two new boat launch facilities at Adolph Thomae Park, consisting of boat ramps, upland parking and lighting. In addition, improvements to the existing parking lots and boat launch facilities were needed to address lighting and the repair of toe erosion at the boat ramps.

Mott MacDonald developed design criteria for the final design, including ramp slope, design vessel size, and number of upland parking spaces per ramp. We assessed condition of existing ramps with respect to toe scour and developed repair concepts and preliminary design drawings, quantities and cost estimate for new ramps and existing ramp repairs. Mott MacDonald also developed 30% level engineering design drawings and construction cost estimate.

Engineers performed final engineering analysis to determine boat launch configuration (slope, width, location). Mott MacDonald developed drawings consisting of an overall project site plan, boat launch and upland parking lot site plans, cross sections and detail sheets and submitted a 70% level completion set of technical specifications and construction drawings to the County for review and comment. Lastly, engineers submitted a final set of contract documents to Cameron County, which included bid documents, final engineering drawings, technical specifications in CSI format, a construction cost estimate, and a construction schedule.

Client
Cameron County Parks

Location
Cameron County, TX

Duration
2006

Marina and drive waterfront repairs

Design-Build Project that includes design and construction to remove, repair and/or replace damage from the effects of Hurricane Sandy that made landfall in Cuba on October 25, 2012. The project is broken up into three main areas that include the Marina, Beaches, and Phillip's Dive Park.

The project includes repairs to the public marina, public beaches, and restoration of the recreational dive park. Design includes new floating fuel pier, repair/replacement of boat ramp, repairs to damaged marina retail building with new addition, repairs to boat repair facility, and demolition and construction of new pavilions. The rebuilding of the dive park includes a two way concrete ramp access with new breakwater wave protection, new elevated concrete paved training area with vehicle access and parking with wave run up and erosion shore protection.

Mott MacDonald was the prime designer of record for the project. Mott MacDonal services included overall design project management and design quality control. Specifically, Mott MacDonal provided design quality control management along with structural, coastal engineering, civil, architectural, and electrical design services for the project. Mott MacDonal also is providing construction administration.

Highlights

- Design / Build Delivery
- Project located in High Seismic and Wind Zones
- Design for up to 9ft storm surge

Sustainability

- Use of precast concrete for the dive ramp and shore protection wall for accelerate construction in the water
- Epoxy coated reinforcing for longer service life

Client

Harry Pepper & Associates
(contractor)

Location

Guantanamo Bay, Cuba

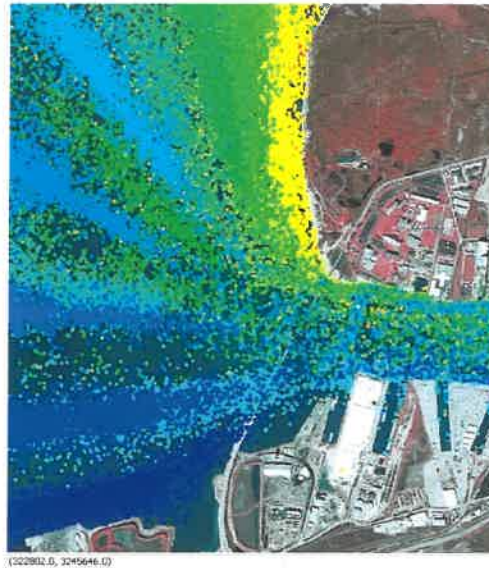
Duration

2013-2016

Construction Cost

\$10.3M



**Client**

Texas A&M University at Galveston

Location

Galveston, TX

Duration

2010

Shoreline protection and erosion control

Mott MacDonald was requested by Texas A&M University at Galveston (TAMUG) to perform a coastal engineering analysis including sediment transport numerical modeling and to develop shoreline erosion prevention and sedimentation reduction recommendations along the TAMUG campus on Pelican Island along the Galveston Ship Channel. The purpose was to identify and predict the movement of sediments along the TAMUG shoreline that may be moving into the TAMUG mooring area.

Existing and New Data Collection

Our engineers compiled existing data to determine if new data would be needed for coastal engineering analysis, development of numerical models, and development of alternatives. The data collected included the location of pipelines and utilities, bathymetric and topographic data, dredging data including frequency and volume for the TAMUG mooring area and Galveston Ship Channel, aerial photography, navigations charts, coastal processes data, engineering reports for coastal projects within TAMUG property, and geotechnical and geophysical data collected by TAMUG faculty and students and others. New topographic and bathymetric surveys were conducted and used for numerical model setup, alternatives development, and preliminary engineering.

Coastal Engineering Analysis and Numerical Modeling

Analyses were performed to establish an understanding of the coastal processes acting along the project shoreline. These analyses included statistical descriptions of the wind and wave climate, tide elevations, and sediment transport patterns as well as extreme statistics of winds, waves, and water levels. Sediment sources and sinks (natural and man-made) that influenced the sedimentation at the TAMUG mooring area were analyzed. Numerical modeling included simulation of wind-wave growth and transformation to the project site, wind and wave-generated currents, sediment transport, and erosion/accretion processes along the shoreline.

Alternatives Development and Analysis

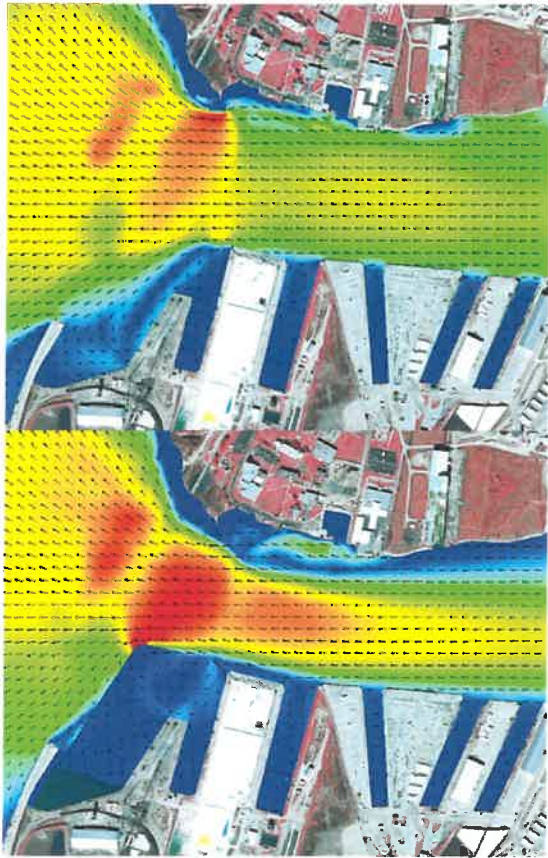
Based on the coastal engineering analysis and the understanding of coastal processes acting along the project site, conceptual alternatives were developed. The alternatives included shoreline erosion reduction structures such as a revetment and groins as well as a terminal groin / T-head groin to reduce sedimentation in the Mooring Basin. These alternatives were simulated with hydrodynamic, sediment transport, and morphologic numerical modeling and evaluated through their ability to meet the project goals. The best performing alternative was determined to be a T-Head terminal groin to reduce sedimentation in the Mooring Basin and at the same time provide shoreline stabilization.

Preliminary Design

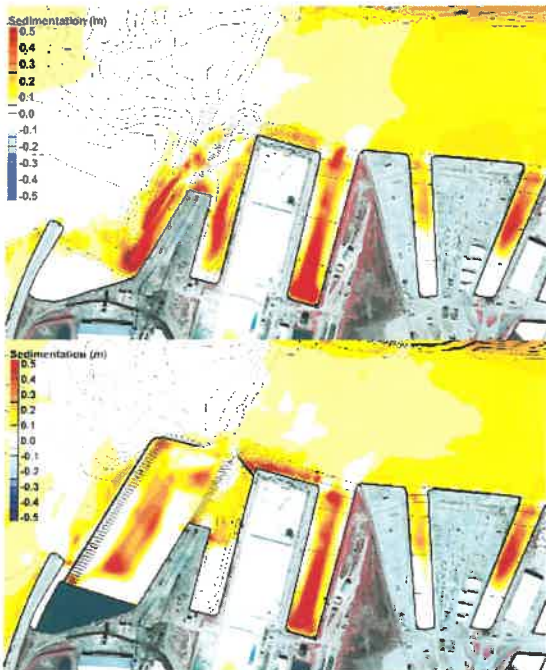
A preliminary design (30% design level) was developed for the preferred alternative selected and included cross-section and plan view drawings as well as a cost estimate. Two concepts of the preferred alternative were designed: a rubble mound structure and a vertical walled pier composed of a mix of steel beams and concrete panels. Both structures featured public access walkway features for recreation and fishing.

Permitting Assistance

CHE engineers prepared the US Army Corps of Engineers (USACE) Section 10/404 permit application and drawings required to authorize the implementation of the project's preferred alternative.



Circulation velocities on max ebb



Sedimentation in the project vicinity for existing conditions (left) and for the preferred alternative (right).

Ship channel hydrodynamic study

Client
Texas International Terminals (TIT)

Location
Galveston, TX

Duration
2011-2012

Mott MacDonald performed analysis and numerical modeling of hydrodynamics and sedimentation changes as well as potential changes to scour at an adjacent bridge resulting from the construction of the proposed combi-wall and pier structure and propose modifications to minimize sedimentation at the proposed berths.

Project Highlights

- Conducted hydrodynamic and sediment transport modeling to determine sedimentation in the existing and proposed TIT berths and to determine impacts from the construction of the proposed berth on adjacent properties and the Galveston Ship Channel.
- Performed sediment transport modeling using the MORPHO model, which was used to simulate cohesive sediment erosion and deposition.
- Developed several alternatives based on observed hydrodynamics, sediment concentration patterns and sedimentation patterns and evaluated their ability to reduce sedimentation in the proposed berth.
- Designed the best performing alternative to reduce sedimentation and work with navigation concerns; the preferred alternative was able to reduce dredging frequency by a factor of 2 as compared to existing conditions.
- Computed bridge scour for the existing condition and for conditions with the proposed project in place by using the hydrodynamics from the circulation modeling. Results indicated minor increases in scour should be expected.

Benefit

The results of this work were used by TIT in their design process.



Services Provided:

- *Phase I Archaeological Survey*

Client: Chapman Technical Group
200 6th Avenue
St Albans, WV 25177

Project Name: Blennerhassett Island Historical Park
Docking Facilities

Lead Agency: West Virginia Division of Natural
Resources

Project Type: Boat Ramp

Contract Amount \$4,473.00

Dates of Work: 2014



Stratigraphic sequence of Blennerhassett Island at the proposed dock location.

Description: ASC Group, Inc. contracted with Chapman Technical Group to complete a Phase I archaeological survey for the proposed Blennerhassett Island Historical Park Docking Facilities, to be constructed on the island in Wood County, West Virginia. A Phase I reconnaissance survey was conducted to determine whether archaeological resources are present within the proposed development area of impact and, if sufficient data are recovered, to evaluate whether or not those resources are potentially eligible for the National Register of Historic Places. In addition, recommendations as to the need of additional archaeological investigations to make such a determination were provided.

The archaeological survey focused on those areas to be directly impacted the proposed dock facility and associated utility upgrades. Fieldwork investigation included visual inspection, Shovel Test Pit (STP) excavation, Auger Testing of deep sediments and a bank inspection to document the potential for buried cultural resources in an alluvial setting. Pedological analysis of the stratigraphic sequence represented at the docking location was required. These efforts were tailored to the specific needs of the project. Undocumented utility lines resulted in a more limited investigation area that originally planned.

Results of the survey indicate that no known resources exist within or adjacent to the areas subjected to investigation and no new archaeological properties were identified. Monitoring of construction efforts by a qualified archaeologist was recommended to compensate for the restrictions on work caused by buried utility concerns. Monitoring was conducted under a separate contract with the sub-consultant. No additional resources were documented and the project was successfully completed.



Services Provided:

- *Archaeological Monitoring of Construction*

Client: Danhill Construction Co.
9033 US 60
Glen Ferris, WV 25090

Project Name: Blennerhassett Island Historical Park
Docking Facilities

Lead Agency: West Virginia Division of Natural
Resources

Project Type: Boat Dock

Contract Amount \$2,504.00

Dates of Work: 2015



Monitoring of excavator creating trench to accommodate new boat docking facility.

Description: ASC Group, Inc. (ASC) contracted with Danhill Construction Company to monitor earth moving and excavation work associated with construction of the proposed Blennerhassett Island Historical Park Docking Facilities. Monitoring was recommended as a result of Previous Phase I investigations of the area of direct impact of the undertaking completed by ASC. Unknown buried utility locations prevented a thorough previous investigation and monitoring was advised to insure that no significant cultural resources would be negatively impacted by the undertaking.

The archaeological monitoring was conducted by ASC on October 14, 2015. Excavation work was conducted independently by Danhill Construction Company. A single, small excavator was used to excavate the trench. The purpose of the monitoring effort was to identify and document any cultural remains encountered during the construction period. Methods included visual inspection of the excavation process and a visual survey of the backdirt piles and land surface.

The trench was excavated perpendicular to the course of the Ohio River to a maximum depth of 9 ft. The excavation process was photodocumented and a letter summary submitted to the West Virginia Division of Culture and History. No archaeological resources were encountered during the excavation phase of dock construction.

Client

WVDOH under contract to:
Skelly & Loy
Engineers, Inc.

ES Project No. Various

Key Services Provided

- Freshwater Mussel Surveys and Relocation
- Agency Coordination
- Preparation of Biological Assessment Document
- Habitat Monitoring

Contact

Lovell Facemire
(304) 558-9752
Lovell.R.Facemire@wv.gov

Steve Pernick

steve@wildlife-specialists.com
(570) 439-8588

Project Duration

2001-2011

ES Project Cost

\$101,218.00

ES Key Staff

Gregory Zimmerman
Martin Huehner
Ryan Schwegman
Patrick Evankovich

WVDOH Freshwater Mussel Surveys, Relocation, Biological Assessment, Monitoring, and Agency Coordination: Old Lower Gassaway Truss Replacement

Braxton County, West Virginia



The Old Lower Gassaway Bridge over the Elk River, Orange Buoys Demarcate Mussel Survey Search Cells.

EnviroScience, Inc. provided ecological and consulting services to Skelly and Loy, Inc. and the West Virginia Division of Highways (WVDOH) between 2000 and 2013 for the Old lower Gassaway Truss Bridge replacement project over the Elk River. The Elk River was known to support a diverse freshwater mussel population that included a number of threatened and federally listed (T&E) species (pink mucket [*Lampsilis abrupta*]; northern riffleshell [*Epioblasma torulosa rangiana*]; clubshell [*Pleurobema clava*], snuffbox [*Epioblasma triquetra*], and rayed bean [*Villosa fabalis*]). Additionally, several other mussel species listed as threatened (S2) by the State of West Virginia also were known from the Elk River, and careful coordination and minimization was required to obtain project authorization.

In 2001, EnviroScience Inc. conducted extensive qualitative and quantitative diving surveys of the project area. While no federally listed species were found in the direct impact area of the new bridge, the presence of clubshell was detected under below the old bridge that required in-water work to be removed.

ES and WVDOH prepared a Biological Assessment and Agency Coordination Document (BA) for the demolition of the old bridge. This document incorporated previous survey results and developed alternatives analysis, incidental take estimates, and best management practices. The BA also included a mussel salvage, relocation and monitoring plan and a habitat monitoring plan. The BA, was subsequently approved by the USFWS and WVDNR through the issuance of a Biological Opinion (BO) authorizing the project. In the summer of 2011 EnviroScience and WVDOH relocated mussels and conducted habitat monitoring following the mussel salvage and habitat monitoring plans. Demolition of the Old Lower Gassaway Truss Bridge occurred in fall, 2011. Future monitoring of stream habitat within the project area will be completed by the WVDOH until 2017, per the BO.

Client
WVDOH, U.S.
Department of
Transportation and
Federal Highway
Administration, and
Michael Baker Jr., Inc.

State Project No.
S308-4/5-2.95 00

Federal Project No.
BR-0045(036)D

Key Services Provided

- Ecological
Evaluation and
Assessment
- Agency Coordination
- Freshwater Mussel
Survey and Relocation

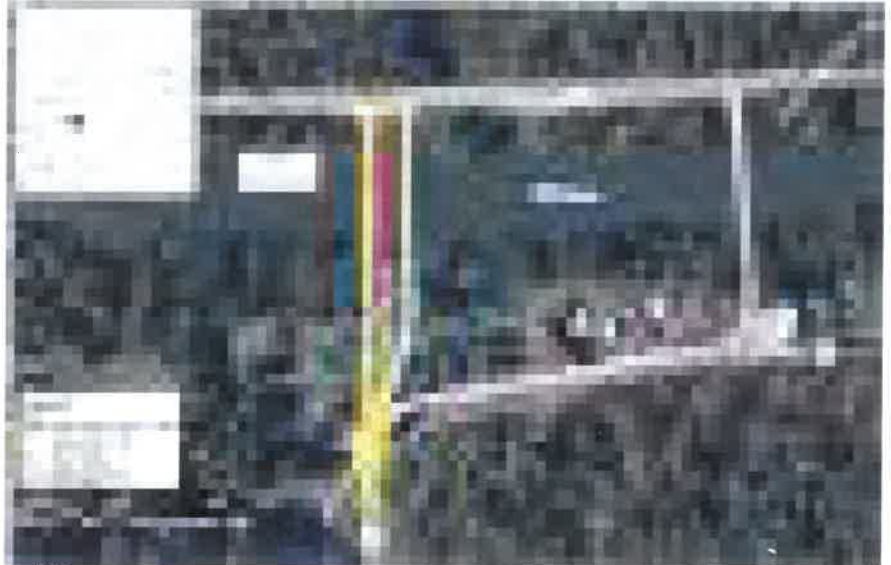
Contact
Lovell Facemire
(304) 558-9752
Lovell.R.Facemire@wv.gov

Project Duration
May, 2014

Total Project Cost
\$78,930.00

ES Key Staff
Gregory Zimmerman
Dr. Martin Huehner
Ryan Schwegman

Endangered Mussel and Fish Habitat Surveys and Preparation of a Biological Assessment for the PFC Abraham G. Sams Memorial Bridge (Camp Creek Truss Bridge)



PFC Abraham G. Sams Memorial Bridge Build Alternatives (Figure from Michael Baker Jr. Inc.)

The PFC Abraham G. Sams Memorial Bridge (also known as the Camp Creek Truss Bridge) crosses the Elk River, in Clay County, WV. In 2000, the existing bridge was found to have a sufficiency rating of 39.4 out of 100 and was determined to be functionally obsolete and structurally deficient. Deterioration of the AGSM Bridge resulted in the placement of a 7-ton weight restriction for vehicles using the bridge. The weight restriction limited the use of the bridge to cars and light commercial trucks and excluded heavy trucks and buses. The WVDOH needed to replace or repair the bridge, but the design of the project was further complicated by topography, surrounding residences, and the presence of federally and state protected aquatic resources.

The Elk River was known to support 6 animal species that are federally listed as threatened or endangered (T&E): *Lampsilis abrupta* (Pink Mucket), *Pleurobema clava* (Clubshell), *Villosa fabalis* (Rayed Bean), *Epioblasma t. rangiana* (Northern Riffleshell), *Epioblasma triquetra* (Snuffbox), and *Crystallaria cincotta* (Diamond Darter). Previous surveys had already identified T&E species immediately below and downstream from the existing bridge. Between 2009 and 2015, EnviroScience, Inc. assisted WVDOH and Michael Baker Jr., Inc. (Baker) with a series of endangered mussel presence / absence, population studies, and habitat surveys for various project alternatives. EnviroScience assisted WVDOH with alternatives analysis, informal coordination and the development of a final project and construction alternative that addressed the project need while minimizing the effects on listed species. A combination of diver-collected qualitative, quantitative and substrate data was used to determine the impacts of each project and construction alternative. Based on this information, a preferred alternative was selected. Jointly, the FHWA, the WVDOH, Baker and EnviroScience prepared a Biological Assessment in accordance with the guidelines of the Endangered Species Act of 1973. After review by the WVDNR and formal consultation by the USFWS, the WVDOH is in the final stages of receiving project approval, with the scheduled construction to begin fall, 2015.

Client references

West Virginia American Water Company

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Charleston, WV 25302
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Washington State Parks & Recreation Commission

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Capital Program Coordinator
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Olympia, WA 98504
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derek.gustafson@parks.
wa.gov

Florida Department of Environmental Protection

Pearce Barrett III
3900 Commonwealth Blvd.
M.S. 49
Tallahassee, FL 32399
850.245.2106
pearce.barrett@dep.state.fl.us

Cameron County Parks

Joe Vega
Parks Director
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South Padre Island, TX
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Airport Director
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com

Approach and understanding

Project understanding

Mott MacDonald has reviewed the solicitation documents, listened to project stakeholders, reviewed existing site conditions. Through this research Mott MacDonald has developed an understanding of the project goals, design challenges and constraints associated with the sites.

While having an understanding of each of these items is certainly necessary to deliver the project, it is absolutely vital to have an understanding of what aspects of a project will ultimately determine whether or not it is successful. A project which meets all the stated project goals and is delivered on time and in budget cannot be considered successful if it is unusable for significant periods of time or cannot be used by a particular group of people. Mott MacDonald has recent experience delivering projects on riverine settings including the Perdido River and Perdido Bay Boat Ramps in Escambia County, FL. It is through this experience that Mott MacDonald has developed the understanding of what features of boat ramp projects will determine the success of the project not only from a project delivery standpoint, but also from an end user/ functionality perspective.

A major consideration for site selection and conceptual layout will be to not only provide a beautiful facility, but to also follow to the published guidelines and recommendations for boat launches on a river to ensure manageable operation and maintenance costs and maximum usability of the facility. Entry angles, environmental impacts, traffic flow, and upland infrastructure will all play a part in determining the ultimate configuration at each site. As it relates to entry angles, the **States Organization for Boating Access (SOBA)** guidelines indicates that:

“Currents may adversely affect launch or retrieval of a boat because of their force against the craft. A generally accepted practice at sites subject to side currents is to orient a ramp at an angle slightly downstream to the predominant current.”

We will make this a major consideration during the site planning phase of this project.

Furthermore, the depicted orientation can also lead to increased sediment deposition on the boat ramp and boarding/ landing floats, and result in floating debris becoming lodged in the facility. These conditions will ultimately result in periods of inoperability and higher maintenance costs. Other considerations which should be given to site conditions are not as obvious. As an example, the placement of a boat launch site must consider upstream and downstream effects, such as the placement of a nearby bridge. A bridge could pose a risk to a watercraft which becomes disabled during launch or retrieval. In this circumstance, the river current would tend to carry the craft downstream and could result in a collision with a bridge pier. We will apply our lessons learned and detailed understanding of SOBA and related guidelines to determine the most functional and management site location for each of the five boat launch sites.

Impacts to sedimentation

There are numerous considerations which must be taken into account in environments as dynamic as a river. The ideal site location is one that provide an opportunity to reduce the accumulation of suspended sediments dependent on hydraulic conditions and varying velocities due to adjacent waterbound activities. A review of the site conditions should be conducted to evaluate the pros/cons of the location of the ramp relative to sedimentation potential, exposure to currents, vessel wakes, debris and depths for accessibility (at the defined low water criteria).

Accessibility for all

Finally, a project can only truly be considered successful if it does not preclude its use by a certain demographic of people, such as those with a disability. One of the most challenging features of a boat ramp, particularly those subject to significant water surface elevation fluctuation throughout the year, is ensuring compliance with the accessibility requirements of the **Americans with Disability Act**. Mott MacDonald's extensive experience with boat ramps over recent years has provided us with an intimate understanding of these requirements, as they relate to boat ramps, and the options available to overcome these challenges. For Instance, gangways can be used to overcome the steep vertical descendants to boarding/landing floats, may be required at each of the project sites due to elevation differentials from the site grades to the water surface.

As can be seen, it is not a simple understanding of project goals, objectives and site constraints which will determine a projects level of success. Rather, **it is an intimate understanding of the facility's features, environment, and the "soft" skills developed over years of experience which will make the difference.** Mott MacDonald's extensive experience with maritime facilities and within riverine settings has provided us with the insight and soft skills necessary to deliver a superior project, on-time and in budget. We believe our ability to model and predict sediment transport/deposit and wave dynamics in such environments makes us uniquely qualified to meet the goals and objectives of the project between a boat ramp that can be used by a few during short periods of time and one which can be enjoyed by everyone throughout the year.

Project approach

Project kick-off meeting and basis of design

Mott MacDonald will conduct a kickoff meeting with WVDNR staff and project stakeholders to discuss details of the project and current site conditions, identify critical infrastructure and site constraints, discuss available relevant data and information from the local municipalities, discuss potential design alternatives and boat ramp operations, and confirm overall project goals and objectives. The meeting will also be used to address Basis of Design. Mott MacDonald will develop the Basis of Design (BOD) memorandum to document project requirements and agreed upon design criteria. Selection of design parameters such as design life, maintenance requirements, design vessel size, ramp operations, water levels (low and high operations), design/construction standards and codes, handling float type and size, preferred construction materials, and other applicable criteria for use in developing a Basis of Design. Design criteria will also provide reference to design guidelines to be used for determining relevant ramp width, surface finish type, slope and orientation (relative to river bank and thalweg) and other elements that may become relevant for the design progress.

Regulatory agency consultations

Consultant shall meet with the West Virginia Department of Environmental Protection (WVDEP), WVDNR, and the United States Army Corp of Engineers (USACE). This meeting shall be used to discuss conceptual boat ramp siting options. The purpose of this meeting will be to solicit input regarding the proposed project concepts, potential environmental impacts, and regulatory challenges associated with conceptual options.

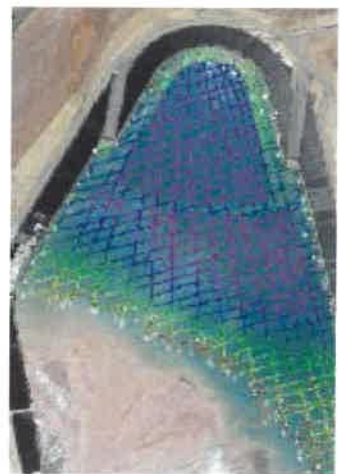
Data collection

Existing data collection

Many riverine systems are studied extensively to gain an understanding of river channel topology, predominating riverine processes, flow data and characteristics, and other significant riverine metrics. As such, there is often considerable amounts of data available for a river, or specific river segment, within the public domain. Mott MacDonald's data collection program will include compilation and review of available site-specific data, previous study reports, publications, and other technical documentation related to the project from the USACE, the National Oceanic and Atmospheric Administration (NOAA), United States Geological Survey (USGS), USACE, Universities, and other local, state and federal agencies. The existing data on riverine processes to be collected will include, as available, water elevations, flow rates, winds, currents, sediment loads, and historical and recent bathymetric and topographic data. Data will be compiled and gaps in the data set required for the analysis and design will be identified and the need for a new field data collection program will be determined in coordination with the WVDNR and project stakeholders.

Survey data collection

The survey data collection program will be developed upon completion of the existing data collection and review and will be structured to maximize the information gathered from the survey, such as overlapping any historical surveys. It is anticipated that the survey data collection for this project will include full boundary and topographic surveys of the included parcels along the Elk River. In addition hydrographic surveys will be acquired at cross-sectional transects across the nearshore area extending perpendicular across the rivers for appropriate distances upstream and downstream of the project site, as necessary to develop riverine models and perform sediment transport and sedimentation analysis.



HYPACK® hydrographic survey software used by Mott MacDonald.

Prior to commencement of hydrographic data collection, a survey grid which covers the target area will be designed using the Hypack software application for reference and monitoring purposes during the survey. For corridor survey work, this grid would typically consist of the proposed centerline alignment and a series of parallel and perpendicular lines spaced at a 25-50' offset. During the survey, the boat will be directed to follow each of the planned grid lines with data collection occurring at a typical sample rate of 1 point per second. Each survey point will include both a position (X,Y,Z) and sounding (depth), which will be recorded and monitored in real-time using Hypack. Upon completion of the field survey, collected data is then edited in Hypack such as to apply any necessary corrective adjustments and exclude any identified outliers. Once data post-processing has been completed successfully, finalized data may then be exported to a variety of standard file formats for subsequent delivery and use.

Geotechnical data collection

A geotechnical data collection program will be developed based on review of existing available geotechnical data and an understanding of local geology and morphology determined through the historical data collection. The geotechnical data collection program is expected to include field testing at the boat ramp area, at the dredged access channel area (if access channel should be required), on-site parking, and at the pier and boardwalk areas. In addition, grab samples will be acquired in the nearshore areas adjacent to the site to quantify the sediment type in order to develop an understanding of potential sedimentation.

NGE will drill test borings on the riverbank to determine subsurface soil conditions in the area of the planned boat ramp. The boring drilled closest to the water will be extended to a minimum depth of 50 feet or to refusal on rock. The other boring will be extended to a depth of 15 feet. Standard penetration testing and sampling will be performed in accordance with ASTM D1586 procedures at 2.5 to 5.0 ft. intervals. Upon completion of the drilling, all samples will be transported to their laboratory for detailed examination and testing. In addition to the test borings, NGE will perform a test probe of the river bottom in the area of the proposed ramp using a pontoon boat and dynamic cone penetrometer. Laboratory testing will be performed on select soil samples collected during the field exploration work. Planned laboratory tests include natural moisture content, Atterberg liquid and plastic limits, and grain size sieve analysis. Upon completion of the drilling and laboratory testing, a separate geotechnical investigation report will be prepared for each site. Recommendations will include subgrade preparation for the ramp pavement including required undercutting/backfill. Soil parameters for design of any necessary retaining wall or piling will also be provided.

Sedimentation analysis

At each project site location along the river, the sediment load may vary and at some areas could be significant. Mott MacDonald understands that one of the primary concerns for the WVDNR and the project stakeholders is to effectively manage sediment deposition and its adverse effects. In order to reduce these potential issues, Mott MacDonald will conduct a sedimentation analysis for the boat ramp sites to gain an understanding of the patterns and rates of sedimentation for existing conditions. If available, historical bathymetry and maintenance/dredging rates will be compared to quantify sedimentation rates at the site.

Mott MacDonald will develop a riverine flow model to simulate river hydraulics using the AdH, MIKE21 or similar hydrodynamic and sediment modeling software. A bathymetric surface will be created using new bathymetric data combined with available historical river geometry. The hydraulic model will be forced with water elevation and flow boundary conditions from the USGS flow and stage gages as well as dam operations. The resulting model will be compared with available measured water level gages and flow measurements, as available. The hydraulic model will be coupled with a sediment transport model, and sedimentation patterns will be computed at the project site. The sedimentation rates will be compared with historical measured rates to calibrate the model. Should historical sedimentation rates not be available, the modeled sedimentation will be considered a qualitative guide. This information will still prove a valuable tool to understand the relative rate of sedimentation for alternative ramp locations and orientations.

Mussel survey

A complete mussel survey and associated environmental assessment will be conducted by EnviroScience to fully understand the surroundings and mitigate any potential negative impacts within the river's ecosystem.

All mussel survey methods will incorporate the most recent West Virginia Mussel Survey Protocols. Impacts as a result of boat launch facilities require survey buffers of only 10m upstream and laterally, as well as 20m downstream. These surveys are relatively small and can generally be completed in a couple of days. Mussel surveys can be completed between May 1st and September 30th. EnviroScience would be ready to complete the initial survey work immediately to ensure completion within the allowable season. Any identified relocation efforts would be subject to USFWS and WVDNR approval following the review of their initial Phase I survey work.

Should the need arise, EnviroScience is capable of conducting a variety of additional biological surveys and services. EnviroScience ecologists are experienced in terrestrial ecological surveys including endangered species surveys such as the federally endangered Guyandotte River crayfish as well as the Big Sandy crayfish.



Photo courtesy of EnviroScience.

Cultural resources

A cultural assessment will be provided by ASC to ensure historical preservation and proper permitting. ASC will work with the WVDNR, Wildlife Resource Section, and the USACE Local District to provide the necessary actions to manage any perceived cultural resource identification, assessment or mitigation. Appropriate permitting will be obtained, and work will be completed to the satisfaction of all agencies involved and will comply with the regulations for archaeological investigations as provided by the West Virginia Division of Culture and History. However, Lead Agency requirements will take precedence. ASC key professionals meet federal qualifications for Archaeological and Historic Architecture investigations.

Alternatives development and analysis

Once the data collection and analysis is complete, conceptual design alternatives will be developed for the boat launches at each site. The alternatives will address the goals established in the kickoff meeting. The riverine flow model developed during the sedimentation analysis efforts will be used to evaluate the sedimentation rates for the various design alternatives. Alternative evaluation criteria may include, but are not limited to, items such as: navigation channel dredging quantity (if required), navigation channel maintenance (sedimentation), dredged material disposal (both capital and maintenance), debris deflection structure performance, boat ramp, boarding floats and site accessibility. The range of alternatives for the analysis will be coordinated with the WVDNR and project stakeholders prior to detailed analysis.

Upon completion of the alternatives analysis, Mott MacDonald will meet with WVDNR staff and project stakeholders to discuss the current conditions at the sites, review the initial plan for development of the sites, discuss the findings of the alternatives analysis and results of the regulatory agency consultations, select a preferred alternative, review the available budget for construction, and refine the proposed design to reflect current site conditions and construction budget.

Design development

Upon completion of the meeting to discuss the results of the design alternatives analysis and selection of the preferred alternative, Mott MacDonald will proceed through the design development process. This process will include advancing the site concepts to final design addressing the project goals and developing site features and amenities in accordance with the States Organization for Boating Access (SOBA) Guidelines, in compliance with local land development practices, as well as State and Federal regulations, such as the Americans with Disabilities Act. During this phase of the project, Mott MacDonald shall submit design submittals at pre-determined milestone completion levels for WVDNR and project partner review and comment. Each milestone submittal shall be accompanied by an opinion of probable cost. This tool can be used to evaluate the project design versus the available construction budget and to facilitate value engineering discussions during the design process, if necessary. Comments and value engineering decisions resulting from the design submittal reviews shall be addressed and incorporated into the design documents, as appropriate, prior to the next milestone submittal.

Permitting assistance

Meeting the requirements of today's comprehensive federal, state, and local environmental legislation and regulations requires a proactive approach to evaluating and resolving environmental challenges.

This project includes five boat launch sites with boat ramps, access and termination piers, sidewalks, parking and access roads, and other active recreation facilities.

The proposed projects will require regulatory permits from USACE as well as other local, state and/or federal regulatory agencies. Mott MacDonald will prepare all necessary plans and supporting documentation necessary to secure permits for these agencies for each project.

Mott MacDonald is committed to serving our clients by guiding projects through the regulatory process into construction and operations. We commit dedicated environmental and permitting experts to serve WVDNR.

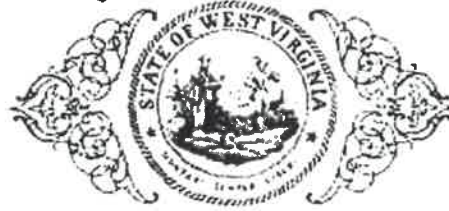
Construction administration

Mott MacDonald will provide construction phase engineering services acting as Owner's representative.

Construction services may include:

- ✓ Attend pre-bid and pre-construction conferences to interpret and clarify the contract documents.
- ✓ Review of shop drawings and material submittals for compliance with design intent.
- ✓ Visit the project site to observe and report on the progress and quality of the work. Make recommendations as to the acceptability of the work.
- ✓ Provide services of a full or part-time resident project representative to ensure compliance with contract documents and represent the Owner on-site.
- ✓ Issue field instructions to the contractor and Owner regarding interpretations and clarifications of contract documents, resolve differing field conditions found, and prepare change orders as needed.
- ✓ Make recommendations to the Owner to resolve problems and corrective actions or contractual remedies.
- ✓ Review material testing processes and procedures and test results for conformance to contract documents.
- ✓ Recommend approval of progress payments requested.
- ✓ Prepare record drawings from information submitted by contractor.

State of West Virginia



Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

the attached true and exact copy of the Articles of Amendment to the Articles of Organization of
HATCH MOTT MACDONALD, LLC

are filed in my office, signed and verified, as required by the provisions of West Virginia Code §31B-2-204 and conform to law. Therefore, I issue this

CERTIFICATE OF AMENDMENT TO THE CERTIFICATE OF AUTHORITY

changing the name of the limited liability company to

MOTT MACDONALD, LLC



*Given under my hand and the
Great Seal of the State of
West Virginia on this day of
May 26, 2016*

Natalie E. Tennant

Secretary of State

CERTIFICATE OF *Authorization*

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

*The West Virginia State Board of Registration for Professional Engineers
having verified the person in responsible charge is registered in
West Virginia as a professional engineer for the noted firm, hereby certifies*

MOTT MACDONALD, LLC

C02536-00

Engineer in Responsible Charge: GARY D FACEMYER - WV PE 008287
*has complied with section §30-13-17 of the West Virginia Code governing
the issuance of a Certificate of Authorization. The Board hereby notifies you of its
certification with issuance of this Certification of Authorization for the period of:*

January 1, 2016 - December 31, 2017

providing for the practice of engineering services in the State of West Virginia.

IF YOU ARE REQUIRED TO REGISTER WITH THE SECRETARY OF STATE'S OFFICE,
PLEASE SUBMIT THIS CERTIFICATE WITH YOUR APPLICATION.



IN TESTIMONY WHEREOF, THE WEST VIRGINIA STATE BOARD OF
REGISTRATION FOR PROFESSIONAL ENGINEERS HAS ISSUED THIS COA
UNDER ITS SEAL, AND SIGNED BY THE PRESIDENT OF SAID BOARD.

BOARD PRESIDENT

WEST VIRGINIA BOARD OF PROFESSIONAL SURVEYORS

Certificate of Authorization

ISSUED TO:

Mott MacDonald, LLC

Charleston, West Virginia



Certificate of Authorization # 17-5733

This certificate is issued by the West Virginia Board of Professional Surveyors in accordance with West Virginia Code § 30-13A-20. The person or organization identified on this certificate is licensed to conduct professional surveying and mapping services in the State of West Virginia for the period

January 1, 2017 through December 31, 2017

This certificate is not transferrable and must be displayed at the office location for which issued.

In witness whereof I have put my hand, this 2nd day of December, 2016

R. Michael Shepp

R. MICHAEL SHEPP, P.S. Chairman

JAMES T. RAYBURN, P.S., Member



Nelson B. Douglass

NELSON B. DOUGLASS, P.E., P.S., Secretary

SEFTON R. STEWART, P.S., Member

PAUL W. HILL, Public Member



West Virginia State Board of Registration for Professional Engineers

GARY D. FACEMYER
WV [REDACTED]

This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2018



2017



WEST VIRGINIA PROFESSIONAL SURVEYOR

The West Virginia Board of Professional Surveyors certifies that the individual listed below is a PROFESSIONAL SURVEYOR who has qualified for a license under Chapter 30, Article 13A, Code of West Virginia, and has met the requirements for license renewal for the period ending June 30, 2017.

GARY D. FACEMYER

License # [REDACTED]

JULY 1, 2016 - JUNE 30, 2017

Board Members

- Mike Shepp, PS, *Chairman*
- Nelson Douglass, PE, PS *Secretary*
- Tom Rayburn, PS
- Sefton Stewart, PS
- Paul Hill

Executive Director

Dennis Jarrell

R. Michael Shepp

Nelson B. Douglass





CERTIFICATE OF LIABILITY INSURANCE

HATCMOT-01 MISQUITTACD

DATE (MM/DD/YYYY)
7/1/2016

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

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

PRODUCER Willis of New Jersey, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 37230-5191	CONTACT NAME: Willis Towers Watson Certificate Center PHONE (A/C, No, Ext): (877) 945-7378 FAX (A/C, No): (888) 467-2378 E-MAIL ADDRESS: Certificates@Willis.com
INSURER(S) AFFORDING COVERAGE	
INSURER A: Fireman's Fund Insurance Company	NAIC # 21873
INSURER B: Travelers Property Casualty Company of America	25674
INSURER C: American Insurance Company	21857
INSURER D: Underwriters at Lloyd's London	15792
INSURER E:	
INSURER F:	

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

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY			MZX 80971387	06/30/2016	06/30/2017	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR			ZUP-15S91842-16-NF	06/30/2016	06/30/2017	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						AGGREGATE \$ 1,000,000
	DED <input checked="" type="checkbox"/> RETENTION \$ 10,000						
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			WZC 81035277	06/30/2016	06/30/2017	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A				E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
D	Professional Liab.			B080120388P16	06/30/2016	06/30/2017	Per Occurrence/Agg: 1,000,000


DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Division: Marketing.
 The Authority, its Commissioners, officers, employees, and agents are included as Additional Insureds as respects to General Liability and Auto Liability as per written contract or agreement.

Coverage for Contractual Liability, X C U (Explosion, Collapse and Underground) and Broad Form Property Damage is included under General Liability.

General Liability and Auto Liability policies shall be Primary and Non-Contributory with any other insurance in force for or which may be purchased by SEE ATTACHED ACORD 101

CERTIFICATE HOLDER For Information Only	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
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DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.



(Name, Title)
Gary Facemyer, PE; Senior Associate

(Printed Name and Title)
201 Pennsylvania Avenue, 4th Floor, Charleston, WV 25302-2315

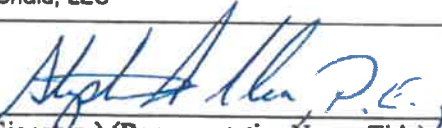
(Address)
304-356-3010

(Phone Number) / (Fax Number)
gary.facemyer@mottmac.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Mott MacDonald, LLC

(Company)
 SENIOR VICE PRESIDENT

(Authorized Signature) (Representative Name, Title)
Stephen B. Polen, PE; Senior Vice President

(Printed Name and Title of Authorized Representative)
6/13/17

(Date)
412-497-2950

(Phone Number) (Fax Number)

**ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:**

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- | | |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Mott MacDonald, LLC

Company


Authorized Signature
6/13/17

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

STATE OF WEST VIRGINIA
Purchasing Division
PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Mott MacDonald, LLC

Authorized Signature: [Signature] Date: 6/7/17

State of Pennsylvania

County of Allegheny, to-wit:

Taken, subscribed, and sworn to before me this 13 day of June, 2017.

My Commission expires _____, 20__.

AFFIX SEAL HERE

NOTARY PUBLIC Melissa S Root

Purchasing Affidavit (Revised 08/01/2015)

