

Michael Baker

INTERNATIONAL

Proposal: Redundant Water and Sewage Systems EOI

Design Services

West Virginia Army National Guard

CEI 0603 AD1700000094

August 30, 2016



08/31/16 09:32:43
W/ Purchasing Division

We Make a Difference



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

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

Proc Folder: 240128

Doc Description: Redundant Water and Sewage Systems EOI Design Services


Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2016-08-02	2016-09-01 13:30:00	CEOI 0603 ADJ1700000004	1

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:
 Michael Baker International, Inc.
 100 Airside Drive
 Airside Business Park
 Moon Township, PA 15105
 412-269-6300 Main

FOR INFORMATION CONTACT THE BUYER
 Jessica S Chambers
 (304) 558-0246
 jessica.s.chambers@wv.gov

Signature X  FEIN # 25-1228638 DATE August 30, 2016

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

ADDITIONAL INFORMATION:

Expression of Interest

The West Virginia Purchasing Division is soliciting Expression(s) of Interest for the Agency, The West Virginia National Guard to provide design services to complete a system inventory and vulnerability assessment of the existing infrastructure for water and sewage systems at the Joint Forces Headquarters at the Coonskin Complex in Charleston, WV, and selected areas within Camp Dawson at Kingwood (Preston County), and to provide a prioritized approach with conceptual costs for redundant water and sewage systems at these locations.

INVOICE TO		SHIP TO	
DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR		DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR	
CHARLESTON	WV25311	CHARLESTON	WV 25311
US		US	

Line	Comm Ln Desc	Qty	Unit Issue
1	Redundant Water and Sewage Systems EOI Design Services		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

CHARLESTON COONSKIN LOCATION-Professional engineering design services to develop construction documents to provide for a complete system inventory and vulnerability assessment of the existing infrastructure for water and sewage systems as needed, at the Joint Forces Headquarters Complex, located at 1703 Coonskin Drive, Charleston, WV 25311, and to provide a prioritized approach with conceptual costs for redundant water and sewage systems at this location per the attached documentation

INVOICE TO		SHIP TO	
DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR		FACILITY MAINTENANCE MANAGER CAMP DAWSON ARMY TRAINING SITE 240 ARMY RD	
CHARLESTON	WV25311	KINGWOOD	WV 26537-1077
US		US	

Line	Comm Ln Desc	Qty	Unit Issue
2	Redundant Water and Sewage Systems EOI Design Services		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

CAMP DAWSON LOCATION- Professional engineering design services to develop construction documents to provide for a complete system inventory and vulnerability assessment of the existing infrastructure for water and sewage systems as needed, at selected areas within Camp Dawson at Kingwood (Preston County), and to provide a prioritized approach with conceptual costs for redundant water and sewage systems at this location per the attached documentation.

ADJ1700000004	Document Phase Draft	Document Description Addendum 1-Redundant Water and Sewage Systems EOI Design	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

Michael Baker

I N T E R N A T I O N A L

We Make a Difference

August 30, 2016

Ms. Jessica Chambers
West Virginia Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, West Virginia 25305

**Re: CEOI 0603 ADJ1700000004
Redundant Water and Sewage Systems EOI Design Services**

Dear Ms. Jessica Chambers:

Michael Baker International (Michael Baker) is pleased to present our response to the subject Expression of Interest for the WV National Guard. Our regional offices of Moon Township, PA and Charleston, WV have relevant experience with providing full facility site assessments and design of elements necessary for this assignment. Michael Baker is honored to have built a 10-year relationship with the Division of Engineering and Facilities, including the WV National Guard, helping to solve complex engineering and environmental challenges, as well as developing facility needs. At Michael Baker, we do not take the past for granted, but rather, look forward to opportunities to enhance the services we offer. To meet your design requirements and respond to the EOI, Michael Baker has assembled a team of experienced personnel who have performed similar assignments on numerous related projects for a variety of clients, as reflected in the enclosed documentation.

Michael Baker understands the need for redundant water systems as a result of unforeseen circumstances, such as the 2014 Elk River chemical spill, in Charleston. We are well positioned to assemble a comprehensive regional design team including: Process, Civil/Site, Geotechnical, Electrical, Mechanical, Fire Protection, and Structural Engineering as well as Surveying and Mapping. Our diverse team of professionals are well versed in site assessments and preparation of construction documents, bid specifications, and application materials for permits to construct and operate water and wastewater infrastructure. Michael Baker also can provide assistance during the Bidding process and the appropriate level of Construction Administration.

We look forward to a favorable review of our qualifications and the opportunity to personally present our proposed project approach. Should you have any questions or require additional information, please feel free to contact me at (724) 495-4225 or by email wneider@mbakerintl.com; or Mr. Rusty Hall at (304) 769-2154 rhall@mbakerintl.com.

Very truly yours,

Michael Baker International, Inc.



William D. Neider, P.E.
Project Manager

Enclosure

MBAKERINTL.COM

100 Airside Drive | Moon Township, PA 15108

Office: 412.269.6300 | Fax: 412.375.3980

SOLICITATION NUMBER: CRFQ 0603 ADJ1700000004

Addendum Number: No.01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- Modify bid opening date and time
- Modify specifications of product or service being sought
- Attachment of vendor questions and responses
- Attachment of pre-bid sign-in sheet
- Correction of error
- Other

Description of Modification to Solicitation:

Addendum issued to publish and distribute the attached documentation to the vendor community.

1. To amend the bid opening date and technical question deadline, per the attached.

No other Changes.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CE01 0603 ADJ1700000004

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

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

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

Michael Baker International, Inc.

Company



Authorized Signature

August 30, 2016

Date

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

Revised 6/8/2012

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

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

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

DEFINITIONS:

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

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

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

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

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Michael Baker International, Inc.

Authorized Signature: [Signature] Date: Aug 30, 2016

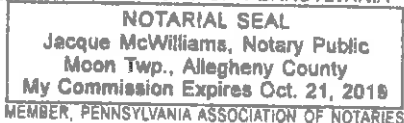
State of Pennsylvania

County of Allegheny, to-wit:

Taken, subscribed, and sworn to before me this 30 day of August, 2016

My Commission expires Oct. 21, 2019.

AFFIX SEAL HERE COMMONWEALTH OF PENNSYLVANIA




NOTARY PUBLIC

[Signature]

Purchasing Affidavit (Revised 08/01/2015)

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.



 (Name, Title)
 William D. Neider, P.E. Project Manager

 (Printed Name and Title)
 100 Airside Drive, Moon Township, PA 15108

 (Address)
 724-495-4225 / 412-375-3995

 (Phone Number) / (Fax Number)
 wneider@mbakerintl.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.

Michael Baker International, Inc.

 (Company)

 *Chad R. Davis Vice President*

 (Authorized Signature) (Representative Name, Title)

Chad R. Davis, P.E., Vice President

 (Printed Name and Title of Authorized Representative)

Aug 30, 2016

 (Date)

412-375-3077 / 412-375-3995

 (Phone Number) (Fax Number)



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Redundant Water and Sewage Systems Design for JFHQ and Camp Dawson

Solicitation Number: CEOI 0603 ADJ1700000004



PROJECT LOCATION

The Redundant Water and Sewage Systems Design project will be conducted for the Joint Forces Headquarters (JFHQ) at Coonskin Complex in Charleston, West Virginia and at select areas of Camp Dawson in Kingwood (Preston County), West Virginia.

PROJECT BACKGROUND

West Virginia National Guard (WVNG), Construction and Facilities Maintenance Office is seeking a highly qualified engineering firm to provide design services and generate bid documents for the Redundant Water and Sewage Systems at JFHQ and Camp Dawson. The firm will be responsible for completing a system inventory and vulnerability assessment of the existing infrastructure for water and sewage systems and provide a prioritized approach (with conceptual costs) for redundant water and sewage systems, as specified in the Expression of Interest (EOI). The redundant facilities will be designed to comply with all applicable state and local building codes, as well as meet Anti-Terrorism / Force Protection (AT/FP) Standards.

Michael Baker is "extremely interested in continuing our professional relationship with the WVNG, Construction and Facilities Maintenance Office."

Michael Baker International, Inc. (Michael Baker) is a highly qualified A/E firm with extensive experience in providing the type of engineering services required for this project. We are extremely interested in continuing our professional relationship with the WVNG, Construction and Facilities Maintenance Office.

QUALIFICATIONS & EXPERIENCE

FIRM/TEAM QUALIFICATIONS

Michael Baker's proposed team of experienced professionals has demonstrated the ability to deliver quality work products to our clients, on-time and within budget. Michael Baker can provide the majority of the services necessary to complete the project in-house - with the exception of geotechnical drilling (if needed), laboratory testing, and sewer line video inspection. Individuals on our proposed project team have extensive experience in their respective fields of expertise and have demonstrated great success on numerous projects of similar size and scope.

The Project Principal will ensure that all required resources - including staff and equipment - are available to the Michael Baker Project Manager to execute the project successfully. Team member resumes and project profiles highlight our experience relevant to this project.

Management and Staffing

Michael Baker International, Inc.

Russell Hall, Vice President | 400 Washington Street East, Suite 301, Charleston WV 25301

304-769-0821 | RHall@mbakerintl.com

Redundant Water and Sewage Systems Design for JFHQ and Camp Dawson

Solicitation Number: CEOI 0603 ADJ1700000004



Persons Assigned to the Project (Resumes Provided In Appendix 1)

NAME	ROLE
WILLIAM NEIDER, P.E.	Project Manager
PATRICK FOGARTY, P.E., P.S., LEED GA	Technical Consultant
GEORGE KAY, P.E	Process Engineering
MARK WIDDERSHEIM, P.E.	Process Engineering
BRAD DUDA, P.E.	Civil Engineering
DAVID HILLIARD, P.E., LEED AP BD+C	Mechanical Engineering
RAYMOND PAFF, C.P.D.	Mechanical Engineering
OWEN MILLIGAN, P.E.	Electrical Engineering
KEVIN SPANGLER, P.E.	Fire Protection Engineering
KENNETH ASH, P.E.	Structural Engineering
JOHN LASKO, P.G.	Geotechnical Investigation
STEVE FRAZER, P.S.	Surveying and Mapping

According to the project scope as stated in the EOI, a list of potential sub-consultants that may be utilized for specialized services is shown in the Project Organization chart (below). Michael Baker will execute the entire project out of our offices most convenient to the JFHQ Coonskin Complex and Camp Dawson locations – namely the Charleston, WV and Moon Township (Pittsburgh), PA offices.

FIRM CAPACITY

Michael Baker is a full service A/E firm. Our offices in Charleston, WV and Moon Township, PA are capable of providing comprehensive professional services, from Environmental Studies, Roadway/Bridge, Mechanical/Electrical and Structural Engineering to Architecture, Planning, Assessments, final design, and construction management through operational support. Michael Baker will provide the hands on services needed for this project, from Client meetings to site surveys and assessments, design and construction Administration/Inspection. With over 50 in-house professionals in our region, Michael Baker can react quickly and efficiently to the needs of your project.

Michael Baker’s clients for water and sewage systems inventory and assessment, sanitary treatment, and water supply projects include, but are not limited to, counties, parishes, cities, townships, municipalities, state departments of transportation, military facilities, coast guard, airport complexes, and private sector clients. Michael Baker’s geographic location and extensive experience enables us to quickly respond to wide-ranging scopes of service in order to meet our client’s needs.

Michael Baker is a leading global provider of engineering and consulting services which includes planning, architectural, environmental, construction, program management, and full life cycle support services as well as information technology and communications services and solutions. Michael Baker provides its comprehensive range of services and solutions in support of U.S. federal, state, and municipal governments, foreign allied governments, and a wide range of commercial clients. With more than \$1.3 billion in annual revenue, Michael Baker has more than 6,000 employees in over 90 offices located across the U.S. and internationally. Michael Baker seamlessly integrates architecture, planning, landscape architecture, engineering and management. Internationally recognized with a portfolio spanning over half a century, the team provides excellence in solutions: superior technical ability, creative design and collaborative integration.

The success of our multi-disciplinary approach to military facility environments results from the expertise of our design professionals. We solve challenges from multiple vantage points providing unsurpassed holistic, sustainable and innovative solutions that benefit our diverse clients, including institutions, governmental agencies, corporations, developers and builders.

Redundant Water and Sewage Systems Design for JFHQ and Camp Dawson

Solicitation Number: CEOI 0603 ADJ170000004



Michael Baker has extensive resources and the required qualifications to provide planning, engineering and design services for the WVNG on this important project. We have local and nationally recognized experts with the technical experience necessary for this assignment. In addition, Michael Baker's team of experienced professionals have an established record of delivering quality work products to our clients, on schedule and within budget.

In summary, Michael Baker's staff can provide documentation of our extensive experience in the following areas for this project:

- Nationally recognized expertise in Assessing, Programming and Planning
- Facilities Engineering (Transportation, Civil, Mechanical, and Electrical)
- Construction Administration and Construction Monitoring
- Coordination with State and Federal Agencies, as required

From major new or renovated building facilities, infrastructure and aviation, to oil and gas pipeline design, bridges and roadway designs, and water resource projects, Michael Baker has evolved into one of the leading engineering and energy services firms by consistently providing targeted solutions for its clients most complex challenges.

STATEMENT OF FIRM'S ACCEPTANCE AND FULL UNDERSTANDING THAT ANY AND ALL WORK PRODUCED AS A RESULT OF THE CONTRACT WILL BECOME PROPERTY OF THE AGENCY AND CAN BE USED OR SHARED BY THE AGENCY AS DEEMED APPROPRIATE

Michael Baker will provide to the WVNG or other appropriate agencies, electronic copies of all required submittals through the various design stages and will provide final AutoCAD drawings at the completion of the project, if requested.

Design, Permitting, and Construction Phase Services - Downey Wellfield

Downey, California

As part of a consultant team, Michael Baker provided engineering services for the design, installation, and equipping of two new groundwater wells for Downey, California's water system. The goal was to design, drill, develop, and equip two new deep, high-capacity groundwater wells that would enhance the city's ability to provide reliable, high-quality, cost-effective water service to its current and future customers. With each well anticipated to supply 2,500 gallons of water per minute to the city's distribution potable system, the combined total well production could account for 25 percent of the city's future potable water needs. The project began with a comprehensive hydrogeological, engineering, and hydraulic assessment of six alternative well sites currently in consideration. This assessment addressed site-specific needs, evaluated site suitability for well construction and operation, and identified required off-site pipeline facilities. Two preferred sites were selected. Michael Baker's subsequent tasks included ensuring environmental and regulatory permitting compliance; preparing a preliminary design report; developing design plans and technical specifications for the equipping of both wells; and providing engineering support, construction coordination, and inspection services during construction of the recommended alternative.

Client

Geoscience
P.O. Box 220
Claremont, California 91711

Completion Date

2015

Michael Baker's Role

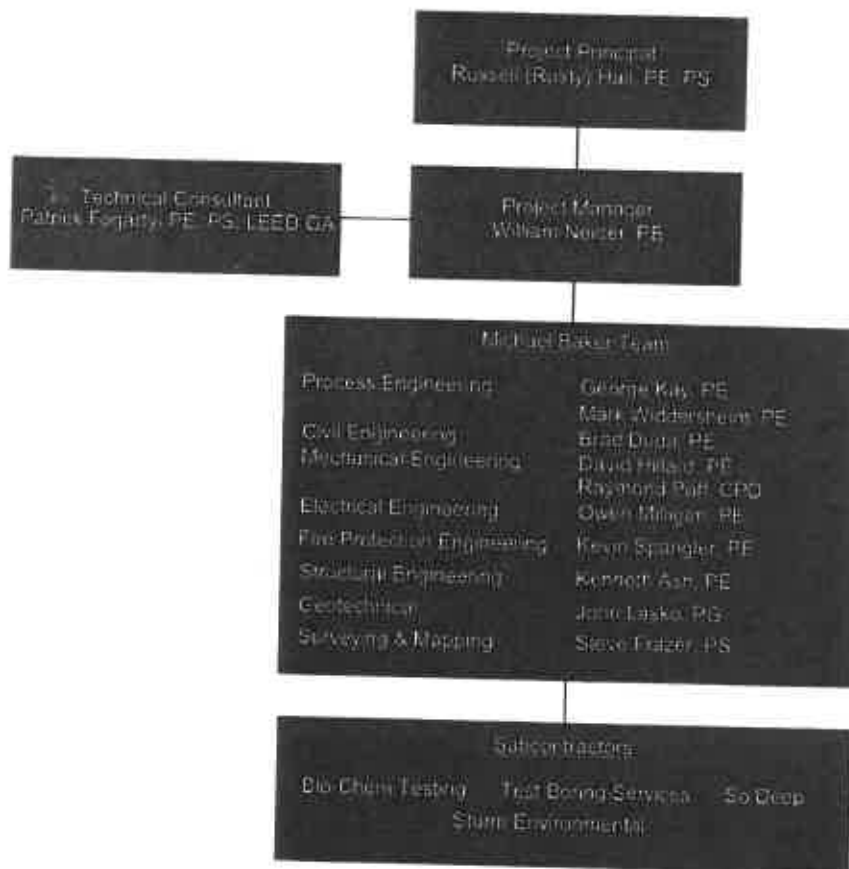
- Planning/Feasibility Studies
- Multi-Disciplinary Engineering Design
- Preparation of Construction Plans and Specifications
- Regulatory Permitting
- Construction Phase Services



PROJECT ORGANIZATION



**Michael Baker
INTERNATIONAL**





STATEMENT OR EVIDENCE OF THE FIRM OR TEAM'S ABILITY TO PROVIDE SERVICES

This team was selected based on the current project understanding. Additional team support members can be engaged on an as needed basis.

See Resumes for more details on Baker Team members in **Appendix 1**.

DEMONSTRATED EXPERIENCE IN COMPLETING PROJECTS OF A SIMILAR SIZE AND SCOPE

Project Profiles are included in **Appendix 2**. They were selected as a representative group of various kinds of related potable water and sanitary engineering projects. Unlike most of Michael Baker's competitors, who have project experience limited to very large (municipal) systems, we have a long history of solving water supply and wastewater treatment problems for small systems with highly specialized needs. Our proposed team for this effort has completed projects (i.e., water distribution and storage systems, sewerage collection and conveyance systems, potable water treatment plants, and sewage treatment plants) for:

- US Coast Guard Stations
- National Guard Facilities
- Naval Bases
- Army Forward Operating Bases and Airfields
- Army Missile Ranges
- Highway Service Plazas
- Coal Mine Bath Housed
- Overseas Embassies
- Visitors Centers in National Parks
- National (Confidential) Laboratories

Additionally, we have included five (5) References which are provided in **Appendix 3**.

PROJECT GOALS and OBJECTIVES

METHODOLOGY FOR MEETING GOALS AND OBJECTIVES

It is Michael Baker's understanding that redundant water and sewage systems are desired for the JFHQ and Camp Dawson facilities. The completed project will include redundant water and sewage systems with water treatment, storage, pumping stations, financial report including annual operation and maintenance cost for the redundant systems and a project timeline.

We recommend that an initial meeting be held to help us understand the WVNG project requirements, criteria, schedule and budget. From the information gathered at this meeting, Michael Baker will develop a formal Scope of Work, AIA Agreement and Fee Proposal for review and negotiation. Once these elements have been approved, a Purchase Order will be issued which will constitute Notice to Proceed (NTP).

Once the NTP has been issued, we recommend a formal Kick-Off meeting with JFHQ and Camp Dawson representatives, and any other appropriate Stake Holders. During this meeting, Michael Baker will introduce the project team, define the particular tasks to be undertaken, establish point(s) of contact at the facility, and gather any available information for the sites. The approach methodology for the project will be holistic in nature, combining the needs of the WVNG, the site opportunities and limitations, and the applicable code and design guidance documentation.

In order to meet the goals and objectives of the WVNG, Michael Baker will proceed in accordance with all current Federal, State and local building codes and permit requirements as well as DoD design guides. The design requirements include compliance

Redundant Water and Sewage Systems Design for JFHQ and Camp Dawson

Solicitation Number: CEOI 0603 ADJ1700000004



with all applicable sections of the *Unified Facilities Criteria (UFC)* system as prescribed by *MIL-STD 3007* for planning, design, construction, sustainment, restoration, and modernization criteria which applies to Military Departments, Defense Agencies, and DoD Field Activities in accordance with *USD (AT&L) Memorandum*, dated 29May2002.

Michael Baker is very familiar with the UFC system, having completed numerous projects at military facilities across the United States and the world, including projects for the WVNG Joint Forces Headquarters in Charleston.

GOAL/OBJECTIVE 1: SITE ASSESSMENT

Michael Baker to provide a complete system inventory and vulnerability assessment of the existing infrastructure systems. This includes documentation of the current condition and operation of the water and wastewater (sewage) systems and will provide guidance for developing a prioritized approach and conceptual cost for a redundant water and sewage systems.

A catalog and index of the existing water and sewer infrastructures will be included in the assessment. Michael Baker will determine needs of a well site and infrastructure based on our findings. Cost effective and efficient redundant water and sewage systems will be developed for each location. A sustainable flow rate of the proposed well and maximum number of gallons able to be extracted in a 24 hour period without diminishing service from the well will be determined.

Assessment will also include condition of existing facilities with description, suitability of continued use, adequacy of water supply and existing water source quantity and quality. Health and Safety concerns will be indicated and include relevant regulations and correspondence from/to Federal and State regulatory agencies. Detailed descriptions of the operational and maintenance systems with concerns; indication of those concerns with the greatest impact, investigate water loss, management adequacy, and inefficient designs. Sanitary sewage system availability will be outlined with description of the existing sewage system and sewage treatment works, with special reference to their relationship to existing or proposed waterworks structures.

GOAL/OBJECTIVE 2: CONCEPT PLANNING

Michael Baker to provide conceptual design and cost estimates for redundant water and sewage systems to include water treatment, storage, pumping stations, financial report including annual operation and maintenance cost for proposed redundant systems and a project timeline.

GOAL/OBJECTIVE 3: DESIGN DOCUMENTS

Upon approval of the concept, Michael Baker will provide all necessary full design documents that may include civil, mechanical, and electrical disciplines to assist with the design and construction of fully functional facilities within the proposed budget. Develop drawings and specifications for renovating and/or updating existing locations for the purpose of advertising and awarding construction contracts.

Drawings and documentation will be provided using the base mapping and appropriate modifications to standard details for construction. This documentation will include the location of affected existing water and sewage systems, well source(s), water storage and treatment structures, pumping stations, and other proposed elements. Design documents will also include information regarding the site limitations, stand-off distances and requirements for any selective demolition of existing structures.

A unit price cost opinion will be prepared and included with the Full Design Development (65%) submittal.

GOAL/OBJECTIVE 4: BIDDING AND CONSTRUCTION DOCUMENTS

Upon approval of the Full Design Development submittal, Michael Baker will finalize the Construction Documents including Construction Plans, Details and Specifications and submit for review and approval. The documents will be of sufficient detail to bid and construct all elements of the work. If required, a project phasing plan will be included with the construction documents, which will include preservation and protection of existing elements, traffic control and temporary barricades and devices as necessary.



Demolition drawings will be provided for the removal of existing components affected by the design including the temporary removal/replacement of existing elements designated to remain. Also included will be all preliminary and final working drawings.

A detailed final unit price cost estimate will be prepared and included with the submittal of Construction Documents (100%).

GOAL/OBJECTIVE 5: BIDDING ASSISTANCE

Michael Baker will prepare any necessary bid documents and provide assistance during the bidding process. Michael Baker personnel will attend the Pre-Bid Meeting and prepare responses to technical questions that arise for incorporation into Addenda. Bidding and construction schedules will also be provided and assistance in surveying, analyzing and evaluating bids or proposals for construction.

GOAL/OBJECTIVE 6: CONSTRUCTION ADMINISTRATION

Once the construction contract is awarded, Michael Baker will provide support to the WVNG for the duration of construction. Shop drawings provided by the Contractor will be reviewed by Michael Baker to ensure that they meet all code requirements, specification criteria and are appropriate for the project. All products intended to be installed on the project shall be submitted to and approved by Michael Baker. The products will be approved based on meeting the prepared specifications, current code requirements and contract requirements. Michael Baker will also provide review for progress payment applications, requests for information (RFIs), work directive changes and change order requests. Michael Baker will attend regular progress meetings and provide as-needed site inspections.

After the installations are complete, Michael Baker will perform a final inspection and develop a corrective measure Punch List.

As-built drawings will be prepared in AutoCAD format. All files will be provided to the Client upon completion of the project for future use. The drawings will be 'bound', such that the files will not require external references which allows for easy future use and alteration. Paper copies and AutoCAD format drawings will be provided to the Client with all copyright control for the documents.

Expression of Interest

Redundant Water and Sewage Systems Design for JFHQ and Camp Dawson

Solicitation Number: CEOI 0603 ADJ1700000004



APPENDIX 1 – Project Profiles

Design, Permitting, and Construction Phase Services - WWTP at USCG Station Fort Macon

Atlantic Beach, North Carolina

Since the founding of the company in 1940, Michael Baker International (Michael Baker) has been providing sanitary engineering expertise to federal agencies, state agencies, and local municipalities. This includes inspecting, evaluating, designing, and managing the construction of new systems as well as the rehabilitation of existing systems ranging from small, on-lot private systems up to and including city-wide systems for our municipal accounts. Our experience solving sewage conveyance, treatment, and compliance problems for captive systems is extensive and includes military bases (both domestic and overseas), reserve centers, highway rest stops, visitors centers and parks, coal mines, and commercial developments.

Michael Baker has the technical expertise to design all components of sanitary sewer collection, conveyance and treatment facilities. These include gravity sewers, pressure sewers, pumping/lift stations, and various configurations of biological wastewater treatment plants – both continuous and batch. Michael Baker has completed multiple sanitary engineering projects for the Miami and Cleveland Civil Engineering Units (CEUs) in recent years. Most were phased projects (successive task orders) where we provided additional characterization of the problem and Station needs based upon system inspections, laboratory work, and detailed discussion with operational staff at the Station (both USCG personnel and contract treatment plant operators); developed conceptual level solutions for modifications to the conveyance and treatment systems; prepared plans, specifications, and cost estimates for bid purposes; secured the requisite permits and served as liaison with the regulatory authorities; and then provided "on call" construction phase support to the USCG project manager through startup of the replacement facility and demolition and decommissioning of the historical system.

Client

United States Coast Guard
Civil Engineering Unit,
Cleveland

Completion Date

2010

Project Cost

\$156,000



In 2010, the USCG completed construction and start-up of a 10,000 GPD wastewater treatment plant for the USCG Station Fort Macon in Atlantic Beach, North Carolina. Michael Baker's treatment design employs an aerated equalization tank at the headworks to accommodate inputs by cutters, an extended aeration system using the modified Ludzak-Ettinger configuration, a chlorination system for disinfection, and a sub-surface drain field for disposal of treated effluent adjacent to a sensitive recreational beach, plus rehabilitation of the collection system. Michael Baker also secured permits to construct and operate the facility from North Carolina Department of Conservation and Natural Resources and the Carteret County Health Department.

Design, Permitting, and Construction Phase Services - Sewage Treatment Plants for Mine Portal Bath Houses *Various Locations, Pennsylvania*

Michael Baker performed Pennsylvania Act 537 sewage facilities planning (i.e., coordination with and approvals from associated counties and municipalities) for several sewage treatment plants (STPs) at bath house and boot wash facilities installed for a Pennsylvania-based coal mining company between 2009 and 2015:

- EFM, 3N5 Airshaft and Portal – 24,000 GPD STP (2009)
- EFM, OSS Mine and Supply Yard – 2,800 GPD STP (2011)
- BM, 7N1 Shaft and Portal & Village of Nineveh – 36,000 GPD STP (2013)
- EFM, 4N1 Portal – 24,000 GPD STP (2015)

Client
Major Mining Client -
Confidential

Completion Date
2009-2015

Project Costs
Varies

Following local approvals, Michael Baker developed both NPDES Part I (to establish surface water discharge limitations) and WQM Part II (to document engineering design) permit applications for state approval. To support NPDES Part I Permit applications, available data from similar treatment operations at several of the client's "sister" facilities was consolidated. The anticipated daily workforce for each location was established to estimate average and peak daily flows; waste loads were calculated (primarily BOD, TSS, and ammonia-nitrogen).

Based on Michael Baker's proposed outfall locations, the Pennsylvania Department of Environmental Protection (PADEP) issued preliminary water quality-based effluent limits for design. In one location, effluent discharge was to a high-quality watershed; this necessitated stringent discharge limitations and rigorous treatment.



Michael Baker coordinated the design of each treatment system in support of the WQM application with the client's preferred supplier of packaged sewage treatment equipment. NPDES Part II Permit application packages included a Design Engineer's Report that incorporated water pollution control modules (equipment design details), a sludge management plan, design calculations, site-specific design drawings, and technical specifications. All NPDES and WQM permit applications were ultimately approved by PADEP.

In each case, the design work was part of larger overall civil engineering endeavor being conducted to comply with the conditions of the client's Coal Mining Activity Permit (CMAP) for

individual sites. In one instance, the client was able to permit and construct a joint treatment facility that served their bath house as well as residents of the Village of Nineveh, PA – establishing a new, long-term public utility. Michael Baker engineered both the force main from the bath house as well as the residential sewage collection system (gravity). This new system eliminated several illicit sewage connections to a high-quality watershed.

Michael Baker provided some construction phase services for these sites, including submittals review and construction oversight. Each facility required close collaboration with the client, respective counties and communities, and equipment suppliers.

Clean Water Act Program Management Services

National Guard Bureau, Arlington, Virginia

Michael Baker provided environmental program management support under a five-year agreement that included document reviews; field inspection and oversight services; environmental planning and restoration; and miscellaneous technical support across multiple regulatory programs. Baker provided this support from multiple Baker office locations as well as on-site services at the Bureau's Readiness Center.

Of particular relevance to the proposed work for the West Virginia National Guard is the Clean Water Act Task Order 004 under which Michael Baker reviewed stormwater pollution prevention plans (SWPPP); spill prevention, control, and countermeasures plans; and oil and hazardous substance pollution control plans. Michael Baker's reviews focused on ensuring that the documents were in accordance with applicable federal, state, local, DOD, Air Force, and client regulations and templates and supported the client's environmental program. Michael Baker's reviews included draft and final versions of the documents, including draft permits. Michael Baker provided comments in a consolidated electronic format within two weeks or by the requested timeframe.

Field Surveillance and Oversight Services – Michael Baker also provided oversight of environmental work ongoing at client bases, as directed. At times, expert advice was required to assist in resolving environmental issues that involved bases. Michael Baker also participated in regulatory meetings, site visits, kick off meetings, etc.

Miscellaneous Technical Assistance Services – Michael Baker provided technical assistance and consultation as requested. The technical assistance included reviewing current and new environmental regulations, researching relevant environmental information, providing training and/or briefing materials for the PM, preparing statement of works for environmental efforts, providing budget assistance, managing environmental databases, providing assistance in responding to data calls, and reviewing engineering technical letters or equivalent. Michael Baker utilized in-house experts with the required credentials needed to appropriately satisfy program needs.

Client

Air National Guard CRTG/FMB
1411 Jefferson Davis Highway
Jefferson Plaza 1
Suite 8200
Arlington, Virginia 22202-3231

Completion Date

2012

Project Costs

Varies

Michael Baker's Role

- Program management
- Third-party document reviews
- Construction oversight
- Field investigation oversight
- Database consolidation and management
- Staff augmentation
- Training
- GIS web-based application services

Upgrade of Wastewater Treatment System

White Sands Missile Range, New Mexico

Repairs and upgrades were required to the existing 1.0 MGD sewage treatment plant at the White Sands Missile Range in order to meet new regulatory standards. Michael Baker conducted bench-scale treatability studies to assess the feasibility of employing ultraviolet (UV) disinfection of the effluent under various operational scenarios. An open channel, low pressure/high output UV system was then designed along with a refabricated metal building for housing the system in the desert.

The building design also incorporated a wastewater laboratory with a fume hood, hazardous materials storage area, and a safety shower/eyewash station as well as a maintenance facility with rollup doors, hoists, storage cages, and air compressor. Rock mulch was used to control erosion in the treatment plant yard, anti-terrorism and force protection (AT/FP) measures and security fencing also were added, and roadway access was included. Provisions also were provided for effluent flow monitoring and recording. Estimated construction cost is \$1,000,000.

Client

U.S. Army Corps of Engineers, Fort Worth District
819 Taylor Street
Fort Worth, Texas 76102

Completion Date

2004

Project Costs

\$1,000,000 (Approximately)

Michael Baker's Role

- Wastewater Engineering
- Environmental Compliance
- Mechanical Engineering
- Electrical Engineering
- Architecture
- Anti-Terrorism and Force Protection
- Cost Estimating



Eastvale Water Treatment Plant Clearwell Design and Construction Phase Services

Eastvale, Pennsylvania

The Beaver Falls Municipal Authority (BFMA) contracted with Michael Baker for engineering design and construction management services for a new clearwell and high service pumping station at their Eastvale Water Treatment Plant in Beaver County, Pennsylvania. The scope of work included civil, architectural, structural, electrical, and mechanical engineering design services for a 1.6 MG clearwell structure and 11 MGD pumping station/building.

Background

BFMA owns and operates a 10 MGD potable water treatment plant (WTP) in Eastvale, Pennsylvania. The plant was built and placed into operation in the early 1900's. Through the years, the plant has undergone several upgrades to allow for the continued operation of the facility.

BFMA's existing clear well was leaking and was deemed to be structurally unsound. Many years of freeze and thaw on the concrete, along with chlorine exposure, caused the concrete to spall, deteriorate, and crack. Failure of the existing clearwell would undoubtedly cause failure of the system as a whole.

In order to pre-empt the failure of the original clearwell, BFMA - after various investigations and studies - planned to construct a new clearwell for its Eastvale WTP. The existing clearwell was kept in operation while the new clearwell was being designed, constructed, and placed into operation.

Client

Beaver Falls Municipal Authority
P.O. Box 400
1425 Eighth Avenue
Beaver Falls, Pennsylvania 15010

Completion Date

2005

Project Costs

\$5,000,000 (Construction)

Michael Baker's Role

- Planning/Feasibility Studies
- Multi-Disciplinary Engineering Design
- Preparation of Construction Plans and Specifications
- Regulatory Permitting
- Construction Phase Services





Replacement Clearwell Project

The new clear-well project consisted of the construction of the following components:

- 30-inch gravity line from the existing plant tertiary filters to the new clearwell (+ railroad bore crossing);
- 18-inch force main from the new clearwell to a tie-in point near the existing north pump house (+ two railroad bore crossings);
- 16-inch force main from the new clearwell to a tie-in point just across the tracks from the new clearwell;
- Six new pumps to replace both the north and south pump houses (+ emergency back-up pumping capability);
- New clearwell tank (approximately 50' wide x 276' long x 12' deep) located along the riverbank on the southwest end of the plant site; and
- Relocation / revision to various site utilities and process piping system components.



Municipal Water Security Study

Nationwide

The Michael Baker team conducted a study of state-of-the-art, nationwide drinking water system vulnerability study to assist efforts to secure the nation's infrastructure and economy against terrorist attacks.

The study assessed the potential threat from terrorist attacks, as well as the related threat from a trusted insider. This assessment examined state-of-the-art water security technologies and procedures and identified technological and operational research gaps that must be addressed through scientific and technological development to respond to such threats. The project examined four "scenarios" as applied to the post treatment distribution segment of water systems: damage to key components of the water system from treatment to distribution resulting from the trusted insider threat; intentional contamination of the distribution components of a system involving a chemical or biological agent with sufficient toxicity/morbidity to impact even in highly diluted concentrations; the potential for having to decontaminate significant portions of a distribution system if a long-lived, highly active radiological isotope were released; and the post-event system recertification challenge.

For each scenario, the team examined how effective current measures would be against the threat, including detection, mitigation measures, and decontamination; and the level of physical, economic, or human damage that might be inflicted on a system. The team then looked at current and emerging concepts that could offer improved defenses against the threat, and whether the threat could be reduced through enhanced organizational or operational processes. Additionally, the team identified technical and operational gaps in the nation's ability to protect against the threat that could be addressed through research and development, and the optimal sources for this research and development.

One of the primary attributes in the approach of this study included input from water utilities in the study development, and the commitment to provide those utilities with useable guidance derived from open source information. Consultation with water system experts, surveys of the utility systems, and input from security experts formed the foundation for the study. Extensive use of drinking water experts was a key element and included assistance from the Association of Metropolitan Water Agencies and the American Water Works Association. A senior Utility Advisory Committee of expert water system professionals from large municipal utilities water utility associations was consulted throughout the course of the study.



Client

U.S. Department of Homeland Security
Immigrations and Customs Enforcement
425 I Street, NW, Room 1040
Washington, D.C. 20536

Completion Date

2007

Project Costs

Varies

Michael Baker's Role

- Nationwide water security study
- Terrorist and trusted insider threats study
- Consultation with water systems managers
- Gap analysis
- Collaboration with water utilities and agencies

Design, Permitting, and Construction Phase Services - Reverse-Osmosis Water Treatment Plant

U.S. Coast Guard Station, Freeport, Texas

Michael Baker inventoried and evaluated an existing potable water treatment system treating brackish groundwater in Phase I of this project. In Phase II, Michael Baker designed and permitted a new replacement water treatment plant (9,500 GPD) consisting of Birm filters, carbon adsorbers, zeolite softeners, reverse osmosis units, hypochlorite disinfection equipment, and a chemical cleaning skid, and also made improvements to system instrumentation. Finally, Michael Baker secured a certificate to operate as a public water system from the Texas Commission on Environmental Quality (TCEQ). The drinking water plant was commissioned in May 2011.

Client

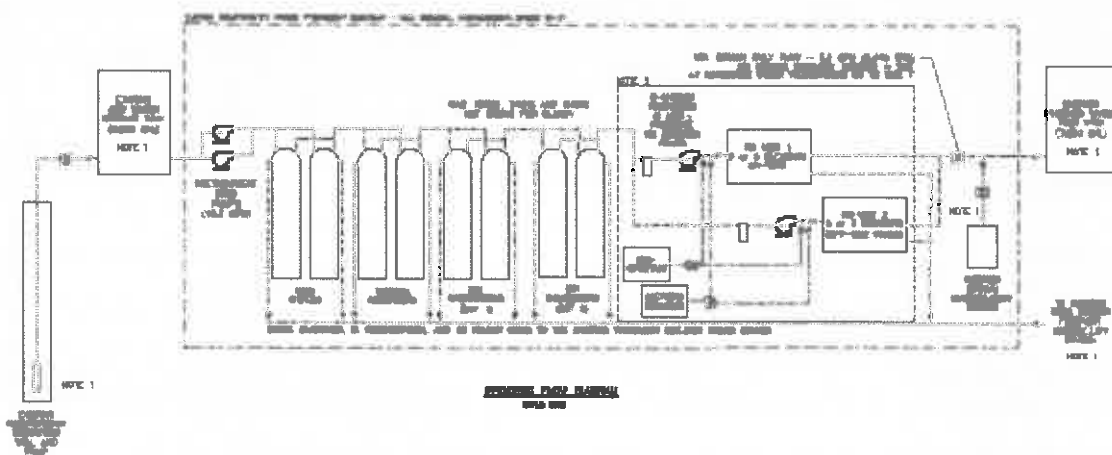
U.S. Coast Guard
427 Commercial Street
Boston, Massachusetts 02109

Completion Date

2011

Michael Baker's Role

- Planning / Feasibility Studies
- Multi-Disciplinary Engineering Design
- Preparation of Construction Plans and Specifications
- Regulatory Permitting



A/E Study to Investigate Water and Sewer Utilities

USCG Station Fire Island, New York

Michael Baker performed a water and sanitary sewer utility field investigation at the USCG Station Fire Island, located in Babylon, Suffolk County, New York. This included a comprehensive investigation and assessment of the physical condition, remaining service life, and cost to repair and/or reconfigure the water and sewer systems at the Station. A Development Report was provided to the client to convey the visual and relevant documentation findings by Michael Baker and its team after evaluation of the current conditions of the onsite water system; and the sanitary sewer line. The Development Report further provided recommendations to the waterline and sanitary sewer improvements to the existing systems, including pipe size upgrades and structure replacements.

Additional elements of the project included waterline, sewer and structure locating, systems evaluation, existing conditions and proposed conceptual level site plan drawings, cleaning and closed circuit television inspection of the sanitary line, fire hydrant flow tests, utility service life and cost estimates, and investigation of permit requirements.

Client

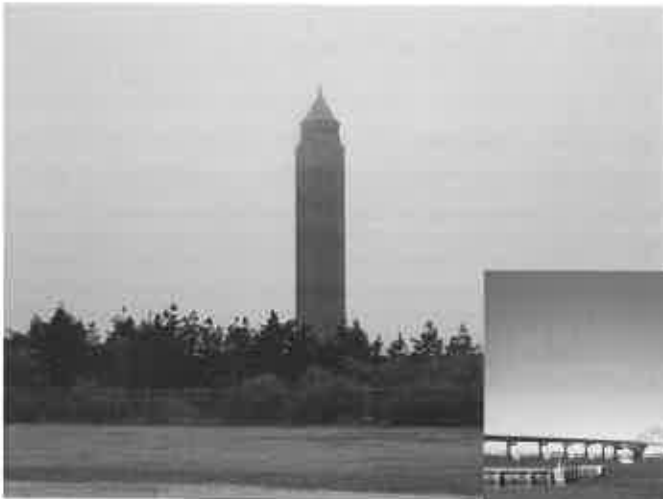
U.S. Coast Guard
Station Fire Island
1 Rescue Road
Babylon, New York 11702

Completion Date

2015

Baker's Role

- Systems Inventory
- Infrastructure Indexing
- Investigation
- Inspection
- Flow Testing
- Waterline Assessment
- Waterline Design
- Sanitary Assessment
- Sanitary Design
- Recommendations
- Cost Estimates



Consulting Engineering Service for the PA Turnpike

Pennsylvania Turnpike Commission

Michael Baker has served as the consulting engineer for the Pennsylvania Turnpike continuously since 1956. Michael Baker's engineering services include program management; transportation planning; geospatial services; multi-discipline engineering reviews, design management; environmental regulatory compliance monitoring; geotechnical engineering; and construction management and oversight; Michael Baker also provides architectural, engineering, and construction oversight for the renovation of toll plazas, maintenance facilities, state police barracks, and service plaza rest-stop facilities along the turnpike. Included in this work is third party review of designs and permit applications for improvements or replacement to water supply and domestic wastewater infrastructure at toll plazas.



Client

PA Turnpike Commission
P.O. Box 67676
Harrisburg, PA 17106-7676

Completion Date

2016

Project Costs

Varies

Michael Baker's Role

- Water system evaluations
- Wastewater system evaluations
- Water sampling and analysis
- Regulatory compliance
- Third Party Review of Designs and Permit Applications

Expression of Interest

Redundant Water and Sewage Systems Design for JFHQ and Camp Dawson

Solicitation Number: CEOI 0603 ADJ1700000004



APPENDIX 2 – Resumes

Russell E. Hall, P.E., P.S.

Assistant Vice President and Charleston Office Manager

General Qualifications

Mr. Hall currently serves as Assistant Vice President of Michael Baker International as well as Office Manager of our Charleston, WV office. He is an experienced transportation engineer who has been involved in numerous bridge and highway design projects in West Virginia for over 28 years. His project management responsibilities involve overseeing staff from project inception through completion, and ensuring that the clients' needs and requirements are met.

He also has over nine years of office management experience. His office management responsibilities include financial oversight and accountability for a staff of over 30 engineers, scientists, and administrative personnel for Michael Baker's Charleston office. His major strengths include organizing and managing a project team, quality control and quality assurance, and problem resolution. He provides overall direction and maintains direct communications with all clients. Mr. Hall is very proud of the fact that he has been able to spend his entire career in West Virginia working to address West Virginia's transportation and infrastructure needs.

Experience

Kanawha River Bridge, Charleston, West Virginia. *Brayman Construction Company.* Principal-In-Charge. Responsible for oversight of Project Management. Michael Baker's Charleston, West Virginia office redesigned seven piers for the contractor and performed a complete analysis of the superstructure and substructure to properly size the piers.

US 35/I-64 Interchange Post Design, West Virginia. *West Virginia Department of Transportation, Division of Highways.* Principal-In-Charge. The design phase of this project provided for the preparation of construction and right of way plans for approximately three miles of 4-lane divided highway. The construction plans were separated into three construction contracts and included the design of two interchanges, two bridges, numerous box culverts and a vehicular underpass. The post design phase of this project provided for the review and approval of shop drawings and responding to Requests for Information. Michael Baker designed the original post-tensioned concrete box bridge. Contractor value engineered the superstructure to a steel girder bridge. Foundation for piers and abutments were as designed. Michael Baker reviewed pile testing, mass concrete results, and MSE wall calculations provided by the contractor.

Fort Pleasant Access Road Project, Moorefield, West Virginia. *Fort Pleasant Farms, Inc.* Principal-In-Charge. Responsible for oversight of project finances, schedules and quality control. Michael Baker prepared contract construction plans and related documents for a 3-lane access road connecting Corridor H to private property in Moorefield, WV.

Years with Michael Baker: 11

Years with Other Firms: 18

Degrees

B.S., 1985, Civil Engineering, West Virginia University Institute of Technology

Licenses/Certifications

Professional Engineer -
Civil/Structural, West Virginia,
1990

Professional Surveyor, West
Virginia, 1996

WVDOH Six-Year Bridge Inspection Program, Various Locations, West Virginia. *West Virginia Department of Transportation, Division of Highways.* Principal-In-Charge. Responsible for oversight of project finances, schedules and quality control. Michael Baker was responsible for performing the inspection services and report writing for the New River Gorge Bridge, Veteran's Memorial Bridge, Fort Hill Bridge, Fort Henry Bridge and Wheeling Tunnels.

Fort Pleasant Farms Two Lane Road Design, Moorefield. *Fort Pleasant Farms, Inc.* Principal-In-Charge. Responsible for oversight of project finances, schedules and quality control. This project involved the study, design and final construction plan development for a new two-lane access road approximately 1500' in length. This access road was designed to connect a commercial/residential development to the Moorefield Interchange on Corridor H in Moorefield, West Virginia.

Town of Moorefield-Maple Avenue Streetscape, Moorefield. *Town of Moorefield.* Principal-In-Charge. Responsible for oversight of Project Management. The Town of Moorefield was in need of a pedestrian-friendly way of connecting the downtown area with the highly utilized nearby community park. Maple Avenue was a secondary street connecting the two areas, but had no sidewalks and deep ditches along most of the corridor. Moorefield tasked Michael Baker with the planning and design of improvements that would both upgrade existing facilities and create a unified community linking the downtown with the community park.

Blennerhassett Island Bridge, Appalachian Corridor D, Washington County, Ohio and Wood County, West Virginia. *West Virginia Department of Transportation, Division of Highways.* Principal-In-Charge. Responsible for oversight of project finances, schedules and quality control. The 878' - 6" long network tied arch was ranked as the longest of its type in the United States and one of the longest in the entire world. Michael Baker provided project management, environmental and location studies, permitting, preliminary and final design as well as construction phase services.

Town of West Milford Sidewalk Improvements, West Milford, West Virginia. *Town of West Milford.* Principal-In-Charge. Responsible for oversight of Project Management. Michael Baker performed complete planning, design and construction management services for new sidewalks along U.S. Route 270 (Main Street) for the Town of West Milford. The improvements included concrete sidewalks with integral concrete curbs, driveway curb cuts, ADA accessible curb ramps with truncated domes, "ladder-style" crosswalks and storm drainage design. Michael Baker provided Construction Administration and resident inspection services as well as periodic site review during construction.

City of Charleston Bridges-Engineering Consulting Services, Charleston, West Virginia. *City of Charleston, West Virginia.* Principal-In-Charge. Responsible for oversight of Project Management. Michael Baker's Charleston, West Virginia office provided various services for the City of Charleston. Michael Baker reviewed existing inspection reports, performed bridge inspections and recommended and prioritized repairs for 13 bridges owned by the city.

Kanawha-Putnam Bike/Pedestrian Plan, Phase I, South Charleston. *Regional Intergovernmental Council.* Principal-In-Charge. Responsible for oversight of Project Management. Michael Baker performed a cursory inventory of existing bicycle and pedestrian facilities, identified areas with a high level of bicycle and pedestrian activity, collected existing resources and performed a broad base public outreach effort to identify bicycle and pedestrian issues in Kanawha and Putnam Counties for the Regional Intergovernmental Council (RIC). All data, survey results and preliminary findings were compiled for analysis and incorporation into the final plan during Phase II of the study.

Patrick W. Fogarty, P.E., P.S., LEED®GA

Civil Engineer, Facilities Practice Manager

General Qualifications

Mr. Fogarty has over 29 years of civil engineering project design and management experience. He is responsible for the technical and management aspects of civil design and surveying projects within Michael Baker's Charleston, West Virginia office. Mr. Fogarty has designed and managed projects in numerous disciplines including civil, structural, and transportation engineering; site development planning; and surveying. These projects have included retail/commercial site preparation, airports, streets/highways, bridges, parking lots, buildings, retaining walls/foundations, sanitary systems and structures, as well as boundary and topographic and photogrammetric surveys. Duties included field surveying, drawings and specification preparation, design, design drafting, construction inspection, quality control testing, shop drawing review, project management, contract administration and report preparation.

Experience

West Virginia Army National Guard – Headquarters Renovations, Charleston, West Virginia. *Construction and Facilities Management Office.* Project Engineer. Responsible for civil and structural engineering. Michael Baker performed complete design and construction administration services for renovations to the State Army National Guard Headquarters in Charleston, West Virginia. Project elements included a complete renovation and replacement of the HVAC system with a Loop Heat Pumps, new acoustical ceilings, flooring, energy-saving light fixtures, several new wall partitions, new interior doors and hardware, new wall finishes and asbestos removal. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

West Virginia Army National Guard - TAG Wing Improvements, Charleston, West Virginia. *Construction and Facilities Management Office.* Project Manager. Engineer of Record responsible for the coordination of all activities. Michael Baker performed complete planning, design, and construction management services for renovations to the Office of the Adjutant General at the State Army National Guard Headquarters in Charleston, West Virginia. The Owner requested the need for modernization of approximately 12,000 square feet of existing outdated office space. Project elements included new acoustical ceilings, flooring, energy-saving light fixtures, duplex outlets, communications jacks, several new wall partitions, exterior door replacements, new interior doors and hardware, new wall finishes and asbestos removal. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

Years with Michael Baker: 10

Years with Other Firms: 20

Degrees

B.S., 1985, Civil Engineering, West Virginia University Institute of Technology

Diploma, 1993, Surveying and Mapping, International Correspondence Schools

Licenses/Certifications

Professional Engineer - Civil/Structural, West Virginia, 1990

Professional Surveyor, West Virginia, 1993

Construction Documents Technologist, 1996

LEED Green Associate, 2011

West Virginia Army National Guard – Temporary Maintenance Facility, Charleston, West Virginia. *Construction and Facilities Management Office.* Project Manager. Michael Baker performed complete planning, design, and construction management services for a new Maintenance Facility for the Kanawha County Parks and Recreation Commission. The facility is to be used as the primary maintenance and storage building for Coonskin Park until a new facility is constructed adjacent to the new bridge over Elk River. The Owner requested the need for an approximately 6,000 square foot pre-engineered metal building for storage and maintenance on a 3 acre site. Project elements included new site access, on-site parking, utility service, storm drainage facilities, four bays (two with drive-through capability) with automatic garage doors, restroom facilities and provisions for future shower/locker rooms. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

West Virginia Army National Guard – Coonskin Complex Perimeter Fence, Charleston, West Virginia. *Construction and Facilities Management Office.* Project Manager. Engineer of Record responsible for the coordination of all activities. Michael Baker performed complete planning, design, and construction management services for the installation of approximately 5,000 linear feet of chain link security fence including gates, cable reinforcement, removable vehicle barriers, card reader access points, security lighting, and road widening for the Coonskin Complex in Charleston, West Virginia. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

130th Airlift Wing West Virginia Air National Guard – Force Protection/Relocate Coonskin Drive, Charleston, West Virginia. *USPFO for West Virginia.* Project Engineer. Responsible for site/civil design, pavement design and construction administration. Michael Baker performed complete planning, design, and construction management services for the relocation of Coonskin Drive which will serve as the new entry point into the Joint Forces National Guard Base in Charleston, WV. The project includes concrete and asphalt pavement roadway and parking areas, designated vehicle inspection area, guardhouse, lighting, signage, landscaping, site utilities, chain link security fence including gates, cable reinforcement, ornamental gate, vehicle barriers, and card reader access points. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

Nitro Bank Street Streetscape Improvements, Nitro, West Virginia. *City of Nitro.* Project Manager. Responsible for concept planning, detailed design, construction document generation, and construction administration. Michael Baker provided design, bid-phase support, and construction services for streetscape improvements to Bank Street, located in the city's business district. Michael Baker's services include base mapping, background data collection, design plans, construction document preparation, bid-phase support, construction management, and construction inspection.

Little Kanawha Bus Facility, Calhoun County, West Virginia. *WV Division of Public Transit.* Project Manager. Responsible for the civil, site and structural engineering components of the project. Michael Baker is providing architectural and engineering services, landscape architecture, and construction-phase support for a new, 9,900-square foot, pre-engineered, metal and brick bus maintenance and transit operations facility. The 5,100-square-foot administrative area will include offices, a conference room, a money-counting room, and a driver-training room, and the 4,800-square-foot bus maintenance area will include storage for seven buses. The facility will be ADA-compliant and is being designed to achieve LEED® certification. Services include site survey and design, geotechnical testing, environmental compliance, utility coordination, bid documents, bid-phase support, and as-built drawings.

William D. Neider, P.E.

Project Manager

General Qualifications

Mr. Neider's background encompasses a wide variety of civil and environmental engineering. He has worked in various areas of Civil Engineering practice with his primary area of experience being focused in Land Development, Mining Permitting and Reclamation Projects, Local Transportation projects, and Municipal Services. He has managed projects and designed the improvements and infrastructure for commercial development, military/U.S. Government, residential subdivisions, industrial parks and sites, educational facilities, and local streets. In addition to Land Development experience, he has designed and directed a number of mining facilities infrastructure permitting and reclamation projects including refuse impoundments, coarse refuse piles, erosion and sedimentation control plans, and site reclamation. He has experience in numerous transportation projects varying from interstate routes to local streets including the design of traffic circles and other traffic calming techniques. He also performed municipal engineering designs that include water distribution extensions, sewer modeling/design, drainage studies and flood abatement designs. In all areas of his experience, he has been involved in every aspect of the design and construction document preparation as well as management of design teams and project management. Mr. Neider has also been involved in the oversight of the construction phase of projects. His experience has been with coordinating the review of project submittals, answering Request for Information and resolving construction related issues to ensure proper conformance to the design intent.

Experience

Mapping and Design Services for Special Mine Reclamation and AMD Treatment, Various Locations, West Virginia. West Virginia Department of Environmental Protection, Office of Special Reclamation. Project Manager. Responsible for project manager duties, a quality control review of the project and design of channels and channel linings at the toe of the backfilled highwall. Also responsible for construction cost estimate, stormwater pollution prevention plan, and technical specifications. Michael Baker performs engineering and mapping services to meet the requirements of special mine reclamation permits. Michael Baker's services include data collection and analysis, aerial mapping verification, supplemental field and bathymetric pond surveying, bench-scale treatability testing, acid-base accounting testing, engineering design and analysis, preparation of construction plans and specifications and stormwater pollution prevention plans; cost estimates, bidding-phase support; and construction services.

Years with Michael Baker: 7

Years with Other Firms: 12

Degrees

B.S., 2001, Civil Engineering,
Youngstown State University

Licenses/Certifications

Professional Engineer,
Pennsylvania, 2007, [REDACTED]

Professional Engineer, Virginia,
2007, [REDACTED]

Professional Engineer, Oklahoma,
2008, [REDACTED]

Professional Engineer, Maryland,
2009, [REDACTED]

Professional Engineer, West
Virginia, 2013, [REDACTED]

Professional Engineer,
Massachusetts, 2016, [REDACTED]

Abandoned Mine Land Reclamation, Various Locations, West Virginia. *West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation.* Project Manager. Responsibilities include project manager duties, a Quality Control review of the project and design of channels and channel linings at the toe of the backfilled highwall. Also responsible for construction cost estimate, stormwater pollution prevention plan and technical specifications. Michael Baker provided engineering services for the reclamation of abandoned mine lands as a result of surface mining. Michael Baker's services included data collection and analysis; field investigations; surveying; geotechnical analysis; exploratory drilling oversight; hydrologic and hydraulic analyses; and sediment control, mine seal, highway backfill, culvert and channel, roadway improvement, and mine drainage control design; and public outreach and property owner coordination.

Alternatives Analysis for Recommended Improvements to Sewage Collection and Treatment Infrastructure, Sallisaw, Oklahoma. *United States Coast Guard, CEU Miami.* Project Manager. Responsibilities include project manager duties, field assessment of existing infrastructure, sampling and testing, alternative analysis, and report with construction cost estimate. Michael Baker provided onsite assessment of existing infrastructure and components of the sewage collection, conveyance, and treatment systems of U.S.C.G. Cutter Muskingum and Cutter Support Team, Sallisaw Station. The purpose of the study was to develop two conceptual alternatives to address future sewage and treatment needs, including recommended repairs to the existing sanitary sewage system. One of the alternatives provided was to decommission the existing sewage lagoon. The study also developed a basis of design for the recommended alternative, identified regulatory considerations and permitting needs, and conceptual level construction cost.

Nineveh Sewage Treatment Plant, Sewer Design, and Permitting, Nineveh, Pennsylvania. *Confidential Client.* Senior Engineer. Responsible for the design and layout of proposed gravity sanitary sewer system to new sewage treatment plant. Includes coordination with municipalities and residents, preparation of construction plans, PennDOT HOP permitting, and erosion and sediment control plans and specifications. Michael Baker provided design and permitting services for a sewage treatment plant and gravity sewer to service local residents and mine discharges.

Architectural and Engineering Indefinite Delivery, Indefinite Quantity Contract for Design of Army Reserve and Military Projects, Various Locations, United States. *U.S. Army Corps of Engineers.* Civil Technical Manager/Senior Engineer. Responsibilities included assessments, site layout, grading, stormwater conveyance and management, erosion control, utility layout and design, quantities, and construction details. Assessments included items such as pavement conditions, curbs, sidewalks, aprons, drainage conveyance and structures, detention facilities, POV and MEP parking areas and layout, vehicle circulation, retaining walls, erosion controls, ADA accessibility, signage, site lighting, and landscape. Also included was an Anti-Terrorism Force Protection (ATFP) evaluation. Michael Baker is providing planning, design, and construction-phase services for U.S. Army Reserve facilities and other military projects throughout the United States, including full facility assessments. Michael Baker provides third-party verification that the buildings are designed and built using strategies aimed at reducing the environmental impact of the project. The projects are designed to achieve LEED® Silver certification, with an emphasis on energy and water efficiency. In addition, many of the projects feature preferred parking for fuel-efficient vehicles and bicycle storage and changing rooms. To preserve green space, many of the buildings maximize open space and are built on environmentally preferable sites.

George P. Kay, P.E.

Technical Consultant - Water

General Qualifications

Mr. Kay solves water and wastewater treatment problems. He provides compliance assistance, design, and operational troubleshooting of treatment systems, and failure analysis for water damage to products, infrastructures, and ecosystems.

Experience

Clean Water Act Compliance Program – Air National Guard Facilities Nationwide. *Air National Guard CRTC/FMB.* Clean Water Act Technical Specialist. Provided document reviews, field inspections, and miscellaneous technical support. Over the course of the contract, Mr. Kay provided service to 54 different Guard facilities located across 34 states. \$749,323 (fee). Completion: 2011.

Potable Water Treatment Plant Design, Permitting, and Construction Services for USCG Station Freeport, TX. *U.S. Coast Guard Miami Civil Engineering Unit.* Project Manager. Designed a water treatment plant (9,500 gpd) consisting of Birm filters, carbon adsorbers, softeners, reverse osmosis units, hypochlorite disinfection equipment to desalinate brackish groundwater. Secured a certificate to operate as a public water system from the Texas Commission on Environmental Quality. Plant was successfully commissioned in May of 2011. \$72,300 (fee). Completion: 2013.

Sewage Treatment Plant Design, Permitting, and Construction Phase Services for USCG Station Atlantic Beach, NC. *U.S. Coast Guard, Cleveland Civil Engineering Unit.* Project Manager Baker designed a wastewater treatment plant (10,000 gpd) using an aerated equalization tank at the headworks to receive inputs by cutters and visiting vessels, an extended aeration system using the modified Ludzak Ettinger configuration, a chlorination system, and a drainfield for disposal of treated effluent adjacent to a sensitive recreational beach. Baker secured certificates to construct and operate and provided on call construction phase services and final certifications for the Carteret County Health Department. Treatment plant successfully commissioned in 2010. \$156,336 (fee). Completion: 2010.

Years with Michael Baker: 24

Years with Other Firms: 15

Degrees

M.S., 1982, Civil Engineering,
University of Pittsburgh

M.S. (Hyg.), 1976, Water Supply and
Water Pollution Control, University
of Pittsburgh School of Public
Health

B.S., 1975, Biology (Limnology),
University of Pittsburgh

Licenses/Certifications

Professional Engineer,
Pennsylvania, 1986

Professional Engineer, Ohio, 1996

Class A Wastewater Treatment
Plant Operator, Pennsylvania, 1986

Class A Water Treatment Plant
Operator, Pennsylvania, 1986

Potable Water and Sewage Treatment Plants (Locations Overseas) – Design and Construction Phase Services. *U.S. Army Corps of Engineers, Middle East District.* Baker, as part of the Stanley-Baker-Hill, LLC joint venture, provided services to the Department of Defense. Mr. Kay provided sanitary “reachback expertise” for the projects listed. \$11,437,784 (aggregate fees). Completion: As Shown.

- Corrosion Assessment and Protection Plan for the Fallujah (Iraq) Sewage Treatment Plant (12 MGD) in 2012.
- Design of Aerated Lagoon System (0.2 MGD) with pumping stations, lagoons, maturation ponds, and effluent chlorination for RMTC Kandahar, Afghanistan in 2011.
- Third party review of design calculations for an activated sludge plant (22 MGD) in Al Basrah, Iraq in 2009.
- Third party review of design calculations and review/approval of submittals for surface water treatment plant (0.6 MGD) employing coagulation/clarification/filtration in Al Taji, Iraq in 2009.
- Design and construction phase services for aerated lagoon system (0.7 MGD) for Sharana Airfield, Afghanistan in 2009.

Potable Water and Sewage Treatment Plants (Locations Nationwide) – Design and Construction Phase Services. Select examples follow. \$1,633,000.00 (aggregate fees). Completion: As Shown.

- Third party review of design of sewage treatment plants (0.2 MGD) for the at the Peter J. Camiel Service Plaza in 2016 and Lawn Service Plaza in 2010.
- Design of Clarksville (PA) Johnson screen river intake and surface water treatment plant (1.5 MGD) employing coagulation/clarification/filtration for Alpha Natural Resources in 2009.
- Design and permitting for POTW (0.9 MGD) upgrade (aerobic digester and belt filter press) in Koppel Borough (PA) in 2005.
- Design and construction phase services for an oil/water separator for an armored vehicle maintenance facility at Fort Indiantown Gap (PA) for the Army National Guard in 2005.
- Treatability studies, design, and construction phase services for upgrade (UV disinfection, laboratory, maintenance facility) to the wastewater treatment plant (1.0 MGD) at the White Sands Missile Range (NM) for the U.S. Army Corps of Engineers, Fort Worth District in 2003.

Honors

Marquis "Who's Who in Science and Engineering" (1996-2017)

Publications

Contributions to: *Journal of the American Waterworks Association, Water Research, Proceedings of the Association Metropolitan Sewerage Agencies, Proceedings of the American Society of Civil Engineers,* and publications of the U.S. Environmental Protection Agency's Office of Research and Development.

Teaching

Guest lectures at the University of Pittsburgh, Carnegie Mellon University, and Slippery Rock University. Training for hundreds of treatment plant operators and engineers at diverse facilities across the U.S.

Mark R. Widdersheim, P.E.

Chemical Engineer

General Qualifications

Mr. Widdersheim has been involved in environmental compliance and remediation projects for RCRA, Superfund, state-controlled, and private industrial sites. He has been a key player in both the groundwater and wastewater treatment arenas (including sanitary systems). His responsibilities also have included engineering analyses/feasibility studies, treatability testing, process design (conceptual and detailed levels), and engineering cost estimating. He has been involved with environmental data management and Geographic Information Systems (GIS) implementation for numerous clients. Mr. Widdersheim has led environmental compliance-related projects involving NPDES permitting, SPCC regulations application, stormwater pollution prevention, and emergency response planning.

Experience

U.S. Coast Guard, CEU Cleveland. Responsible for the evaluation of an existing packaged sanitary WWTP as well as the design of system upgrades at USCG Station Fort Macon, Atlantic Beach, North Carolina. The scope of the design included collection system improvements, renovations to existing structures, expanded (and aerated) equalization capacity for cutter and visiting vessel sewage off-loading, a new in-ground concrete sewage treatment system, and subsurface drain-field improvements. For the subsequent construction phase: 1) provided shop drawing and submittals review; 2) attended the construction kick-off meeting that included the assigned USCG CEU Cleveland representative, the USCG COTR, several Carteret County Health Department (CCHD) representatives, the selected contractor, and various construction subcontractors; and 3) provided engineering assistance regarding an electrical issue as well as specs clarification during installation. Performed a 90% construction completion site visit and discussed CCHD concerns to work out details that ultimately lead to final approval of the installation by the NCDENR. The project also included decommissioning and demolition of the former packaged WWTP (by others) after the new treatment system was proven out.

U.S. Coast Guard, CEU Cleveland. Performed an engineering evaluation of sewage treatment operations at the USCG Station Milford Haven in Hudgins, Virginia. Designed and installed an in-ground replacement system in lieu of upgrades to the existing arrangement. The design included chemical addition to facilitate biological uptake of nutrients to comply with stringent discharge requirements associated with direct NPDES discharge requirements for the Chesapeake Bay.

Confidential Mining Client, Pennsylvania. Performed PA Act 537 planning (coordination with associated townships and counties) for several sewage treatment plants (STPs) at various client facilities. Subsequently developed both NPDES (Part I) and WQM (Part II) permit applications for submittal to PADEP. Coordinated the design of the treatment system in support of the WQM application with the client's preferred supplier of sewage treatment equipment.

Years with Michael Baker: 27

Years with Other Firms: 0

Degrees

B.S., 1989, Chemical Engineering,
Carnegie Mellon University

Licenses/Certifications

Professional Engineer,
Pennsylvania, 1994, [REDACTED]

OSHA 40-Hour HAZWOPER
Certification

OSHA 8-Hour HAZWOPER
Refresher Training, 2015

- EFM, 3N5 Airshaft and Portal – 24,000 GPD STP (2009)
- EFM, OSS Mine and Supply Yard – 2,800 GPD STP (2011)
- BM, 7N1 Shaft and Portal & Village of Nineveh – 36,000 GPD STP (2013)
- EFM, 4N1 Portal – 24,000 GPD STP (2015)

Also performed submittals review in conjunction with the construction of these installations. In each case, the design work was part of larger overall civil engineering endeavor being conducted to comply with the conditions of the client's Coal Mining Activity Permit (CMAP) for individual sites. In one instance, the client paid for the engineering and construction of a residential sewage collection system to serve the Village of Nineveh, PA, eliminating several illicit sewage connections to a high-quality watershed and establishing a new, long-term public utility service.

U.S. Army Corps of Engineers, Fort Worth District. Responsible for a treatability study, basis-of-design report preparation, and process design drawings/specifications for a UV disinfection system. Repairs and upgrades were required to the existing 1 MGD Sewage Treatment Plant at White Sands Missile Range to meet new regulatory standards. Included in the work were provisions for ultraviolet disinfection of effluent from the main post wastewater treatment plant, as well as expansion of the present plant site to enclose the equipment in a new prefabricated metal building. Testing and analysis of wastewater, determination of appropriate treatment systems, and development of a design-build specification for the treatment system were accomplished.

Koppel Borough, Pennsylvania. Responsible for the Sequencing Batch Reactor (SBR) and chlorine contact tank designed and installed for Koppel Borough. Provided conceptual planning, design, and permitting services and prepared funding applications for the expansion and conversion of an existing extended aeration sewage treatment plant to SBR technology that more effectively accommodates peak wet-weather flows. The project included installation of a chlorine contact tank and a sludge holding tank, construction of a new operations building with a sludge belt press, and miscellaneous site work.

Beaver Falls Municipal Authority (BFMA). BFMA contracted with Michael Baker for engineering design and construction management services for a new 1.6 MG clearwell (potable water disinfection via chlorination), 11 MGD pumping station/building, and related site work at the Eastvale Water Treatment Plant. Responsible for sizing and configuration of the new clear well, which included a new 30-inch gravity feed line from the upstream filter buildings as well as two (a 16-inch and 18-inch) effluent force mains tied into the distribution system. Work included calculations for items such as chlorine contact time and length-to-width ratios to comply with PADEP design standards. Worked closely with other team members in the design, permitting, and construction tasks of the project; work was complicated by the clearwell location between an active rail line and the Beaver River.

U.S. Coast Guard, CEU Miami. Served as the lead engineer for the evaluation and re-design of an outdated Reverse Osmosis potable drinking water system at USCG Station Freeport (Texas).

Bradley G. Duda, P.E.

Technical Manager

General Qualifications

Mr. Duda is experienced in all phases of municipal, utility, and site development engineering, from conceptual studies to final design and construction phase services. He has extensive experience with complex, large-scale municipal infrastructure projects including: records research for existing systems; field investigations, mapping and surveys; analysis of new systems, upgrades and relocations; design of large-scale water pump stations and transmission mains; facility design and architectural coordination; and preparation of construction plans and specifications.

Experience

Herron Hill Reservoir Cover Project, Pittsburgh, Pennsylvania. *City of Pittsburgh, Pennsylvania.* Engineer. Provided layout and design for portions of the cover for the Herron Hill reservoir. Used AutoCAD and Softdesk civil design software to design and draft entire project. Project involved investigation of multiple schemes to ensure that facility would be functional for many years as well as aesthetically pleasing to surrounding residential area. Michael Baker was responsible for transforming an open water concrete reservoir constructed in 1879 to a two-cell 12,774,000-gallon reservoir with liners and floating covers. This project included alternatives analysis, design, and construction phase services. Upon completion of the evaluation phase, design and construction phase services were provided for rehabilitation of the reservoir and a new center wall creating two 7 million gallon ground reservoirs, each with a floating cover. Michael Baker provided investigation and design for the stabilization of coal mines under the reservoir.

Fox Chapel Pump Station and Rising Main, The City of Pittsburgh Water Treatment Plant, Pittsburgh, Pennsylvania. *Pittsburgh Water and Sewer Authority.* Engineer. Waterline design responsibilities included field reconnaissance, survey coordination, right-of-way research, railroad occupancy permitting, plan drawing preparation and specification writing. Pump station design responsibilities included hydraulic analysis of the proposed system, pump and motor selection, layout of the pump station piping and appurtenances, coordination of electrical design, and plan drawing and specification preparation. Michael Baker performed preliminary and final design engineering for a new potable water pump station and transmission main to supply 5,500,000 gallons of water per day to the Fox Chapel Water Authority. As part of preliminary design, Michael Baker performed a detailed study which included the development of a hydraulic model of the system to analyze operational needs and determine the most cost-effective design options. Michael Baker developed numerous alternate configurations for pump station design and conducted a study to determine the most feasible route for the transmission main. Michael Baker also prepared the design for the selected system which included integration of the 300 horsepower pump motors, new transformer, switchgear, and motor control center into the existing pump station. Modifications to the SCADA system were also designed. Concurrently with the pump station design, Michael Baker prepared plans and specifications for the waterline contract that contained 7,000 lineal feet of 16-inch-diameter ductile iron pipe.

Waterline Improvements, Borough of Monaca, Monaca, Pennsylvania. *Monaca, PA, Borough of.* Senior Engineer. Responsible for production of conceptual and final plans for a two million dollar project to replace

Years with Michael Baker: 27

Degrees

B.S., 1989, Civil Engineering, Point Park University

Licenses/Certifications

Professional Engineer,
Pennsylvania, 1994. [REDACTED]

approximately three miles of water distribution system piping in the Borough. Developed a unique system of using high-resolution aerial photography to create base mapping and supplemented data with field measurements. Supervised designers and technicians performing system layout, drawing preparation, cost estimates and technical specifications. Developed innovative spreadsheets that automatically tabulated fitting weights and most unit price items for the entire project. The goal of the Monaca Water System Capital Improvements project was to improve water pressures and flow rates for Borough residents and for fire flows. The improvements also reduce operation and maintenance costs for the Borough. Michael Baker provided waterline mapping and hydraulic modeling assistance to prioritize the waterline segment in most need of replacement. Michael Baker designed 13,800 lineal feet of water line upgrades in five sections near Marshall Road, Monaca.

Sewage Pump Station and Force Main, Shepherdstown, West Virginia. *West Virginia Department of Transportation.* Project Engineer. Responsible for design of a new sewage pump station and force main as part of the James Rumsey Bridge Replacement Project. Analyzed hydraulic capacity requirements for the facilities to be served by the pump station in conjunction with the force main layout to specify performance standards for a packaged pump station. Prepared pump station and force main plans, profiles and details as well as technical specifications and a construction cost estimate. Prepared West Virginia Department of Health permit applications and coordinated work with West Virginia Department of Transportation design personnel.

Sheraden Park Sewer Remediation, Pittsburgh, Pennsylvania. *U.S. Army Corps of Engineers, Pittsburgh District.* Senior Engineer. Responsibilities included: coordinating mapping and surveying tasks; performing extensive field verification of the existing system; producing field-verified map of existing conditions; analyzing three options for new combined, sanitary, and storm sewer systems; developing quantity and cost estimates; and preparing a preliminary design report. The final report supported the design of a new combined sewer system and conversion of existing system into a dedicated storm system. Deliverables included preliminary plan drawings, profiles, and details for U.S. Army Corps of Engineers submission to secure project funding. The design concept was approved and funding for final design is pending. Michael Baker provided engineering services to remove 12 streams from flowing into combined sewers in Sheraden Park and Chartiers Creek, and to restore streams that flowed through underground pipes to the surface, creating new wetlands. Michael Baker's services included mapping, data collection and system research, hydraulic modeling, preliminary and final design, preparation of final construction plans, and preparation of construction cost estimates.

Diversion Chamber, Manhole Inspection, and Hydraulic Analysis, Northern Service District Region - ALCOSAN, Pittsburgh, Pennsylvania. *Allegheny County Sanitary (ALCOSAN) Authority.* Senior Engineer. Responsible for supervision of CADD operators scanning in original drawings, interpretation of field data to produce updated structure drawings, and use of GPS data to produce plan/profile drawings of the structure and upstream pipe. The project involved the investigation, survey, evaluation, database development and population, condition assessment, and hydraulic analysis of the ALCOSAN diversion chambers and manholes within the Northern service district region. The project surveys and inspections were used to adequately describe the condition and operation of the existing ALCOSAN system, to identify needed rehabilitation and costs to maintain the system capacity, and to develop a hydraulic analysis of the flow transport components of the structures.

Professional Affiliations

American Society of Civil Engineers (ASCE)
American Water Works Association (AWWA)

David J. Hilliard, P.E., LEED® AP**Mechanical/Electrical/Plumbing Engineer****General Qualifications**

Mr. Hilliard has a wide range of "hands on" design, engineering, and construction experience. From his beginnings as a carpenter he has expanded his professional abilities to a senior engineer for Michael Baker. His recent design experience has included the design of new campus water lines and other service utilities at West Virginia State University, the complex mechanical design of such projects as a large Charleston, West Virginia hospital, a Bus Maintenance Garage and office building for the West Virginia Department of Transportation, an Army National Guard Armory HVAC/Electrical renovation, Master Planning and engineering at the West Virginia Capitol Complex including plumbing renovation design on the historic State Capitol Building. His resume covers over 30 years of real world work in engineering, design, fabrication and construction in the mechanical, electrical and general trades.

Over the years, while practicing his profession, Mr. Hilliard continued his education by studying mathematics, civil and mechanical engineering, finally taking degrees in both mathematics and mechanical engineering. He has continued his professional development through his involvement with ASME, ASHRAE, ASPE, USGBC, and other pertinent organizations

Experience

Army National Guard Headquarters Renovations, Charleston, West Virginia. *State Army National Guard Headquarters.* Mechanical Engineer. Responsible for all mechanical design oversight and construction management. Michael Baker performed complete planning, design, and construction management services for renovations to the Office of the Adjutant General at the State Army National Guard Headquarters in Charleston, West Virginia. Project elements included a complete renovation and replacement of the HVAC system with a Loop Heat Pumps, new acoustical ceilings, flooring, energy-saving light fixtures, several new wall partitions, new interior doors and hardware, new wall finishes and asbestos removal. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

130th Airlift Wing West Virginia Air National Guard – Force Protection/Relocate Coonskin Drive, Charleston, West Virginia. *USPFO for West Virginia.* Project Engineer. Responsible for mechanical/electrical design including utilities design, fire protection, HVAC design and construction administration. Michael Baker performed complete planning, design, and construction management services for the relocation of Coonskin Drive which will serve as the new entry point into the Joint Forces National Guard Base in Charleston, WV. The project includes concrete and asphalt pavement roadway and parking areas, designated vehicle inspection area, guardhouse, lighting, signage, landscaping, site utilities, chain link security fence including gates, cable reinforcement, ornamental gate, vehicle

Years with Michael Baker: 6**Years with Other Firms: 20****Degrees**

B.S.M.E., 2005, Mechanical Engineering, West Virginia University Institute of Technology

B.S., 2002, Mathematics and Science, West Virginia State College

Licenses/Certifications

Professional Engineer, West Virginia 2011

LEED AP, bd+c, 2010

Professional Affiliations

American Society of Plumbing Engineers

American Society of Heating, Refrigerating, and Air-Conditioning Engineers

American Society of Mechanical Engineers

barriers, and card reader access points. Michael Baker provided Construction Administration and Inspection services as well as periodic site review during construction.

Advanced Individual Training Barracks and Company Operations Facility, Fort Gordon, Richmond, Jefferson, McDuffie, and Columbia Counties, Georgia. *U.S. Army Corps of Engineers, Fort Worth District.* Mechanical Engineer. Responsible for exhaust & outdoor air system review and development. Michael Baker served as the designer of record for the design-build for a new, design-build, 93,000-gross-square-foot advanced individual training barracks and a three-story training barracks that is designed to house 300 single soldier trainees. The facility is designed to meet achieve Gold LEED® rating. Michael Baker's services included architectural, engineering, landscape, and interior design services.

West Virginia State University - Open-End Architectural/Engineering Services, Institute, West Virginia. 10 year IDIQ. Mechanical/Electrical and Plumbing Designer and Engineer of Record for on demand projects at West Virginia State University. Some recent tasks have included programming, planning, design development, construction documentation, systems evaluations, and feasibility studies and cost estimating. Mapping, evaluation and design services for storm and sewer line systems, a campus wide domestic water loop system design, football field upgrades and overall facility maintenance support as requested by the University. He has also been involved with the development and acquisition of WVDEP permits for both MS4 and Air Perming.

Little Kanawha Bus, Calhoun County, West Virginia. *WV Division of Public Transit.* Mechanical Engineer. Responsible for the Mechanical, Electrical and Plumbing Design, MEP Document Preparation, and Construction Administration for a new bus maintenance and office facility for Gilmer County. Duties include the design of the vehicle storage, cleaning and maintenance mechanical systems, as well as oil pumping and collection systems. The design of an energy efficient HVAC system for the entire building is also part of his responsibilities. The facility was designed as a LEED® project.

Good News Mountaineer Garage, Charleston, West Virginia. Mechanical Engineer. Responsible for the Mechanical, Electrical and Plumbing Design, MEP Document Preparation, and Construction Administration for newly renovated Auto Repair garage and administrative office facility for this non-profit organization. The Good News Mountaineer Garage accepts donations of vehicles that are repairable for a reasonable amount of money. These donated cars are then distributed to families with low incomes for transportation to work.

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Mechanical Electrical and Plumbing Engineer. Mr. Hilliard provided the State of West Virginia General Services Division a comprehensive MEP plan for the renovation and renovation of the 33 restrooms of the West Virginia State Capitol Building. He helped provide design, construction sequence, and scheduling recommendations. And will provide Construction Administration during construction

Raymond C. Paff, C.P.D.

Senior Designer

General Qualifications

Mr. Paff is a senior designer responsible for the design and specification of building plumbing systems, vehicle fluid systems, vehicle fuel systems; deionized water systems, fire protection (sprinkler and halon FM 200), life safety systems, and potable water supply systems.

Experience

Army Reserve Center Design, Orangeburg, South Carolina. U.S. Army Corps of Engineers, Louisville District. Senior Designer. Responsible for design review of plumbing and fire protection systems to meet UFC military design standards and International Plumbing Code. System include vehicle fluids, oil/water separator, sanitary, grease waste system for large kitchen facility and domestic water heating. Michael Baker served as the designer of record for the design-build delivery of a new 300-member Army Reserve Center (ARC), providing structural, architectural, interior, fire protection, mechanical, HVAC, plumbing, and electrical design. The designs included a variety of sustainability elements for efficient usage of the site, energy, water, and building materials. The project achieved Leadership in Energy and Environmental Design (LEED®) Silver certification from the U.S. Green Building Council.

Consulting Engineering Services for the Pennsylvania Turnpike, Statewide, Pennsylvania. Pennsylvania Turnpike Commission. QA/QC. Responsible for QA/QC review of plumbing and fire protection system designs in support of projects that include: the Beaver Valley Expressway/PA 51 Interchange; the Lehigh Valley Interchange; the Bowmansville/Valley Forge Plaza; the Breezewood Interchange; and the redevelopment of 17 service plazas. Michael Baker has served as the consulting engineer for the Pennsylvania Turnpike continuously since 1956. Michael Baker's engineering services include program management; transportation planning; geospatial services; multidiscipline engineering reviews, design management; environmental regulatory compliance monitoring; geotechnical engineering; and construction management and oversight; Michael Baker also provides architectural, engineering, and construction oversight for the renovation of toll plazas, maintenance facilities, state police barracks, and service plaza rest-stop facilities along the turnpike.

U.S. Army Reserve Complex, Wheeling, West Virginia. U.S. Army Corps of Engineers, Baltimore District. Designer. Provided fire protection design for a LP gas-driven fire pump, pump house, and 100,000-gallon above ground water tank. The project was designed to meet military design standards. Michael Baker provided a complete design-build package for a new U.S. Army Reserve Center located on a 25-acre site in Wheeling, West Virginia. The \$15.5 million project involved design of an 18,000-square-foot OMS/AMSA building and a 24,000-square-foot training center. Both buildings were constructed of steel frames on spread-footing foundations. Facades feature a combination of split-faced block with brick. The roofs are constructed of standing-seam metal, with certain roofs vaulted. Associated site infrastructure work included the removal of a hilltop and construction of parking facilities and a one-half mile access road, as well as landscaping. Due to water pressure issues for fire

Years with Michael Baker: 25

Years with Other Firms: 13

Degrees

Certificate, 1987, Visual Arts, Art Institute of Pittsburgh

A.S., 1977, Architectural Engineering Technology, The Pennsylvania State University

Licenses/Certifications

Certified Plumbing Designer, 1981,

NS Roadway Worker Protection Certification, 2015

protection, an on-site 60,000-gallon water storage tank was constructed. This project shared property with a regional general airport authority.

Water Treatment Sludge Management, Eastvale Borough, Pennsylvania. *Beaver Falls Municipal Authority*. Designer. Provided the design for replacement of an underground fuel tank to meet International Plumbing Code design standards. Michael Baker developed a comprehensive Sludge Management Plan for the Eastvale water treatment facilities. The Sludge Management Plan evaluated the qualitative and quantitative characteristics of the water treatment plant's waste discharges. The Plan developed recommendations for both the solid and liquid waste streams by evaluating alternate collection systems, including co-mingling the waste streams from the Eastvale plant with waste streams from a second water plant owned by the Authority, thickening systems, dewatering alternatives, and ultimate sludge disposal options. Michael Baker assisted the client with implementing Plan recommendations by providing design engineering, permitting, and various construction phase services.

Preliminary Study to Renovate Lower Campus Water Distribution System, Slippery Rock University, Slippery Rock, Pennsylvania. *Slippery Rock University*. Designer. Performed a preliminary study of the campus water distribution system. Michael Baker studied the renovation and replacement of the 50-year old campus water distribution system. Findings and recommendations along with cost estimates were provided to Slippery Rock University. Michael Baker recommended designing the new 10,000-foot underground system to run parallel to the existing distribution system, allowing it to reconnect to various points of the existing system.

Installation of a Ultra-Violet Wastewater Treatment System, White Sands Missile Range, New Mexico. *U.S. Army Corps of Engineers, Fort Worth District*. Designer. Responsible for the plumbing system design to meet UFC military design standards. Repairs and upgrades were required to the existing one million gallon per day Sewage Treatment Plant at White Sands Missile Range to meet new regulatory standards. Included in the work were provisions for ultraviolet disinfection of effluent from the main post wastewater treatment plant, as well as expansion of the present plant site to enclose the equipment in a new prefabricated metal building. Testing and analysis of wastewater, determination of appropriate treatment systems, and development of a design-build specification for the treatment system were accomplished.

Professional Affiliations

American Society of Plumbing Engineers (ASPE), PG6692Full

Owen Milligan, P.E.

Senior Electrical Engineer

General Qualifications

Mr. Milligan is an electrical engineer who is experienced working with consulting engineering firms in the study and design of electric distribution and control systems, emergency power for process plants and facilities, and water/wastewater treatment plants.

Experience

Zellenople Water Supply, Zellenople, Pennsylvania. *Beaver Falls Municipal Authority.* Electrical Engineer. Designer of Record. Michael Baker's responsibility is for design and permitting of a 10-mile of a 12-inch water transmission pipeline, and a prefabricated package water booster station. The waterline is primarily within state highway right of ways in Beaver and Butler Counties. The water booster station will have three 650 gallon per minute pumps with a total dynamic head of 700 feet. The water booster station will have an emergency generator and a chlorination unit.

USCG Design for Sewage Treatment System, Atlantic Beach, North Carolina. *U.S. Coast Guard.* Electrical Engineer. Responsible for site evaluation of existing water treatment system, conceptual design report, and new system recommendations. Design of a 10,000 GPD wastewater treatment facility to replace the existing treatment facility, which was considered undersized and overtaxed. The new treatment facility must treat and dispose of high strength blackwater in large rapid doses from vessels that moor at the site. Michael Baker was responsible for research and site investigations, coordination with Carteret County Health Department, evaluation of alternatives, and complete design for the selected alternative. Michael Baker was also responsible for cost estimates, specifications, obtaining all permits and authorizations, and related design services.

Combat Aviation Brigade Tactical Equipment Maintenance Facilities, Fort Bliss, El Paso, Texas. *U.S. Army Corps of Engineers, Tulsa District.* Electrical Engineer. Provided design assistance to the electrical engineering subconsultant, and performed a technical quality review of the construction documents. Electrical systems included lighting, lightning protection and grounding, power distribution, telecommunications, fire alarm, and unique voltage and frequency requirements. Designs were required to meet UFC and military design standards. Projects constructed under this task order include Brigade Combat Team (BCT) Tactical Equipment Maintenance Facilities (TEMF). TEMFs provide facilities for the purpose of maintaining and repairing vehicles, complete with equipment and parts storage, and administrative offices. Task Order No. 0001 was for the design-build delivery of a two TEMFs to be shared by five Battalions and one Company, an 8,000-square-foot distribution company storage facility, a 1,620-square-foot facility for oil storage, and a 1,620-square-foot building for hazardous materials storage. Facility designs are required to meet or exceed a Silver LEED® certification.

A/E Services Contract for the Pennsylvania National Guard, 171st Air Refueling Wing, Pittsburgh International Airport (PIT), Coraopolis, Pennsylvania. *Pennsylvania Dept. of Military and Veterans Affairs*

Years with Michael Baker: 7

Years with Other Firms: 21

Degrees

B.S., 1988, Electrical Engineering,
Gannon University

Licenses/Certifications

Professional Engineer, California,
2003 [REDACTED]

Professional Engineer,
Pennsylvania, 1999 [REDACTED]

Professional Engineer, Ohio, 2011,
[REDACTED]

Professional Engineer - Electrical,
New York, 2014, [REDACTED]

Professional Engineer - Electrical,
West Virginia, 2013, [REDACTED]

Professional Engineer - Electrical,
Connecticut, 2015, [REDACTED]

(formerly Depts. of the Army and the Air Force) Technical Advisor. Responsible for assisting with the review of proposal documents. The United States Property and Fiscal Office (USPFO) and the 171st Air Refueling Wing (ARW) selected Michael Baker for an Indefinite Delivery/Indefinite Quantity (IDIQ) contract for architectural and engineering services. Task orders contracted under this Indefinite Delivery/Indefinite Quantity (IDIQ) Contract include: a 129,634-square-foot Combined Support Maintenance Shop; a 3,000-gross-square-foot, \$920,000 Crew Readiness Center; a \$200,000 Base Marquee; a \$405,000 upgrade to the West Apron Lighting for the Pennsylvania Air National Guard; a Deicing Collection Study for the 171st ARW; and Phase One services in support of the conversion of the Pennsylvania Army National Guard's 56th Brigade to a Stryker Brigade Combat Team (SBCT) at various locations throughout the state.

Engineering Services, 2007-2013, Chippewa Twp., Big Beaver Borough & South Beaver Twp., Beaver Falls, Pennsylvania. Chippewa Township Sanitary Authority. Electrical Engineer. Responsible for electrical drawing review. Since 2007, Michael Baker has provided retainer-type consulting engineering services to support the on-going operations of CTSA's sanitary sewerage system, including collection, conveyance, pumping, and treatment components.

Findlay Township Municipal Engineering Services, 1998 - 2012, Clinton, Pennsylvania. Findlay, Township of. Technical Advisor. Responsible for technical review and design guidance. Michael Baker is the retained municipal engineer for Findlay Township and has maintained a relationship with the Township since 1998. As the Township's municipal engineer, Michael Baker has provided on-call, as-requested consulting engineering services to support the operations of the Township.

Chippewa Township Sanitary Authority 2012 Engineering Services. Chippewa Township Sanitary Authority. Electrical Engineer. Responsible for complete design of power and lighting for converted sludge drying beds into vehicle and maintenance storage buildings. Also responsible for the overseeing of junior engineer working on the project.

CTSA Office Complex. Chippewa Township Sanitary Authority. Electrical Engineer. Responsible for complete design of power, lighting, grounding, site lighting and site utilities for Township Municipal Building. Also responsible for the overseeing of junior engineer working on the project.

Previous Work History

Wood Group Mustang, Inc., Canonsburg, Pennsylvania, Senior Electrical Project Engineer, May 2013 to October 2015.

Siemens Government Services, Inc (formerly SD Engineers), Pittsburgh, Pennsylvania, Senior Electrical Project Engineer, July 2004 to December 2007

Chester Engineers/US Filter Corporation, Pittsburgh, Pennsylvania, Electrical Project Engineer, June 1998 to July 2004. .

Buchart Horn / Basco Associates, York, Pennsylvania, Electrical Engineer II, September 1988 to September 1995.

Kevin Spangler, P.E.

Fire Protection Engineering Manager

General Qualifications

Mr. Spangler is a registered fire protection engineer experienced with fire protection and detection systems for new building designs and renovation projects, domestically and internationally. Responsibilities include provision of design services and performance of independent technical quality reviews for fire protection designs including sprinklers and fire alarms, and review of life safety analysis.

Experience

Army Reserve Center Design, Orangeburg, South Carolina. U.S. Army Corps of Engineers, Louisville District. Fire Protection Engineer. Performed an Internal Technical Review (ITR) of work performed by another engineer to ensure compliance with the RFP and all applicable codes. Disciplines included fire alarm, sprinkler, and life safety. Michael Baker served as the designer of record for the design-build delivery of a new 300-member Army Reserve Center (ARC). Primary facilities included a 37,992-square-foot training center, a 6,409-square-foot organization maintenance shop, and a 1,975-square-foot unheated storage building. Michael Baker provided structural, architectural, interior, fire protection, mechanical, HVAC, plumbing, and electrical design. The designs included a variety of sustainability elements for efficient usage of the site, energy, water, and building materials. The project achieved Leadership in Energy and Environmental Design (LEED®) Silver certification from the U.S. Green Building Council.

U.S. Army Reserve Center Design-Build Request-for-Proposal Document Development, Fort AP Hill, Caroline County, Virginia. U.S. Army Corps of Engineers, Louisville District. Fire Protection Engineer. Prepared RFP documents. Michael Baker prepared design-build request-for-proposal performance specifications for the construction of a 200-member U.S. Army Reserve Center (ARC), under an indefinite delivery-

indefinite quantity contract. Michael Baker developed conceptual-level architecture and engineering drawings for the ARC buildings and the site to achieve LEED® Silver certification and achieved LEED® Gold certification. The conceptual designs included an approximately 33,170-square-foot, two-story training building; an approximately 7,526-square-foot, one-story organizational maintenance shop; an approximately 1,065-square-foot, one-story unheated storage building; and paved parking for military equipment and privately owned vehicles.

RFP Design-Build RFP Documents for a U.S. Army Reserve Center, Pease, New Hampshire. U.S. Army Corps of Engineers, Louisville District. Fire Protection Engineer. Responsible for the design of the fire protection systems, including fire alarm and fire sprinklers. Performed life safety analysis.

Years with Michael Baker: 7

Years with Other Firms: 1

Degrees

M.S., 2008, Fire Protection Engineering, University of Maryland, College Park Campus

B.S., 2006, Agricultural and Biological Engineering, The Pennsylvania State University

Licenses/Certifications

Professional Engineer, California, 2011, [REDACTED]

Professional Engineer, Virginia, 2012, [REDACTED]

Professional Engineer, Pennsylvania, 2012, [REDACTED]

Professional Engineer, Illinois, 2013, [REDACTED]

Professional Engineer, Idaho, 2014, [REDACTED]

Professional Engineer, New York, 2014, [REDACTED]

Professional Engineer, Connecticut, 2015, [REDACTED]

Professional Engineer, South Carolina, 2016, [REDACTED]

Professional Engineer, Minnesota, 2016, [REDACTED]

Design and Construction of Armed Forces Reserve Center, Danbury, Connecticut. *U.S. Army Corps of Engineers, Louisville District.* Fire Protection Engineer. Performed an internal technical review of the submittal drawings, including the life safety, fire alarm, and fire protection documents to ensure that project met the requirements of the RFP and the applicable codes. Michael Baker was the designer of record for the design-build delivery of a new 1,000-member Armed Forces Reserve Center (AFRC) for the U.S. Army Reserve and the Connecticut National Guard on an approximately 17-acre site located near Danbury and Newtown, Connecticut. The complex consists of a new 96,231-square-foot, two-story training center, an 18,116-square-foot vehicle maintenance shop, a 3,082-square-foot unheated storage building, and covered wash rack in a campus setting. This project has achieved LEED® Gold certification from the U.S. Green Building Council.

Design-Build U.S. Army Reserve Center, Panama City, Florida. *U.S. Army Corps of Engineers, Louisville District.* Fire Protection Engineer. Responsible for the design of fire sprinkler, fire alarm, and mass notification and life safety analysis. Michael Baker was the designer of record for the design-build delivery of a new one-story Army Reserve Center. Michael Baker's services included planning; site civil, geotechnical, structural, mechanical, electrical, and plumbing engineering; architecture; interior space planning; fire protection design; antiterrorism and force protection design; and landscape architecture, for a 17,764-square-foot training center, a 4,613-square-foot organizational maintenance shop, a 450-square-foot unheated storage building, and associated site work. The reserve center achieved LEED® Silver certification from the U.S. Green Building Council.

Design of U.S. Army Reserve Center Renovation and Expansion, Homewood, Illinois. *U.S. Army Corps of Engineers, Louisville District.* Fire Protection Engineer. Completed site visit survey of existing sprinkler and fire alarm system. Designed new fire protection systems and life safety analysis for new addition and renovation. Responsible for the design of fire protection systems including sprinkler system, fire alarm, and mass notification system. Performed site survey of existing building and fire flow test of water supply. As designer of record, Michael Baker provided architectural and engineering services for the renovation of a 400-member U.S. Army Reserve Center (ARC) and construction of two single-story additions totaling 35,694 square feet—a 34,294-square-foot Training Building and a 1,400-square-foot ancillary structure—along with a 3,500-square-foot Unheated Storage Building. The new construction includes a 22,000-square-foot parking area for military equipment and 140 parking spaces for privately owned vehicles. Tasks were performed under an indefinite quantity-indefinite delivery engineering agreement. Michael Baker designed the training facility to meet LEED® Silver certification. Michael Baker's services included architecture, surveys, environmental and geotechnical investigation, all site and building engineering, cost estimating, value engineering, and LEED® credit template documentation. Administrative and training 60,500-square-foot building. This project has achieved LEED certification.

Previous Work History

Burt Hill - Fire Protection Associate, 2008-2009

Professional Affiliations

National Fire Protection Association (NFPA), NFPA 101 - Technical Committee Member
Pennsylvania Society of Professional Engineers (PSPE), Board Director

Kenneth D. Ash, P.E.

Senior Structural Engineer

General Qualifications

Mr. Ash is a senior structural engineer with project experience in military, educational, government, assisted living/housing, retail, and religious facilities. He is experienced with LEED® certification for Green Buildings for military facilities, research and development labs, a family learning center, and classroom designs.

Mr. Ash's military projects range from military housing renovations and JNCO/Enlisted Bachelor Quarters, to a parking structure for the Defense Threat Reduction Agency, renovations to D.C. Public Schools, and design-build RFP documents for the Air Freight Terminal Complex at McGuire AFB and several Armed Forces Reserve Centers. He has also been involved in the successful completion of multiple design-build TEMF projects throughout the United States.

Experience.

Design-Build AFQ/RFP Development for Statewide Construction Program, PAARNG Stryker Brigade Combat Team, Statewide, Pennsylvania. *Pennsylvania Army National Guard.* Senior Structural Engineer. Responsibilities included providing all relevant structural engineering documentation necessary to provide a Design-Build RFQ/RFP that meets the needs of the client and follows the appropriate government regulations. Michael Baker provided services under numerous National Guard Bureau IDIQ contracts to support the Pennsylvania Army National Guard (PAARNG) in implementing a \$167,000,000 statewide construction program for the Stryker Brigade Combat Team conversion of numerous PAARNG facilities. The program included the design of new soldier Readiness Centers (RC) and vehicle Field Maintenance Shops (FMS), as well as facility additions. Michael Baker performed all aspects of design-build RFP implementation, from providing significant architectural, structural, geotechnical, civil engineering, and other technical input for RFP Project Definition Documents, to developing the application form used to evaluate potential design-build contractor teams, to providing client support during the actual design-build team selection process. The sustainable design goal is for each finished facility to qualify for either a Gold SPiRiT or Silver LEED® Certified rating. Michael Baker's task orders include the following sites: Erie – a new Readiness Center and a new Field Maintenance Shop; Philadelphia – a new Readiness Center and Field Maintenance Shop; Elizabethtown – a new Readiness Center and a new Field Maintenance Shop; and Bradford and Huntingdon – new Readiness Centers. Additionally, Michael Baker has developed Design-Build RFP documents for the additions and alterations to Readiness Centers in Lewistown, Punxsutawney, Butler, Hanover, Lebanon, Huntingdon, and Hollidaysburg.

Readiness Center for PAARNG Stryker Brigade Combat Team, Lewistown, Pennsylvania. *US Property and Fiscal Office for Pennsylvania.* Senior Structural Engineer. Responsibilities included providing all relevant structural engineering documentation necessary to provide a Design-Build RFQ/RFP that meets the needs of the client and follows the appropriate government regulations. Michael Baker developed the conceptual design and

Years with Michael Baker: 15

Years with Other Firms: 6

Degrees

M.S.A.E., 1994, Architectural Engineering, The Pennsylvania State University

B.A.E., 1990, Architectural Engineering (Structural Design Option), The Pennsylvania State University

Certificate, 1984, Drafting and Design Technology, Somerset County Area Vocational Technical School

Licenses/Certifications

Professional Engineer, Pennsylvania, 2000, [REDACTED]

CAL-EMA Safety Assessment Program, California, 2014, [REDACTED]

Design-Build RFP documents for the conversion of the PAARNG's 56th Brigade to a Stryker Brigade Combat Team (SBCT). Key program components include two building types: Readiness Centers (RC) for the training of SBCT Soldiers and Field Maintenance Shops (FMS) for the maintenance and storage of a variety of military vehicles, including the Stryker military vehicle. The existing historic 15,000-square-foot Lewistown Armory, was transformed to house diverse units with 240 soldiers. The renovated RC provides 52,501 square feet of vehicle maintenance training bays, administrative, classroom, and storage areas. The project meets a Gold SPiRiT sustainability rating.

Readiness Center for PAARNG Stryker Brigade Combat Team, Bradford, Pennsylvania. *US Property and Fiscal Office for Pennsylvania.* Senior Structural Engineer. Responsibilities included providing all relevant structural engineering documentation necessary to provide a Design-Build RFQ/RFP that meets the needs of the client and follows the appropriate government regulations. Michael Baker developed the conceptual design and design-build request for proposal documents for the conversion of the Pennsylvania Air National Guard's 56th Brigade to a Stryker Brigade Combat Team. Key program components included two building types; readiness centers for the training of soldiers and field maintenance shops for the maintenance and storage of a variety of military vehicles, including the Stryker military vehicle. A 32,497-square-foot readiness center was constructed to house 175 personnel. The new readiness center provides vehicle maintenance training work bays, administrative, training, and storage areas required to achieve proficiency in training tasks. The new facility meets a Gold SPiRiT sustainability rating.

Readiness Center for PAARNG Stryker Brigade Combat Team, Punxsutawney, Pennsylvania. *US Property and Fiscal Office for Pennsylvania.* Senior Structural Engineer. Responsibilities included providing all relevant structural engineering documentation necessary to provide a Design-Build RFQ/RFP that meets the needs of the client and follows the appropriate government regulations. Michael Baker developed the conceptual design and Design-Build RFP documents for the conversion of the PAARNG's 56th Brigade to a Stryker Brigade Combat Team (SBCT). Key program components include two building types: Readiness Centers (RC) for the training of SBCT Soldiers and Field Maintenance Shops (FMS) for the maintenance and storage of a variety of military vehicles, including the Stryker military vehicle. The existing 13,000-square-foot Punxsutawney Armory is supported by mechanics, cooks, medics, and other personnel that support the unit and will increase in strength from 104 to 120 soldiers. The renovated RC will provide the necessary administrative, training, and storage areas required to achieve proficiency in required training tasks. Additions and alterations will provide a total of 32,921 square feet of space. The project will meet a Gold SPiRiT sustainability rating.

Readiness Centers and Field Maintenance Shops for PAARNG Stryker Brigade Combat Team, Erie (Cambridge Springs) and, Philadelphia, Pennsylvania. *US Property and Fiscal Office for Pennsylvania.* Senior Structural Engineer. Responsibilities included providing all relevant structural engineering documentation necessary to provide a Design-Build RFQ/RFP that meets the needs of the client and follows the appropriate government regulations. Michael Baker developed the conceptual design and Design-Build RFP documents for the conversion of PAARNG's 56th Brigade to a Stryker Brigade Combat Team (SBCT). Key program components include two building types: Readiness Centers (RC) for the training of SBCT Soldiers and Field Maintenance Shops (FMS) for the maintenance and storage of a variety of military vehicles, including the Stryker military vehicle. The new Cambridge Springs (Erie) Armory included a 73,173-square-foot RC and 20,549-square-foot FMS with eight maintenance bays; together with the associated site development, the facilities were designed to house all elements of a 421-personnel unit. For consolidation of the Philadelphia units, a new site co-located a new 25,315-square-foot FMS with ten maintenance bays with a 75,078-square-foot RC. The new facilities were designed to meet a Gold SPiRiT sustainability rating. Note: Due to program changes after design, the Philadelphia facility was not constructed; instead, a new Stryker headquarters facility was located at Willow Grove Naval Air Station.

John D. Lasko, P.G.

Senior Geologist

General Qualifications

Mr. Lasko's background encompasses a variety of geotechnical projects. His experience includes project task management, test boring layout, drilling inspection, geotechnical interpretation of subsurface geology, construction inspection and related project field work.

Experience

Rehabilitation of Five Pennsylvania Dams, Various Locations, Pennsylvania. *Pennsylvania Department of General Services.* Senior Geologist. Responsibilities included: test boring inspection, drilling contractor coordination, lab testing coordination, lab testing requisitions, boring contract administration, boring contract quantity tracking, subsurface findings interpretation, geologic literature review, and report writing. Michael Baker is providing engineering services for the rehabilitation of the Kyle Lake, Canonsburg Lake, Dutch Fork Lake, Donegal Lake, and Somerset Lake dames, which are owned by the Pennsylvania Fish and Boat Commission, to ensure compliance with Pennsylvania Department of Environmental Protection regulations. Michael Baker's tasks include reviewing drawings and reports; field-inspecting all elements, including spillways and gatehouses; performing hydrologic and hydraulic analyses; performing topographical surveys and geotechnical investigations to evaluate current conditions; identifying and analyzing rehabilitation alternatives; and providing construction management services. Designs included spillway replacements, outlet work modification, overtopping protection, and post tensioned rock anchors.

Mon River Bridge, Pittsburgh, Pennsylvania. *Port Authority of Allegheny County.* Senior Geologist. Responsible for performance of field and office coordination during subsurface investigation. Michael Baker performed an environmental assessment, preliminary design, and final design for a new bridge to cross the Monongahela River in Pittsburgh, Pennsylvania. Numerous location and structural alternatives were considered. The recommended alternative was a single span steel basket handle arch.

Years with Michael Baker: 27

Years with Other Firms: 2

Degrees

M.S., 1989, Earth Science and Geology, California University of Pennsylvania

B.S., 1985, Geology, Juniata College

Coursework, 0, General Arts and Sciences, Saint Vincent College

Coursework, 0, Geotechnical Engineering, Geneva College

Licenses/Certifications

Professional Geologist, Pennsylvania, 1995

14.2.1 Geotechnical Testing, Pennsylvania

14.1.1 Soil Exploration, Pennsylvania

PennDOT Inspector, Level 1, Pennsylvania, 1999

PennDOT Inspector, Level 2, Pennsylvania, 1999

NS Roadway Worker Protection Certification, 2015

Research and Development Facility, Institute for Scientific Research, Fairmont, West Virginia. *BE&K Building Group.* Senior Geologist. Responsible for providing site reconnaissance, geologic interpretation and cut slope design recommendations. Using a design-build delivery method, a new 263,000-square-foot, five story Research and Development Facility was constructed for The Institute for Scientific Research (ISR). The facility was outfitted with advanced technology features and amenities that included: distance learning centers; voice/data systems; two-story exhibit hall; heavy research floor with high bay area; prototype workshop and 10-ton crane; fitness center; and full-service kitchen/restaurant. In addition to the environmentally sensitive design features, a number of unique energy-efficient strategies were used to accomplish LEED ® certification.

Site Preparation and Improvements for North Fayette Township Community Park, Allegheny County, Pennsylvania. *North Fayette Township.* Senior Geologist. Responsible for providing geotechnical field services for landslides along township roads. Provided recommendations, alternatives and cost estimates to repair. Michael Baker, as a subcontractor, was responsible for the development of grading plans, stormwater management, site permitting, surveying, and utility design for a 34-acre park located off Donaldson Road. The project included three baseball fields sized for Little League play, a lighted soccer field, and a football field. Other amenities included an amphitheater, concession stand, pavilions, a 1.1-mile walking trail, and restroom facilities. Michael Baker designed roadways, parking facilities, potable water, electrical, and sanitary and storm sewers, and developed a complex stormwater management and E&S plan. Michael Baker also performed design and pre-construction surveying of the site.

Outside Plant Maintenance, Maryland, Virginia, and West Virginia, Washington, D.C. *AT&T Corp.* Geologist. Responsible for providing recommendations and cost estimates for cable river crossing. Michael Baker provided the knowledge and expertise needed to address the range of issues associated with on-going cable facility upgrades and rearrangements. A considerable number of existing cable facility upgrades and rearrangements are necessary in the continually growing urbanized areas located throughout the Northeastern part of the United States, specifically Maryland, Virginia, West Virginia, and Washington, D.C.

Brush Run Stream Restoration, Washington County, Pennsylvania. *Eighty Four Mining Company.* Senior Geologist. Responsible for providing construction services for soil amendment verification for stream restoration project, including review of contractors' mixing methods and materials, and conducting soil sampling and laboratory testing coordination for sample permeability and compaction verification. Michael Baker provided construction oversight for the restoration of Brush Run Stream. Michael Baker's services included daily contractor monitoring, quality assurance, quality control testing, project scheduling for the installation of a stable stream channel and channel liner. This project mitigated the effects of stream flow loss due to mine subsidence by incorporating a bentonite clay channel liner to prevent infiltration of runoff into the bedrock strata, and implemented natural channel design to establish a stable stream geometry and improve biological habitat.

Presentations

Landsliding in Pennsylvania J.V. Hamel. 46th Highway Geology Symposium, Charleston, West Virginia. Substitute presenter for J.V. Hamel (who could not attend), May 15, 1995.

Publications

Rock Slope Risk Assessment, Pittsburgh Airport Busway. James V. Hamel (GTECH, Inc., Pittsburgh, PA), Gordon M. Elliott (Consulting Engineer, Wexford, PA) John D. Lasko (Michael Baker, Beaver, PA), Chris A. Ruppen (Michael Baker, Beaver, PA). Published in The Proceedings for the Second International Conference on Environmental Management (ICEM2), February, 1998, Wollongong, Australia.

J. Steve Frazer, P.S.

Surveyor/Civil Associate

General Qualifications

Mr. Frazer is currently employed as a Civil Associate and Surveyor at the Charleston, West Virginia office. Mr. Frazer has over 26 years of diverse surveying experience that includes geomatics, topographic, aerial mapping control, research, boundary, right of way, construction stake-out, site development, volumetric, pipeline and forensic surveys.

Experience

West Virginia Army National Guard – Coonskin Complex Perimeter Fence, Charleston, West Virginia. *Construction and Facilities Management Office.* Project Surveyor. Responsible for project control, topographic mapping, utility locations, construction stake-out. Michael Baker performed complete planning, design, and construction management services for the installation of approximately 5,000 linear feet of chain link security fence including gates, cable reinforcement, removable vehicle barriers, card reader access points, security lighting, and road widening for the Coonskin Complex in Charleston, West Virginia. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

130th Airlift Wing West Virginia Air National Guard – Force Protection/Relocate Coonskin Drive, Charleston, West Virginia. *USPFO for West Virginia.* Project Surveyor. Responsible for project control, topographic mapping, core boring locations, utility locations, construction stake-out. Michael Baker performed complete planning, design, and construction management services for the relocation of Coonskin Drive which will serve as the new entry point into the Joint Forces National Guard Base in Charleston, WV. The project includes concrete and asphalt pavement roadway and parking areas, designated vehicle inspection area, guardhouse, lighting, signage, landscaping, site utilities, chain link security fence including gates, cable reinforcement, ornamental gate, vehicle barriers, and card reader access points. Michael Baker provided Construction Administration and inspection services as well as periodic site review during construction.

Sidewalk and Streetscape Improvements Projects, West Virginia. *Various Locations.* Professional Surveyor/Crew Chief. Coordinated and executed the development of base mapping, project control, utility location, right of way and property boundary, construction stakeout and monitoring.

Notable locations include:

Town of West Milford
Town of Mason
Town of Parsons

City of Winfield
City of Madison
City of Nitro

Town of Alderson

Years with Michael Baker: 4

Years with Other Firms: 22

Degrees

A.S., 1984, Civil Eng. Technology,
West Virginia Institute of
Technology

B.S., 1986, Civil Eng. Technology,
West Virginia Institute of
Technology

Licenses/Certifications

Professional Surveyor, West
Virginia, 1996

Mart Whitt Branch Property Survey, Elliott County, Kentucky. *Kentucky Department of Fish and Wildlife Resources.* Project Surveyor. Provided complete services for a 400 Acre Boundary Survey. Services included field surveying, courthouse research, final monumentation and assessment of the Title Commitment for the subject property.

Various Projects. *NiSource Corporate Services Company.* Project Surveyor.

- Gas Pipeline Survey and Mapping, Kentucky. Responsibilities included determining survey methods, cost estimates, survey coordination, and gathering and processing survey data.
- NiS Kentucky ILI Site Survey. Responsibilities included coordinating survey efforts for forensic investigation, gathering and processing survey data, preparing deliverables, and client relations.
- CPG – PM3 and NiS Phase II - Clendenin Cobb. Responsibilities included coordinating survey efforts, gathering and processing of survey data, preparing deliverables, and client relations.
- NiSource - PM-17 Line and SM80 ILI Surveys. Responsibilities included gathering and processing field data, survey coordination, and client and contractor relations.
- CPG – Clendenin Cobb. Responsibilities included coordinating survey efforts, gathering and processing of survey data, preparing deliverables, and client relations.

Expression of Interest

Redundant Water and Sewage Systems Design for JFHQ and Camp Dawson

Solicitation Number: CEOI 0603 ADJ170000004



APPENDIX 3 – References



REFERENCES

Each of the Project Profiles found in Appendix 2 lists Michael Baker's client for your use as a reference. Additionally, we offer the following diverse list of past or current clients and contact information.

- **130th Airlift Wing West Virginia Air National Guard**
1679 Coonskin Drive, Unit 18
Charleston, WV 25311-5005
Captain Harry Netzer, P.E., Deputy Base Civil Engineer
(304) 341-6649
- **United States Coast Guard, CEU**
15608 SW 117th Ave.
Miami, FL 33177-1630
Mr. Carlos Garcia, Project Manager
(305) 278-6696
- **West Virginia Department of Transportation**
1900 Kanawha Boulevard East,
Building 5, Room 108
Charleston, WV 25305
Mr. Jimmy Wriston, P.E., Engineering Advisor
(304) 558-9639
- **US Army Corps of Engineers, Louisville District**
600 Dr. Martin Luther King Jr. Place
Louisville, KY 40202
Mrs. Betty Beck, Project Manager
(502) 315-6861
- **City of Winfield**
1 Main Street
Winfield, WV 25213
Honorable Randy Barrett, Mayor
(304) 586-2122