ETB ARCHITECTS

Jessica Chambers
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

March 22, 2017

REF: ADJ1700000005

Dear Ms. Chambers:

In response to your qualifications request for the professional Architectural and Engineering Design services, the E.T. Boggess Architect, Inc. team is pleased to submit information regarding our experience. We will provide the services necessary to accomplish the Sullivan Tract Master Plan Design Project. Our team will work with the State of WV, WVARNG, the Department of the Interior's (DOI) Office of Surface Mining Reclamation and Enforcement (OSMRE) and designated representatives to ensure that everyone's vision for each project is achieved.

I will be your architect and will be the person-in-charge for all aspects of the project. Our team combines firms familiar with the site and surrounding area, as well as consultants who offer a unique perspective for addressing various issues and challenges. We will join forces to bring the best knowledge and experience to the master planning and design process.

ETB emphasizes a client-centered design approach, incorporating mutually defined project objectives. Through this focus, we can assure the State of West Virginia and the WVARNG that needs and project issues will be clearly identified and addressed through an engaged, interactive programming, design, and construction process. Our design process will be conducted with an attention to detail, creative problem solving and with a passion towards project success.

We value this opportunity to serve you and look forward to personally presenting our credentials.

Sincerely,

Todd Boggess, AIA, NCARB, Architect
President

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INTRODUCTION

The E.T. Boggess Architect, Inc., team is excited about the potential impact that the development of the Sullivan Tract will have on Raleigh County and Southern West Virginia. The proposed WVARNG building will also be an important anchor for the site and will help attract new businesses, industries, and organizations to the development. Economic development is one of the driving forces behind the actions of our state government. The financial situation our state has and is enduring has affected all of us and requires us mountaineers to "get creative" in our approach. We must find ways to receive maximize return from the financial resources available and provide the infrastructure and opportunities that will encourage business and industry to invest locally.

ETB has a great deal of experience with government facilities and private developments. Many of our projects have involved either a total site development (multiple housing projects) or required that our building design be strategically located within an existing education/technology park (WV Regional Technology Park in South Charleston, the High Tech Foundations I-79 Technology Park in Fairmont, and on the campus of the Erma Byrd Education Center in Beaver). We understand the unique requirements associated with master planning and the importance of creating a site that will serve the needs of the occupants as well as attract customers to the area. The entire process begins with research . . . knowing what you *have* to work with and what you *need* to achieve.

Congratulations on the successful funding request under the Abandoned Mine Land Reclamation Economic Development Pilot Program for 2016. This is a very encouraging project as the state looks to broaden and diversity the economic development opportunities to grow our state. Our team's goal will be to help identify potential target markets and site development options that provide the greatest opportunities for advancement and progress.

The team that ETB has put together to complete this project includes experts in their respective fields, including:

Site/Civil Consultant:

E.L. Robinson Engineering
207 Brookshire Lane Beckley, WV

E.L. Robinson is a multi-disciplined engineering and planning firm with a staff of over 135 fulltime professionals and support personnel located in nine offices. Over the last 39 years, E.L. Robinson has grown to be one of the most respected firms in the region, offering a diverse scope of services. One of their employees, Eric Coberly, previously served as the Chief for the WV DEP Abandoned Mine Lands Division for more than 4 years. His knowledge and experience, especially as it involves this specific program, will prove invaluable to the Sullivan Tract Master Planning Project.

Master Planning / Land Use:

AECOM
1505 Beech Street Kenova, WV

150 Clay Street, Suite 410 Morgantown, WV

3101 Wilson Blvd., Suite 900 Arlington, VA

With over 100,000 employees across more than 150 countries, AECOM brings deep expertise in designing, building, financing and operating large scale projects in a diverse range of industries. Through their technical knowledge, local connections and broad market experience, they develop and implement innovative solutions to the world's most complex challenges.

They have worked with national and sub-national governments across a range of markets including water, industrial, transportation, commercial and residential, cities, and power to deliver solutions related to special economic zone (SEZ) development, urban and industrial engineering, environmental planning, public-private partnerships, strategic planning, masterplanning, civil engineering, and cost management.

Clients trust AECOM to map the path forward for new development and redevelopment of buildings, campuses, infrastructure, cities and regions. They deliver documents that guide policy, strategy and site configuration.

AECOM and ETB worked together on The Bechtel Summit National Scouting Reserve in Southern West Virginia.

Structural Consultant:

Moment Engineering
603 Peoples Building
179 Summers Street Charleston, WV

Moment Engineers is a professional consulting firm specializing in structural engineering. Based in Charleston, they have been serving architectural and building construction firms since 2005. During his more than 25 years of experience, Doug Richardson (founder) has had sole responsibility for more than 6 million square feet of built space. The goal of Moment Engineers is to produce high quality designs in a prompt and cost effective manner. Their experience, which ranges from small to very large multi-phase projects, is invaluable in providing the technical expertise and creative flexibility. Moment has worked with ETB on a variety of governmental and educational projects.

Mechanical/Electrical/Plumbing Consultant:

CMTA
2429 Members Way Lexington, KY

Founded in 1968, CMTA is a top 50 MEP consulting engineering firm. The firm is known nationwide for its expertise in sustainable, high performance design. CMTA specializes in energy efficient design that is cost efficient for "first cost" as well as cost efficient for long-term operation costs. To date, they have engineered 141 buildings that have been awarded the **ENERGY STAR** designation.

PHILOSOPHY

Communication, collaboration, and consensus are the three elements we feel are essential to the planning, design and building process. The architect is responsible for the finished product, but the design process must include guidance and review by you and representatives from the various agencies. Our goal is to develop a "*partnership*" with our clients – a relationship that includes a long-term commitment, trust, and shared vision.

ETB believes architectural design should be an *interactive process*. We work closely with you to identify and define all your project goals, objectives, functions, responsibilities, and relationships. This interactive approach enables us to develop facilities that meet your requirements, as well as being aesthetically distinctive. Design cannot be mass produced or provided in a "cookie cutter" fashion, it must be developed from scratch with the unique attributes of each individual project in mind. Our approach is not only about our ideas . . . it is about *you and your ideas*. We ***look*** at your existing armories, ***listen*** to what you need, and then provide ***designs*** to satisfy those needs.

METHOD for MEETING GOALS

The Integrated Design Process is our process of design in which the owners, users and the ETB team (architects and engineers) are all integral team members. This integrated process and the implementation of high performance design requires both efficiency and innovation. In our role with this team as the design leader and project organizer, ETB will be responsible for coordinating and orchestrating the work of our in-house team with the appropriate consultants and users involved throughout the design, documentation, and administrative functions of the project.

Utilizing the interactive design approach will best serve the needs of the WVARNG by allowing us to better identify your objectives and produce long-term solutions. Your projects will be completed by emphasizing the following activities:

- **Understanding goals.** We develop a plan for identifying and prioritizing individual goals as a means for addressing the overall project.
- **Brainstorming ideas**. We investigate opportunities for greater service through value engineering, strategic partnering, or an alternative delivery method.
- **Assuring timelines**. We generate a management plan to fulfill deliverables and meet milestones on schedule. All team members participate in and monitor this plan.
- **Maintaining client contact**. We are accessible, convenient, and committed to success from the beginning through the design process, and after completion.
- **Inviting performance feedback**. We involve all team members and clients in project evaluation at closeout and determine how well time, cost, and design goals were met.

Project Management - Our project managers provide extraordinary leadership managing the team dynamics, budget, schedule, and the flow of information. The project manager's role also includes assisting the client with the management of services and consultants that may not be a part of this contract, but still may have an impact on workflow and infrastructure coordination. The effective implementation of your goals and objectives will be realized thru early and consistent collaboration among all the design disciplines. This will result in opportunities and challenges being discussed and addressed as we proceed thru the design process.

Cost Management - We believe that the management of cost and/or risk begins with the development of fully vetted alternatives which enable you to make informed choices about the project. We search for simple and effective solutions for each armory. We also believe that the evaluation of cost must extend beyond the cost of construction, and consider the costs of operations, human resources, energy and sustainability.

Project Schedule Management - Completing projects on time requires effective schedule management and a commitment of the entire project team. The process begins with the development of the project schedule with input from each stakeholder engaged in the process. Accelerated schedules require even more dedication to benchmarks and deadlines, identifying production problems early and making the necessary adjustments before issues become too great to be effectively managed. We also want to insure as little disruption as possible to the day-to-day activities at each armory during the construction process.

Quality Assurance - We feel quality assurance is the ability of an architect to provide the client with a set of documents that satisfies the client's needs and are as accurate as possible. ETB believes quality assurance is an ongoing process, not just a one-time occurrence. No project is perfect, however, we strive to achieve maximum client satisfaction. An active role during construction contract administration services provided an opportunity for our team to better respond to existing conditions that may differ from the design intent.

To that end, we have set the following goals for ourselves:

- Promote teamwork
  - within the office
  - with outside consultants
  - with representatives from the State of WV and the WVARNG
  - with representatives from the local government agencies
- Quality management throughout entire project – *Website*
- Prompt response to client's requests – *Availability*
- Creation of quality construction documents – *Purpose Driven*
- Error *prevention*, not error catching – *Standard Practices*
- Personal pride in our work - *Motivation*
- Education and Training in-house (staff mentoring) – *Continuing Education*
- Go the extra mile whenever necessary – *Service Oriented*

Quality Control - Quality control starts with matching expectations about quality standards and life cycle costs with budget and scope during planning and design reviews. This continues through construction delivery with a program of inspections, tests, and certifications that are typically handled through a third-party agency. Quality control should flow seamlessly from one phase to another. The "partnership" we develop during the project assists us in maintaining a high level quality control standard with everyone working together in the project's best interest. We strive to coordinate performance among the entire project team in order for a completed building program to fully satisfy your needs and expectations. The quality control plan we follow should help eliminate errors, reduce cost and improve overall building quality.

ETB normally follows the plan as outlined below:

- Keep the lines of communication open and consistent between all team members
  - Regular/scheduled project meetings
- Share lessons learned from recent similar projects, include value engineering
  - Up-to-date detailing
- In-house reviews to address issues with constructability and budget restraints
- Utilize past experiences related to construction administration
  - Address before issue or occurrence
- Provide post construction administration services to be utilized on future projects
  - Every project or opportunity can be a learning experience for continued growth to better serve clients

Approach & Scope of Services – 2

APPROACH

A comprehensive master plan for the business/industrial park is a crucial first step in ensuring the property is utilized to its full potential. Laying the groundwork, gaining support and approval, and coordinating with the local and state agencies that will be involved with the project are all vital to the project's success. The opportunity for increased economic development in the area is a major component and our plan will create a very user friendly site for business to locate.

We normally approach a master planning project in the following manner:

- Establish goals and objectives
- Examine site and identify advantages and challenges
- Review existing reports (survey, geo-tech)
- Determine utilities, telecommunications, and infrastructure to be provided
- Explore options for land use and economic development opportunities
- Identify government agencies that will need to approve plans
- Review budget and cost projections
- Project schedule for sitework

Master Plan Phases

I. Reference Information

During this phase we gather information needed to develop a comprehensive assessment of the needs, goals and operations of both the WVARNG and the local area. This includes mission statements, projected growth, and possible tenants. We strive to gain as much information concerning site issues, including land use, infrastructure/utilities, access/entrances, circulation, parking and the placement and use of the proposed 25,000 sf – 100,000 sf building.

II. Development Phase

Business/Industrial Park design includes physical plans for the various master plan components. Physical development priorities will be established. Relationships between any proposed buildings will be examined as design solutions progress. Each component of the master plan (landscape, open space, facilities' needs, circulation, access, aesthetics, technologies, utilities, etc.) will be developed. Detailed results of the Master Plan design phase will be presented to the appropriate committees for approval. Cost estimates and lists of priorities will be established. Preliminary imagery will be developed for approval. Implementation strategies are developed to assure the plan is achievable. If not, adjustments may be required. The Master Plan will give direction, but must remain flexible, evolving to address community, business and civic needs as they develop.

III. Presentation Phase

Presentations will be made to the state, city, community leaders, and local businesses. These presentations will be instrumental in obtaining the support necessary to achieve all the objectives set forth in the Master Plan.

IV. Construction Document Phase

Based on the approved master plan, construction documents will be completed for the sitework and infrastructure.

V. Bidding Phase

Based on past projects, we understand that the State of West Virginia will handle the bidding phase of the project. Our team will be available to respond to questions submitted by bidders on an as-needed basis.

VI. Construction Phase

During the construction phase, we will provide usual and customary contract construction administration services. Our site/civil consultant has an office in Beckley and ETB is located just 30 minutes away. Our team's proximity to the site will prove extremely advantageous, especially during the construction phase.

Additional information regarding specific tasks associated with each phase of work can be found in the following section which addresses the design for a new 25,000 sf – 100,000 sf building. Depending on your timeframe, the design for the building can be created at the same time as the master plan or can be phased in afterwards.

Design Approach for New Construction

Once the Master Plan has been approved, designs for construction of the new 25,000 – 100,000 sf building will be accomplished in steps or phases beginning with Schematic Design Phase, followed by Design Development Phase. Once you approve the final design, we start the Construction Documents Phase, then proceed to the Bidding Phase, and, finally, the Construction Administration Phase.

We will not begin work on the next phase of the project without your approval and written authorization. The information that follows will help you understand each phase.

Schematic Design Phase

ETB and our consultants will work with the WVARNG to design the new building to address your specific needs. The schematic design documents will establish the general scope and conceptual design of your project, and the scale and relationships of the building components. The main goal of this phase is to arrive at a clearly defined, feasible concept and to present it in a form that will result in your understanding and acceptance.

You will have the following items to review at the end of this phase:

- Conceptual Site Plan
- Preliminary Building Plan with elevations or space adjacency studies
- Perspective Sketches/Computer Images/Mass Model Studies
- Preliminary Cost Estimates

Design Development Phase

Services in the design development phase strive to achieve the refinement and coordination necessary for a complete polished work of architecture. Here decisions made in schematic design are worked out at a more detailed level to minimize the possibility of major modifications being needed during the development of construction documents. Our design team arrives at a clear, coordinated description of all aspects of the design, including . . .

- Architectural
- Mechanical
- Electrical
- Plumbing
- Structural
- Fire Protection Systems

Final Design Phase / Construction Document Phase

Construction documentation is the bridge between building design and physical building form. A key element of documentation services, construction drawings provide the instructions for transforming the design solution into brick, mortar, landscapes, access, etc. The purpose of providing construction document drawings is to provide graphic documentation for bidding and execution of construction services.

Services/tasks include . . .

- Prepare construction drawings based on approved design development drawings.
- Coordinate and incorporate drawings from all team members.
- Prepare specifications to accompany drawings to establish a desired level of performance.
- Submit documents to building code officials.
- Prepare bid packages.

Bidding Phase

Construction procurement activities assist the client in obtaining competent construction services. Our team will attend any pre-bid meetings and will respond to bid questions as requested by the State of West Virginia.

Construction Phase / Contract Administration Services

Contract administration services are important in order to ensure construction conforms to the design intent of the construction documents; to lessen project risks; and to identify and resolve construction problems early. We also strive to assist you in understanding the construction process. The architect, serving as a construction administrator, observes construction for conformity to construction drawings and specifications. We will coordinate our activities with the Owner's designated representative.

Services/tasks included . . .

- Establish lines of communication.
- Maintain and distribute paperwork/records.
- Respond to contractor's requests for information.
- Review contractor's requests for payment.
- Review shop drawings and product information.
- Prepare field reports and records.
- Supervise completion and closeout.
- Assist with any post-occupancy issues.

Firm Profiles – 3

HISTORY

E. T. Boggess Architect, Inc. was established in Princeton, West Virginia, by Ted Boggess in 1966. ETB has been a successful architectural firm primarily because of a team approach and partnership-type attitude with all involved in the design and construction process. Having grown up in the practice and with a life-long love of architecture, Todd became a full time presence with the firm in 1988 after receiving a Masters in Architecture from Clemson University. Their unique relationship as father/son/mentor/apprentice and, now, partners is both exciting and rewarding as the practice continues to flourish and evolve.

REPUTATION

Our firm lives or dies by its reputation. We have cultivated a team that strives to deliver the highest level of project management, service, and design. Our approach is client and site specific, and questions conventional assumptions. The greatest testament to the success of ETB's work goes beyond the organizational, operation and business stewardship we provide; it is in our enduring client relationships.

The architects at ETB are well-respected for their high ethical standards, as well as professional and civic activities. They have been asked to serve as expert witnesses and arbitrators in legal disputes. They have also been selected to serve on various local, state and national committees. These committees cover areas from determining local zoning ordinances to reviewing and developing educational requirements for future architects, to preserving West Virginia's historic architecture. In 2014, Todd was appointed to the WV Board of Architects by Governor Tomblin. The Board of Architects protects the life, health, and property of the people of the State of West Virginia by ensuring that proper architecture practices are used in the state.

SIZE

Bigger is not always better. ETB has purposely controlled size in order to maintain personal involvement and quality control. We feel that it is important to maintain close client contact so we can respond to your needs and questions, as well as address any situations that may arise in a timely manner. Our talented staff is ready to accommodate the needs of your project and ensure the successful completion of our current workload. The depth of our personnel is such that we can assign individuals to the appropriate task during each phase to ensure all your project's needs are satisfied.

TEAMWORK

Our projects and design services are dependent on both our abilities as architects and our commitment to perform and implement a set of standards in order to create a design that responds to the needs of our client. In house, ETB actually functions as a team of consultants with individual strengths and abilities emphasized by each employee's role within the team. In addition to being a strong design oriented firm, we offer expertise in communication, construction documentation, construction administration, and quality control.

Throughout our state, we have developed relationships with government agencies, contractors and material suppliers which will be valuable as we address the challenges associated with this project. ETB has worked with many of the code officials, including the state fire marshal, and consider them an extension of our team, another member who is concerned about the final design. We review our designs with the Office of the State Fire Marshal in Charleston at regular intervals during the design process, as well as on-site inspections during construction.

ATTITUDE & EXPERIENCE

Over the past 50 years, ETB has accomplished many different types of buildings in 12 different states and 1 foreign country. We have not limited ourselves by focusing on one particular type of project or a single location. Instead, we choose to maintain a diverse practice which allows us to begin each project with renewed enthusiasm. Our strength is in the delivery of appropriate and analytical solutions for complex buildings in strict conformance with budget and time constraints.

ETB was one of the first architectural firms in the state to implement the use of computer-aided design and drafting into the everyday practice of architecture more than thirty-five years ago. Today we continue to implement current technology as we have become very efficient with photorealistic imagery through computer modeling and digital photography. The building 3-D model and associated imagery can be developed early in the design process for presentations. This helps everyone better understand design approaches and project contextural relationships within a setting.

SCHEDULES & BUDGETS

ETB understands the importance of ensuring that all schedules and budgets are met. Our past experience designing within the confines of strict budgets and tight construction schedules makes us even more diligent in these areas. Some of our most recent projects, especially for state agencies, have presented us with very rigorous scheduling goals. Our projects for the West Virginia School Building Authority have penalties built in if schedules and established budgets are not adhered to as an added incentive to meet the deadlines.

Our team will do everything within our power to ensure the project stays within budget and on schedule. We will work with the general contractor to provide him with the information he needs as quickly as possible. As mentioned earlier, the key to addressing problems during construction will be ***communication, collaboration, and consensus.***

LOCATION

ETB is located in Princeton, just 30 minutes from the project site. Our familiarity with the City of Beckley and surrounding area will prove valuable as we meet with local officials to gain approval and support. Our proximity to the site will also benefit both the state and the project during the construction administration phase of the project during regular meetings as well as on an as-needed basis to address any issues that may arise.

Firm Overview

E.L. ROBINSON ENGINEERING

E.L. Robinson is a multi-disciplined engineering and planning firm with a staff of over 135 full-time professionals and support personnel located in nine offices throughout West Virginia (Charleston, Beckley, Bridgeport, and Chapmanville), Ohio (Little Hocking, Columbus, Cleveland, and Ironton), and Kentucky. Over the last 39 years, E.L. Robinson has grown to be one of the most respected firms in the region, offering a diverse scope of services. E.L. Robinson provides a full range of quality engineering services, from planning and analysis to design and implementation.

Named for its founder and president, Edward L. Robinson, P.E., P.S., ELR has based its success on a commitment to quality projects and superior client service. Finding new and creative ways to say yes to challenges has brought our vision of excellence into reality. Along with this "yes, we can do it" attitude, the firm has grown to understand the ingredients of a professional service firm include not only brick and mortar, but also leading edge technology and a talented, motivated staff that is continually growing and advancing their skills. This dedication rewarded ELR with being named one of the Engineering News Record's top 500 engineering firms in the country.

The use of technology has allowed ELR to expand engineering capabilities and make use of new resources such as satellite imagery and digital mapping. In addition to the use of technology, E.L. Robinson also continues to strive to invent new and more effective ways to serve our clients. One of these ways is to provide a thorough pre-analysis of every project, saving the client time, money, and legal exposure. When the client is educated on every phase of the job and every challenge, the reputation of the firm grows stronger and attracts business from a larger marketplace.

E.L. Robinson has been providing its clients with quality products and superior service since 1978. Our staff combines state-of-the-art technology, experienced professionals, and innovative methods to help our clients meet their challenges in the following disciplines:

- Site Development
- Infrastructure
- Transportation
- Bridge Design
- Structural Engineering
- Geotechnical Engineering
- Environmental Engineering
- Right-of-Way Services
- Construction Administration/Observation
- Surveying/Global Positioning
- Landscape Architecture

About AECOM

AECOM is a progressive consultancy drawing together economists, designers, environmental specialists, planners, engineers and program managers to enhance and sustain the world's built, natural and social environments. With nearly 92,000 employees serving clients in more than 150 countries around the world, our collaborative approach unites creativity with technical expertise to address complex challenges at all scales. AECOM is a leader in all the key markets that it serves, including urban planning, environment, transportation, facilities, energy and water. A Fortune 500 firm, AECOM had revenues of approximately $17.4 billion during fiscal year 2016. More information on AECOM and its services can be found at *www.aecom.com*.

AECOM's technical breadth and depth make us uniquely qualified to provide high-quality services in the following five areas of specialization:

- Countywide Sector, Neighborhood, Corridor, Block Level Planning and Zoning
- Urban, Architectural and Landscape Design
- Economic and Demographic Research and Analysis
- Environmental Analysis
- Historic Preservation and Cultural Resources Management

AECOM stands ready to meet any and all of the professional service requirements and criteria. Our staff has the required licenses and certifications in urban planning, LEED, landscape architecture and archaeology. The following summarizes our capabilities in each of the five areas of specialization.

Countywide Sector, Neighborhood, Corridor, Block Level Planning and Zoning

AECOM emphasizes the integration of market analysis, land planning, urban design, infrastructure engineering, and delivery strategy in the preparation of development plans for neighborhoods, counties, cities and regions. Our Design, Planning + Economics (DP+E) teams draw on the company's engineering and scientific expertise to deliver unparalleled depth in urban planning. Where possible, we integrate transportation, water, wastewater, stormwater and energy planning into our spatial development plans. AECOM systematically integrates sustainability analysis into the planning process. Our Sustainable Systems Integration Model™ (SSIM) is widely recognized in the industry as a valuable tool for testing the sustainability outcomes of options for spatial layouts and infrastructure systems.

Urban, Architectural and Landscape Design

AECOM designs communities at the corridor, neighborhood, and streetscape scales. We approach the design of cities as applied sociology, ecology and geography, shaping daily life through artful environments and experiences unique to individual places. We build community through integration of social infrastructures, enhancing quality of life through high-performance public space and neighborhoods organized to maximize access to amenities. The parks, plazas, and streetscapes we design must be more than merely accessible public facilities—they are the places where community happens. At their best, they shape neighborhood identity and enhance individual wellness and the broader environmental health of our cities.

Economic and Demographic Research and Analysis

AECOM brings a wide range of experience in economic consulting. We provide analysis that informs successful land development decisions and courses of action. Our services are designed to help our clients understand their markets, assess risks and clarify the uncertainties inherent in any development initiative, business strategy or public policy initiative. Our Economics team has analyzed demographics and land use economics at many scales, from small-scale individual parcels to major district planning efforts.

Environmental Analysis

AECOM has a strong team devoted to environmental planning and analysis, with experience ranging from major new infrastructure projects to preventative flood mitigation to site-specific analysis for small urban parcels. We have decades of experience in the development of environmental assessments and impact studies, as well as natural resources studies. We have also provided environmental analysis for local communities in order to better inform decisions in compliance with county and municipal requirements. Our environmental analysis services also extend to stormwater management. In addition to our broad experience with impact analyses, AECOM can also navigate the challenges of permitting, regulatory requirements, and other analyses that can be required as part of proposed actions. AECOM has conducted wetland delineations, stormwater monitoring and permitting, and flood plain studies in order to meet clients' needs.

Historic Preservation and Cultural Resources Management

AECOM's interdisciplinary cultural heritage practice includes national experts in architectural history, preservation planning, historic architecture, forensic structural engineering, landscape history, historical landscape architecture, ethnography, archaeology, materials conservation, and a wide variety of compliance and cultural resource management services. Our extensive experience supporting our clients in the responsible stewardship of the country's cultural heritage helps shape sustainable environments and communities throughout the U.S. and across the globe. Our approach delivers comprehensive knowledge and expertise in a planning environment that ensures our cultural legacies are sustained for future generations.

About CMTA

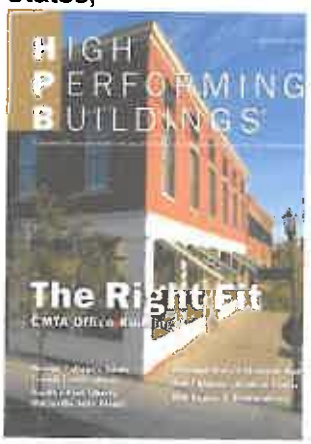
CMTA is the largest MEP consulting engineering firm in Kentucky. Ranked in the top 50 MEP firms as ranked by *Consulting-Specifying Engineer* magazine. In 2016, CMTA was named to the Zweig Group's Hot Firms List debuting as the 12th fastest growing firm in North America.

CMTA has over 200 employees in its Louisville, Lexington, southern Indiana, Ohio, Houston (Texas) and DC offices. This includes 71 licensed professional engineers (PEs) and 20 FEs, 70 LEED Accredited Professionals, 20 Certified Commissioning Agents (CxA), six licensed technology designers (RCDDs), six Certified GeoExchange Designers, seven Certified Energy Managers and three licensed Fire Protection Engineers.

CMTA is known nationwide for its expertise in sustainable, high performance design. CMTA President Ken Seibert and other firm principals speak nationally on the subject of high performance buildings. CMTA's engineers put their high performance design principles to work when they designed their corporate headquarters in 2008. CMTA's new office building was the first LEED Gold building in Jefferson County. The 20,000 square foot building features geothermal heating and cooling, ICF walls, energy efficient lighting, daylighting, solar PV and recycled materials. CMTA's new office building in Lexington was designed utilizing the same design principles and is certified LEED Platinum.

States where CMTA has completed projects.

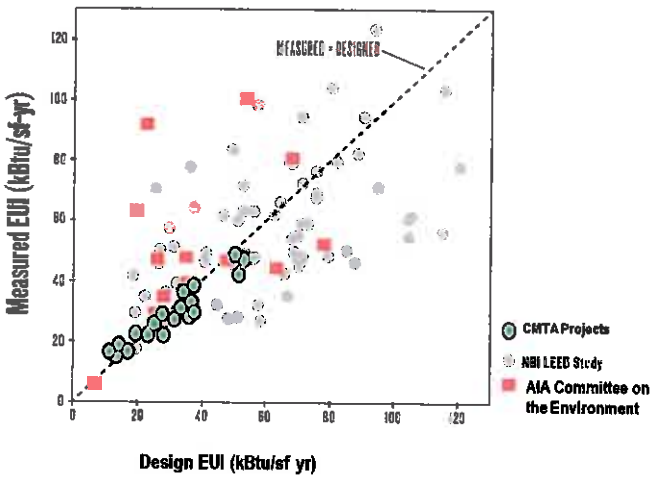
Originally based in Lexington, Kentucky, CMTA established a Louisville office in 1990, primarily to serve Humana, its largest client. The Louisville office continued to expand serving both health care and education clients around the United States, and in 2006 the Louisville office became the firm's main office.



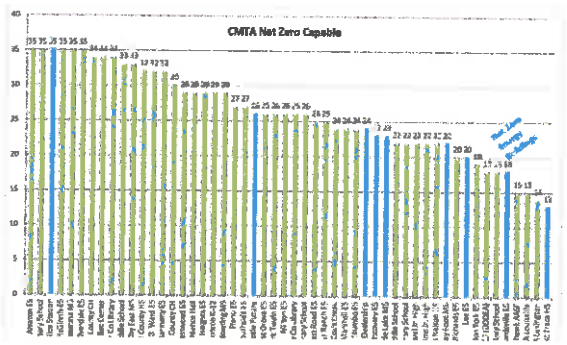
Even with the pressures of the recession in 2008 – 2010, CMTA maintained slow, but steady growth establishing an Indiana office and a Texas office in 2009 and 2010. Also in 2009, CMTA constructed a new 'corporate headquarters' in eastern Jefferson County. This office was the first LEED Gold building in the Louisville Metro area. The CMTA Louisville office received consecutive perfect ENERGY STAR scores of 100. In 2013, CMTA's Lexington office designed and constructed their own office building which has received several awards, including perfect ENERGY STAR scores and achieved LEED Platinum certification. In November 2015, CMTA opened its Cincinnati office to serve our growing number of clients in Ohio, and in January 2016, CMTA opened our Washington, DC office in response to the need for sustainable, high performance engineering design in the mid-Atlantic region. We are currently phasing in a Virginia office and researching locations for a West Virginia office.

Firm Approach to Sustainable Design

Our holistic design approach includes MEP systems, site orientation, building envelope, types of windows, building insulation systems, soffit conditions, infiltration of exterior openings, plumbing, water reclamation, occupancy schedules and maintenance. To maximize the energy efficiency and performance of a building; we cannot focus on the MEP systems alone. High performance, energy efficient buildings involve all aspects of the building and design process. CMTA believes in presenting many options to the stakeholders for system selections. We evaluate all the factors that can affect operational budgets: system types, life cycle cost, maintenance and energy usage. We have the knowledge and experience to evaluate all these factors and make recommendations based on 'real-world' data.



Life cycle cost is an important factor in all our high performance buildings. Site, building orientation, exterior wall/square foot ratio, MEP systems, renewable energy types and the availability of incentives and rebates have to be considered in the ROI equation.



CMTA's Net Zero Energy and Net Zero Capable Buildings (EUI <35 kBtu/sf yr) As of September 2016

At the beginning of a project, we work with the stakeholders to establish a sustainability goal. The sustainability goal will ultimately guide the design including MPE system selection and overall budget. Using energy modeling we can provide accurate energy use numbers based on proven data. We work closely with the design team to make sure everyone has a full understanding of options and are able to accurately look at cost and energy efficiency.

We have been benchmarking our buildings' performance for almost 15 years and have an extensive database of system performance. We can discuss the pros and cons of various systems and the caveats associated with system selection. We also understand the impact that use has on the efficiency of a building and work with the stakeholders to determine the parameters which will ultimately affect building performance.

Firm Culture

We are not your typical engineers. Our focus is hiring and training engineers who are collaborative, ambitious and have the desire to be the best. There is no place for mediocrity at CMTA. Embedded in our culture is the goal of exceeding the expectations of the client. We understand that the building is not our building. We work throughout this project with the owner's needs in mind.

In order to meet those needs, we will bring new ideas and innovative approaches to our engineering designs to ensure that you get the best building possible within your scope and budget. We will challenge you with thoughts and ideas as well as challenging the team on issues that affect us all. We want more than our piece of the pie to be exceptional, we want to whole pie to be exceptional.

In addition to valuing collaboration and innovation, we foster longevity at CMTA. Several people have been with the firm for over 10 years. We also believe in "growing our own." Many of our team members began working at CMTA while they were engineering students.

We encourage our staff to enhance their engineering design skills through earning their professional engineer registration and achieving other certifications like Healthcare Design Facility Professional (HDFP), Leadership in Energy and Environmental Design Accredited Professional (LEED AP), Registered Communications Distribution Designer (RCDD), Certified GeoExchange Designer (CGD), Certified Commissioning Agent (CxA) and many others.

Finally, we are not just a collection of engineers. We are a collection of like-minded people who have become a family. We want our peers and friends to succeed as much if not more than ourselves – when the team wins – we all win. Because we sometimes spend more time at work than we do at home, the place and the work have to be something we enjoy.

Why CMTA?

We understand the importance of benchmarking and follow our buildings after we turn them over to the owners. We are "data driven, results proven" as our buildings' energy savings are demonstrated by the owners' utility bills – not the energy model we developed in design.

At CMTA, we believe in "the first 30," a collaborative process that goes beyond MEP systems encompassing whole building concepts. The goal of this process is getting design team members to think creatively and get motivated to develop innovative solutions in the first 30 percent of the design process.

We consider how the occupants of a building interact with the building in all our designs. CMTA's buildings are moving beyond energy efficiency and sustainability to lead the industry's focus on improving occupant health. Our team has a vast understanding of the building performance metrics and design strategies that improve the built environment for occupant comfort and wellness. This knowledge allows us to be successful in incorporating strategies that improve human health and focusing on the wellbeing of the occupant while still maintaining budget and energy efficiency goals.

Any large firm can say they have completed millions of square feet of buildings. But ***it's not the firm, it's the people***. Our team are some of the best engineers you will ever work with. Not only do we produce exceptional, innovative designs, we're fun to work with.

Background

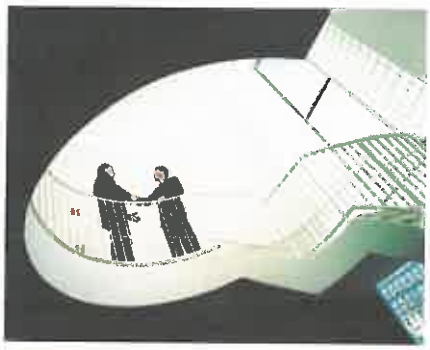
Moment Engineers, Inc. is a professional consulting firm specializing in structural engineering. We serve the architectural and building construction communities throughout West Virginia. Based in Charleston, West Virginia at 179 Summers Street, Moment Engineers was founded by Douglas Richardson in early 2005.

During his more than 25 years of experience, Mr. Richardson has had sole responsibility for the structural engineering design of more than 6 million square feet of built space. The construction costs of these projects exceeded a half billion dollars. His experience, which ranges from small to very large multi-phase projects, is invaluable in providing the technical expertise and creative flexibility to deliver results in a prompt and reliable manner.

Our staff's experience encompasses a wide variety of building types and sectors, and our expertise includes design analysis for steel, concrete, masonry, and wooden structures.

MOMENT
engineers, inc.

Approach



At Moment Engineers, we recognize that the architect is the primary contact for the building owner. Our role is to strengthen that relationship by producing high quality designs in a prompt and cost effective manner. To that end, we emphasize incorporating traditional and technical means of communication and data transfer to ensure a seamless integration of structural integrity and architectural creativity.

We believe that the practice of engineering is the point at which science and society meet. We also believe that the architects and builders we serve are essential in the development of the fundamental dignity of the community. Moment Engineers is strongly committed to developing structural solutions which bring permanence and strength to the expression of architectural thought.

MOMENT
engineers, inc.

Projects / Prior Experience – 4

Project Information

E.T. Boggess Architect, Inc.

Project	Type	Goals	Size	Cost	Comp.
WVARNG Readiness Center					
Location: Elkins	**New**	*Provide offices, classrooms, kitchens, showers*	56,000 sf	$15.5 mil	2012
Project Manager for the WVARNG:		*for local armed forces to train & prepare.*			
Dan Clevenger - 304-561-6451		*Serve as base of operations in emergency.*			
Goals were met by as a result of diligent research, planning/programming and coordination between team members and the Owner's rep.					
Advantage Valley Advanced Tech Center	**New**	*Three educational facilities with similar*	50,000 sf	$15 mil	2014
Location: So. Charleston		*objectives - address needs of WV C&TCS*			
North Central Adv Tech Center/Allied Health	**New**	*program. Provide classrooms, labs, offices,*	60,000 sf	$17.4 mil	2016
Location: Fairmont		*and high-tech learning environment for*			
New River Headquarters & Allied Health	**New**	*secondary education programs that can be*	72,500 sf	$15 mil	2015
Location: Beckley		*modified easily to satisfy market/demand.*			
Project Manager - Chancellor of the WVC&TCS					
James Skidmore - 304-558-0265					
Goals were met as a result of diligent research, planning/programming and coordination between team members and the Owner's rep.					
ETB was also responsible for state-wide planning & programming for the entire Community & Technical College System.					
WVDOH District 7 Headquarters					
Office Building	**New**	*Provide centralized office and meeting room*	29,915 sf	$6.5 mil	Under
and		*for DOH district operations.*			Construction
Equipment Shop	**New**	*Provide centralized maintenance and repair*	22,996 sf	$4.75 mil	Under
Location: Weston		*facility for all DOH district equipment.*			Construction
Project Manager for the WVDOH:					
Brian Cooper - 304-473-5381					
Goals were met by reviewing previous designs with Owner's rep and district personnel. Revisions were made to accommodate specific needs.					

WV ARMY NATIONAL GUARD READINESS CENTER

Elkins, WV

PROJECT DETAILS

owner/district:
WV Army National Guard

year:
2012

size:
50,000 sf

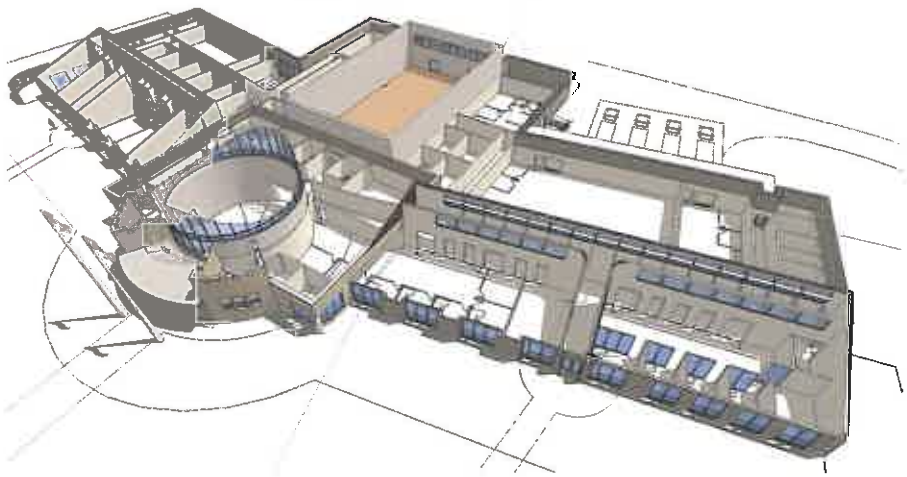
The Readiness Center has two main entrances; the front into the lobby and the rear into the assembly hall. The circular central core of the entrance leads to the administrative wing (east) and classroom wing (west). The facility contains a learning center library, storage areas, locker rooms, kitchen, break-room, and Telcon spaces. Areas within the lobby will be used for recruiting, family support and distance learnng.

The project also included the design and construction of a separate structure for secure storage maintenance/ workshop/ office structure.

COMPUTER VISUALIZATION

WV ARMY NATIONAL GUARD READINESS CENTER

Elkins, WV



WV ARMY NATIONAL GUARD READINESS CENTER

Elkins, WV

WV ARMY NATIONAL GUARD MAINTENANCE SHOP

Elkins, WV

PROJECT DETAILS

owner/district:
WV Army National Guard

year:
2012

size:
Maint & Workshop 3,102 sf
Organized Storage 2,560 sf

Along with the Readiness Center, ETB designed a separate structure to serve as a maintenance building/workshop. A secure, organized storage area was also designed in conjunction with the new maintenance building / workshop.

MAINTENANCE BUILDING

WV ARMY NATIONAL GUARD JOINT FORCES HEADQUARTERS

Coonskin Park, Charleston, WV

PROJECT DETAILS

owner/district:
WV Army National Guard

year:
2016

type:
Exterior Renovations

The exterior renovations ETB designed for the Joint Forces Headquarters included general facade updates, new window systems, and restoring the original metal cornice. The project was completed earlier this summer.

BEFORE

NORTH CENTRAL ADVANCED TECHNOLOGY CENTER

Fairmont, WV

SOUTH FACADE

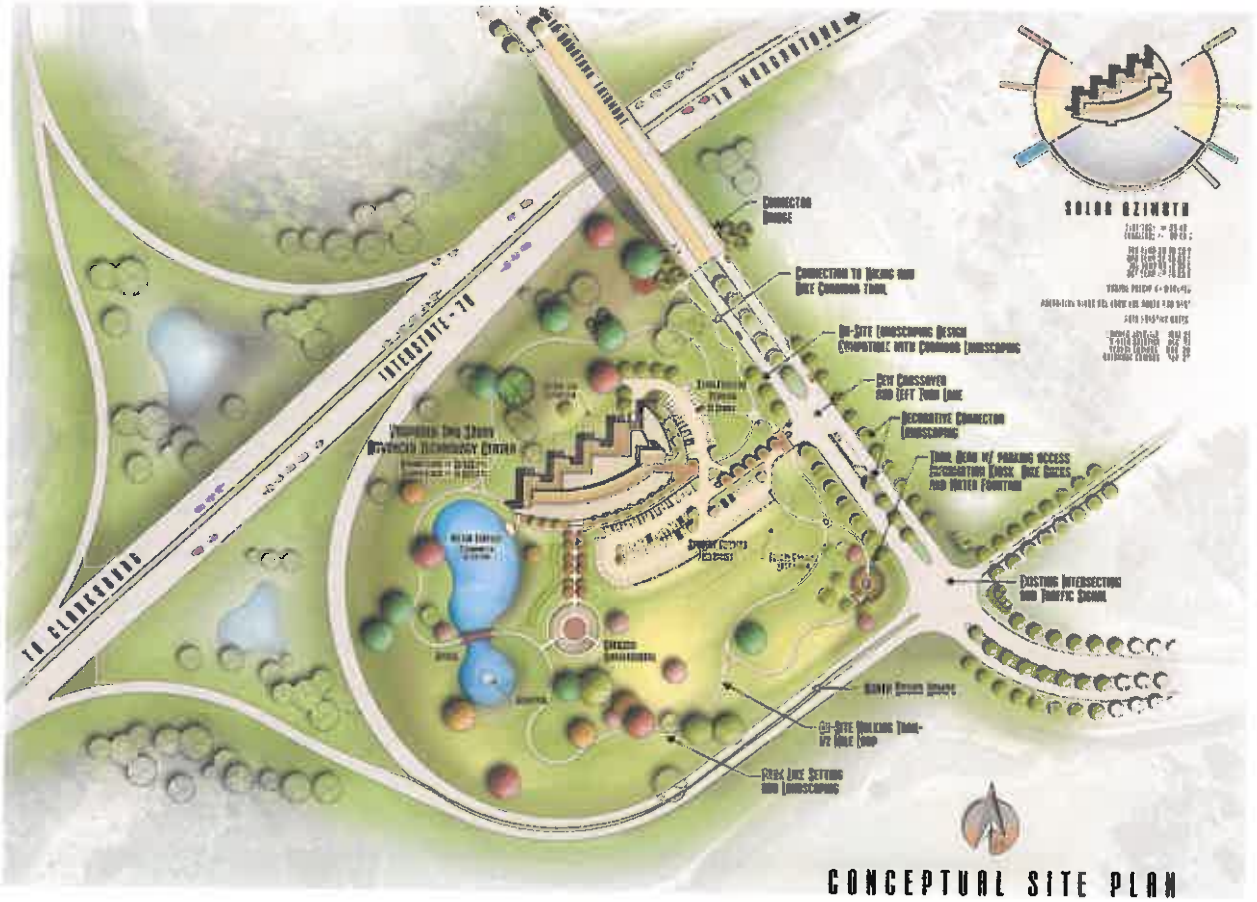
PROJECT DETAILS

owner/district:
WV Council for Community and Technical College Education

year:
2016

size:
65,400 sf (3-Story)

Situated within the I-79 Technology Park in Fairmont, the new laboratory and classroom facilities were planned in collaboration with local industry to deliver the technical training necessary to expand the ranks of skilled workers in West Virginia. The facility will also include Pierpont's new Headquarters, "One Stop" Student Services Center and Allied Health Center.



CONCEPTUAL SITE PLAN

NORTH CENTRAL ADVANCED TECHNOLOGY CENTER

Fairmont, WV

PROJECT DETAILS

owner/district:
WV Council for Community and Technical College Education

year:
2016

size:
65,400 sf (3-Story)

Situated within the I-79 Technology Park in Fairmont, the new laboratory and classroom facilities were planned in collaboration with local industry to deliver the technical training necessary to expand the ranks of skilled workers in West Virginia. The facility will also include Pierpont's new Headquarters, "One Stop" Student Services Center and Allied Health Center.

EDUCATIONAL

ADVANTAGE VALLEY ADVANCED TECHNOLOGY CENTER

South Charleston, WV

PROJECT DETAILS

owner/district:
WV Council for Community and Technical College Education

year:
2014

size:
55,000 sf (Two Story)

PRELIMINARY GRAPHICS

MAIN ENTRANCE

NORTH FACADE AND DAVINCI PLAZA

E. T. BOGGESS, ARCHITECT, INC.

ETB ARCHITECTS

ADVANTAGE VALLEY ADVANCED TECHNOLOGY CENTER

South Charleston, WV

PROJECT DETAILS

owner/district:
WV Council for Community and Technical College Education

year:
2014

size:
55,000 sf (2-Story)

Planned in coordination with local industry, the laboratories are designed for maximum flexibility to deliver education and training for the emerging technologies, including Mechatronics, Nanotechnology and Information Technology. Student common and breakout areas are integrated with the building's circulation to encourage collaboration and transparency.

NEW RIVER COMMUNITY AND TECHNICAL COLLEGE

Raleigh County, WV

PROJECT DETAILS

owner/district:
WV Council for Community and Technical College Education

year:
2015

size:
78,200 sf, (Two Story)

PRELIMINARY GRAPHICS

MAIN ENTRANCE

BIRD'S EYE LOOKING NORTH

NEW RIVER COMMUNITY AND TECHNICAL COLLEGE

Raleigh County, WV

PROJECT DETAILS

owner/district:
WV Council for Community and Technical College Education

year:
2015

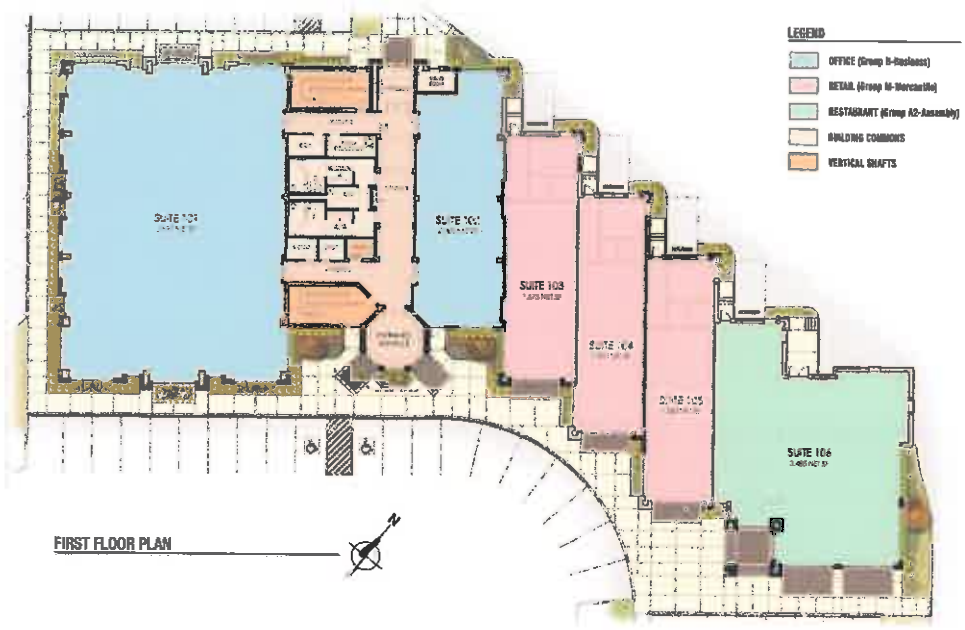
size:
78,200 sf (2-Story)

New River C&TC opened the doors to students in January, 2015. The center's co-location with the Erma Byrd Center provides a unique opportunity for collaborative learning and cooperative education. The building was designed as a shared-use facility with an emphasis on technology, business and healthcare programs. The center includes an Allied Health Technology Center and also serves as the Administrative Headquarters of the college.

The design and organization of the facility enhances connectivity opportunities between the Erma Byrd Center and visually with the panoramic vistas to the North.

COURTHOUSE SQUARE

Princeton, WV



FIRST FLOOR PLAN

PROJECT DETAILS

owner/district:
Private Developer

year:
2016

size:
47,000 sf

The Courthouse Square multi-use commercial development will allow prospective tenants to tailor their space to satisfy their specific needs. ETB is currently-working with the developer for construction of the shell and will meet with individual tenants to address their needs and wants as they commit to the project.

The target markets include those needing office space related to medical, legal, administrative to retail components and restaurants.

Project Data

E.L. ROBINSON ENGINEERING

Project	*Project Type*	*Goals & Objectives*	*How Goals were Met*
Mingo County Wood Products Industrial Park Location: Mingo County, WV Client Contact: Leasha Johnson 304.235.0042	Site Development	Provide site design for a 100 acre section of land to allow for economic development in Mingo County	ELR successfully designed the industrial park resulting in the completion of the project on time and under budget
Putnam County Business Park Phase II Industrial Access Road Location: Fraziers Bottom, WV Client Contact: Andrew Dunlap 304.757.0318	Site Development	Provide access road design with the purpose that the existing Putnam County Business Park could connect to the new US Route 35 and therefore benefit for it's development	ELR successfully designed the industrial park access road resulting in the completion of the project on time and under budget
Earl Ray Tomblin Industrial Park Location: Holden, WV Client Contact: Roscoe Adkins 304.752.4600	Site Development	Provide site design and access road design for a 52 acre section of land to precipitate development in Logan County	ELR successfully designed the industrial park and access road resulting in the completion of the project on time and under budget
Upshur County Industrial Park Location: Buckhannon, WV Client Contact: Stephen Foster 304.472.1757	Site Development	Provide site design for an approximately 20 acre industrial site to stimulate growth and development in Upshur County	ELR successfully designed the industrial park resulting in the completion of the project
Belo Industrial Park Location: Mingo County, WV Client Contact: Leasha Johnson 304.235.0042	Site Development	Provide site design for approximately 7 acres of undeveloped land industrial site to stimulate growth and development in Mingo County	ELR successfully designed the industrial park resulting in the completion of the project on time and under budget
Southern Highlands Initiative Project Wood Park 20 Acre Site Location: Mingo County, WV Client Contact: Leasha Johnson 304.235.0042	Site Development	Provide site design for a 20 acre sight formerly used for mountaintop removal mining to allow for further economic growth in Mingo County	ELR successfully designed the 20 acre site resulting in the completion of the project on time and under budget

Project Data

E.L. ROBINSON ENGINEERING

Project	*Project Type*	*Goals & Objectives*	*How Goals were Met*
Sugarcamp Run Burning Refuse Location: Nicholas County, WV Client Contact: Mark Proctor 304.465.3016	Reclamation	Provide a plan for controlling burning and fumes form a burning refuse pile, while protecting a permitted impoundment	ELR designed a soil cap and cut off trench to contain the fire, along with the regrading of slopes and the installation of drainage conveyances
Abney Refuse Pile Location: Raleigh County, WV Client Contact: Mark Proctor 304.465.3016	Reclamation	Provide a plan for the regrading, stabilization and revegetation of baron refuse areas	ELR prepared a plan that provided stable slopes, drainage conveyances, re-soiling and revegetation of the area
Jane Lew Industrial Park Location: Jan Lew, WV Client Contact: Greg Bailey 304.558.9722	Roadway Design	The purpose of this project was to improve the sight distance along County Route 7 at the entrance to the Jane Lew Industrial Park, as well as eliminating the risk of County Route 7 flooding in the vicinity of the industrial park	By re-aligning and raising County Route 7, in conjunction with removing some material from the adjacent hillside, the site distance issue was eliminated and flooding of the roadway is no longer a concern.
Corridor H - Kerens to Parsons Design Build Location: Randolph and Tucker Counties, WV Client Contact: Greg Bailey 304.558.9722	Roadway Design	The objective was to design the most cost effective solution to cover 7.5 miles of Corridor H from Kerens to US Route 219	There were many restrictions that hampered engineering ingenuity, but by modifying the horizontal and vertical alignments, adjusting bridge lengths, utilizing alternative sediment and erosion control measures, etc., our team was the low bidder ($210M) on the project
US 35 Alignment Study Location: Putnam County, WV Client Contact: Greg Bailey 304.558.9722	Roadway Design	The goal of this project was to find the most economically feasible route between the Buffalo Bridge and the end of the existing four-lane near Henderson, which are approximately 21 miles apart	While taking into account wetlands, historic sites, hazardous material sites, location of 100-year flood plain and county route junction, ELR developed three alignment alternatives
US 35 Design Build Location: Putnam County, WV Client Contact: Greg Bailey 304.558.9722	Roadway Design	The objective was to design the most cost effective solution to design 6.29 miles of new four lane divided highway in Putnam County.	By drastically reducing the quantity of excavation, ELR was able to save the State of West Virginia a significant sum of money.

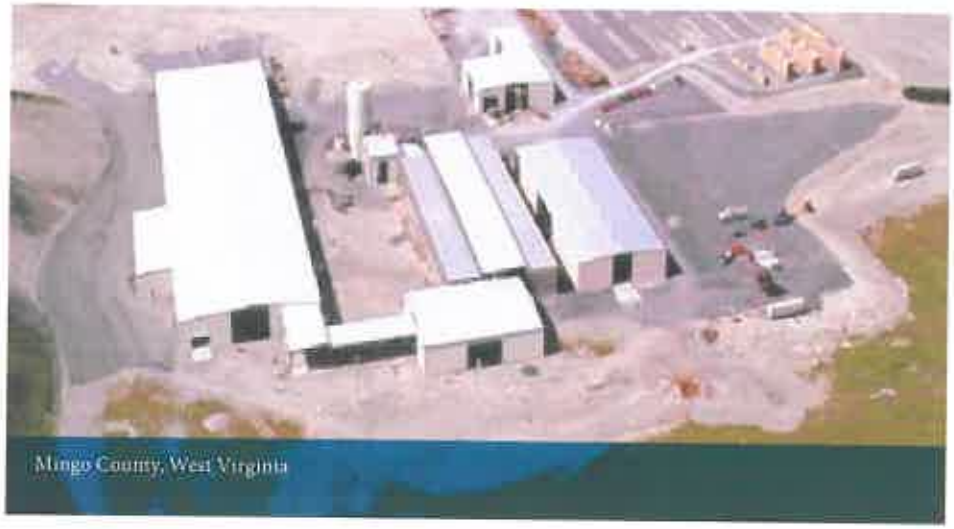
Project Data

E.L. ROBINSON ENGINEERING

Project	*Project Type*	*Goals & Objectives*	*How Goals were Met*
Jefferson Road Widening Study Location: South Charleston, WV Client Contact: Greg Bailey 304.558.9722	Roadway Design	The purpose of this project was to alleviate congestion along Jefferson Road, a highly travel road between US Route 60 and US Route 119 in South Charleston	ELR chose to provide a direct link to I-64, as well as a bridge over the railroad tracks and Kanawha Turnpike. ELR also proposed some interchange improvements at US 119 to provide a more favorable flow of traffic in the area
Drews Creek Water Project Location: Raleigh County, WV Client Contact: Teresa Payne 304.683.4090	Infrastructure	Provide the residents of Drews Creek and Peachtree Creek public water service from the Raleigh County PSD	A preliminary engineering report was prepared and funding sought to extend service. These efforts were successful and the PSD's system extended into both areas
Pluto/Bragg Water Project Location: Raleigh County, WV Client Contact: Teresa Payne 304.683.4090	Infrastructure	The residents of the communities of Pluto and Bragg had sought water service from the privately owned Beckley Water Company. The cost to the residents was too much for them to afford. They petitioned the Raleigh County PSD to undertake the project.	ELR was able to find an affordable solution and assisted the PSD is seeking funding. Funding was secured and the extension constructed.
Mt. View/Streeter Water Project Location: Raleigh County, WV Client Contact: Jerry Farley 304.763.4151	Infrastructure	The Mt. View and Streeter areas were developing beyond the capacity of individual wells to support. The residents requested that the Cool Ridge-Flat Top PSD extend public water into their communities.	An engineering report was prepared and applications filed for funding. The project was funded and the extension constructed.
Hinton Combined Sewer Overflow Improvements Project Phase I Location: Hinton, WV Client Contact: Joe Blankenship 304.466.3255	Infrastructure	Like many older sewer systems, the one serving the City of Hinton was installed as a combined wastewater and stormwater system. The goal of the project is to separate the wastewater and stormwater flows.	Project planning is complete and funding is being sought for the first phase of the project.
Shady Spring PSD Sewage System Upgrade Location: Shady Spring, WV Client Contact: Jerry Smith 304.252.8372	Infrastructure	Growth in the Glade Springs area of Shady Spring PSD was threatening to overcome the capacity of the PSD's existing wastewater pumping and transmission facilities.	ELR worked with the PSD to make strategic upgrades to the existing facilities to handle the increased flow. The project was planned, funding secured and construction completed.

E.L. ROBINSON ENGINEERING

Mingo County Wood Products Industrial Park



CLIENT:
Mingo County Redevelopment Authority

COMPLETION DATE:
2007

PROJECT COST:
$3.875 Million

OUR ROLE:
Planning, design, and construction inspection

E.L. Robinson Engineering was contracted by the Mingo County Redevelopment Authority to provide site design including storm water drainage, expansion of existing wastewater treatment plant, preparation of construction plans and specifications, surveying and mapping, preparation of all necessary permit applications, preparation of bid/contract documents, participation in the solicitation and evaluation of bids, construction administration and inspection for the Mingo County Wood Products Industrial Park located in Mingo County, West Virginia.

E.L. ROBINSON ENGINEERING

Putnam County Business Park
Phase II Industrial Access Road


Putnam County, West Virginia

CLIENT:
Putnam County Development Authority

COMPLETION DATE:
2010

PROJECT COST:
$800,000

OUR ROLE:
Site design

E.L. Robinson Engineering was contracted by Putnam County EDA to develop a business park access road from the existing Phase I of the business park to connect to the newly constructed Route 35. In addition, E.L. Robinson provided design services to layout the Phase II site providing property layout, water, sewer, electric and other amenities for the business park.

E.L. ROBINSON ENGINEERING

Earl Ray Tomblin Industrial Park


Logan County, West Virginia

CLIENT:
Logan County Development Authority

COMPLETION DATE:
2003

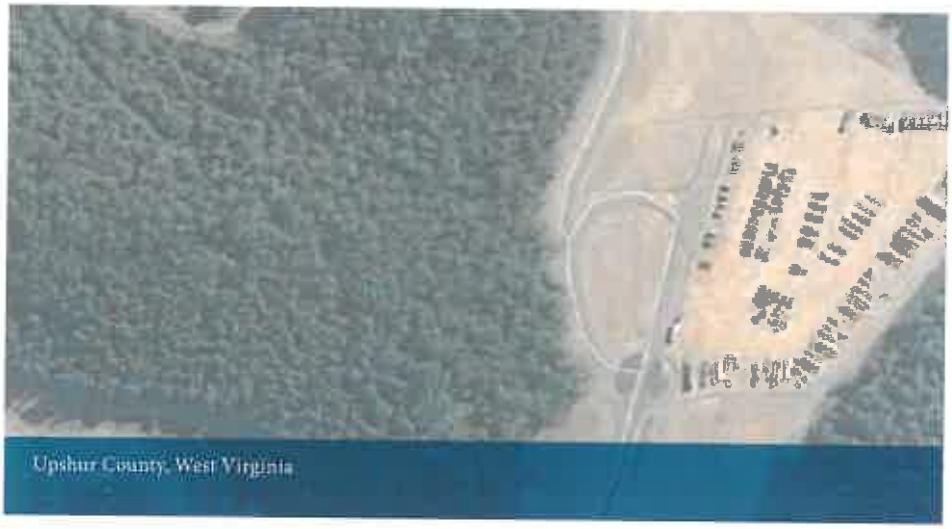
PROJECT COST:
$1.2 Million

OUR ROLE:
Design

E.L. Robinson Engineering was contracted by the Logan County Development Authority to provide project planning and site design including storm water drainage; preparation of bid/contract documents; participation in the solicitation and evaluation of bids received; construction administration and inspection; assistance with easement/property acquisition; surveying and mapping; preparation of all necessary permit applications for the Earl Ray Tomblin Industrial Park located in Logan County, West Virginia. The development includes 52 acres of land and is located near the Southwest Regional Jail and US 119 Corridor G.

E.L. ROBINSON ENGINEERING

Upshur County Industrial Park


Upshur County, West Virginia

CLIENT:
Upshur County Development Authority

COMPLETION DATE:
2011

PROJECT COST:
$3 Million

OUR ROLE:
Planning, funding, design, and construction inspection

E.L. Robinson Engineering was contracted by the Upshur County Development Authority to provide engineering services for the development of an approximately 20 Acre Industrial Park near Buckhannon, WV. This project included an approximately 2000 LF access roadway that would be conveyed to WVDOH upon completion. The project also included approximately 300,000 CY of excavation, temporary and permanent storm water control structures, approximately 5100 LF of 8" waterline, 2000 LF of 8" gravity sanitary sewer, 2700 LF of 4" force main sanitary sewer, and a sanitary sewer lift station and sewer access road.

Services provided included the preparation of the preliminary layouts and conceptual designs, environmental permitting applications, final design and route selection, preparation of plans and details for construction, preparation of bidding and contract documents and the advertisement of bids, pre bid conference, conducted bid opening and bid evaluation, assisted in the contract award, conducted pre construction conference, provided full time construction inspection, and processed pay estimates and shop drawing submittals.

E.L. ROBINSON ENGINEERING

Belo Industrial Park

CLIENT:
Mingo County Redevelopment Authority

COMPLETION DATE:
2005

PROJECT COST:
$1.3 Million

OUR ROLE:
Design and construction management

E.L. Robinson Engineering was contracted by the Mingo County Redevelopment Authority to provide site design including storm water drainage, design of a wastewater treatment plant for the Industrial Park, preparation of construction plans and specifications, surveying and mapping, preparation of all necessary permit applications, preparation of bid/contract documents, participation in the solicitation and evaluation of bids, construction administration and inspection for the Mingo County Belo Industrial Park located in Mingo County, West Virginia.

E.L. ROBINSON
ENGINEERING

Southern Highlands Initiative Project Wood Park 20 Acre Site

CLIENT:
Rahall Transportation Institute

COMPLETION DATE:
2006

OUR ROLE:
Site Design

The Southern Highlands Project, located at the existing Wood Products Industrial Park, consisted of 20 acres of developable property. The property is a reclaimed mountaintop removal mining site that was mined by Hobet. The site is located adjacent to three existing industrial clients and a newly developed 100 acre site that is marketed for additional future development. E. L. Robinson was retained to complete a site plan that will include grading, drainage, sewer, roads, water, electric, phone, fiber and other amenities required for the successful development of the industrial park. The site currently has water and sewer available.

E.L. ROBINSON ENGINEERING

Sugarcamp Run Burning Refuse


Nicholas County, West Virginia

CLIENT:
West Virginia Department of Environmental Protection- AML

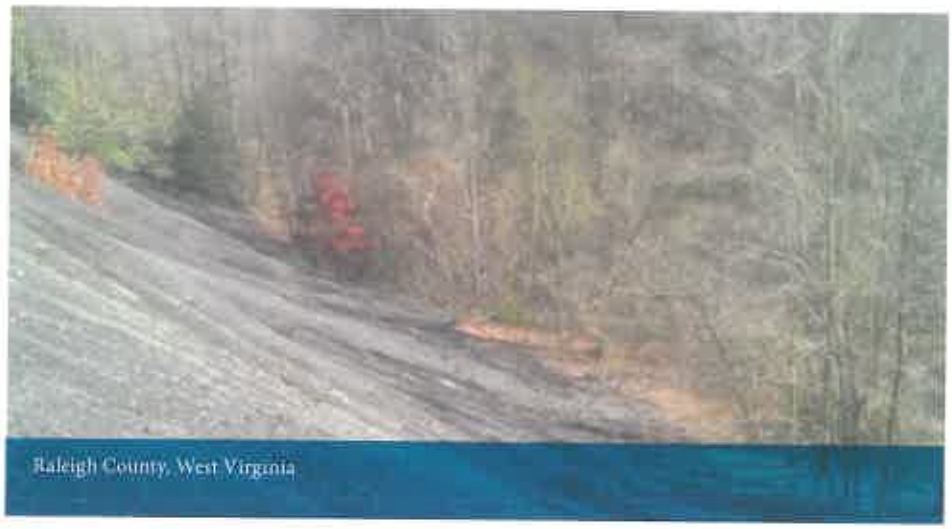
COMPLETION DATE:
2013

OUR ROLE:
Design

E.L. Robinson Engineering was contracted by the West Virginia Department of Environmental Protection to provide engineering design services for the remediation of the AML problems associated with the Sugarcamp Run Burning Refuse Project. This project scope included surveying and mapping, performing necessary drilling to determine extent of burning refuse and to explore the burning limits in the coal seam adjacent to the pile, providing regrading and extinguishment plan for refuse areas, providing testing of refuse toe water discharges to determine source of pollutants and resulting sheen on pond, creating diversion channels, ditches, culverts, and/or underdrains to transport drainage, reclaiming, soil cover and revegetate all areas disturbed during construction.

E.L. ROBINSON ENGINEERING

Abney Refuse Pile



Raleigh County, West Virginia

CLIENT:
West Virginia Department of Environmental Protection- AML

COMPLETION DATE:
2013

OUR ROLE:
Design

E.L. Robinson Engineering was contracted by the West Virginia Department of Environmental Protection to provide engineering design services for the remediation of the AML problems associated with the Abney Refuse Pile. The project included creating diversion channels, ditches and underdrains to transport drainage, regrading and reclaiming refuse areas, designing appropriate mine seals, demolishing miscellaneous structures and debris, and reclaiming and re-vegetating all areas disturbed during construction.

E.L. ROBINSON ENGINEERING

Jane Lew Industrial Park

CLIENT:
West Virginia Department of Transportation- Division of Highways

COMPLETION DATE:
2016

OUR ROLE:
Design

This project consisted of the study, design and preparation of construction contract plans and related documents to provide a left turn lane and modify the vertical alignment on Lewis County Route 7, which will improve the site distance at the entrance to the Jane Lew Industrial Park. This project will begin approximately 0.03 miles north of Lewis County Route 7/2 (CR 7 MP 3.45) and end approximately 0.22 miles north of Lewis County Route 7/2 (CR 7 MP 3.64). Also included as part of this project is the modification of the entrance to the Jane Lew Industrial Park to match the new grade of Lewis County Route 7.

E.L. ROBINSON ENGINEERING

Corridor H - Kerens to Parsons Design Build

CLIENT:
West Virginia Department of Transportation- Division of Highways

COMPLETION DATE:
Current

OUR ROLE:
Design

E.L Robinson Engineering Company is currently teamed up with Kokosing Construction Company to design and construct over 7.6 miles of 4-lane divided highway, known as Corridor H, in Randolph and Tucker Counties. This project comes at a cost of approximately $210 million.

E.L. ROBINSON
ENGINEERING

US Route 35 Alignment Study


Putnam County, West Virginia

CLIENT:
West Virginia Department of Transportation- Division of Highways

COMPLETION DATE:
2006

OUR ROLE:
Design

This project involved the study and preparation of a feasibility study for a segment of US Route 35. The study began near the Buffalo Bridge, adjoining the section designed by HNTB, and ran north for approximately 21 miles to the end of the existing four-lane at Coast Guard Station. Three alternative alignments were compared within the study limits. Alternate 1 was the approved relocated US 35 alignment was being designed at the time of the study by R.D Zande, E.L. Robinson, MS Consultants and Qk4, in addition to the alignment presented in a Niles & Associates study. This alignment was studied using both a 46-foot wide median and a 10-foot median with barrier. Alternate 2's alignment generally followed existing US Route 35. Alternate 3 was a variation of Alternate 2 that was designed to miss the historic properties of the General John McCausland House, Woodlawn Farm/John Morgan Farm, Maplewood Farm, Bill Newman House, Morgan's Mt. Vernon Farm, most of the John McCausland Memorial Farm, Eastham Farm and Alex McCulloch Farm. Alternates 2 and 3 were studied using a typical section with four lanes and a 10-foot median with barrier and, where required, a 22' median for turning lane movements. At-grade intersections and underpass structures were provided along all alignment alternatives, with special consideration being given to existing county route junctures. Also, while looking at each alignment alternative, consideration was given to environmentally sensitive areas such as wetlands, historic sites, and hazardous material sites. All mainline vertical alignments were set such that entire section being designed had a profile grade that was at least 2 feet above the 100-year flood plain, as determined by FIRM data.

E.L. ROBINSON
ENGINEERING

US 35 Design Build Project


Putnam County, West Virginia

CLIENT:
West Virginia Department of Transportation- Division of Highways

COMPLETION DATE:
2009

OUR ROLE:
Design

EL Robinson Engineering Co. teamed with Kokosing Construction for the first design build project for the West Virginia Department of Highways for the US Route 35 highway project. The project extended from WV 34 to Putnam CR 19 in Putnam County. The project consisted of approximately 6.29 miles of new four lane divided highway, an interchange with Interstate 64, approximately 3.34 miles of side road access and two sets of mainline structures. The bid price was $73,819,000 and was approximately $30 million under the next bidder. One of the reasons that the bid price was substantially lower was due to EL Robinson Engineering Co's design. The original quantity of excavation was expected to be 11 million cubic yards, but was able to be reduced 3 million cubic yards due to innovation. Additional benefits from this reduced excavation include less impact on the topography and environment.

In order to meet the construction timetable, the design phase needed to be completed in four months. The design schedule followed the contractor's CPM schedule, which permitted construction crews to begin the massive excavation task the day after notice to proceed was issued by the West Virginia Department of Highways. The project involved moving approximately 8,000,000 cubic yards of earth and placement of 290,000 square yards of non-reinforced Portland, along with several large size drainage structures. To accomplish this task in the time frame needed, both day and night crews were utilized.

E.L. ROBINSON ENGINEERING

Jefferson Road Widening Study

Kanawha County, West Virginia

CLIENT:
West Virginia Department of Transportation- Division of Highways

COMPLETION DATE:
2013

OUR ROLE:
Design

ELR performed a study on a major choke point in the highway system in South Charleston, WV. Jefferson Road is a very heavily traveled roadway that provides access from MacCorkle Avenue US Route 60 to Corridor G US Route 119. The roadway intersects many residential and business driveways, a CSX Railroad crossing as well as a major thoroughfare, the Kanawha Turnpike. A traffic signal is located at the railroad crossing and at MacCorkle Avenue. ELR's study provided the State of West Virginia with recommendations on changes to the intersections, road widening and other features to enhance traffic movement.

E.L. ROBINSON ENGINEERING

Drews Creek Water Project


Raleigh County, West Virginia

CLIENT:
Raleigh County PSD

COMPLETION DATE:
July 2009

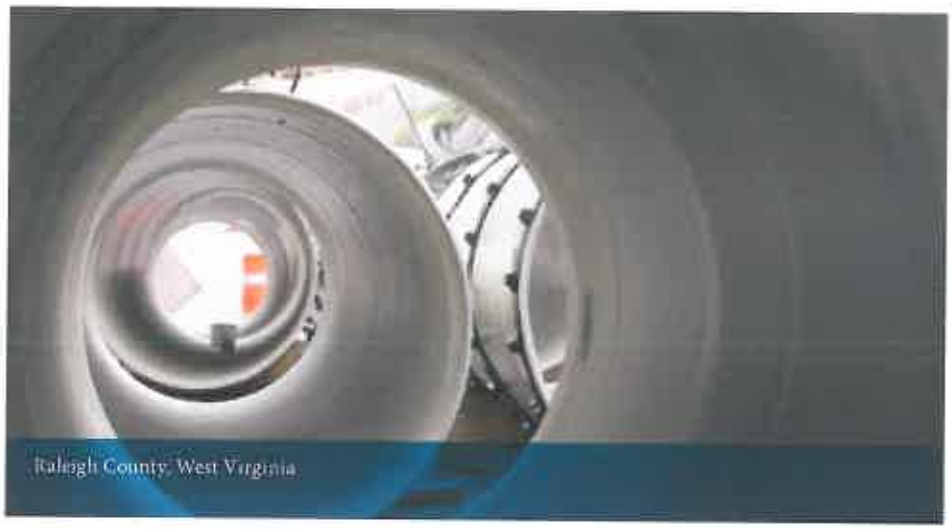
PROJECT COST:
$2.3 Million

OUR ROLE:
Design and construction inspection

E.L. Robinson assisted the Raleigh County Public Service District in the extension of its Arnett Water System to serve 140 new customers along Peachtree Creek and Drews Creek in Raleigh County. The project involves constructing approximately 57,000 lineal feet of eight-inch and smaller diameter water lines, a booster station and a 105,000 gallon storage tank.

E.L. ROBINSON ENGINEERING

Pluto/Bragg Water Project



CLIENT:
Raleigh County PSD

COMPLETION DATE:
July 2016

PROJECT COST:
$7.1 Million

OUR ROLE:
Planning, design, and construction monitoring

E.L. Robinson Engineering is assisting the Raleigh County Public Service District in the extension of water to the communities of Pluto and Bragg and the surrounding area. The project includes making improvements to portions of Beckley Water Company's existing system on Pluto Road and providing water storage for the new PSD customers and the existing Beckley Water Company customers. The project involves construction of one 138,000 gallon water storage tank, a master meter, a pressure reducing station, 4,900 LF of ten-inch waterline, 49,600 LF of eight-inch waterline, 54,500 LF of six-inch waterline and 16,600 LF of two-inch waterline to serve 184 new customers.

E.L. ROBINSON ENGINEERING

Mt. View/Streeter Water Project

Raleigh County, West Virginia

CLIENT:
Cool Ridge-Flat Top PSD

COMPLETION DATE:
April 2009

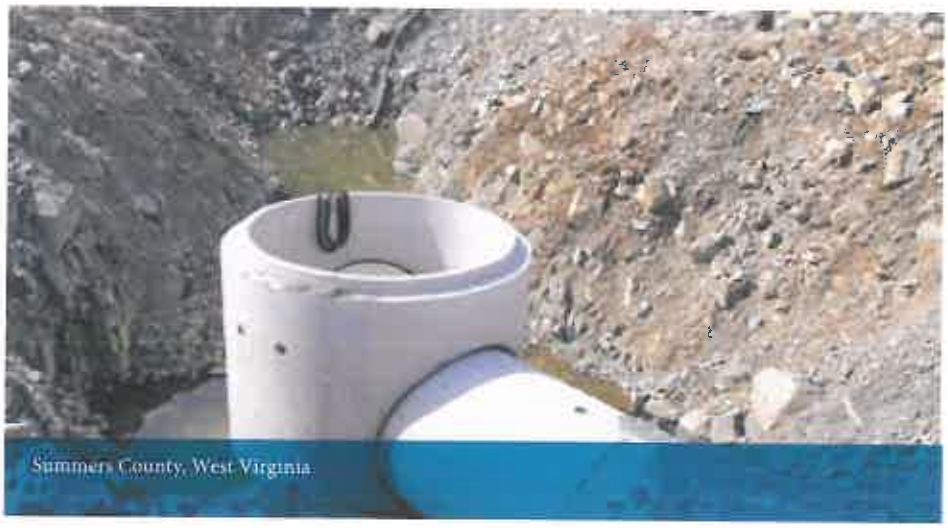
PROJECT COST:
$4.1 Million

OUR ROLE:
Design, bidding, construction inspection, and construction administration

The Cool Ridge-Flat Top Public Service District had requests from several different areas seeking public water service. These areas were Raleigh, Summers, and Mercer Counties. The largest area was Mt. View/Streeter and lends it name to the entire project. Other areas of service included portions of East Whitby Road, John Lane Road, Breeden Road, Brogan Farm Road, Flat Top Mountain Road, Moye Lilly Road, Dud Lilly Road and Toad Level Road. There were approximately 170 new customers in the nine areas. The project involved over 17 miles of eight-inch and smaller diameter water mains, three pressure reducing stations and control work.

E.L. ROBINSON
ENGINEERING

Hinton Combined Sewer Overflow Improvements Project- Phase I



CLIENT:
City of Hinton

COMPLETION DATE:
2017

PROJECT COST:
$3 Million

OUR ROLE:
Planning, funding and design

The project consists of (a) replacing 6,000 LF of old terra cota sewer lines and other related work in the Riverside Drive area of Bellepoint, (b) installing 6,300 LF of storm drain pipe and other related work to separate storm water from the sewer collection system in the Bellepoint area, (c) upgrading the Bellepoint Pump Station, and (d) upgrading the UV disinfection system at the Hinton WWTP.

E.L. ROBINSON
ENGINEERING

Shady Spring PSD Sewage System Upgrade

CLIENT:
Shady Spring PSD

COMPLETION DATE:
September 2011

PROJECT COST:
$2.1 Million

OUR ROLE:
Design, bidding, construction inspection, and contract administration

The service area of the Shady Spring PSD, which included Glade Springs Resort, has experienced rapid growth in the past several years. To accommodate the increased flow from new customers, E.L. Robinson Engineering is designing upgrades to seven existing pump station. The upgrades include larger pumps, new force mains, wet-well transducers to replace floats and new standby generators. ELR is also designing a new standby generator to serve the sewage treatment plant.

Approximately 2800 L.F. of existing 21" gravity sanitary sewer has experienced excessive I/I in recent years. This sewer is located in and adjacent to Beaver Creek, which makes repair by conventional excavation difficult and expensive. ELR is designing a cured-in-place repair, which accesses the sewer through existing manholes without excavation. This will save the PSD money and avoid disturbing the creek.

AECOM

West Virginia State Tourism Industry Strategic Development Plan

AECOM was retained to analyze trends in West Virginia and U.S. tourism and to provide a tourism development strategy and strategic plan for the state of West Virginia. We analyzed macro tourism trends, hosted regional workshops throughout West Virginia, and completed detailed sector trend analyses for the various sectors of the tourism industry. Ultimately, AECOM's economics group developed a strategic action plan for West Virginia tourism development including the roles of the public, private, and non-profit sectors; government mechanisms, programs, and policies; work force needs and development; marketing initiatives; and funding.

Among the industries analyzed in the course of developing the Tourism Strategy were: skiing, whitewater rafting, golf, extreme sports, hiking/trails, gaming, hunting and fishing, theme parks, minor league sports, ATV/motorcycles, equestrian centers, health and wellness (spas) , state parks and forest systems, culinary tourism, culture and heritage tourism, fairs and festivals, film and video production, second home markets, scouting, camping/recreational vehicles, conference facilities, scenic railroads, wildlife watching, boating, NASCAR, and birdwatching.

Client Reference:
Ms. Betty Carver
Commissioner
West Virginia Tourism Commission
90 MacCorkle Avenue SW
Charleston, WV 25303 304.558.2200
betty.b.carver@wv.gov

AECOM

Design + Planning
Master Planning

Studio: Arlington, VA

Status: Completed 2000

Location: State College, PA, USA
Client: The Morlok Development Company

Innovation Research Park at Penn State University

Innovation Park at Penn State offers 130 acres of premier laboratory and research space in a campus environment. Here, university and industry partners capitalize on Penn State research and technology resources to commercialize technology, grow business and enhance the economy.

The master plan that we prepared presents design guidelines for site development along with a phased implementation program. The first phase comprises a hotel / conference center, technology center, and a laboratory on 30 acres. By interspersing public space and activity nodes with buildings, the site plan engages tenants with the outdoors and each other.

The local agrarian environment and the reputation of Penn State as an academic center for agricultural research influenced the landscape design. Orchards, hedgerows and meadows are arranged on the site in bold forms reminiscent of farmland geometry.

Project size: 130 acres
Awards: Honor Award, American Society of Landscape Architects, Potomac Chapter

AECOM

Design + Planning
Master Planning

Studio: Arlington, VA

Status: Completed 2009

Location: Lexington, KY, USA
Client: University of Kentucky

Coldstream Research Park

The master plan for Coldstream Research Campus builds upon the existing fabric of development since its inception in the 1980's.

Objectives for the site included the creation of a walkable community, one in which the standard of measure is the human, not the automobile. The creation of a comprehensive open space network connecting all developed areas within the campus to each other with walking and bicycle trails would reduce vehicular trips. This would help advance the evolution toward a mixed-use community in which to work, live, shop, and recreate. The creation of a compact street grid with small parcel sizes and small setbacks to produce a human-scaled neighborhood pattern of development was another main objective. This was furthered by the inclusion of local retail within office and residential buildings across the campus to reduce vehicular trips.

Another goal of the master plan was the preservation of the natural systems of Cane Run and its tributaries. Beyond this, the enhancement of the cultural landscape around the Carnahan House and its incorporation into a mixed-use town center for the campus was also an important consideration.

The inclusion of principles of sustainability into planning, design, and maintenance of the campus to set a benchmark for environmental stewardship within the region was a guiding vision in the creation of the master plan.

Project size: 900 acres
Cost: $280,000

AECOM

Design + Planning
Strategic Planning

Studio: Arlington, VA

Status: Completed 2009

Location: Louisville, KY, USA
Client: Louisville Development Authority

Park Hill Industrial Corridor Implementation Strategy

We led a multi-disciplinary planning team to develop the implementation strategy which aims to redefine a 1,400-acre industrial area and stimulate job creation in West Louisville. Located near downtown Louisville, the University of Louisville, and regional transportation infrastructure, the Park Hill area has many assets and opportunities despite past disinvestment and employment loss.

The Implementation Strategy integrated market analysis with input from corridor stakeholders, national developers and the work of prior studies to provide a specific road map for repositioning Park Hill as the center of the regional "green economy". The strategy addresses practical infrastructure improvements, strategic partnerships, redevelopment and infill development opportunities, land use changes, the contemporary amenities needed in a sustainable employment center and recommends ways to connect new businesses with the local work force.

- comprehensive stakeholder engagement
- public realm enhancements
- proposed transit corridor
- redevelopment of catalyst sites

AECOM

Design + Planning
Masterplanning

Studios: Orlando, Atlanta, San Francisco

Completed: 2012

Tampa, FL, USA
Client: City of Tampa

Reference:
Mr. Randy Goers
City of Tampa, FL
Planning & Development Department
Planning Division
1400 North Boulevard
Tampa, FL 33607
p: 813.247.8694
e: randy.goers@ci.tampa.fl.us

InVision Tampa

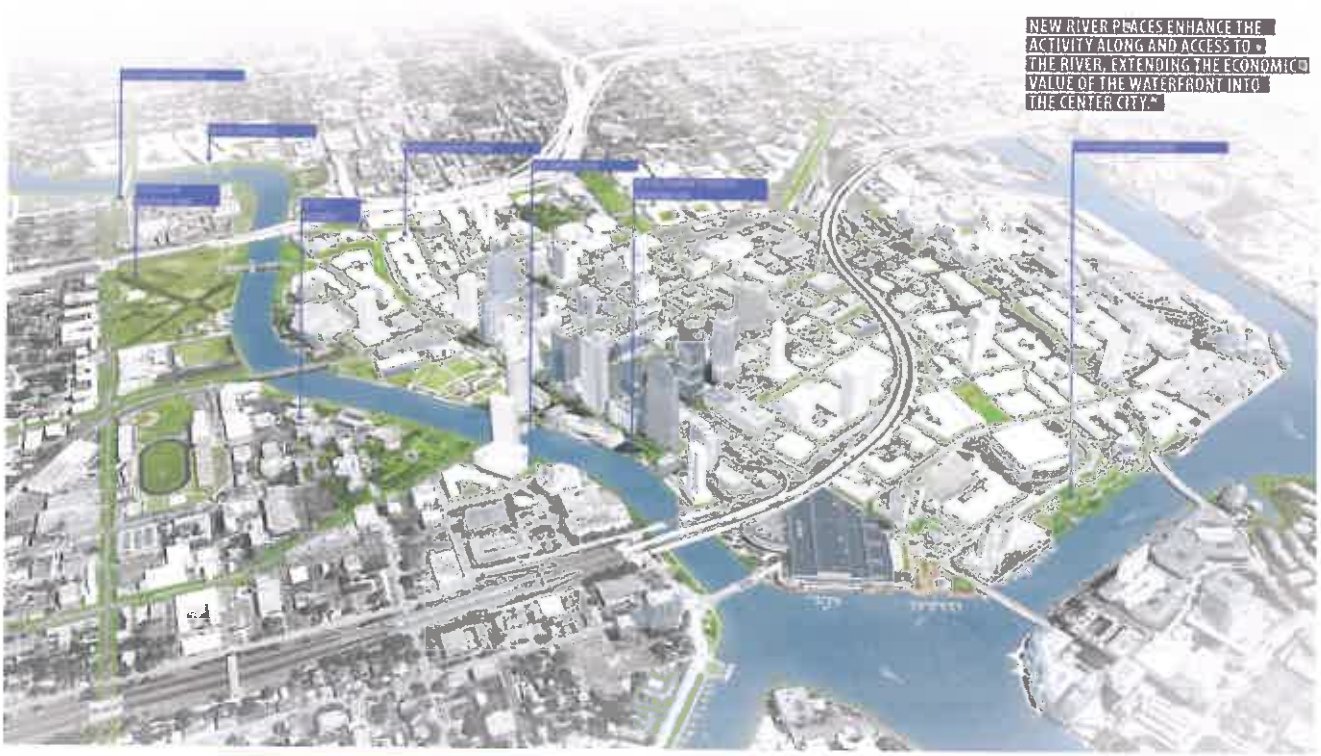
Over a 12-month period, AECOM worked with the City of Tampa to develop the InVision Tampa Center City Plan, providing a view toward its future as a successful and competitive waterfront city. The Plan sets a clear direction for the City, defining its role in development along with that of other public and private partners by creating a framework of Vision, Building Blocks, and Forward Moves as an organizational structure for the many individual ideas and comments brought forward by the community.

The Vision, "A community of livable places, connected people, and collaborative progress that embraces and celebrates its river and waterfront" is aspirational and broad, setting the course for the future, and is supported by five Building Blocks, which are future goals and broad principles describing direction. The Building Blocks are activated by Forward Moves that provide illustrations of specific initiatives that could be undertaken to move the City toward the Vision. This organizational structure allows the City to work in both a "bottom up" and "top down" fashion, leading from the top with a compelling vision and aligning individual projects, programs, and policies with a unified direction toward the desired future state of the City.

Fee: $1,040,000

Design + Planning professionals from AECOM engaged the community in a broad-based discussion about the future, crystallized the ideas, and ingrained the vision in actions going forward. The resulting plan allows agility to meet evolving opportunities while ensuring that incremental investments occur within a larger framework that is aligned with a future vision that was developed by the community.

For further information and downloadable files of all project documents, please visit www.invisiontampa.com



AECOM

Design + Planning + Economics
Urban Planning and Design

Status: Completed: 2014

Location: Recife, Brazil
Client: Iron House

Studio Locations: San Francisco + Alexandria, VA

Quintas Economic Development Cluster

Iron House Real Estate was interested in developing a large portion of their 1,000-hectare property in the outskirts of Recife, Brazil. AECOM's Strategy Plus, Economics, and Urban Design teams were tasked with identifying potential commercial and residential opportunities and visualizing innovative future scenarios for this significant landholding.

A visioning session with Iron House and a parallel economics study (conducted by AECOM Economics) revealed an interest and opportunity to create a "Silicon Valley" type cluster focused on a related group of growing industries in Brazil, such as bio-tech and material science.

In support, AECOM hosted a strategic tour of targeted development in the San Francisco, Bay Area. The session also included a series of in-depth interviews with developers, corporate decision makers, owners of interdisciplinary spaces, and community representatives. Subsequently, a longer strategic tour, and a series of interviews and observational studies was conducted in Quintas Economic Development Cluster (EDC), Recife Metropolitan Area, and Sao Paulo, Brazil. This research was focused on uncovering commercial user needs and aspirations in regards to the future EDC development.

Findings supported an opportunity for creating a unique technology park environment that included large floor plate offices with flexible work spaces coupled with the culture and diversity of experience needed to inspire innovation. The effort included a detailed land strategy, site opportunities and constraints, target tenant profile and amenity needs, and space and building typologies. An easy-to-follow implementation and phasing strategy was also provided.

Pharmaceuticals Firm Re-Use Studies

Project Results
Market demand; Site plan alternatives; Financial feasibility of alternatives; Fiscal and economic impacts of preferred alternatives

Client
Pharmaceuticals Firm

Location
Northern New Jersey

Contract Value
$ 293,000

Years
2011-2012

Project Overview

AECOM analyzed re-use potential for two pharmaceutical facilities in northern New Jersey. The two sites are among numerous parcels that have been identified as surplus, following an acquisition. One site will retain a major laboratory on a third of the site, along with supporting infrastructure, while the other site will be completely vacated. Services provided included market demand analysis, conceptual site planning, financial feasibility analysis, and fiscal and economic impact analysis. The one site's adjacency to the Garden State Parkway lends itself to an auto-oriented use, and the recommended program is centered around a lifestyle retail center with a boutique hotel and restaurant court. The other site, located near a university and a commuter rail station, lends itself to transit-related mixed use development; the recommended program is a village center with retail and a residential mix of townhouses, apartments, and condominiums.

Client Benefits

- Determined maximum re-use value, based on highest and best use rather than mothballed industrial use
- Conceptual Site Plans allow local officials to visualize what is possible on the sites
- Fiscal and Economic Impacts help identify the benefits to the local community, enhancing public relations and speeding the entitlement process

Work Performed

AECOM's work scope covered the following:

- Determined market supportable demand for a variety of uses for each site
- Created alternative Conceptual Site Plans based on the what the market will support
- Tested the financial feasibility of the alternatives scenarios to determine which Concept plan would result in the greatest return to the client
- Conducted fiscal and economic impact analyses to estimate the tax revenue that would be generated for the local jurisdiction, as well as the employment and earnings that the proposed replacement uses would generate (both one-time construction-related and ongoing from operations)

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT (Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)	20. EXAMPLE PROJECT KEY NUMBER
	#6

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Business Case Analysis and Economic Analysis for Marine Corps IT Facility Relocation (Contract N62470-10-D-2021, TO 007)	2012	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
NAVFAC Atlantic	Karla Brown	757.322.4859 karla.brown@navy.mil

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

OVERVIEW

The United States Marine Corps (USMC) Information Technology (IT) Center required a Business Case Analysis (BCA) to determine the most cost effective alternative for the USMC to house its enterprise network system and IT support elements. AECOM was tasked to prepare a BCA to identify and provide an assessment of the related workforce and information technology equipment costs for previously identified locations and facility requirements.

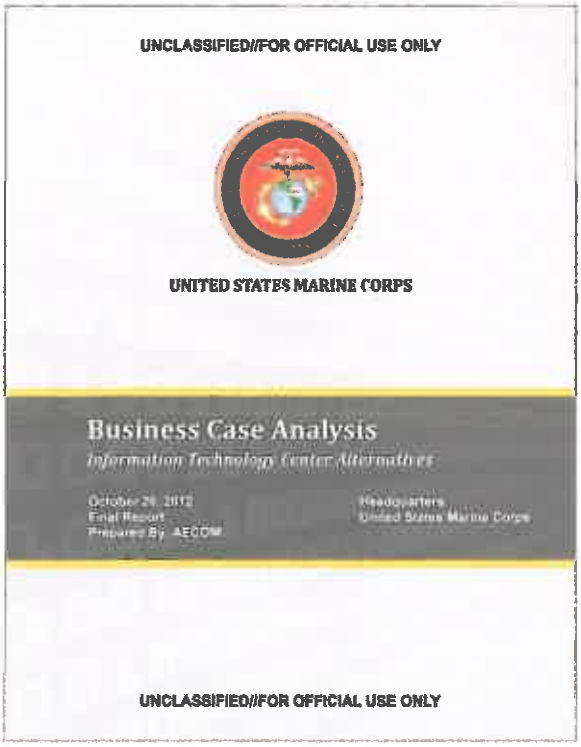
The BCA included an economic and planning analysis of five alternatives at four sites, including two alternatives located in Kansas City, MO; two alternatives located in New Orleans, LA; and one located on Marine Corps Base (MCB) Camp Lejeune, NC. It also provided a high level comparison of a long-term lease with full facility modernization of the existing location, Building 2306/2312, in Kansas City.

Relevance to this Contract:

- ✓ Plans – Business Case & Economic Analysis
- ✓ Project Documentation – Cost Estimating
- ✓ Executive-level Briefings
- ✓ Location – CONUS
- ✓ TO performed for NAVFAC Atlantic for the USMC

Size: Analysis of five alternatives at four sites

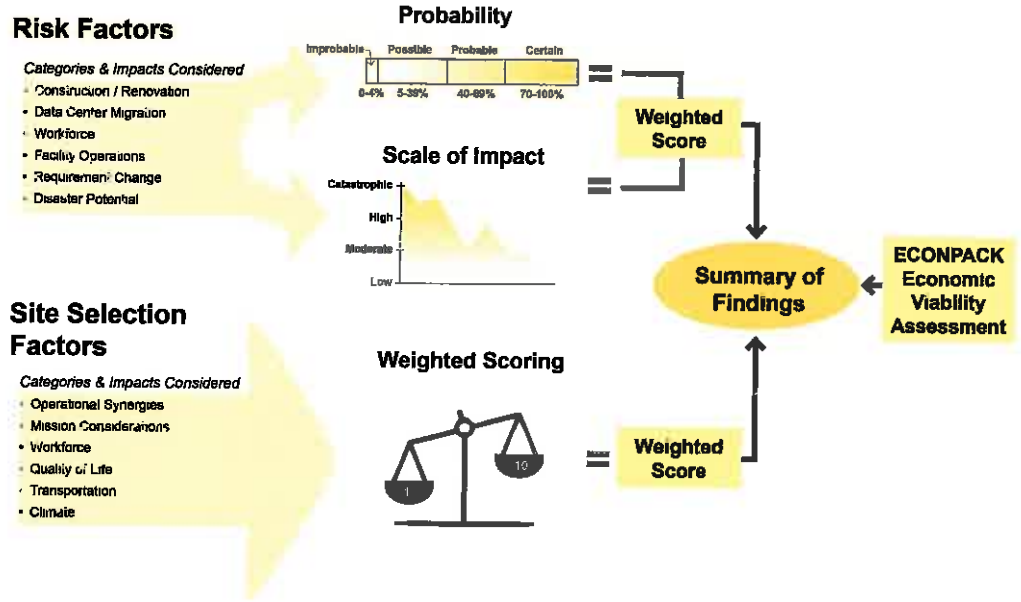
Contract Period of Performance:	04/2012 – 10/2012
Award Contract Value:	$215,000
Current Contract Value: (3 modifications for additional scope that was added including evaluating a status quo alternative)	$299,401



All sites were analyzed based on a number of factors such as cost, climate, workforce, quality of life, and risk. Justifications and recommendations were based on critical mission requirements and pertinent non-mission requirements. AECOM evaluated the facility requirements calculations to meet the organizations' mission. These requirements, coupled with cost estimates, were used in an alternatives analysis which includes economic analyses, costing factors, and other analytical measures in order to develop conclusions and recommendations.

The economic analyses resulted in an overview of the Net Present Values (NPV) over a 30 year period, operational benefits, and risk results for each alternative. The results proved to depict the most efficient site based on monetary values, operational benefits and lowest risk. These factors distinguished funding requirements and a score assessment for each site so that the USMC Headquarters could make the ultimate decision on what was best for the USMC.

Methodology For Assessing Alternatives



CHALLENGES AND SOLUTIONS

CHALLENGE: This task order was awarded in April 2012, and completion was tied to a USMC briefing that was required in October 2012.

SOLUTION: The project was executed by a team of planners, economists, engineers, and cost estimator. Stakeholders were interviewed by planners and economists. The team also analyzed and assessed each alternative and developed an appropriate plan to accommodate the scoped IT facility. Simultaneously, team members researched and analyzed each region and location to determine benefits and risk.

PERFORMANCE

The management approach required the use of specific subject matter experts in the planning, economics, and engineering fields. Utilizing key personnel at key times allowed the team to work efficiently and expeditiously. Internal AECOM work sessions allowed the various team members to openly discuss each alternative with respect to site development, location impacts, and operational and functional opportunities. Constant team communication allowed all team members to keep current on the many challenges and changes which occurred throughout the project duration.

QUALITY OF WORK: Exceptional ACASS Rating.

COST CONTROL: Costs were sensibly managed given the number of interviews, schedule changes, and limited site visits. Communication was critical in managing team members' time to prevent wasting budget when meetings were either cancelled or postponed.

COMPLIANCE WITH SCHEDULES: The schedule changed several times throughout project duration due to requests for additional alternatives and/or alternative modifications. Despite these changes the team remained focused to complete current tasks. Team members were aware that given the number of stakeholders, flexibility was critical to making all deadlines. The project was delivered within a timeframe approved by the government.

***"AECOM's staff knowledge in business case analysis (BCA) preparation was very noticeable in this project. They were a highly reliable team of professionals; very easy to work and communicate with.....The PM's skill to keep the group's attention and coordinate the transfer of information required was instrumental in completing this work successfully in the allotted time...."*—Kurt Schroeder, Final ACASS Rating, November 2012**

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM (DUNS 620433664)	Alexandria, VA	Planning, Economic Analysis

Army Aviation Support Facility
Boone National Guard Center
Frankfort, Kentucky
Target – Net Zero Energy
Target – LEED Silver

Owner
Boone National Guard
Colonel Steven King
502-607-1481
Frankfort, Kentucky

Cost
$31,000,000

Completed
2015

The Army Aviation Support Facility at Boone National Guard is a 122,000 square foot facility consisting of 10 Hangar Bays, a shop area, and a two story administration space. The building is being designed as a Net Zero "ready" facility with a portion of the Photovoltaics System provided in the project design and construction. The project is also LEED Silver targeted.

The facility will better protect the Boone National Guard Center's fleet of 12 UH-60 Blackhawk helicopters, five OH-58 Kiowa helicopters and one C-12 fixed-wing aircraft. The Kiowas will be replaced by more technologically advanced UH-72 Lakota helicopters.

A geothermal HVAC system will be used for the facility with the central well field located under the parking lot. The well field will have 108 wells on 20 foot centers at a depth of 400 foot each. High efficient water-source heat pumps will be used for zone control in the administration and shop spaces. Each heat pump will have a dedicated circulating pump that will cycle on with the compressor. A dedicated outside air unit with energy recovery will provide the required ventilation for the administration and shop spaces.

Occupancy sensors will control the demand for ventilation to the large spaces. The Hangar bays will maintain space temperature by an under floor radiant heating system supplied by multiple high efficiency water to water geothermal heat pumps. Each bay can be controlled independently with dedicated circuits and slab sensors to maintain space temperature. The bays will also have low velocity, high volume fans to enhance air circulation.

The AASF is will be served by a 3000 amp, 277/480 volt, 3 phase, 4 wire service with a 300 KVA back-up diesel generator. Interior lighting utilizes mostly LED with high efficiency linear fluorescent fixtures in maintenance and storage bay areas. Building features full occupancy sensor coverage with an open loop daylight harvesting system in the maintenance bays. Exterior lighting is all LED and parking lot poles feature motion sensors of reduced light levels during periods of inactivity.

A roof mounted 80kW monocrystalline photovoltaic system helps to reduce electricity demand and offset approximately 15% of building energy usage. This system can be upgraded to offset 100% of total electricity consumption at a future date.

Wendell H. Ford Regional Training Center
Solar Photovoltaic Installations - 557 kW
Greenville, Kentucky

Owner
Kentucky Army National Guard
Greenville, Kentucky

Contact
Mr. Chuck Ammons, Director of Facilities
Kentucky Cabinet of Health & Family Services
275 E. Main St.
Frankfort, Kentucky 40621
(502) 564-5455
chuck.ammons@ky.gov

Matt Partymiller
Solar Energy Solutions, LLC
832 Nandino Blvd., Suite K
Lexington, Kentucky 40511
(859) 312-7456
matt@solar-energy-solutions.com

Status
Complete

CMTA has served as the Engineer of Record for multiple solar design build projects at the Wendell H. Ford Regional Training Center in Greenville, Kentucky. The purpose of the projects was to integrate solar energy technology in a sustainable and cost-effective manner. Installations include:

81 kW Solar Photovoltaic Array
The facility was studied and the potential for incorporating solar energy was evaluated. A master plan was developed showing conceptual ideas for application of solar technologies. A detailed cost and energy savings analysis was prepared for each proposed measure. Existing structures and electrical distribution systems were evaluated to define the most cost effective approach for the solar energy retrofits. This grid-tied system of crystalline photovoltaic panels was completed in 2009 at an installed price of $6.65/W. There were multiple arrays located on multiple buildings, each with SREC qualifying metering and remote, internet accessible monitoring for tracking performance and troubleshooting. At the time this was the largest solar PV array in Kentucky.

29 kW Solar Photovoltaic Array
This project, completed in 2010, was installed on multiple standing seam metal roofs at a price of $6.65/W.

150 kW Solar Photovoltaic Array
This project, completed in 2011, was installed on multiple standing seam metal roofs at a price of $4.33/W.

297 kW Solar Photovoltaic Array
This project was completed in 2013 at an installed price of $2.07/W. The arrays were installed on three Controlled Humidity Warehouses. Each roof was designed to accommodate a roof mount 99 kW array utilizing three 1000V DC to 480V AC three phase inverters. The array consisted of 250W polycrystalline panels. Each building was provided with a new electrical panel to accommodate new inverter breakers and output of the panel was tied directly into the feeder serving the existing warehouse panel. Rough-in was provided for future communication and monitoring by the owner. This was a design build project in conjunction with Solar Energy Solutions, LLC.

CMTA Department of Military Affairs Experience

Armed Forces Reserve Center and Field
Maintenance Shop
Bluegrass Army Depot
Richmond, Kentucky

Army Aviation Support Facility
Boone National Guard Center
Frankfort, Kentucky
Target – Net Zero Energy

Harold L. Disney Training Center
Artemus, Kentucky
Target – Net Zero Energy

Wendell H. Ford Training Center
Greenville, Kentucky

Department of Military Affairs
Commonwealth of Kentucky
Design Exhaust System/Upgrade
Various Maintenance for:

- Louisville – FMS # 8
- Glasgow – Glasgow Readiness Center FMS # 9, Calvary Drive
- Bowling Green - FMS # 10
- Lexington – FMS # 3
- London – FMS # 2
- Frankfort – FMS # 5, Boone National Guard Center, Minute Man Parkway
- Jackson – FMS # 6, 672 Armory Drive

Latrine Upgrade & Window Refurbish
Jackson FMS-6
Jackson, Kentucky 41339

Camp Atterbury
Edinburgh, Indiana

- Fire Station ADRS
- Conference Center
- Officer Quarters

Indiana National Guard Building 15
Franklin, Indiana

CMTA Department of Military Affairs Experience

Armed Forces Reserve Center and Field
Maintenance Shop
Bluegrass Army Depot
Richmond, Kentucky

Army Aviation Support Facility
Boone National Guard Center
Frankfort, Kentucky
Target – Net Zero Energy

Harold L. Disney Training Center
Artemus, Kentucky
Target – Net Zero Energy

Wendell H. Ford Training Center
Greenville, Kentucky

Department of Military Affairs
Commonwealth of Kentucky
Design Exhaust System/Upgrade
Various Maintenance for:

- Louisville – FMS # 8
- Glasgow – Glasgow Readiness Center FMS # 9, Calvary Drive
- Bowling Green - FMS # 10
- Lexington – FMS # 3
- London – FMS # 2
- Frankfort – FMS # 5, Boone National Guard Center, Minute Man Parkway
- Jackson – FMS # 6, 672 Armory Drive

Latrine Upgrade & Window Refurbish
Jackson FMS-6
Jackson, Kentucky 41339

Camp Atterbury
Edinburgh, Indiana

- Fire Station ADRS
- Conference Center
- Officer Quarters

Indiana National Guard Building 15
Franklin, Indiana

CMTA Master Planning/Infrastructure Design Experience

Government

Complete MEP Systems Analysis
Lexington Historical Courthouse
Lexington, Kentucky

Campus Fire/Water/Site Water System Analysis
Kentucky Exposition Center
Louisville, Kentucky

Campus Electric Utility Upgrades
Kentucky Exposition Center
Louisville, Kentucky

Building Analysis
Kentucky Medical Examiner's Office
Louisville, Kentucky

Liberty Green Redevelopment Project
Louisville Metro Housing Authority
Louisville, Kentucky

Hot Water Piping Replacement
Beecher Terrace Campus
Louisville Metro Housing Authority
Louisville, Kentucky

Energy Study
Robley Rex VAMC Replacement
Louisville, Kentucky

Basewide Medium Voltage Power Distribution Study
Bluegrass Army Depot
Richmond, Kentucky

Private Sector

Chilled Water Improvements
Brown Forman Louisville Campus
Louisville, Kentucky

Health Care

Campus Master Plan
Ephraim McDowell Regional Medical Center
Danville, Kentucky

Campus Master Plan
Floyd Memorial Hospital
New Albany, Indiana

Campus Master Plan
Kings Daughters Medical Center
Ashland, Kentucky

Campus Master Plan
Lake Cumberland Regional Medical Center
Somerset, Kentucky

Campus Master Plan
Norton Audubon Hospital
Louisville, Kentucky

Campus Master Plan
Norton Suburban Hospital
Louisville, Kentucky

Campus Master Plan
Pikeville Medical Center
Pikeville, Kentucky

Campus Master Plan
Riverview Hospital
Noblesville, Indiana

Campus Master Plan
TJ Samson Community Hospital
Glasgow, Kentucky

Campus Master Plan
The Medical Center at Bowling Green
Bowling Green, Kentucky

Campus Master Plan
UK Chandler Medical Center
Lexington, Kentucky

Campus Master Plan
UK Good Samaritan Hospital
Lexington, Kentucky

Campus Mechanical/Electrical Infrastructure Upgrades
Michael Reese Hospital
Chicago, Illinois

Campus Mechanical/Electrical Infrastructure Upgrades
Pikeville Medical Center
Pikeville, Kentucky

Facility Planning
Norton Women and Norton Children's Hospital
Louisville, Kentucky

Replacement Facility Planning
Jefferson Regional Medical Center
Pine Bluff, Arkansas

CMTA Master Planning/Infrastructure Design Experience

Education

Master Plan
Berea College
Berea, Kentucky

Energy Improvements
Cincinnati Public Schools
Cincinnati, Ohio

Master Plan
Earlham College
Richmond, Indiana

Master Plan
Morehead State University
Morehead, Kentucky

District Wide MEP Assessment/Master Plan
Eminence Independent School District
Eminence, Kentucky

District Wide MEP Assessment/Master Plan
Frankfort Independent Schools
Frankfort, Kentucky

District Wide MEP Assessment/Master Plan
Kenton County School District
Ft. Wright, Kentucky

District Wide MEP Assessment/Master Plan
Oldham County Schools
Crestwood, Kentucky

District Wide MEP Assessment/Master Plan
Warren County Public Schools
Bowling Green, Kentucky

East Oldham Campus Master Plan
Oldham County Schools
Crestwood, Kentucky

North Oldham Campus Master Plan
Oldham County Schools
Goshen, Kentucky

Utility Upgrades
Ashland Paul Blazer High School
Ashland, Kentucky

Medium Voltage System Upgrades
Eastern Kentucky University
Richmond, Kentucky

Campus Chilled Water Distribution
Georgetown College
Georgetown, Kentucky

Campus Telecommunications Upgrades
Kentucky School for the Deaf
Lexington, Kentucky

Repair Boiler and Aging Distribution Lines
Kentucky State University
Frankfort, Kentucky

Campus-wide Energy Assessment
Transylvania University
Lexington, Kentucky

Building Assessment
University of Cincinnati College of Business
Cincinnati, Ohio

Central Plant Upgrades
Western Kentucky University
Bowling Green, Kentucky

IT and Electrical High Voltage Tie-ins
Western Kentucky University
Bowling Green, Kentucky

Steam Piping and Rerouting
Western Kentucky University
Bowling Green, Kentucky

MOMENT engineers, inc.

West Virginia Army National Guard Project Experience

Douglas Richardson has provided the structural engineering and design for the following projects:

Robert C. Byrd Regional Training Institute - Camp Dawson, WV
Armed Forces Reserve Center - Camp Dawson, WV
Armed Forces Reserve Center - Glen Jean, WV
Construction & Facilities Management Office - Charleston, WV
Mountaineer Challenge Academy - Camp Dawson, WV
Armed Forces Reserve Center - Elkins, WV
Multi-Purpose Building - Camp Dawson, WV

These six facilities total over 460,000 square feet of built space, and each serves as a outstanding example of how a military structure can enhance the readiness of the units they support while also contributing to the local, state and national communities in which they are located. The structural systems utilized include steel frames, reinforced concrete and masonry, load bearing cold-formed steel studs, and long span steel joists.

Management & Staffing Capabilities – 5

Management & Staffing Capabilities

Todd Boggess is President of E.T. Boggess, Architect, Inc., and will serve as the design team leader. He will be assisted by **Stephen Mackey**, who is responsible for planning and design for the project.

Nathan Turner will be the project manager responsible for coordinating all project information amongst the team.

Dale East will be managing the construction documentation and, along with Mr. Mackey, they will be generating the design and construction approach to realize the project.

Chris Canterbury is ETB's construction contract administration manager. With over 18 years of CA experience, Chris' knowledge and background of all building systems has been an invaluable asset to our team. Nathan Turner, as project manager, and Todd Boggess also remain very active during the CA phase to help ensure the design intent is realized.

A component of our management approach is the development of an individual strategy for each project, focused on the specific problems to be solved. This strategy considers the staff members assigned to the project, the scheduling and duration of work phases, the use of special consultants or specialized studies. Our Project Management Plan (PMP) will document key management and oversight tasks and is updated throughout the project as changes occur. The plan will include a definition of your program goals, technical requirements, schedules, resources, budgets, and management programs.

Once we gain a better understanding of your scheduling targets, we will be able to determine exactly what resources we will need to dedicate to the project. Regardless of the schedule, we are confident that our manpower and skill level will remain more than adequate, even in the early, labor intensive phases. Our projected workloads and the depth of personnel available are such that staffing projects of this size and complexity will have no adverse impact on any current or future projects in our office.

Resumes for our design team can be found on the following pages.

Todd Boggess, AIA, NCARB, Architect
President

EDUCATION

- Master of Architecture,
  Clemson University School of Architecture
- International Studies, Clemson University Daniel Center for Urban Design & Building Studies, Genoa, Italy
- Bachelor of Arts Degree in Design, Clemson University School of Architecture

RESPONSIBILITIES

Todd joined ETB as a project architect and office manager in 1988 after graduating from Clemson University. In January, 2001, he assumed the office of President.

Todd is responsible for . . .

- architectural design and development
- project management and coordination
- computer aided design and visualization
- interior design
- site planning

Your project will receive his complete attention, from the interview and project meetings, through the construction process. As the president of the firm, you are putting your trust in him and he takes that commitment very seriously. He wants to make sure you are satisfied with our service, performance, and design.

COMMITTEES

West Virginia Board of Architects (2014) – Governor Tomblin recently appointed Todd to this board which is responsible for protecting the life, health and property of the people of the State of WV by ensuring that proper architecture practices are used in the state.

Princeton Zoning Board of Appeals (since 2000) – Todd has been asked to serve on this local committee for the past 15 years. He currently serves as vice-chair. The board is responsible for reviewing and ruling on appeals to the existing Princeton Zoning Laws.

PROJECTS – Governmental & Educational

- WVARNG Readiness Center, Elkins
- WVARNG Coonskin Joint Facilities Exterior Renovation, Charleston
- WVARNG Window Replacements at Salem, Martinsburg, and Clarksburg
- WVDOH District 10 Headquarters Complex
  - Office Building
  - Maintenance Building
  - Bridge & Sign Shop
  - Laboratory
- WVDOH District 6 Headquarters Complex
  - Office Building
  - Maintenance Building
  - Bridge & Sign Shop
- WVDOH District 9 Headquarters Complex - Office Building
- WVDOH District 1 Headquarters Complex - Office Building
- WVDOH District 8 Equipment Shop
- WVDOH District 7 Office Building
- WVDOH District 7 Equipment Shop
- Advantage Valley Advanced Technology Center for the WV C&TCS, So. Charleston
- North Central Advanced Technology Center for the WV C&TCS and Allied Health, Fairmont
- New River Community & Technical College Headquarters and Allied Health, Beaver

AWARDS

- WVAIA "Honor Award" for Renovation Design of the Princeton Public Library – April 2012
- Princeton/Mercer County Chamber of Commerce "Excel Award" – January, 2011
- *West Virginia Executive Magazine's* "Young Guns" - Fall, 2003
- Princeton/Mercer County Chamber of Commerce "Citizen of the Year - 2000"
- Princeton Elks Club "Citizen of the Year - 2000"

Stephen Mackey
Planning & Design

EDUCATION

- Bachelor of Arts Degree in Design, Clemson University School of Architecture
- Master of Architecture, Clemson University School of Architecture

RESPONSIBILITIES

With over 30 years of experience in all phases of design and construction, Mr. Mackey brought strong design, management and leadership skills to the firm. His significant experience has enabled him to successfully oversee the design and construction of a number of large educational projects. Specific project responsibilities include:

- code review and analysis
- program development
- conceptual design
- design visualization
- project coordination
- construction specifications

PROJECTS

Mr. Mackey rejoined ETB Architects in 2009 after serving as Executive Vice President for two architectural firms in Florida. During his absence, Mr. Mackey also served as project manager on several large school projects in the state of Florida and has been focused on education projects since his return to ETB.

- Advantage Valley Advanced Technology Center for the WVC&TCS, So. Charleston
- North Central Advanced Technology Center for the WVC&TCS and Allied Health, Fairmont
- New River Community and Technical College Headquarters and Allied Health Building, Beaver
- Lewisburg Elementary School, Greenbrier County
- Rainelle Elementary School, Greenbrier County
- Greenbrier West High School *(Addition/Renovations)*, Greenbrier County
- Courthouse Square Commercial Development, Princeton

Nathan Turner, LEED G.A.
Project Manager

EDUCATION

- Bachelor of Science, Engineering – Architecture, Fairmont State University
- Master of Architecture (May, 2009), Boston Architectural College

RESPONSIBILITIES

Mr. Turner joined ETB in 2009 and brought with him a wealth of experience in architectural design, as well as construction methods and practices. His prior experience with educational facilities has already proven extremely valuable as we have several elementary, middle, and high school projects at various stages of completion. Nathan has obtained LEED certification and will assist in our efforts to provide a "green" approach to as many projects as possible.

Specific project responsibilities include:

- architectural programming
- construction documentation
- project management
- project coordination
- construction specifications
- construction administration

PROJECTS

- Advantage Valley Advanced Technology Center for the WVC&TCS, So. Charleston
- North Central Advanced Technology Center for the WVC&TCS and Allied Health, Fairmont
- New River Community and Technical College Headquarters and Allied Health Building, Beaver
- Courthouse Square Commercial Development, Princeton
- Rainelle Medical Dental Office Building, Rainelle

Dale East
Production Management

EDUCATION

- Bachelor of Science - Architectural Engineering
  Bluefield State College

RESPONSIBILITIES

Mr. East is an architectural intern with 10 years of experience who joined ETB in November of 2013. Prior to returning to Princeton, his work at architectural firms in Tennessee allowed him to manage projects from New Jersey to Atlanta, ranging from educational facilities to zoological exhibits. Dale is involved in all phases of design documentation and production and is eager to handle any task needed to ensure a smooth project flow from start to finish.

Specific project responsibilities include:

- 3D modeling
- graphics/imagery
- construction documentation
- project coordination

PROJECTS

- WVARNG Coonskin Joint Facilities Exterior Renovation, Charleston
- WVARNG Window Replacements at Salem, Martinsburg, and Clarksburg
- WVDOH D7 Office Building, Lewis County
- WVDOH D7 Equipment Shop, Lewis County
- Courthouse Square Commercial Development, Princeton
- Wyoming County Senior Citizens Center, Mullens
- Rainelle Medical Dental Office Building, Rainelle
- Bill Cole Used Cars *(Renovations)*, Green Valley
- Ramey Chevy *(Renovations)*, Green Valley

Chris Canterbury, Associate AIA
Construction Administration Manager

EDUCATION

- Bachelor of Science Engineering Technology/Architecture, Fairmont State University

RESPONSIBILITIES

Chris joined ETB in 2000 as a CADD Technician. His focus in recent years has been project administration and his current position of Construction Administration Manager reflects that area of expertise. Your project will benefit from his superb organizational skills. He attends meetings and keeps track of your needs and wishes through notes and minutes. His timely response to submittals will ensure that your project stays on its construction schedule.

Chris is responsible for . . .

- construction administration
- organizing and attending meetings
- distribution of minutes and progress reports
- contacting material suppliers
- responding to contractor's requests for information
- reviewing submittals and shop drawings
- site visits/observations

PROJECTS

- WVDOH District 6 Headquarters Complex - Maintenance Building, Bridge & Sign Shop
- WVDOH District 9 Headquarters Complex - Office Building
- WVDOH District 1 Headquarters Complex - Office Building
- WVDOH District 8 Equipment Shop
- WVDOH District 7 Office Building and Equipment Shop
- Advantage Valley Advanced Technology Center for the WVC&TCS, So. Charleston
- North Central Advanced Technology Center for the WVC&TCS and Allied Health, Fairmont
- New River Community and Technical College Headquarters and Allied Health Building, Beaver

Eric Coberly, P.E.
Project Manager

E.L. ROBINSON ENGINEERING

Education

M.S. Engineering of Mines, West Virginia University, 1990

B.S. Engineering of Mines, West Virginia University, 1983

Registrations

Registered Professional Engineer in West Virginia, Kentucky, Ohio, and Maryland

Professional Experience

Mr. Coberly has more than 30 years of experience as an infrastructure and mining engineer. He has extensive experience in project planning, funding coordination and design. Mr. Coberly has managed projects with ELR which have involved site development, infrastructure planning, water, sewer, geotechnical analysis, abandoned mine reclamation projects, building construction, active surface mining projects, insurance investigations, providing expert witness services and various post mining land use projects.

Additionally, Mr. Coberly served as the Chief for the West Virginia Department of Environmental Protection Abandoned Mine Lands Division for more than 4 years. In this position he was he was responsible for managing and directing all operations He has spent his career working to better the State of West Virginia in both the private and public sectors.

Representative Projects

The following is a sample list of recent projects on which Mr. Coberly has served as Project Manager

- Scott Findley Road Waterline Extension Project - $1.2 Million
- Exchange Road Phase I Waterline Extension - $3.1 Million
- Putnam Business Park Utility Extension Phase II - $1 Million
- Kenova Downtown Water System Upgrade - $1.9 Million
- Kenova Prichard Waterline Replacement and Upgrade Project - $4.7 Million
- Route 18 South-Snowbird Road Waterline Extension Project - $969,000
- Big Flint Waterline Extension Project - $7.8 Million
- Poca Belt Press - $1.6 Million
- Blue Knob Waterline Extension Project - $2.3 Million
- Town of Burnsville Sewer Study - $2.7 Million

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- Bergoo Wastewater Collection and Treatment System Project - $2.7 Million
- City of Bluefield Commercialization Center - $2.55 Million
- Greenfield Cabinetry Building Expansion - $3.64 Million
- Cow Creek Waterline Extension Project - $815,000
- WVDEP OSR Viking Preston Mining Project - $2.3 Million
- Over 100 West Virginia Department of Environmental Protection Abandoned Mine Lands reclamation projects

Tim Cart, P.E.
Civil Engineer

E.L. ROBINSON ENGINEERING

Education

B.S. Civil Engineering, West Virginia University, 1981, Magna Cum Laude

Registrations

Registered Professional Engineer West Virginia (1986)

Registered Professional Surveyor in West Virginia (1995)

Professional Memberships

American Society of Civil Engineers (ASCE)

Professional Experience

Mr. Cart has over 34 years of experience in providing consulting engineering services. Clients served have included Industrial, Public and Private Institutions and State and Federal Agencies. He has served as Project Engineer on numerous geotechnical investigations over the years. These projects have included highways, bridges, industrial sites, buildings and various developments.

Mr. Cart has been the lead engineer for the design of structures including garage maintenance facilities, 911 centers, student resident housing additions, building renovations including additions of elevations and stairways. The projects vary in complexity to single story slab on grade structures to multi-story 911 centers. Additionally, Mr. Cart has also provided clients with evaluation of existing structures to determine the modifications required for proposed changes in the structural loading. He has worked with architects and the fire marshall's office to provide structures designed to the latest code requirements.

Representative Projects

Mr. Cart has served as senior project engineer for numerous structural projects including the following:

Buckwheat Express Bus Garage- Kingwood, WV

Mason County 911 Center and Garage- Point Pleasant, WV

Putnam County 911 Center and Maintenance Garage- Winfield, WV

Mingo County 911 Center- Williamson, WV

Wetzel County 911 Center- New Martinsville, WV

CAMC General Student Resident Housing- Charleston, WV

State Credit Union Building Addition- Charleston, WV

Chief Logan Recreational Center- Logan, WV

E.L. ROBINSON
ENGINEERING

Aldersgate United Methodist church Gym and Fellowship Building- Sissionville, WV

Lincoln County Courthouse File Room Modifications- Hamlin, WV

Logan County Commission Building Elevator and Stairway Project- Logan, WV

Logan County Courthouse Annex, Elevator and Stairway Project- Logan, WV

Logan Welcome Center- Logan, WV

Historic Coal House Restoration- Williamson, WV

Flatwoods Canoe Rune PSD Maintenance & Treatment Building- Sutton, WV

Putnam County Pre-Sed Basin and Building- Teays Valley, WV

Delbarton Sewage Treatment Plant & Facility Buildings- Delbarton, WV

Putnam County PSD Maintenance Garage- Teays Valley, WV

Scott LeRose, P.E.
Roadway Engineer

E.L. ROBINSON ENGINEERING

Education

B.S. Civil Engineering, West Virginia Institute of Technology, 1997

Registrations

Registered Professional Engineer in West Virginia and Ohio

Professional Memberships

American Society of Civil Engineers (ASCE)

Professional Experience

Prior to joining E.L. Robinson Engineering Co., Mr. LeRose worked for Potesta & Associates, where he gained experience in landfill design, abandoned mine land reclamation, surveying and earthwork calculations. He also worked several co-op terms for the Wet Virginia Department of Highways. During these co-op terms, he preformed bridge construction inspections including the preparation of daily field reports, supervised core drilling operations, participated in groundwater sampling projects, aided in the process of underground storage tank removal and replacement and was involved in various highway design projects.

Since joining E.L. Robinson Engineering Co., Mr. LeRose has worked with the Highway Design Group. He has worked on several DOH projects, which include US 52 Kermit Bypass, multiple sections of Corridor H, Meadowbrook Road, I-79 Bridgeport to Meadowbrook, Lower Gassaway Bridge Replacement, Meadowbrook Bridge, and US Route 35. While working on these projects, he has gained experience in horizontal and vertical geometry, major drainage design, site-grading design, utility relocation, MOT, signing and pavement striping. He has performed quantity calculations for pavement, drainage, seeding, pollution control quantities, and other items associated with roadway plans. He has also participated in the development of ROW plans, including deed plots and legal descriptions.

Mr. LeRose has been instrumental in the completion of numerous sanitary sewer extension/upgrade projects as well. These projects include Ridgeview Sanitary Sewer Extension Project, Crooked Creek Sanitary Sewer Extension Project, Island Creek Sanitary Sewer Extension Project, Mozart Sanitary Sewer Project, Lake Washington/Vaughts Run Sanitary Sewer Extension Project, Red Jacket Sanitary Sewer Upgrade Project and City of South Charleston Sanitary Board Spring Hill Mountain Sanitary Sewer Extension Project.

Mr. LeRose has also worked on smaller site development and subdivision layout projects. Included in these are Saturn of Charleston/Huntington, Hurricane Chevrolet Dealership, Charleston Area Medical Center Division parking area, Sherwood Forest Subdivision and Centre Court Subdivision.

Mr. LeRose has also been heavily involved in the preparation of gas line relocation plans for several sites owned by Consumers Gas as well as the creation of a land use master plan for Mingo County Redevelopment Authority.

Representative Projects

Ridgeview Sanitary Sewer Extension Project, Logan County, WV: This project will provide service to approximately 310 customers in the Logan County communities of Ridgeview, Shamrock, Mt. Gay, Logan Heights, Cora and Camps 5 & 6. The project consists of construction of approximately 32,150 feet of 12-inch and smaller diameter gravity sewer pipe, 155 feet of 8-inch and smaller diameter force main, 275 manholes, 1 major pumping station, cleanouts, service laterals and other related appurtenances.

Crooked Creek Sanitary Sewer Extension Project, Logan County, WV: This project will provide service to approximately 83 customers in the Logan County community of Crooked Creek. The project consists of construction of approximately 9,350 feet of 8-inch and smaller diameter gravity sewer pipe, 4,500 feet of 12-inch or smaller diameter force main, 107 manholes, 3 major pump station upgrades, cleanouts, service laterals and other related appurtenances.

Mozart Sanitary Sewer Project, Marshall County, WV: This project will provide service to approximately 310 customers in the community of Mozart in Marshall County. Sewage treatment will be provided by the City of Wheeling. The project consists of the construction of approximately 30,000 feet of 12-inch or smaller diameter gravity sewer pipe, 7,400 feet of 4-inch or smaller diameter force main, 277 manholes, 2 major pumping stations, cleanouts, service laterals and other related appurtenances.

Lake Washington/Vaughts Run Sanitary Sewer Extension Project, Wood County, WV: This project will provide service to approximately 90 customers in the area surrounding Lake Washington, a small community near Parkersburg, in Wood County. The project consists of the construction of approximately 16,300 feet of 10-inch or smaller diameter gravity sewer pipe, 2,400 feet of 2-inch or smaller force main, 121 manholes, cleanouts, service laterals and other related appurtenances.

Red Jacket Sanitary Sewer Upgrade Project, Mingo County, WV: This project will provide service to approximately 160 customers in the communities of Newtown and Meador in Mingo County. The project consists of construction of approximately 22,350 feet of 8-inch or smaller diameter gravity sewer pipe, 183 manholes, cleanouts, service laterals and other related appurtenances.

Spring Hill Mountain Sanitary Sewer Extension Project, Kanawha County, WV: This project will provide service to approximately 70 customers in the Spring Hill Mountain area of South Charleston in Kanawha County. The project consists of the construction of approximately 9,550 feet of 8-inch or smaller diameter gravity sewer pipe, 6,400 feet of 4-inch diameter or smaller force main, 90 manholes, 1 major pumping station, cleanouts, service laterals and other related appurtenances.

US Route 35 - Couch to Little Five Mile, Mason County, WV: Mr. LeRose served as project manager and designer for the roadway and right-of-way plans for 2.8 miles of four-lane divided highway, 0.5 miles of access road design, one at-grade intersection and two sets of twin structures. This project includes approximately 2.2 million cubic yards of excavation, with an estimated total construction cost of $35 million.

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Corridor H - Forman to Moorefield, Hardy County, WV: Mr. LeRose served as project manager and design engineer for the roadway and right-of-way plans for nearly 5 miles of a new four land divided highway and nearly 3 miles of access road design and a truck escape ramp. The roadway plans included signing and delineator layout, maintenance of traffic and pavement marking plans. This project has an estimated total construction cost of $77 million.

Interstate 79 - Bridgeport to Meadowbrook, Harrison County, WV: Mr. LeRose served as design engineer for the roadway construction plans for the widening of 2.1 miles of Interstate 79 from four to eight lanes including three bridges and tie-ins to two interchanges. The roadway plans included signing plans, maintenance of traffic plans and pavement marking plans. This project has an estimated total construction cost of $30 million.

Ray Tilley, P.E.
Infrastructure Engineer

E.L. ROBINSON ENGINEERING

Education

B.S. Civil Engineering, West Virginia Institute of Technology, 1975

Master of Science Sanitary Engineering, Virginia Polytechnic Institute and State University, 1976

Registrations

Registered Professional Engineer in West Virginia and Florida

Class III Public Water Supply Operator [redacted]

Class IS Wastewater Treatment Works

Professional Experience

Mr. Tilley's experience in the water and wastewater field brings clients a unique perspective to their projects. He has worked as a regulator, a PSD Manager and operator as a consulting engineer, and has experience in grantsmanship. His varied experience offers clients an engineer who can assist in the funding of projects, prepare the necessary studies, design the project, work with regulators to secure approvals and oversee implementation. Most importantly, Mr. Tilley has the background necessary to see a project from the perspective of not only an engineer but also a utility manager and operator.

During his career, Mr. Tilley has taken many water and wastewater projects from inception to successful completion. Mr. Tilley has also read meters, flushed water systems and operated water treatment plans and wastewater systems. The understanding gained from that experience offers valuable insight to his clients.

Representative Projects

Wastewater System Planning:
Town of Ansted: Mr. Tilley drafted the facility plan for making improvements to the Town's wastewater collection and treatment facilities.

City of Charleston: Oversaw portions of a Combined Sewer Overflow (CSO) study as a sub-consultant to a national engineering firm.

White Oak PSD: Assisted the District in revising plans to upgrade its wastewater treatment facility.

Town of Burnsville: Assisted the Town in revising planned improvements to its wastewater treatment system.

Wastewater System Design & Construction
Crab Orchard, MacArthur PSD: Mr. Tilley served as Design Engineer on the layout of the northern area of the wastewater collection system. He also designed the pretreatment and flow measuring facilities at the wastewater treatment plant.

White Oak PSD: Mr. Tilley served as Project Manager for the upgrade of this PSD's wastewater treatment facility which included pretreatment and flow measuring facilities and addition of a second clarifier.

City of Mullens: Mr. Tilley served on the Sanitary Board of Mullens overseeing construction during wastewater collection system improvements and construction of a new Sequencing Batch Reactor treatment plant. The collection system improvements included relining of much of the system.

Town of Burnsville: Design of improvements to a 100,000 gallon per day (GPD) aerated lagoon and replacement of portions of the collection system.

Town of Hillsboro: Consulted with the Town in the conversion of a stabilization pond to an aerated lagoon.

Wastewater System Operation
While serving as Managing Engineer of Logan County PSD, Mr. Tilley oversaw the refurbishment and return to service of a 20,000 GPD package sewage treatment plant serving the community of Green Valley. He also served as plant operator.

As Bluewell PSD General Manager, Mr. Tilley oversaw operation of the wastewater collection and disposal systems of Bluewell PSD and Bramwell PSD. The Bluewell PSD system includes gravity collection, five lift stations and a 400,000 GPD contact stabilization treatment plant. The Bramwell PSD collection system includes both vacuum and pressure sewers. A 100,000 GPD extended aeration plant provides treatment.

Water System Planning
Mercer County Water Study, Mercer County Commission: In the early 1980's, Mr. Tilley prepared a county-wide water study for the Mercer County Commission looking at areas of Mercer County that needed water service. Over the last two decades, that plan has been used as the basis for many projects, and continues to provide a valuable planning tool today.

Logan County PSD Rum and Huff Creek Regional Water System Studies: Mr. Tilley prepared the Rum Creek Water Study and oversaw the preparation of the Huff Creek Study. These documents were used as a planning tool to extend water service to much of Logan County.

Northern Fayette County Regional Water Study: In the 1990's, Mr. Tilley prepared this engineering report. It has provided an outline for providing water to northern Fayette County.

McDowell County PSD Water Study: Because of his previous experience in county-wide water system planning, Mr. Tilley was sought to prepare the engineering report for replacing failing water systems in McDowell County. The complete study recommended a phased approach which has been closely followed to successfully replace those failing systems.

Water System Design & Construction
Raleigh County PSD: As a Design Engineer, Mr. Tilley worked to layout and quantify this project to extend water service to Arnett and other communities along WV Route 3. He also served as Design Engineer on the extension of the Sycamore Water System near Colcord.

Logan County PSD: Working as Project Manager, Mr. Tilley was involved in the design and construction of the

Mud Fork Water System Extension, Rum Junction-Lyburn Water System Extension, Greenville Water System (including a 700 gpm surface water treatment plant), Dehue Water System Extension and designed and bid the Huff Junction-Green Valley Water System Extension. He also oversaw the design of the Atenville extension of the PSD's Big Creek water system.

Town of Ansted: As Project Manager, Mr. Tilley worked to implement this project to add 330,000 gallons of storage to the Town's water system and to provide raw water intake in the New River.

McDowell County PSD: Mr. Tilley served as Project Manager on the separate Coalwood and Caretta Water Systems.

Each of these systems involved a ground water treatment plant to remove iron and manganese. Mr. Tilley also designed water system extensions to serve Hemphill, Capels, Havaco, Wilco and Premier and did the preliminary design for the Bartley-English Water System. He also assisted the District in the installation of a microfiltration water plant for the community of Buchanan and consulted with the PSD during the development, design and construction of the Berwind Water Project.

Cool Ridge-Flat Top PSD: Served as Project Manager for this effort to increase the pumping capacity of this water system.

Bluewell PSD: Mr. Tilley served as Project Manager for the extension of water along the Falls Mills Road to the Virginia State Line. He also served as Project Manager on the project to extend water along Route 20 to the community of Littlesburg and along the upper portion of the Littlesburg Road. During that same project, water was extended to the communities of Duhring and Flipping. As the PSD's General Manager, he prepared the preliminary engineering report for a project to extend water to the Kirby Addition area of Bluewell and to make improvements to the Town of Bramwell Water System and incorporate it into Bluewell PSD.

Water System Operation
As Managing Engineer at Logan County PSD, Mr. Tilley operated a 700 gallon per minute (gpm) surface water treatment plant having an upflow clarifier and mixed media filtration. He also operated a 100 gpm groundwater plant having pressure greensand filters. Logan County PSD had approximately 1,200 customers in five water systems when Mr. Tilley left in 1989.

Richard Watts, P.G.
Geologist-Geotechincal

E.L. ROBINSON ENGINEERING

Education

M.S. Geography, Marshall University, 1994

B.S. Geology, Marshall University, 1977

Registrations

Registered Professional Geologist in Virginia and Kentucky

Professional Memberships

Geological Society of America and Association of Engineering Geologist

Professional Experience

Mr. Watts has more than 38 years of experience in providing consulting services as a senior geologist. He has also served as project manager on numerous projects.

Mr. Watts is primarily an engineering geologist whose range of project experience has encompassed numerous projects concerning geologic investigation, rock and soils engineering, landslides, abandoned mine land reclamation, forensic damage investigations, hydro-geology and the coal industry.

He has performed hundreds of slope stability analyses for landslides and other projects involving the design of stable slopes. In addition, he has performed several studies involving landslide prediction to aid clients in land use and safety planning. Projects involving rock slope stability have included high rock cuts for surface mining operations and highways.

Geotechnical experience has included numerous projects involving soils, foundations, landfills and damage studies. These projects have encompassed such areas as pile driving, caisson installation, earth fill placement, subsurface exploration, site reconnaissance, grout and concrete placement and quality control.

Representative Projects

- Huntington Mall, Barboursville, WV
- Best Buy, Barboursville, WV
- Fiesta Bravo Restaurant, Barboursville, WV
- McDonalds, Gilbert, WV
- Numerous Cell Phone Towers Cites
- Wallick Developers - Townhouses, Charleston, WV
- KFC, Beckley, WV

E.L. ROBINSON ENGINEERING

- McDonalds, Lavalette, WV
- KIng Coal Highway
- Coal Fields Expressway
- Charleston Town Center Mall
- New River Gorge- Cunard Access
- WVDEP - Carswell
- WVDEP - Prenter Road Waterline Feasibility
- WVDEP - Jolo/Paynesville/Wolfpen
- WVDEP - Swiss Drennan Areas, Gauley River
- WVDEP - Coal Mountain Waterline Feasibility
- WVDEP - Hanover Waterline Feasibility
- WVDEP - Brownton Landslide
- Veterans Hospital - Seven Landslides, Huntington, WV
- WVDOH - Five Landslides, Charleston, WV
- WVDOH - I-79 Landslide
- WVDEP - New River Gorge Landslide
- WVDEP - Herndon/Covel/Garwood Waterline
- WVDEP - Spy Rock/Edmond/Flanagan Waterline
- Marshall University - Corbly Hall
- Marshall University - Henderson Center Floor Cracking Study

Faheem Ahmad, P.E., P.S.
Structural Engineer

E.L. ROBINSON ENGINEERING

Education

M.S Civil Engineering, Virginia Tech (VPI & SU), 1991

B.S. Civil Engineering, West Virginia University Institute of Technology, 1988

M.S Information Systems, Marshall University, 2004

Registrations

Registered Professional Engineer in West Virginia, Florida, Virginia, Ohio, Texas, New York, North Carolina, Kentucky, Pennsylvania, Maryland and Delaware

NCEES

Registered Professional Surveyor in West Virginia (1678)

Certified Bridge Safety Inspector – NHI (130055A)

Certified Floodplain Manager (CFM)

Professional Memberships

American Society of Civil Engineers – Structural Engineering Institute (SEI)

Association of State Floodplain Managers (ASFPM) - Member

Transportation Research Board (TRB)

Professional Experience

Mr. Ahmad is an experienced engineering manager with over 27 years experience in highway and bridge projects. He is a seasoned project manager with a track record of managing and delivering projects within budget and on schedule. He has managed all types of projects including design-bid-build, design-build, and value engineering. Mr. Ahmad has over 10 years of experience in alternative delivery methods such as design-build, public-private-partnerships (PPP) and value engineering (VE).

Mr. Ahmad has implemented Accelerated Bridge Construction (ABC) methodology on multiple projects to reduce construction duration and impacts on traffic.

Mr. Ahmad has thorough knowledge of West Virginia design directives and policies, WVDOH Bridge Design Manual and AASHTO LRFD specifications. He has used Critical Path Analysis and Gantt charts to schedule and manage projects.

He has thorough knowledge of bridge erection techniques, stage construction analysis and analysis for constructability. He has had extensive experience in directing the preparation of the design and on-site construction engineering and inspection of bridges and structural engineering projects.

E.L. ROBINSON ENGINEERING

He has over 27 years of professional experience in Finite Element Modeling (linear and non-linear) for bridge projects. He has conducted bridge inspections (NBIS, Element Level) and performed load rating evaluations and analysis in accordance with AASHTO Manual for Condition Evaluation of Bridges (now the Manual for Bridge Evaluation – 2nd Edition) of complex highway bridges ranging from thru trusses to curved girder bridges to bascule bridges. Mr. Ahmad has extensive experience in analysis software such as MDX, LUSAS, STAAD PRO, LARSA 4D, MIDAS and ABAQUS.

Mr. Ahmad also has over 22 years of experience with hydraulics engineering projects in West Virginia. Mr. Ahmad is also Certified Floodplain Manager (CFM) from the Association of State Floodplain Managers. Mr. Ahmad is proficient in conducting hydrologic and hydraulic (steady flow/unsteady flow/2D-flow) of rivers and creeks. Representative projects include FEMA flood studies and map revisions, hydrologic studies, floodplain studies, erosion protection design, bridge hydraulics and scour studies. He is also experienced with water resources regulations, and permitting requirements in West Virginia.

Prior to joining ELR, Mr. Ahmad had over six years of professional affiliation with the Structures Divisions of Delaware and Virginia Department of Transportation.

Representative Projects

Corridor H – Kerens to Parsons– Design Build Project, Randolph and Tucker Counties, WV.
Lead Bridge Engineer for the $ 200 million design build project. This project includes following major bridges/ structures:

- Bridge Over Baldlick Fork is 560 ft long horizontally curved bridge with layout of three continuous spans as follows: 170 ft – 220 ft – 170 ft. The steel plate girders have 86" deep web. Overall deck width is 84'-6". Pier heights are approximately 94 ft.
- Panther Run Bridge Over Panther Run is a 620 ft long bridge with layout of three continuous spans as follows: 175 ft – 270 ft – 175 ft. The steel plate girders have 93" deep web. Overall deck width is 84'-6". Pier heights are approximately 77 ft.
- South Branch Haddix Run Bridge Over South Branch Haddix Run is a horizontally curved 780 ft long bridge with layout of three continuous spans as follows: 250 ft – 280 ft – 250 ft. The steel plate girders have 90" deep web. Overall deck width is 84'-6". Pier heights are approximately 130 ft.
- Bridge Over Tributary of South Branch Haddix Run is 600 ft long bridge with layout of three continuous spans as follows: 180 ft – 240 ft – 180 ft. The steel plate girders have 86" deep web. Overall deck width is 84'-6". Pier heights are approximately 82 ft.
- Bridge Over US 219 and Haddix Run is 1200 ft long bridge with layout of five continuous spans as follows: 205 ft – 280 ft – 280 ft – 280 ft – 155 ft. The steel plate girders have 100" deep web. Overall deck width is 84'-6". Pier heights range from 75 ft – 202 ft.
- CR 3 underpass structure is a 230 ft long box cast-in-place concrete single cell box type structure with a 28 ft clear span

E.L. ROBINSON ENGINEERING

Cottageville Bridge: Lead Design Engineer and Lead Bridge Engineer for the design-build project to construct a new bridge to carry WV 331 over Little Mill Creek in Jackson County. The proposed bridge consists of three spans of 80 ft – 80 ft – 40 ft with a concrete beam superstructure with a composite concrete deck. The substructures consist of integral abutments founded on H-piles and single column piers. Other design features included drainage, maintenance of traffic, signing, pavement markings, environmental permits (404, NPDES) and construction inspection. Cost for the bridge was $ 1.9 million.

S. Lee Exxon Bridge: Lead Design Engineer and Lead Bridge Engineer for the design-build project to construct a new bridge to carry WV 68 over South Fork Lee in Wood County. The bridge is 190 ft long, bearing to bearing, and 38'-6" out to out. Span 1 is 75 ft long and Span 2 is 115 ft long. The proposed bridge is a two span bridge with a concrete beam superstructure and a cast-in-place concrete deck. The pier is of the two column type with pile caps and driven H-piles supporting each column. Other design features included drainage, maintenance of traffic, signing, pavement markings, environmental permits (404, NPDES) and construction inspection. Cost for the bridge was $ 2.4 million.

I-77 Bridges: Surface Drive Overpass Bridges: Lead Design Engineer and Lead Bridge Engineer for the design-build project involving renovation of two dual I-77 bridges: Surface Drive Overpass Bridges on I-77 over CR 119/37 and Eden's Fork Interchange Bridges on I-77 over CR 27 in Kanawha County, WV. Beams/girders for each of the bridges are made composite by having shear connectors installed on them. Abutments are converted to semi-integral type. Other design features include drainage, maintenance of traffic, signing, pavement markings, environmental permits (404, NPDES) and construction inspection. Cost for the bridges was $ 5.4 million.

Tuppers Creek-Pocatalico Bridges: Lead Design Engineer and Project Manager for the replacement of (3) three replacement of existing dual Tuppers Creek-Pocatalico Bridges (Bridge Nos. 2191, 2192, and 2193) carrying I-77 North and South bound in Kanawha County, West Virginia. The bridges consisted of composite steel plate girders on semi-integral/integral abutments and multi-column bents. The project also included structural inspection of existing bridges, geotechnical investigations and preparation of permits. Construction cost for the project was $ 9.8 million.

Guyandotte River Bridge: Lead Design Engineer and Project Manager for the Value Engineering of Guyandotte River Bridge (Bridge No. 4971). It carries WV Route 10 over Guyandotte River as a part of the Stollings to Logan Road upgrade in Logan County, WV. The Guyandotte River Bridge is a four (4) spans steel girder bridge with lengths of: 185'-0", 240'-0", 240'-0", and 185'-0". The superstructure consists of six (6) welded steel plate girders with cast-in-place concrete deck which acts composite with the steel girders. The piers consists of pier cap that is supported by two columns, each column is based on drilled caisson with rock socket. The pier heights range from 50 to 75 ft. Prepared VE Plans for the project that included Roadway, Bridge, Geotechnical and Hydraulic Studies for the Value Engineered Bridge and Roadway. Performed Girder Erection and Deck Overhang analyses and prepared plans for the contractor.

I-77 City Beer Overpass Bridge: Lead Design Engineer and Project Manager for the Value Engineering of I-77 City Beer overpass bridge in Wood county. The VE bridge is a three span bridge (56'-0" - 96'-0" - 49'-0") South Bound and (51'-6" - 96'-0" - 62'-0") north bound. The structure has a skew of 57 degrees. The superstructure consists of 6 prestressed AASHTO Type III beams. The bridge substructure consists of two piers and two semi-integral abutments. The abutments are designed with single row of HP 14x73 piles oriented in strong direction

and two Wingwalls supported by piles. Due to the severe skew and stage construction, a 3-D finite element model was developed to capture all the on the semi-integral abutments due to thermal expansion/contraction of the girders and the deck and due to lateral earth pressure. Prepared VE Plans for the project that included Roadway and Bridge plans.

Madam Creek Bridge: Lead Design Engineer and Project Manager for the Value Engineering of Madam Creek Bridge (County Route 26) in Summers County. The VE Bridge is a simple span structure with 158'-0"center bearing to center bearing. The superstructure consisted of four lines of plate girders 9'-6" on centers. The superstructure has a 5% vertical slope. The substructure with architectural treatment consists of two integral abutments supported on HP14x73 piles. Prepared VE Plans for the project that included Roadway and Bridge plans.

Morehead Bridge: Lead Design Engineer and Project Manager for the Value Engineering of Morehead Bridge (County Route 26) in Wirt County. The VE Bridge is a simple span structure with 130'-0"center bearing to center bearing. The superstructure consisted of five lines of plate girders. The superstructure depth was minimized to meet the hydraulic requirements. Prepared VE Plans for the project that included Roadway, Bridge and Hydraulic Studies for the Value Engineered Bridge and Roadway.

McQuain Brothers Bridge: Lead Design Engineer and Lead Bridge Engineer for the design-build project for the construction of dual I-79 bridges over US 119 & Left Hand Creek in Kanawha County, WV. Each of the structures has three span layout with span lengths of 128'-0" – 122'-9" – 91'-0". The bridge has horizontally curved alignment (radius = 2865 ft). The horizontally curved cast in place deck is supported by four lines of straight Type IV-J Prestressed Concrete Beams kinked over the piers with a cast-in-place concrete deck. The beams are simple spans for dead loads and made continuous for live load. Abutment 1 is semi-integral while abutment 2 is integral. The design also involved 3-D slope Stability analysis. Other design features included drainage, maintenance of traffic, signing, pavement markings, environmental permits (404, NPDES) and construction inspection. Cost for the bridges was $ 7.4 million.

US35 Design-Build Project (WVDOH) Putnam County, West Virginia: Served as Bridge Project Manager/Lead Design Engineer on this design- build project to construct dual 181 ft long single span dual bridges over Hurricane Creek and 110 ft long dual bridges over WV 34.

Wyoming Truss Bridge: Lead Bridge Design Engineer and the Project Manager for the Wyoming Truss Bridge Replacement in McDowell County, WV. The spans were 88 feet, 110 feet and 88 feet with a total length of 286 feet. The superstructure consists of HPS70W steel girders. Piers 1 and 2 are hammerhead piers. Piers 1 & 2 are founded on spread foundations. The abutments are semi-integral abutments founded on H-Piles. Estimated construction cost for the bridge is $ 1,900,000.

US 35 Over Upper & Lower Fivemile: Lead Bridge Design Engineer and the Project Manager for the following dual bridges (1) US 35 Over Upper Five Mile Creek and CR 27 (2) US 35 Over Lower Five Mile Creek in Mason County, WV. The spans for US 35 Over Upper Five Mile Creek are 161 feet, 161 feet with a total length of 322 feet. The spans for US 35 Over Lower Five Mile Creek are 145 feet, 145 feet with a total length of 290 feet. The estimated construction cost for the bridges is $ 7.6 million.

E.L. ROBINSON ENGINEERING

Blennerhassett Island Bridge: Lead Bridge Design Engineer and the Project Manager for the Ohio Approach spans of Blennerhassett Island Bridge over the Ohio River beginning in Washington County, Ohio and Blennerhassett Island. The spans were 171 feet, 179 feet and 139.75 feet with a total length of 489.75 feet. The superstructure consists of hybrid steel girders. Piers 1 and 2 are two column bents with parabolic tendon profile for the post-tensioned cap. Pier 1 is founded on a single caisson with a caisson cap whereas Pier 2 is founded on steel H bearing piles with pile cap.

Corridor H Over Walnut Bottom Run: Lead Bridge Design Engineer and the Project Manager for the Twin Bridges Over Walnut Bottom Run Carrying Corridor H in Hardy County, West Virginia. The bridge consists of single 184 ft long composite welded steel plate girders with integral abutments. Construction Cost for the bridges is $ 2,388,000.

Buffalo Creek Bridge: Lead Design engineer and the project manager for the deck replacement of the existing WV 10 Buffalo Creek Bridge over CSX RR and Buffalo Creek in Logan County, WV. This bridge has a four (4) span layout as follows: 222'-0" 264'-6" 215'-9" and 117'-9". The superstructure consists of eight (8) welded steel plate girders with cast-in-place concrete deck. Construction cost is $ 4.3 million.

I-70 Ft. Henry IC Bridge: Lead Design engineer and project manager for the Fort Henry I/C Bridge Over I-70 in Ohio County, West Virginia. The bridge consists of two 140 ft long composite welded steel plate girders with integral abutments and pier, on pile foundations.

Lower Gassaway Bridge: Design Review Engineer and Project manager for the replacement of Lower Gassaway Truss Bridge in Braxton County, WV. The bridge consisted of composite welded steel plate girder (81" deep) on semi-integral abutments on drilled shafts and hammerhead piers on single circular (63.8' high) column supported by deep spread footings. The project also included geotechnical investigations and hydraulic studies.

I-79 Lodgeville Bridges: Design engineer and manager for the replacement and widening of the existing dual I-79 Lodgeville and Simpson Creek Bridges in Harrison County, WV to eight lanes. The Simpson Creek Bridge consisted of curved plate girders on abutments and two-column bents (36' high) on spread footing. The project also included geotechnical investigations and hydraulic studies.

Representative Hydraulics Projects

South Branch of Potomac River: Hydraulics and scour Analysis for the Proposed Corridor H Bridge crossing the South Branch of the Potomac River - Hardy County, WV The proposed structure crosses South Branch of the Potomac River and its flood plain. The total length of the bridge is 2200 ft. Developed hydraulic models to determine the velocities and flow depths for bridge scour. Evaluated scour potential of piers considering other factors such as river bed changes, instances of historical migration, effect of debris. Prepared hydraulic analysis for the Moorefield Flood Levee freeboard. Additionally, performed hydraulics and scour analysis associated with temporary causeway and access road needed for the construction of the bridge.

Blennerhassett Island Bridge: Hydraulic, scour and erosion countermeasures studies for Proposed Blennerhassett Island Bridge – Wood County, WV and Washington County, OH. The proposed structure consists of a simple span tied arch with a span length of 880 feet (center to center of pier) over the Ohio Channel of the Ohio River. The total length of the bridge is 3985 ft. including approach spans. Developed hydraulic models to determine the

velocities and flow depths for bridge scour evaluations. Evaluated scour potential of river piers on the Island considering other factors such as long term river bed changes, instances of historical migration. An erosion protection system to minimize the impact of barge traffic and bridge scour along the Island shore in the vicinity of Pier 4 was developed. Additionally, performed hydraulics and scour analysis associated with temporary cofferdams, temporary platforms and docks around bridge piers 3, 4, 8, and 9 including for the access roads on the Blennerhassett Island for the duration of construction.

Publications/Presentation

Published technical papers and made presentations at conferences:

Ahmad, F. and Mongi, A., Accelerated Bridge Construction of Martin Luther King Jr. Memorial Bridge – City of Bluefield, WV - Published in the proceedings of 2014 National Accelerated Bridge Construction Conference.

Ahmad, F. , Zoubi, N. and Mongi, A. Behavior of Integral Abutments with Tall Back walls - Published in the proceedings of 2007 International Bridge Conference

Presentation titled "Steel Spans Made Continuous for Live Loads at the Structures IV seminar by West Virginia Division of Highways – Charleston, WV, November 15, 2005

Ahmad, F. and Zoubi, N. Tension Field Action in the Hybrid Steel Girders for Ohio Approach Spans of Blennerhassett Island Bridge - Published in the proceedings of Third New York City Bridge Conference - Vol 3, No. 1, September 11 – 13, 2005

Co-Presenter on presentation titled "Hydraulic and Scour Analysis of Blennerhassett Island Bridge at the 2002 FHWA Hydraulics Conference – Louisville, KY, September 17-19, 2002

McDuffie Nichols
Vice President, Economics

Education
B.A., Political Science/History, University of Alabama, 1975
M.B.A.course work in Economics, Finance, Statistics, Accounting, 1976

Affiliations
Member, Urban Land Institute (ULI)
Member, ULI Baltimore/Washington TOD Product Council
Member, International Downtown Association (IDA)
Member, International Economic Development Council (IEDC)
Member, International Council of Shopping Centers (ICSC)
Board Member, Responsible Hospitality Institute/ Sociable City Network (RHI)
Member, National Trust for Historic Preservation
Former Member, Maryland Governor's Smart Growth Steering Committee

Publications
Marketing an Image for Main Street, Co-author, National Trust for Historic Preservation Main Street Center, 1994

Presentations
Nighttime Economic Impacts, Responsible Hospitality Institute, Austin, TX 2009

Quest for Food – Attracting Downtown Grocery Stores, International Downtown Association, 2006

Revitalizing Retail, National Main Street Conference, 2005

New Market & Historic Tax Credits, IPED, 2005

Lectures
Guest Lecturer, University of Maryland Department of Architecture, Feasibility and Commercial Real Estate, 2007

Guest Lecturer, University of Maryland Center for Smart Growth Policy Research, Large Format Retail Smart Growth Implications, 2004

Guest Lecturer, University of Pennsylvania Center for Urban Redevelopment Excellence, Neighborhood Commercial Revitalization. 2004

Professional History
2005 – Present
Economics at AECOM (former ERA)
Vice President/Principal

2003 – 2005
National Trust for Historic Preservation
Director, Preservation Development Initiatives

1985 – 2005
National Main Street Center, National Trust for Historic Preservation
Senior Program Manager, Technical Services

McDuffie (Mac) Nichols is Vice President for AECOM's Economics + Planning group. He has over 30 years of experience in community and regional economic development planning, downtown and urban commercial district revitalization/ redevelopment, historic real estate development, retail and mixed-use development, transit-oriented development (TOD), smart growth and public-private partnerships. He has extensive experience developing implementation strategies for private corporations, nonprofit organizations and government.

Previously, Mr. Nichols served as Director of Preservation Development Initiatives at the National Trust for Historic Preservation in Washington, DC managing a pilot program combining urban commercial development, residential neighborhood revitalization in historic and older districts, cultural heritage tourism and targeted financial incentives.

As the Senior Program Manager for Technical Services at the National Trust's National Main Street Center, Mr. Nichols oversaw a nonprofit consulting practice serving forty-three statewide Main Street revitalization programs. He consulted on downtown and neighborhood commercial revitalization programs in over 200 local Main Street revitalization programs in 49 states in the US (including Maryland), Puerto Rico, the US Virgin Islands, Canada, India and Singapore. He consulted on the development of urban neighborhood commercial district revitalization programs for Boston, Baltimore, Detroit, and Los Angeles. He directed a project creating a "community-initiated development" process for nonprofit revitalization organizations. He developed rural Main Street revitalization programs for communities with populations under 5,000.

Representative Project Experiences

Hillsborough Innovation Alliance Master Plan Framework, Hillsborough County, Tampa, Florida
Provided pre-master planning services for the Innovation Alliance District in Tampa. This work was intended to prepare condition assessments, data points and background material that would inform a subsequent master plan. Work included current conditions assessment, including Innovation Alliance organization & structure, identification of markets and investors, assessment of demographic and economic conditions, assessment of land use and development patterns and trends, and an assessment of transportation and connectivity. Follow-on master plan to begin with funding availability.

Destination Medical Center (DMC) Master Plan, Economic Development Authority, Rochester, Minnesota
Market demand analyses and development program phasing for a 20-year master plan as part of a multi-disciplinary team plan to develop a destination medical center and mixed-use downtown associated with the growth of the Mayo Clinics. Uses analyzed included research-medical-technical facilities, residential, office, retail, restaurant and entertainment, hotels and meetings facilities.

InVision Tampa Downtown Master Plan/ Center City and Transit Corridor Conceptual Plans, City of Tampa, Tampa, Florida
Economic analysis for a master plan including developing strategies and analysis to support objectives that integrate housing, land use, transportation, and regulatory planning in the Center City and Nebraska-Hillsborough Avenue corridor.

The analysis generated a detailed demographic and economic overview analyzing market conditions in key neighborhoods proximate to the downtown core. Issues, opportunities, and strategies for real estate development were identified in each neighbourhood and a multi-scenario *pro forma* and residual land value analysis was performed.

Master Plan and Economic Development Cluster Plan, Ironhouse, Recife, Pernambuco, Brazil
Financial feasibility analysis, economic and fiscal impacts analyses and economic development cluster analysis for a multi-phase, mixed-use, master planned community including residential, commercial, educational, cultural and research uses. Researched, financial feasibility analyses, and phasing plan for bio-research facilities integrated into master-planned community.

Lancaster Gateway Redevelopment Plan, EDC Finance Corporation and Franklin and Marshall College Lancaster, Pennsylvania
An analysis of the North Lancaster Gateway Redevelopment Project, based upon a preferred development program. Projected on-site population and income characteristics and estimated indirect benefits of the preferred mixed-use development program including employment, compensation, and expenditures. In three subsequent, related projects, provided analyses on the potential development of a medical facility on a former brownfield site.

Redevelopment Strategic Plan, Stafford County, Stafford, Virginia
A multi-disciplinary team that analyzed opportunities for redevelopment and development in three strategic areas in Stafford County, VA. Conducted market demand analyses for residential (rental and for-dale), retail, office, industrial-flex and specialty uses.

Miami 21 Development Strategies, City of Miami, Miami, Florida
Development & retail consultant. Prepared an integrated economic analysis as part of the creation of form-based zoning regulations. Examined the economic, demographic, and market characteristics across the entire City as a means of informing and guiding the critical decisions necessary to update the City's zoning codes. Prepared economic analysis to provide an understanding of the competitive position of the City and regional economies; identifying economic "drivers" and translated demand generated by these factors into short- and long-term potential market support for a range of uses (supporting and destination commercial retail, office/medical/workforce, residential, warehouse, distribution and manufacturing; entertainment/ cultural/media production; lodging; and other uses that could add or create value in selected priority areas.

Economic Adjustment Strategy for Areas Affected by Steel Plant Closures, Business Development Corporation of the Northern Panhandle, Weirton, West Virginia
Economic Analyses for a detailed cluster analysis, implementation strategy, and site development strategy for Brooke and Hancock counties in West Virginia. The analysis and subsequent strategies were based on a comprehensive analysis of the underlying economic structure of the region and decline of the area's steel industry. The study included

detailed stakeholder roundtables, as well as an extensive survey of regional industrial parks. Ultimately, two strategic sites were identified for potential industrial and office development, utilizing the cluster analysis to determine specific site and labor force needs.

Central Employment Area Analysis, National Capital Planning Commission (NCPC), Washington, DC
An evaluation of the real estate impacts of the District of Columbia's Central Employment Area. Directed an analysis of the District's office market to determine whether properties inside the CEA were able to achieve higher rental rates or more rapid absorption than those outside the boundary. Statistics for neighborhoods and individual properties were reviewed to provide a detailed examination of market trends.

Tourism Industry Strategic Plan, West Virginia Division of Tourism, Charleston, West Virginia
A comprehensive plan to analyze the tourism-related growth opportunities of the State of West Virginia and to evaluate those entities that might impact tourism. Prepared an inventory of tourism attractions by type and geography; ranked performance and capacity for market expansion; recommended strategy for supporting and fostering those growth sectors while determining the use of dedicated state tourism funding sources.

Financial Forecast and Business Plan for a Research Park, University of Mississippi, Oxford, Mississippi
A study and financial feasibility analysis for a research and development park adjacent to the campus of the University of Mississippi. Evaluated overall market performance and trends in commercial office space in Oxford and Lafayette County, including office space, vacancy levels, demand/absorption trends and activity, and current lease rates; researched the region's primary economic "drivers" of demand and the state of technology, research and development in North Mississippi; developed best practices case studies of selected university research parks in source markets with similar economic conditions, and used the case studies to identify key success factors, inform development strategies, and explore funding approaches; and measured the overall economic viability of the project by creating an integrated discounted cash flow model to test various building sizes, assess development options after grant funds are depleted, and illustrated the project's timeline and areas of risk.

Richard Gorman
Program Manager

Professional History

09/2013 - Present, AECOM Program Manager
02/2006 - 08/2013, Greenhorne & O'Mara/Stantec Vice President
03/2003 - 02/2006, Tetra Tech Practice Leader
02/1979 - 12/2002, Bryan & Murphy/David Evans & Associates Executive Vice President

Education

BS, Geography, California State University - Hayward, 1978
AA, Civil Engineering Technology, Chabot College, 1974

Registrations

Certified Planner,
Professional Land Surveyor,

Years of Experience

With AECOM: 3
With Other Firms: 34

Professional Affiliations

Society of American Military Engineers
American Society of Civil Engineers
American Planning Association

Training

Charrette System Certificate
UFC 2-100-01 Military Master Planning

Experience

Manages master and site planning and programming for numerous federal projects and programs, CONUS and OCONUS. Roles include leadership of design and programming charrettes, conducting planning interviews, and briefing security agency and military leadership. Mr. Gorman has worked closely with special forces teams and host nation officials. Facility experience includes SCIF, headquarters facilities (IC and military), training facilities, equipment and deployment storage, ATFP, large area master plans, fixed and rotary-wing airfield facilities and US Central Command expeditionary compounds.

US Army Corps of Engineers - Huntsville Center, CONUS Interceptor Site Charrette and Conceptual Site Layouts, Missile Defense Agency (MDA), Huntsville, AL, Developed scope, agenda and facilitated week-long charrette for over 100 persons including USACE and MDA. Facilitated discussion of overall requirements, coordinated detailed facility discussions, presented in- and out-briefs, actively participated in facility requirements data collection for facilities. Organized detailed breakout sessions to facilitate collaboration between government and team technical experts, provided overall guidance, coordination and management of charrette report development and production.

US Army Corps of Engineers - Middle East District, Base Camp Master Plans, Prince Hasim Royal Brigade, Jordan and Camp Buehring, Kuwait, Led development of base camp master plan for new camp at King Abdullah II Air Base, Jordan. Plan facilitated both semi-permanent and surge capabilities utilizing only on-site utilities. Development of base camp master plan to update the Udairi Range Complex, and convert Camp Buehring and Udairi Air Field, Kuwait from contingency base to enduring location. The plan relocates BCT to new on-base site, develops utility systems, replaces: spot generators, wastewater holding tanks, water storage tanks, etc. Authored Sustainability Plan that enhances core areas and MWR sites to improve soldier living conditions.

US Army Corps of Engineers - Huntsville Engineering Center, US Army Reserve Installation Management Directorate, National Visioning and Capital Investment Strategy, Developed agenda and facilitated planning and visioning charrettes for all Regional Support Commands (RSC): 63rd, 81st, 88th, and 99th. Conducted in- and out-briefs for Commanders of each RSC. Team utilized ASIP, GEFIBS, IRS and RPLANS to review over 3000 facilities and established investment strategies. The vision represents the look, feel, and function of an RSC 20 years to 50 years into its future and serves as a guide for all planning and programming needs. The CIS is the roadmap each RSC uses to support its mission and Department of the Army objectives. It provides a framework for making decisions and describes exactly how to implement Army strategy and ensures that resources flow from national security objectives to RSC missions, programs, and finally known requirements.

US Army Corps of Engineers - Europe District, Net Zero Energy Installation Plan, USAG Grafenwoehr and USAG Hohenfels, Facilitated visioning charrette to develop sustainability vision, goals, and objectives at the installations. Briefed the Garrison commanders on multiple occasions to discuss NEZI process, schedule, vision, goals, and objectives. Studies focused on net zero energy and water consumption reduction opportunities using energy and water conservation measures. The approach to achieve net zero energy was to identify reductions in energy intensity and increase renewable energy opportunities. [Prior to AECOM]

US Army Corps of Engineers - Middle East District, Bed-Down Surveys Iraq F-16 Program, Al Asad and Balad ABs, Conducted the bed-down surveys, office of Security Cooperation-Iraq (OSC-I) enclave, and airfield and munitions related development. Traveled first to Al Asad AB then Balad AB and Baghdad to attend the definitization conference with OSC-I and Iraq Air Force commanders. Surveys identified and assessed facilities, infrastructure, support equipment, and adjacency requirements for an initial bed-down of 18 F-16s and eventually 36 total aircraft. Managed planning and programming and design of self-contained residential compound. Briefed OSC-I and Iraq commanders multiple times. [Prior to AECOM]

Sultanate of Oman and US Air Force Central Command, Master Plan, Al Musanah AB, Military planner for a new master plan at Al Musanah AB, Oman. These facilities include living facilities (trailers and tents), dining facilities, laundry, medical, and all other physical facilities to set up expeditionary Air Force operations. The Royal Air Force of Oman (RAFO) has provided space for AFCENT facilities. Developed gas and go capabilities, planned a future airlift hub, future expansion capability, and planned for long-term aircraft support. Facilities include ramps, fueling, warehouses, life support, mission support, maintenance facilities, other support facilities, and aprons for aircraft. [Prior to AECOM]

US Army Special Operations Command and US Army Corps of Engineers - Louisville District, Indefinite Delivery/Indefinite Quantity Architect and Engineering Support, Fort Campbell, Kentucky. Program manager/project manager for civil engineering support, site planning and utility coordination for various task orders. Task orders include RFPs for the construction of Tactical Equipment Maintenance Facilities and storage complex, Battalion Operations Complex, and a live-fire indoor range for the 5th Special Operations Group. The compound includes four TEMFs, medical warehouse, hazardous material storage facility, oil storage, parachute rigging tower, dive equipment building, deployment storage, and organizational vehicle parking and aprons. [Prior to AECOM]

US Army Corps of Engineers - Norfolk District, Felker Army Airfield Master Plan - Indefinite Delivery/Indefinite Quantity Task Order, Joint Base Langley Eustis, Virginia. Managed development of master plan for Felker Army Airfield. The master plan provided guidance for creating an efficient and innovative campus that enables growth. Collaborated with Felker personnel through a series of one-on-one meetings with individual departments and units to determine their specific facility requirements and space utilization needs. The organization currently operates in facilities that were not originally built for the current purpose, have long since surpassed

their useful lives, and are configured in layouts that do not optimize functionality or energy efficiency. [Prior to AECOM]

US Air Force Central Command, Rapid Expeditionary Base Development Plan, Masirah Island AB, Project manager for bed-down plan for classified contingency deployments. Within the cantonment area of the Royal Air Force Oman base United States War Reserve Materials contractors operate facilities to store and maintain United States assets for future use in a contingency. Team visited Masirah Island to determine the extent and condition of facilities and to develop a plan for future use. The plan provided proposed construction projects and front-page 1391s to provide funding of projects to facilitate deployments. The plan had both SRDC and LRDC and took into consideration ICAO standards, various UFCs, and Air Force and Central Command pamphlets. [Prior to AECOM]

US Army Corps of Engineers - Baltimore District, National Geospatial Intelligence Agency - New Campus East Consolidated Campus Master Planning, Fort Belvoir, Virginia. Project manager for master planning services and conceptual design to support NCE new consolidated campus. The project resulted in relocating 8,500 personnel from multiple District of Columbia area locations into 2.4 million gross square feet of new facilities, including administrative buildings, data center, communications networks, parking structures, central plant, and other infrastructure. Tasks include site selection study, preparation of $1.8B DD 1391 Documentation, architectural macro-programming study, and existing conditions. [Prior to AECOM]

US Army Corps of Engineers - Middle East District, Gulf Engineering District and Afghanistan Engineering District Area of Responsibility - Multidisciplinary Contract, Various OCONUS, Military planner for development of master plans at Camp Shaheen and Camp Mike Spann, Mazar-e-Sharif Garrison and Gamberi Garrison in Laghman Provence, Afghanistan. Week-long visits to each garrison determined existing conditions and needed improvements utilizing the US Central Command "Sand Book." Interviewed ANA, US and NATO commanders and mentors. Bases are home to over 30,000 troops and play key roles in the northern provinces and the Pakistan border regions. Plan evaluated function of existing facilities including: roadways, power stations, water and wastewater, entry control points, ranges, ATFP and barracks, operations buildings, motor pools, and hospitals. [Prior to AECOM]

Naval Facilities Engineering Command, Navy Anti-Terrorism/Force Protection Ashore Program, Naval Support Activity Bahrain, Manama, Project manager responsible for providing facilities engineering support and conducting technology assessment of ATFP legacy equipment in pursuit of a comprehensive global database. Tasks included reviewing the utility, viability and sustainment needs of a wide variety of ATFP equipment. Coordinated, organized and executed assessment at multiple facilities throughout Bahrain. Coordinated communications with Navy personnel and supervised production of complete equipment condition reports and database generation. Led inspection and documentation of equipment including cameras, Regional Operations Center and Emergency Operations Center, vehicle barriers, Defense Biometric Identification Systems, harbor security systems, and intrusion detection systems. [Prior to AECOM]

Jess Farber, PE, LEED AP, CxA
Partner/Lead Mechanical Engineer

Education

Mr. Farber graduated with a Bachelor of Mechanical Engineering degree from the Georgia Institute of Technology in 1993.

Registrations

Mr. Farber is a licensed professional engineer in the states of Kentucky [redacted] Alabama, Indiana, Maryland and Texas.

LEED (Leadership in Energy and Environmental Design) Accredited Professional

Certified Commissioning Agent, AABC Commissioning Group (CxA)

Related Projects

Campus Fire/Water/Site Water System Analysis
Kentucky Exposition Center
Louisville, Kentucky

Campus Electric Utility Upgrades
Kentucky Exposition Center
Louisville, Kentucky

Building Analysis
Kentucky Medical Examiner's Office
Louisville, Kentucky

Chilled Water Improvements
Brown Forman Louisville Campus
Louisville, Kentucky

Campus Master Plan
Norton Audubon Hospital
Louisville, Kentucky

Campus Master Plan
Riverview Hospital
Noblesville, Indiana

Campus Master Plan
TJ Samson Community Hospital
Glasgow, Kentucky

Experience

Mr. Farber joined CMTA in 1999 and has worked in consulting engineering since his graduation from the Georgia Institute of Technology (Georgia Tech). He is the director of the mechanical department in the Louisville office and assists in the overall management of the Louisville office. He has a reputation of providing excellent service to his clients and is well respected for his responsiveness to project related issues.

Mr. Farber's experience is diverse and includes health care, education, convention centers, courthouses, and other commercial facilities. He is experienced with various sustainable design elements including geothermal systems, heat recovery systems, solar water heating and rainwater collection systems. He has recently completed design and assisted in start-up for the first geothermal acute care hospital facility in Kentucky. The facility is currently tracking to have approximately a one year payback.

As the leader of CMTA's Mechanical Engineering Department, he works on daily basis with the senior and junior members of the staff. With a mechanical engineering staff of over 20 people, Mr. Farber coordinates project production requirements as well as quality control. He is a strong proponent of mentoring and places special emphasize on training and developing younger engineers.

Brian Baumgartle, PE, LC, LEED AP BD+C
Principal, Electrical Engineer

Education

Mr. Baumgartle graduated from the University of Louisville in 1998 with a Bachelor of Science Degree in Electrical Engineering.

Registrations

Mr. Baumgartle is a Licensed Professional Engineer in the state of Kentucky [redacted]

Lighting Certified (LC) by the National Council on Qualifications for the Lighting Professions (NCQLP)

LEED (Leadership in Energy and Environmental Design) Accredited Professional

Related Projects

Campus Electric Utility Upgrades
Kentucky Exposition Center
Louisville, Kentucky

Building Analysis
Kentucky Medical Examiner's Office
Louisville, Kentucky

Campus Master Plan
Norton Audubon Hospital
Louisville, Kentucky

Campus Master Plan
Riverview Hospital
Noblesville, Indiana

Campus Master Plan
TJ Samson Community Hospital
Glasgow, Kentucky

Experience

Mr. Baumgartle joined CMTA's Louisville office in 2007. Mr. Baumgartle understands that lighting design can make or break a project. His extensive experience and knowledge of lighting and daylighting design ensures that it will be memorable, visually comfortable, cost effective and energy efficient.

He has given seminars on lighting and daylighting design to numerous organizations and companies including Lightfair International and the University of Louisville Fine Arts Interior Architecture program. He has also written articles for Consulting-Specifying Engineer on lighting and commissioning. He is Lighting Certified (LC) by the National Council on Qualifications for the Lighting Professions (NCQLP) and is a member of the Illuminating Engineering Society of North America (IESNA).

Mr. Baumgartle has project managed and engineered numerous projects for educational, health care, corporate, retail, hospitality, performance and museum facilities. His projects include Richardsville Elementary School (first Net Zero Energy school in the U.S.), Oldham County Library (IESNA illumination award), Army Aviation Support Facility at Boone National Guard Center, Van Meter Hall Renovation (Theater) at Western Kentucky University, Fourth Street Live! and Parklands of Floyds Fork. He has also designed over one megawatt of solar photovoltaic systems. In addition to his lighting expertise, Mr. Baumgartle has a broad knowledge of solar photovoltaic, fire alarm, security, data/voice, power distribution, uninterruptible power and emergency generator back-up systems.

Resume

Douglas R. Richardson, PE, LEED AP
Principal Engineer

Education

North Carolina State University, (8/87-5/89).

Masters of Science in Civil Engineering, major in structures and minor in construction.

GPA 4.0/4.0.

West Virginia University, (8/83-8/87)

Bachelors of Science in Civil Engineering.

Ranking: 1st out of approximately 450 College of Engineering graduates. GPA 3.98/4.0.

Professional Registration

Professional Engineer - WV, VA and KY

Maintains active record with NCEES to facilitate prompt registration in additional states as required.

LEED Accredited Professional

Professional Affiliations

American Society of Civil Engineers

American Concrete Institute

American Institute of Architects, Professional Affiliate

Structural Engineering Institute

Timber Framers Guild

US Green Building Council

Engineers Without Borders-USA

MOMENT engineers, inc.

West Virginia Purchasing Forms – 6

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: ADJ1700000005

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.

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(Check the box next to each addendum received)

[✓] Addendum No. 1	[ ] Addendum No. 6
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[✓] Addendum No. 3	[ ] Addendum No. 8
[✓] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] 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.

E.T. Boggess Architect, Inc.
Company

Authorized Signature

March 22, 2017
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 291723

Doc Description: Addendum No.1 Sullivan Tract Master Plan Design Svcs Project

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-02-13	2017-02-23 13:30:00	CEOI 0603 ADJ1700000005	2

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:

E.T. Boggess Architect, Inc.
PO Box 727 **101 Rockledge Avenue**
Princeton, WV 24740 **304-425-4491**

FOR INFORMATION CONTACT THE BUYER

Jessica S Chambers
(304) 558-0246
jessica.s.chambers@wv.gov

ture X

FEIN # 55-0515917 DATE February 22, 2017

All offers subject to all terms and conditions contained in this solicitation

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 291723

Doc Description: Addendum No.2 Sullivan Tract Master Plan Design Svcs Project

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-02-21	2017-03-09 13:30:00	CEOI 0603 ADJ1700000005	3

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:

E.T. Boggess Architect, Inc.
PO Box 727 **101 Rockledge Avenue**
Princeton, WV 24740 **304-425-4491**

FOR INFORMATION CONTACT THE BUYER

Jessica S Chambers
(304) 558-0246
jessica.s.chambers@wv.gov

Signature X _____ FEIN # 55-0515917 DATE March 8, 2017

All offers subject to all terms and conditions contained in this solicitation

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 291723

Doc Description: Addendum No.3 Sullivan Tract Master Plan Design Svcs Project

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-03-07	2017-03-23 13:30:00	CEOI 0603 ADJ1700000005	4

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

VENDOR

Vendor Name, Address and Telephone Number:

E.T. Boggess Architect, Inc.
PO Box 727 **101 Rockledge Avenue**
Princeton, WV 24740 **304-425-4491**

FOR INFORMATION CONTACT THE BUYER

Jessica S Chambers
(304) 558-0246
jessica.s.chambers@wv.gov

Signature X [signature] FEIN # 55-0515917 DATE March 22, 2017

All offers subject to all terms and conditions contained in this solicitation

FORM ID : WV-PRC-CEOI-001

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 - Architect/Engr

Proc Folder: 291723

Doc Description: Addendum No.4 Sullivan Tract Master Plan Design Svcs Project

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-03-15	2017-03-23 13:30:00	CEOI 0603 ADJ1700000005	5

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:

E.T. Boggess Architect, Inc.
PO Box 727 **101 Rockledge Avenue**
Princeton, WV 24740 **304-425-4491**

FOR INFORMATION CONTACT THE BUYER

Jessica S Chambers
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jessica.s.chambers@wv.gov

...ature X ... FEIN # 55-0515917 DATE March 22, 2017

... offers subject to all terms and conditions contained in this solicitation

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.

Todd Boggess, President
(Name, Title)

Todd Boggess, President
(Printed Name and Title)

PO Box 727, Princeton, WV 24740
(Address)

(P) 304-425-4491 / (F) 304-425-2028
(Phone Number) / (Fax Number)

etb@etbarchitects.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.

E.T. Boggess Architect, Inc.
(Company)

Todd Boggess, President
(Authorized Signature) (Representative Name, Title)

Todd Boggess, President
(Printed Name and Title of Authorized Representative)

March 22, 2017
(Date)

(P) 304-425-4491 / (F) 304-425-2028
(Phone Number) (Fax Number)

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 exceed 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: E.T. Boggess Architect, Inc.

Authorized Signature: _____ Date: March 22, 2017

State of West Virginia

County of Mercer, to-wit:

Taken, subscribed, and sworn to before me this 22 day of March, 20 17

My Commission expires March 11, 2018.

AFFIX SEAL HERE

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
DONNA R. EAST
P. O. BOX 242
LASHMEET, WV 24733
My commission expires March 11, 2018

NOTARY PUBLIC _____

ETB ARCHITECTS

Letter of Transmittal

3/22/2017

TO: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305

Project:
WVARNG / Sullivan Tract

Atten: Jessica Chambers

Sending Via:
UPS

Subj: Qualifications

CODE LEGEND

- ☐ 1. For payment
- ☒ 2. For your review
- ☒ 3. For your files/use
- ☐ 4. For your signature
- ☒ 5. As requested
- ☐ 6. Owner keeps 1
- ☐ 7. Send 1 to Contractor
- ☐ 8. Return 1 to ETB
- ☐ 9. Office Copy

# of copies	DATE	DESCRIPTION	CODE
		ADJ 1700000005	
1		Statement of Qualifications - Original	2
3		Statement of Qualifications - Convenience Copies	5
1		WV Purchasing Forms - Unbound	3

REMARKS:

Thank you for this opportunity and we look forward to hearing from you.

Signed: Todd Boggess, AIA, NCARB, Architect

E T BOGGESS ARCHITECT INC 101 ROCKLEDGE AVE PO BOX 727 PRINCETON WV 24740 304 425 4491 FAX 304 425 2028

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: ADJ1700000005

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Company

Authorized Signature

March 22, 2017
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

STATE OF WEST VIRGINIA
Purchasing Division

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Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 291723

Doc Description: Addendum No.1 Sullivan Tract Master Plan Design Svcs Project

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-02-13	2017-02-23 13:30:00	CEOI 0603 ADJ1700000005	2

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:

E.T. Boggess Architect, Inc.
PO Box 727 **101 Rockledge Avenue**
Princeton, WV 24740 **304-425-4491**

FOR INFORMATION CONTACT THE BUYER

Jessica S Chambers
(304) 558-0246
jessica.s.chambers@wv.gov

Signature X _____ FEIN # 55-0515917 DATE February 22, 2017

All offers subject to all terms and conditions contained in this solicitation

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 291723

Doc Description: Addendum No.2 Sullivan Tract Master Plan Design Svcs Project

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-02-21	2017-03-09 13:30:00	CEOI 0603 ADJ1700000005	3

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

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FOR INFORMATION CONTACT THE BUYER

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jessica.s.chambers@wv.gov

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FORM ID : WV-PRC-CEOI-001

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 291723

Doc Description: Addendum No.3 Sullivan Tract Master Plan Design Svcs Project

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-03-07	2017-03-23 13:30:00	CEOI 0603 ADJ1700000005	4

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PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

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State of West Virginia
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Doc Description: Addendum No.4 Sullivan Tract Master Plan Design Svcs Project

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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.

Todd Boggess, President
(Name, Title)

Todd Boggess, President
(Printed Name and Title)

PO Box 727, Princeton, WV 24740
(Address)

(P) 304-425-4491 / (F) 304-425-2028
(Phone Number) / (Fax Number)

etb@etbarchitects.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.

E.T. Boggess Architect, Inc.
(Company)

Todd Boggess, President
(Authorized Signature) (Representative Name, Title)

Todd Boggess, President
(Printed Name and Title of Authorized Representative)

March 22, 2017
(Date)

(P) 304-425-4491 / (F) 304-425-2028
(Phone Number) (Fax Number)