July 6, 2016

Expression of Interest

Huntington Tri-State Armed Forces Reserve Center Motor Pool Design

Solicitation Number: **CEOI 0603 ADJ1600000001**

submitted to
West Virginia Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, West Virginia 25305-0130

submitted by
Michael Baker International, Inc.

Michael Baker
INTERNATIONAL

Michael Baker
INTERNATIONAL

We Make a Difference

July 6, 2016

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

Subject: **CEOI 0603 ADJ1600000001**
Huntington Tri-State Armed Forces Reserve Center – Motor Pool Design

Dear Ms. Rink:

The Charleston office of Michael Baker International, Inc. (Michael Baker) is pleased to respond to the subject Expression of Interest for the WV Army National Guard. We have relevant experience with many of the design elements necessary for this assignment from recent projects including:

- ✓ **ADJ1500000023 – Coonskin Complex Perimeter Fence, prepared for the WVArNG C&FMO**
- ✓ **LYBH049066 – AT/FP / Relocate Coonskin Drive, prepared for the 130th AW WVANG**

Michael Baker is well positioned to assemble a comprehensive design team (in-house) including: Architectural, Surveying, Civil/Site, Geotechnical and Structural expertise. Our diverse team of professionals are well versed in the preparation of construction documents, bid specifications, and the application of required construction permits. Michael Baker can also provide assistance during the Bidding process and the appropriate level of Construction Administration.

We thank you for your consideration and look forward to meeting with the selection committee in person in order to share our thoughts and ideas for this exciting opportunity!

Should you have any questions or require additional information, please feel free to contact me at (304) 769-2132 or by e-mail at pfogarty@mbakerintl.com.

Very truly yours,

Michael Baker International, Inc.

Patrick W. Fogarty

Enclosure

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: 220652

Doc Description: MOTOR POOL HUNTINGTON TRI-STATE AFRC EOI DESIGN SERVICES

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2016-06-08	2016-07-06 13:30:00	CEOI 0603 ADJ1600000001	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.
400 Washington Street East, Suite 301
harleston, West Virginia 25301
304.769.0821

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

ature X FEIN # **25-1228638** DATE 7/6/16

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

FORM ID : WV-PRC-CEOI-001

INVOICE TO	SHIP TO
DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR CHARLESTON WV25311 US	BUILDING TRADE SPECIALIST KENOVA ARMED FORCES RESERVE CENTER 2194 BOOTH RD KENOVA WV 25530 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Motor Pool Addition Huntington Tri-State AFRC		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

Professional engineering design services to develop construction documents to provide for a Motor Pool addition, located at the Huntington Tri-State AFRC, Kenova, WV 25330.

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

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.

Patrick W. Fogarty

(Name, Title)

Patrick W. Fogarty, Practice Manager

(Printed Name and Title)

400 Washington Street East, Suite 301, Charleston, WV 25301

(Address)

304.769.0821 / 304.769.0822

(Phone Number) / (Fax Number)

pfogarty@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)

Russell E. Hall, Vice President

(Authorized Signature) (Representative Name, Title)

Russell E. Hall, Vice President

(Printed Name and Title of Authorized Representative)

7/16/16

(Date)

304.769.0821 / 304.769.0822

(Phone Number) (Fax Number)

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: 220652

Doc Description: ADDENDUM 1 MOTOR POOL HUNTINGTON TRI-STATE AFRC EOI DESIGN

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2016-06-08	2016-07-06 13:30:00	CEOI 0603 ADJ1600000001	2

BID RECEIVING LOCATION

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

VENDOR

Vendor Name, Address and Telephone Number:

Michael Baker International, Inc.
400 Washington Street East, Suite 301
Charleston, West Virginia 25301
304.769.0821

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

Signature X [signature] FEIN # **25-1228638** DATE 7/6/16

offers subject to all terms and conditions contained in this solicitation

DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR CHARLESTON WV25311 US	BUILDING TRADE SPECIALIST KENOVA ARMED FORCES RESERVE CENTER 2194 BOOTH RD KENOVA WV 25530 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Motor Pool Addition Huntington Tri-State AFRC		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

Professional engineering design services to develop construction documents to provide for a Motor Pool addition, located at the Huntington Tri-State AFRC, Kenova, WV 25330.

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

SOLICITATION NUMBER: CEOI ADJ1600000001
Addendum Number: 1

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:

1. To prohibit the submission of Online bids. Vendor shall submit a hard-copy of their response only.
2. To provide purchasing affidavit that was inadvertently not include in the original solicitation documents.

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.: ADJ1600000001

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)

[X] Addendum No. 1	[ ] Addendum No. 6
[ ] Addendum No. 2	[ ] Addendum No. 7
[ ] Addendum No. 3	[ ] Addendum No. 8
[ ] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] Addendum No. 10

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

Michael Baker International, Inc.
Company

Russell E. Hall
Authorized Signature

7/6/16
Date

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

ATTACHMENT A

RFQ No. **ADJ1600000001**

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

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

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

DEFINITIONS:

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

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

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

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

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Michael Baker International, Inc.

Authorized Signature: Pamela E. Hall Date: 7/6/16

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 6th day of July, 2016

My Commission expires April 14, 2023

AFFIX SEAL HERE

NOTARY PUBLIC Stephanie A. Hensley

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
STEPHANIE A HENSLEY
MICHAEL BAKER JR. INC.
5088 WEST WASHINGTON ST.
CHARLESTON, WV 25313
My commission expires April 14, 2023

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PROJECT LOCATION

The proposed Motor Pool will be situated on an approximately 1 ½ acre site located at the Huntington Tri-State Armed Forces Reserve Center, 2194 Booth Drive, Kenova, West Virginia.

PROJECT BACKGROUND

West Virginia Army National Guard, Construction and Facilities Maintenance Office is seeking a highly qualified architectural/engineering firm to provide design services and bid documents for a new Motor Pool at the Huntington Tri-State Armed Forces Reserve Center. The facility will support WVNG troops and will be designed to comply with all applicable building codes, ensure security, and meet AT/FP Standards. The firm will be responsible for evaluation of the existing conditions at the site, to make recommendations, and to prepare the design and construction documents as specified in the Expression of Interest (EOI).

Michael Baker is extremely interested in continuing our professional relationship with the West Virginia Army National Guard, Construction and Facilities Maintenance Office"

Michael Baker International, Inc. (Michael Baker) is a highly qualified firm with extensive experience in providing the type of services required for these projects, and we are extremely interested in continuing our professional relationship with the West Virginia Army National Guard, Construction and Facilities Maintenance Office (WVArNG).

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 entire depth of services (with the exception of geotechnical drilling, if needed) necessary to complete the project without the need for costly sub-consultants. Each individual on this project team has extensive experience in their field of expertise and have demonstrated success on projects of similar size and scope.

The Principal-In-Charge will ensure that all required resources including staff and equipment are available to the project manager to execute the project successfully. Team resumes and project profiles provide a brief discussion of team member's experience base 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

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

NAME	ROLE
PATRICK FOGARTY, P.E., PS, LEED GA	Civil Engineer / Project Manager
NICOLE RILEY	Associate Architect / Architectural Design
BOBBY HOLBERT, P.E.	Roadway Engineering
DAVID HILLIARD, P.E., LEED AP BD+C	Mechanical/Electrical Engineering
LAURA COX, L.A., LEED GA	Landscape Architecture/Permitting
JOHN LASKO, P.G.	Geotechnical Investigation
WAYNE AIRGOOD, P.E.	Structural Engineering
STEVE FRAZER, P.S.	Surveying and Mapping

According to our understanding of the project scope as stated in the EOI, no additional sub consultants will be required. Michael Baker will execute the entire project with our current Charleston office staff.

FIRM CAPACITY

Michael Baker is a full service A/E firm. Our local office in Charleston, WV is a "single-stop resource" capable of providing comprehensive professional services, from Environmental Studies, Roadway/Bridge, Mechanical/Electrical and Structural Engineering to Architecture, Planning, 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, design and construction Administration/Inspection. With over 30 in house professionals locally, Michael Baker can react quickly and efficiently to the needs of your project.

Michael Baker's local clients for facilities development and renovation projects include, but are not limited to, colleges and universities, counties, parishes, cities, townships, local municipalities, state departments of transportation, military facilities, 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 multidisciplinary approach to ***built*** 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.

Michael Baker has extensive resources and the required qualifications to provide planning, engineering and design services for the WVArNG 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:

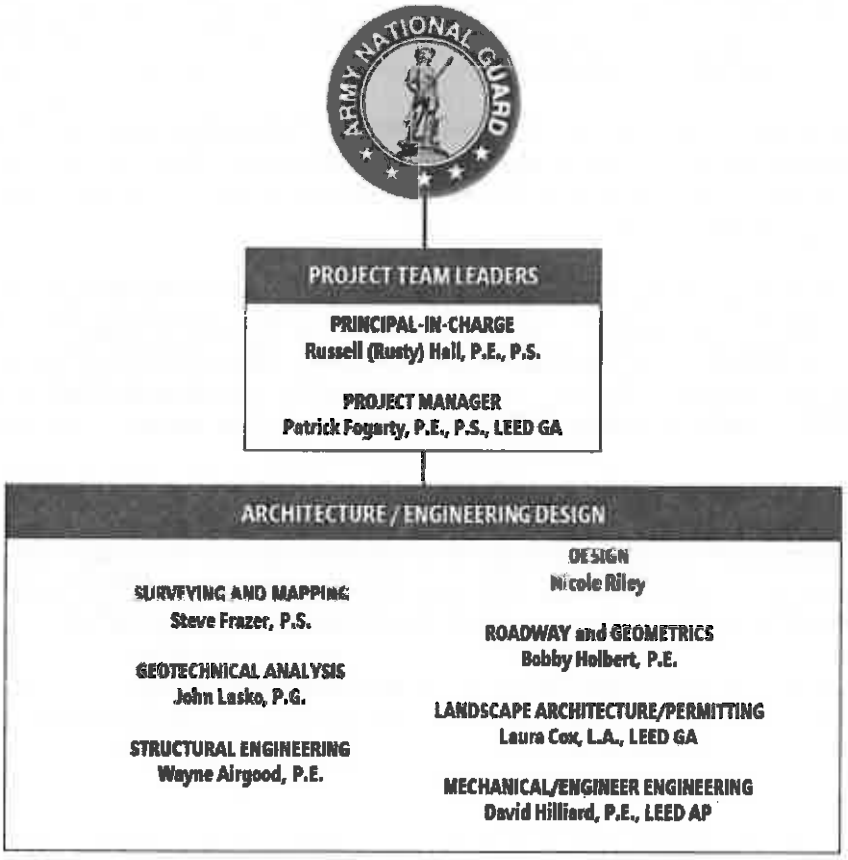
- Nationally recognized expertise in Assessing, Programing and Planning
- Facilities Engineering (Transportation, Civil, Mechanical, and Electrical)
- Construction Administration and Construction Monitoring
- Coordination with State and Federal Agencies, as required

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 WVArNG 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.

PROJECT ORGANIZATION



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 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 Department of Defense projects. These include various projects from across the country and while many are much larger in scope, most include vehicle storage and maintenance elements.

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 a new Motor Pool is desired for the Huntington Tri-State Armed Forces Reserve Center. The completed project will include site access, storm drainage elements, fencing and lighting and will incorporate all provisions for security and Anti-Terrorism / Force Protection (AT/FP).

We recommend that an initial meeting be held to help us understand the WVArNG 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 the WVArNG, the Huntington Tri-State AFRC 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 site. The approach methodology for the project will be holistic in nature, combining the vision of the WVArNG, the mission of the Huntington Tri-State AFRC, the site opportunities and limitations, and the applicable code and design guidance documentation.

In order to meet the goals and objectives of the WVArNG, 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 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 and in particular, the AT/FP and Security requirements therein, having recently completed the Coonskin Complex Perimeter Fence and New Entry Point projects at the WVNG Joint Forces Headquarters in Charleston.

GOAL/OBJECTIVE 1: SITE INVESTIGATION

Michael Baker will conduct a site investigation as follows. A survey team will be responsible for identifying existing site conditions, topography and locating utilities and other components in the project area. This team will be led by a Licensed Professional Surveyor. Survey data will be reduced and downloaded for preparation of the base mapping. Using the base mapping and other pertinent information gathered at the Kick-Off meeting, Michael Baker will prepare a drilling program for sub-surface investigation. Samples collected from core borings will be characterized and tested. Michael Baker will prepare a geotechnical report describing the geology encountered at the site and recommendations for earthwork, foundation design and pavement design.

GOAL/OBJECTIVE 2: CONCEPT PLANNING

Based on the site investigation and facility-specific information, Michael Baker will develop schematic design concepts for review and approval by the WVArNG. A general code review would also be undertaken to determine State and Local Codes that would affect concept selection. The project will be studied in a systematic way to analyze the existing conditions, Client needs, and affected facility demands such that appropriate solutions are defined to meet all requirements. Analyzing multiple solutions provides the Client the ability to choose the most cost effective and sustainable approach for the project.

For each concept, a separate AT/FP diagram and budgetary cost opinion will be provided for review and approval.

GOAL/OBJECTIVE 3: DESIGN DOCUMENTS

Upon approval of the concept, Michael Baker will provide all necessary design documents in accordance with UFC directives and all applicable codes for all aspects of the design. Specifications for the installation of all required products or components will be provided as part of the Design Development submittal.

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 on-site utilities or service lines, cut/fill slopes, type, size, and location of storm drainage and other proposed elements, security lighting, fencing, pavement geometrics (horizontal and vertical), pavement marking and signage. 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 Design Development (65%) submittal.

GOAL/OBJECTIVE 4: BIDDING AND CONSTRUCTION DOCUMENTS

Upon approval of the 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.

A final unit price cost opinion 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.

GOAL/OBJECTIVE 6: CONSTRUCTION ADMINISTRATION
Once the construction contract is awarded, Michael Baker will provide support to the WVArNG 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 and 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.

APPENDIX 1 – Resumes

Michael Baker
INTERNATIONAL

We Make a Difference

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

Assistant Vice President and Charleston Office Manager

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

General Qualifications

Mr. Hall currently serves an 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.

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.

Michael Baker
INTERNATIONAL

We Make a Difference

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

Civil Engineer, Facilities Practice Manager

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

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.

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 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.

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.

Michael Baker
INTERNATIONAL

We Make a Difference

Nicole Riley

Associate Architect / Project Manager

Years with Baker: 1

Years with Other Firms: 16

Education
Bachelor of Architecture, Virginia Tech 1998

Licenses/Certifications
Associate A.I.A.

NJ Drafting Certificate, Sussex Tech

General Qualifications

Ms. Riley brings more than 17 years of design and project coordination experience to the project. While at Michael Baker, Ms. Riley has focused most of her time on design and coordination with the client while maintaining a close relationship with the design team, from the early assessment of project planning stages to the construction administration. Ms. Riley's project design experience includes facilities for entrepreneurs, correctional, educational, institutional, military installations, commercial, residential, and religious facilities. She is experienced with the submittal and construction process for various state agencies including the WV State Fire Marshal and West Virginia State Police.

Experience

Multi- Purpose Facility for the West Virginia State Police Academy, Institute, West Virginia
Designer and Project Manager. Responsibilities included site investigation, cost estimate, architectural design and collaboration with geotechnical engineer as well as the West Virginia State Police staff overseeing the project. The facility employs a skylight system in the main gym, intended to provide natural light to the user as well as lowering electricity expense. Special consideration was given to the underground foundation and location of the facility at the Academy.

Glenn Jean Armed Forces Reserve Center/ Military Entrance Processing Station, Glen Jean, West Virginia. ***West Virginia Army National Guard/ U.S. Department of Defense.*** Designer and Project Manager. Responsibilities included complete design package and collaboration with staffs from both the state and federal entities for the 110,000 S.F. facility. Special consideration given to force protection, geotechnical challenges, helipad design and location, vehicle repair and petroleum storage, adequate mustering space, as well as medical office spaces.

Economic Development Center, Charleston, West Virginia. ***West Virginia State University Gus R. Douglass Extension,*** Designer and Project Manager. Responsibilities included: feasibility study, budget development and construction documents and construction administration services for total renovation of a 5,000 S.F. facility. Diverse use of facility lent to consideration for recording studios, digital green studio, office space for entrepreneurs, and public gathering space.

Michael Baker
INTERNATIONAL

We Make a Difference

Robert D. Holbert, III, P.E.

Senior Roadway Engineer

Years with Michael Baker: 14
Years with Other Firms: 1

Degrees

B.S., 1998, Civil Engineering, West Virginia University Institute of Technology

Licenses/Certifications

Professional Engineer - West Virginia, 2003

Safety Inspection In-Service Bridge, 2006

General Qualifications

Mr. Holbert has over 13 years of civil engineering experience. His experience includes three summer internships with the West Virginia Department of Transportation as a construction inspector. He has experience with multiple components of roadway design including geometric design, earthwork, right-of-way, pavement design and plan preparation. He also has experience with water resources, including major and minor drainage design and hydraulic modeling using Hec-Ras. Mr. Holbert is very proficient with MicroStation and Geopak design software.

Experience

I-64/U.S. 35 Interchange Study, I-64 to WV 34 Interchange, Putnam County, West Virginia. *West Virginia Department of Transportation, Division of Highways.* Civil Associate. Part of the team that prepared construction and right-of-way plans for 2.5 miles of divided highway which included two interchanges and a flyover, earthwork quantities, setting horizontal and vertical control for the project. Required coordination with Right-of-Way, Stream Mitigation and CADD work. This project under first phase was for the study of two interchange sites on I-64, Cow Creek and Crooked Creek. This project under the final phase was for the complete preparation of right of way plans and construction plans for a new location of US 35 from I-64 (Crooked Creek location) to and including an interchange with WV 34.

Appalachian Corridor H, Section 6, E. Hardy County 220/8 to WV 55 Interchange, Moorefield, West Virginia. *West Virginia Department of Transportation, Division of Highways.* Highway Engineer. Responsible for the preparation of construction plans for six miles of divided highway, setting horizontal and vertical control for the project, which included two interchanges, and two median transitions, while avoiding historical properties and minimizing visual impact. Coordination of Right of Way and CADD work. Responsible for the design of the erosion control on contract 02, NPDES permit on contract 04, and all components of highway design on all contracts in section 6. This project involved the study, design and final construction plan development for a new roadway beginning 0.6 miles southeast of Hardy County 220/8 and continuing eastward 6.6 miles to an interchange with WV 55. This project included an interchange with the Moorefield Bypass, a ramp connector road south of the corridor west from the possible future Moorefield Bypass to a proposed reconstruction of US 220, a closure study of the floodwall on the north end of Moorefield near this Section 6 proposed highway location, six bridges and completion of an interchange (two ramps) with WV 55 on the east end of the project.

Moorefield Bypass, Moorefield, West Virginia. *West Virginia Department of Transportation, Division of Highways.* Civil Associate. Responsible for the preparation of preliminary construction plans for the five miles of divided highway, earthwork quantities, setting horizontal and vertical control for the project, while avoiding historical properties and minimizing visual impact. As part of this project, Michael Baker prepared a Purpose and Need Study to construct an approximate 5-mile roadway to serve as a bypass of the center of Moorefield in

Hardy County, West Virginia. The project was developed to address the region's increasing transportation demands and growing traffic safety concerns.

Route 60 Environmental Assessment, Kanawha County, West Virginia. ***West Virginia Department of Transportation, Division of Highways.*** Civil Associate. Responsible for the study of three alternatives to upgrade a four mile section of the existing two lane to a four lane. Various median widths and different profiles to accommodate the steep terrain and allow for median cross-over were studied. Coordination with cultural and environmental resources was required. The West Virginia Department of Transportation (WVDOT) in conjunction with the Federal Highway Administration (FHWA) is proposing to upgrade U.S. Route 60 in Kanawha County, West Virginia. The project begins near the US 60 intersection with County Route 85 (south of Hugheston), and generally extends west approximately 3.6 miles, ending approximately 0.29 miles west of WV 6 (north of Montgomery). Existing US 60 is a two-lane facility that currently exhibits increased congestion and reduced safety due to unlimited access from communities adjacent to the road. The upgrade will result in increased safety and reduced congestion for through-traffic and vehicles entering and exiting US 60. Michael Baker prepared collected all natural, physical, and environmental baseline data and prepared an Environmental Assessment for the proposed project.

Consol-Miller Creek Preliminary Roadway Design. ***Consol, Inc.*** Highway Engineer. Responsibilities included the development of preliminary construction plans to maximize the use of a future strip mine in the ultimate King Coal Highway. Duties included drainage, earthwork, and setting line and grade. The purpose of this project was for the study and the development of a preliminary alignment for an eight mile section of a four-lane divided highway.

Michael Baker
INTERNATIONAL

We Make a Difference

David J. Hilliard, P.E., LEED® AP

Mechanical/Electrical/Plumbing Engineer

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

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.

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 resent 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

Other pertinent experience

Heart and Vascular Center - CAMC Memorial Hospital, Kanawha City, West Virginia. Mechanical Engineer. Performed design calculations, layout of Plumbing, HVAC ductwork, piping and components for three floors of the Clinical Teaching Center; Lobby, Cath Labs and patient rooms. This work was all done in affiliation with BSA Life Structures

Fairmont State University, Student Activities Center; Fairmont West Virginia. For this project, Mr. Hilliard worked on the HVAC Design, coordination and construction of the student recreation center for Fairmont State. The HVAC systems included large packaged rooftop units with VAV zone control, a pool area with fabric duct system, locker room exhaust, exposed spiral ductwork in exercise and gym areas and a building smoke evacuation system.

Ashland Community and Technical College; Ashland, Kentucky. Mr. Hilliard worked on Design Evaluation and Coordination of the Medium Pressure VAV Mechanical System. He prepared shop drawings and coordination drawings. His duties also included Construction Administration.
Mountain State University School of Business and Applied Technologies; Beckley West Virginia. Mr. Hilliard worked on Design Evaluation and Coordination of the Mechanical System. He prepared shop drawings and coordinated construction.

Michael Baker
INTERNATIONAL

We Make a Difference

Laura Cox, PLA, ASLA, LEED Green Associate

Landscape Architect/Planner

Years with Baker: 8

Years with Other Firms: 27

Education

B.S., 1978, Landscape Architecture, West Virginia University

Certificate, 1995, Computer Aided Drafting, Putnam County Technical Center

Licenses/Certifications

Landscape Architect, Virginia, 1987

NICET III Transportation-Highway Construction, West Virginia, 1983

Registered Landscape Architect, West Virginia, 2008

Licensed Landscape Architect, New Jersey, 2010

General Qualifications

Ms. Cox is a Registered Landscape Architect with over 30 years of experience in the fields of landscape architecture and land planning. She has knowledge of all phases of design from site analysis and conceptual planning through construction documentation, permitting and administration. Her design experience includes large scale site preparation and grading, drainage analysis, storm water conveyance and detention, and utility and infrastructure design.

Ms. Cox has an extensive background in site and land use planning for counties and municipalities including, feasibility studies, review and evaluation of preliminary and final subdivision plans, special exceptions, rezoning applications, yield studies, special use permits and client representation at public hearings and meetings with civic groups.

Experience

Ararat River Restoration, Greenway, and Parks Project, Mount Airy, North Carolina. *City of Mount Airy, North Carolina.* Landscape Architect. Assisted in the preparation of construction documents and provided construction administration and construction inspection for three (3) parks along the Ararat River in North Carolina. Michael Baker prepared construction documents and construction administration and inspection services for three parks along the Ararat River in North Carolina: the first park, Riverside Park, includes basketball courts, playground structures, parking areas, a premier soccer field, picnic shelters, nature trails, canoe launch facility, restrooms, fencing, signage and landscaping. Rowe Environmental Park will showcase environmental issues in the park design and construction including an outdoor amphitheater/classroom, picnic facilities, nature trails, parking area, pedestrian bridge to nearby middle school, fishing access and canoe launch facility. The final park, Tharrington Park, includes a premier soccer field, additional soccer fields to create a soccer complex, access road and parking, fitness trail, restroom facility, concessions, and maintenance building.

US 33 Streetscape Improvement Project - Phase II, Mason, West Virginia. *Town of Mason.* Landscape Architect. Assisted in the preparation of construction documents. Michael Baker performed complete detailed design, construction document preparation and construction management services for new sidewalks and storm sewer improvements the Mason Phase II Streetscape Project. The improvements included concrete sidewalks with integral concrete curbs, driveway curb cuts, ADA accessible curb ramps with truncated domes, ladder-style crosswalks, storm sewer improvements, benches and trash receptacles. Michael Baker provided construction administration and inspection services.

Technical Assistance to Caroline County for Implementation of UDA Requirements. *Virginia Department of Transportation.* Project Planner. Assisted with conducting or reviewing all aspects of technical analysis to develop Comprehensive Plan, Zoning and Subdivision Ordinance revisions to bring the County into compliance with the Urban Development Area requirements. Michael Baker was also responsible for completing technical memo outlining the transportation demand reductions the UDA developments will bring to the County and VDOT

Marshall University 2012 Master Plan. Michael Michael Baker is currently involved with Smith Group JJR and a team of specialized firms to provide a comprehensive Campus Master Plan for Marshall University. The Master Plan will provide a framework for long- and short-term planning that is clear and flexible – responding to changing needs and conditions as the University continues to evolve. Ms. Cox is part of the Michael Baker Team which is working on various portions of the plan including; Transportation Planning, Existing Building Assessment, Utility Infrastructure, Community Involvement and Site / Civil Support. The Master Plan is scheduled for completion in December of 2013.

KYOVA Long Range Transportation Plan. Laura worked with the Michael Baker team on area wide land use topology and growth pattern documents for the plan update. She also participated in a design charrette held in Huntington where various redevelopment and streetscape improvement scenarios including such criteria as ADA compliance were explored as well as methodologies to accommodate the needs of the City of Huntington and Marshall University.

WV AIA Livable Communities Committee. Laura currently serves as the chairman of this community which assists West Virginia communities to realize their dreams of downtown revitalization by beginning the process of identifying their needs and assessing design possibilities. They are currently working on a plan for an overlay district in Parkersburg. Streetscape improvement recommendations will include creation of ADA compliant crosswalks and curb ramps.

West Virginia Capitol Complex Master Plan, Charleston, West Virginia. *WV Department of Administration.* Project Planner, Ms. Cox assisted in providing the State of West Virginia General Services Division a comprehensive campus-wide master plan for the 55+ acre state capitol campus. Ms. Cox was part of the Michael Baker Team which worked in conjunction with the owner and a team of specialized consultants providing planning elements including master planning, public involvement, document management, facilities planning, and document preparation. Ms. Cox also performed a campus level ADA Compliance report with recommendations on necessary upgrades.

Parsons City-Wide Comprehensive Parks and Recreation Master Plan, Parsons, West Virginia. *Parsons Park Board, Inc.* Landscape Architect. Assisted in the plan preparation and public outreach for this project. Michael Baker prepared a Master Plan of improvements and recommendations for existing and proposed parks and recreation amenities for the City of Parsons, WV. The City, over time, had acquired many parcels of FEMA-condemned properties due to the flood-prone topography of Parsons; in an effort to properly manage existing facilities, yet prepare for the future of the additional facilities scattered throughout the community, this master planning effort was begun. Through a series of public meetings and stakeholder meetings, a final plan was developed with recommendations for ball fields, hiking and biking trails, recreation center, miniature golf course, play structures, picnic facilities, ADA-compliant fishing access, interpretive signage, and landscaping improvements for existing and new park areas.

Michael Baker
INTERNATIONAL

We Make a Difference

John D. Lasko, P.G.

Senior Geologist

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, [redacted]

14.2.1 Geotechnical Testing, Pennsylvania

14.1.1 Soil Exploration, Pennsylvania

PennDOT Inspector, Level I, Pennsylvania, 1999, 99-2-029

PennDOT Inspector, Level 2, Pennsylvania, 1999, 99-2-029

NS Roadway Worker Protection Certification, 2015

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 dams, 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 modifications, 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.

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 crossings. 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.

Michael Baker
INTERNATIONAL

We Make a Difference

Wayne Airgood, P.E.

Structural Engineer

Years with Michael Baker: 8
Years with Other Firms: 23

Degrees

B.S.C.E., 1984, Structural Engineering, Geneva College

Licenses/Certifications

Professional Engineer, Pennsylvania, 1999, [redacted]

Professional Engineer, Maryland, 2013, 43414

Professional Engineer, North Carolina, 2014, 041701

General Qualifications

Mr. Airgood is a practicing structural engineer with experience in the design of commercial, institutional, light industrial building structure, and foundation systems.

Experience

Design of Central Issue Facility, Fort McCoy, Wisconsin. *U.S. Army Corps of Engineers, Louisville District.* Mr. Airgood was the senior structural engineer of record responsible for design of the building structure and foundation systems from concept through construction of an approximate 62,553-square-foot large-sized Central Issue Facility (CIF) to expedite the shipping and receiving, distribution, processing, and exchange of soldier equipment. The structural system consisted of steel joist and girder framing supported by interior steel columns and exterior precast, insulated concrete load-bearing walls. Foundations were soil supported, isolated and continuous, reinforced spread footings.

Container-Loading Facility Design, Fort McCoy, Wisconsin. *U.S. Army Corps of Engineers, Louisville District.* Mr. Airgood was the senior structural engineer of record responsible for the design of a clear span steel roof framing system to achieve column-free interior warehouse space of a 30,862-square-foot Container-Loading Facility. Roof framing system is supported by interior steel columns and exterior precast, insulated concrete load-bearing walls. Foundations were soil supported, isolated and continuous, reinforced spread footings.

Montgomery County Public Schools Foodservices Facility. *Montgomery County, Department of General Services.* Mr. Airgood was the senior structural engineer of record responsible for the development and design of structural framing and foundation systems for 70,000-square-foot food production, warehouse and distribution facility. His responsibilities included coordination with owner/user and other engineering disciplines throughout design, performing and overseeing of production structural design calculations and documents and construction administration services such as review of structural product submittals and periodic site visits.

West Haven Commuter Rail Station Engineering Design, West Haven, Connecticut. *Connecticut Department of Transportation.* Mr. Airgood was the senior structural engineer responsible for the structural framing and foundation design of a two story passenger train station building. The station building featured a two story, glass curtain wall enclosed passenger waiting area with exposed to view curved roof structure. The design also included a 75 foot span, glass curtain wall enclosed pedestrian bridge spanning over the four rail line track bed to connect the station building with a new two story stair and elevator tower. His responsibilities included coordination with engineering and architectural disciplines during design, performing and overseeing of production structural design calculations and documents, and review of fabrication shop drawings and other construction administration services as related to the building structural systems.

Penn Hills Operations Center Addition, Penn Hills, Pennsylvania. *Duquesne Light Company.* Mr. Airgood was the senior structural engineer of record responsible for the development, design, and detailing of a load bearing masonry wall and steel framing addition to an existing facility.

Design-Build Tactical Equipment Maintenance Facilities, 31st ADA Brigade, Fort Sill, Oklahoma. *U.S. Army Corps of Engineers, Tulsa District.* Mr. Airgood was the senior structural engineer responsible for the design of the foundation systems to support an 18,000-square-foot, 35,200-square-foot, and 57,031-square-foot pre-engineered steel Tactical Equipment Maintenance Facilities (TEMF), and a 20,000-square-foot Supply Support Activity facility supply support activity warehouse (SSA). Because of existing expansive soil conditions, the ground floors of each building were designed as reinforced concrete floor systems with a void space between the expansive soil and floors. The concrete floor system and PEMB structural columns were supported by a deep foundation system of drilled concrete piers extending to rock. His responsibilities included review of structural fabrication drawings, attending design coordination meetings and periodic site visits during construction.

Buildings 200 & 250 of Imperial Business Park, Imperial, Pennsylvania. Mr. Airgood was the lead structural engineer responsible for the development and design of the structure and foundation systems for two, 250,000-square-foot warehouse facilities. Responsibilities also included construction administration services such as review of structural product submittals and periodic site visits. Each building consisted of steel joist and joist girder roof framing supported by interior steel columns and exterior precast concrete bearing and shear walls. Foundations were soil supported, isolated and continuous, reinforced spread footings.

ABB Manufacturing and Office Facility, Mt. Pleasant, Pennsylvania. Mr. Airgood was the lead structural engineer of a high-bay manufacturing, testing and warehouse facility for electric transformer equipment, including an attached two-story office area. The structural systems consisted of precast concrete wall panels enclosing a steel framed interior column and roof structure, including the support of numerous under-hung crane systems throughout the facility ranging from 5- to 20-ton capacities. The lateral framing system was a combination of steel braced and moment frames, and foundations were soil supported isolated and continuous, reinforced spread footings.

Fuel Cell Facility, Pittsburgh, Pennsylvania. *Siemens Westinghouse.* Mr. Airgood was the lead structural engineer of a high-bay manufacturing facility, warehouse and two-story attached office area. The structural systems consisted of precast concrete wall panels enclosing a steel framed interior column and roof structure. The lateral framing system was a combination of steel braced and moment frames, and the structural design included support of various top running bridge crane systems ranging from 10- to 40-ton capacities. The foundations were soil supported isolated and continuous, reinforced spread footings.

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J. Steve Frazer, P.S.

Surveyor/Civil Associate

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

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	City of Winfield	Town of Alderson
Town of Mason	City of Madison	
Town of Parsons	City of Nitro	

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.

APPENDIX 2 – Project Profiles

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U.S. Army Reserve Center OMS/AMSA/STRG

North Canton, Ohio

The U.S. Army Reserve required a Training Center and Organizational Maintenance Shop/Area Maintenance Support Activity (OMS/AMSA) facility for the 88th Reserve Support Command. The complex was to be of design-award-winning caliber as well as functional, durable, and easy to maintain while being sensitive to first costs, operating costs, and aesthetics. The 88th RSC includes the following units:

- 416th FETDA
- 192nd Company Petro Supply
- 762nd Transportation Company
- 758th Maintenance
- 256th CSH Hub Detachment 2
- 79th QM Company Detachment 2
- 447th MP Company
- AMSA 3-Canal Fulton

Client

U.S. Army Corps of Engineers,
Louisville District
Room 972
600 Dr. Martin Luther King, Jr.
Place, P.O. Box 59
Louisville, Kentucky 40202

Completion Date

2006

Michael Baker's Role

- Design-Build delivery
- Site/Civil engineering
- Geotechnical engineering
- Landscape architecture
- Architecture
- Architectural renderings
- Sustainable design
- Mechanical engineering
- Fire protection and plumbing design
- Electrical engineering
- Structural engineering

Approximately 400 reservists work and train in the new facility. The Army Reserves units were housed in three government-owned facilities, two leased facilities, and one facility on leased land. The new complex reduces operational costs to the government while significantly improving unit readiness and mobilization, and increases the proficiency of service members.

The 61,344-gross-square-foot Training Center and OMS/AMSA is comprised of a one-story L-shaped building with a two-story element at the connection of two wings. Clerestory translucent panels were used in the maintenance bays and unit storage areas to allow the opportunity for daylighting and design expression.

The Training Center portion of the building houses offices and administrative spaces, caged unit storage, classrooms, library, learning center, physical readiness, engagement skills trainer, COMSEC training room, arms vault and armory's room, assembly hall, kitchen, toilets, lockers, showers, and building support functions.

The physical readiness area contains a 1,600-square-foot fitness center outfitted with a full complement of various athletic equipment including treadmills, exercise bikes, steppers, nautilus machines, and free weights. Much of the equipment provided is human-powered, thereby reducing energy costs and eliminating any outside power requirements. The designs employ sound-absorbing building materials throughout and soft, absorbent flooring which reduces user fatigue and protects floor substrates. To enhance the user's experience, cable television is

provided as well as appropriate lighting and outside views. Supporting men's and women's showers and locker rooms are also included.

The OMS/AMSA portion of the building houses office and administrative areas, tool and parts storage, 10 work bays, one welding bay, controlled and flammable storage, wash bay, and building support functions. One drive-through bay is serviced by an overhead traveling crane.

The project also included paving design for on-site parking and storage for 238 military vehicles, including Hum-V's and trailers, along with 150 spaces for privately-owned vehicles. Additional on-site storage is provided by an unheated storage building, a long narrow pre-engineered metal building with two small enclosed spaces for the storage of fittings. The remainder of the building is open on one side and used for the storage of fuel bladders. This structure's shape and arrangement on the site was dictated by varying AT/FP setbacks related to levels of occupancy. The new facility conforms to AT/FP requirements for setbacks, barriers, walls and other reinforced building components.

An on-site design charrette kicked off the project and included all project stakeholders: the U.S. Army Reserves, client, and the design-build team members. The project's conceptual design was jointly developed, carrying forward and further developing the design intent established in an earlier phase, including full Structural Interior Design (SID) and Comprehensive Interior Design (CID) packages. The new energy-efficient facility was designed to achieve a Silver SPiRiT Rating for sustainability. Design considerations include water-efficient landscaping, use of recycled and sound-absorbing building materials, collection and storage area to accommodate a recycling program, and an overall design that will accommodate other potential building uses into the future.

The Design-Build Team

Michael Baker teamed with two other consultants for this design-build project, providing the architectural and engineering design services from 35% documents through construction.

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U.S. Army Reserve Center OMS/AMSA/STRG

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U.S. Army Reserve Center

Naval Station Newport, Rhode Island

As directed under the BRAC 2005 initiative, eight U.S. Army Reserve Centers (USARC) were consolidated and relocated into a new facility that provides adequate training space for the newly formed 400-member Reserve unit. The consolidation facilitated the closure and disposal of three units, including: Quinta-Gamelin USARC; PVT Lloyd S. Cooper III USARC; and CPT Jonathan H. Harwood Jr. USARC. Michael Baker was tasked to provide full design documents for the project's construction.

The new 7.5-acre site was developed to include three structures, totaling 64,828 square feet, including a two-story, 58,976-square-foot USARC Readiness Training Center (RC), 3,115-square-foot Organizational Maintenance Shop (OMS), and a 2,735-square-foot Unheated Storage (UHS) facility. The RC offers administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for the eight consolidated Army Reserve units. The OMS provides work bays and maintenance administrative support. A UHS and adequate organizational parking spaces for all military and privately-owned vehicles were also provided.

Buildings are of permanent construction with HVAC, plumbing, mechanical, security, and electrical systems. The structures are in compliance with ADA requirements for accessibility by the disabled. Supporting facilities included land clearing, paving, fencing, general site improvements, and extension of utilities to serve the project. Anti-terrorism and force protection measures included maximum standoff distances from roads, parking areas, and vehicle unloading areas. Berms, heavy landscaping, and bollards were used to prevent access when standoff distances could not be maintained. Sustainable Design and Development (SDD) and Energy Policy Act of 2005 (EPAct05) features were provided to meet the Silver level of LEED® certification.

Michael Baker's services included conducting a design charrette, developing the conceptual design, performing value engineering, and providing the Louisville District, U.S. Army Corps of Engineers with a design-bid-build package.

Client

U.S. Army Corps of Engineers,
Louisville District
Room 972
600 Dr. Martin Luther King, Jr.
Place, P.O. Box 59
Louisville, Kentucky 40202

Completion Date

2011

Michael Baker's Role

- Design Charrette
- Value Engineering
- Sustainable Design
- Site/Civil Engineering
- Anti-terrorism and Force Protection
- Demolition Design
- Architecture
- Comprehensive Interior Design
- Structural Engineering
- Mechanical Engineering
- Plumbing Design
- Fire Protection Engineering
- Electrical Engineering
- Communications Design
- Cost Estimating

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Operational Readiness Training Complex

Fort Drum, New York

Client

U.S. Army Corps of Engineers, New York District
4838 Delahanty Avenue
Fort Drum, New York 13602

Completion Date

2008

Michael Baker's Role

- Design Charrette
- Civil Engineering
- Geotechnical Engineering
- Structural Engineering
- Mechanical Engineering
- Plumbing Design
- Electrical Engineering
- Communications Design
- Anti-terrorism and Force Protection
- Sustainable Design

Michael Baker provided architectural and engineering services in the preparation of designs for Design-Build RFP documents for a $200M Operational Readiness Training Complex (ORTC). The ORTC is intended to support recurring Reserve and Guard unit annual training and pre-mobilization training support at Active Component installations for battalion sets. Optimized for use by Functional Brigades, with modularized subordinate elements, the ORTC design will also facilitate training support of battalion-sized units augmenting a larger Brigade Task Force.

The layout will accommodate a full Brigade unit, which is comprised of six individual Battalion units. The layout contains a central corridor that runs throughout the entire ORTC, which contains the Brigade Headquarters, Battalion Headquarters, Officer's Quarters, and DFAC buildings, and contains three general purpose areas, physical fitness training area, and formation fields accessible to all Battalion units. The central corridor enhances unit integrity throughout the complex. The main roadway surrounds the central corridor and loops around at the middle and end of the complex to create continuity and facilitate overall traffic circulation. Consolidated POV parking, laid out parallel to the roadway, is located directly outside of the central corridor and main roadway. The barrack buildings and TOE parking lot area, which contains the vehicle maintenance facility, company operations facility, hardstand area, sheds, and a gravel tent maintenance area, are located directly outside of the POV parking area. The archaeological site will be transformed into a parade field for preservation and utility of space. The future layout is anticipated to contain an administration building, which will be located south of the future alert holding area.

The overall site layout supports phased development. The final Brigade ORTC layout will contain six Battalion units. Each unit contains a single Officer's Quarters, Battalion Headquarters, and DFAC building, two four-story barracks, half of a central parade field, POV parking, and TOE parking. The buildings of each unit remain congregated together in the layout.

Details of the individual facilities include the following:

- *Brigade Headquarters.* The 10,238-square-foot facility was designed to accommodate the Brigade administration, including officials and section leaders, surgeons, and chaplain. Offices, an emergency operations center (EOC) and appropriate storage rooms, and a conference room will be included.
- *Battalion Headquarters.* The 11,237-square-foot facility was designed to accommodate the Battalion administration with office spaces, conference room, storage areas, and classrooms.
- *Officer's Quarters.* The 22,579-square-foot facility was designed to house officers and senior personnel.

- *Dining Facility (DFAC).* The 16,761-square-foot building was designed to accommodate a Battalion unit, totaling 720 soldiers, in three 30-minute servings.
- *Barracks.* COS Standard design for a single two-story Barracks building accommodates a quarter of a Battalion's enlisted soldiers. The Standard design requires four two-story Barrack buildings per Battalion unit. The proposed design is modified from the COS Standard to include two four-story, 61,117-square-foot buildings per Battalion unit. The reduction of a mechanical room area will allow the inclusion of elevators in each proposed building.
- *Privately Owned Vehicle (POV) Parking.* The POV was designed to provide parking for 10-25% of the standard intended occupants of the ORTC Battalion complex. One Battalion unit requires a minimum of 180 parking spaces, including six designated handicapped parking spaces.
- *Company Operations Facility (COF).* Located within the TOE parking area, the 19,579-square-foot COF was designed to serve a single Battalion unit, incorporating areas for offices and company storage.
- *Motor Pool.* Located within the TOE parking area, the 11,854-square-foot facility was designed to provide one vehicle maintenance area per Battalion unit, and includes a vehicle maintenance facility (VMF), Battalion warehouse with loading dock, company maintenance sheds, and hardstand area to accommodate armored vehicles. All maintenance will occur within this area.
- *General Purpose, Physical Training, and Formation Field.* Provides an open space area for soldier training and assembly. One Battalion unit requires approximately 82,875 square feet of training space.
- *Administration Building.* Future consideration for Fort Drum, not included in the COS Standard, an administration building was designed to accommodate staff to manage the complex, perform maintenance, and reconstitute facilities between uses.
- *TOE Parking.* This area to store military vehicles for each Battalion will include the Motor Pool facility and 33,000 square yards of hardstand area.

General access to the ORTC will be provided through connection to the existing Tank Trail roadway. The entire site will include adequate lighting, fencing and gates to provide controlled access, and utilities to service all buildings. The proposed utilities for the complex will tie into existing utility connections located outside of the project site. Stormwater management was provided through a properly designed collection system in conjunction with detention basins sized to accommodate the development.

A three-day kick-off meeting and design charrette was held to update building layout and site drawings to ensure the integration of this project with future projects. Site utility planning included points of connection and routing of water, sanitary, storm and SPDES, gas, electric, and communications. Facility parameters were established, such as building footprints and road and utility layouts. Utility requirements included evaluation of heating and cooling sources, and estimation of electrical loads, water, and sewage. The sustainability rating for the complex is LEED® Silver.

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U.S. Army Reserve Center

Bethlehem, Pennsylvania

Client

U.S. Army Corps of Engineers,
Louisville District
Room 972
600 Dr. Martin Luther King, Jr.
Place, P.O. Box 59
Louisville, Kentucky 40202

Completion Date

2013

Michael Baker's Role

- Planning
- Demolition design
- Sustainable design
- Site and civil engineering
- Architecture
- Structural engineering

Michael Baker was the designer of record for the construction of a 200-member U.S. Army Reserve Center (ARC). Tasks were performed under an indefinite quantity-indefinite delivery engineering agreement.

The new ARC, which replaces the outdated Wilson-Kramer U.S. Army Reserve Center, is designed to meet the current training and equipment maintenance needs of six U.S. Army Reserve units, as directed by the 2005 Base Realignment and Closure Act.

The new building is constructed on a nearly eight-acre parcel that the government purchased. Michael Baker conducted an engineering feasibility study and assisted with the land purchase, including attending site selection meetings, performing site surveys, and developing the property plat.

The ARC consists of a 42,043-square-foot, two-story Training Building; a 5,480-square-foot, one-story Organizational Maintenance Shop (OMS); a 1,358-square-foot, one-story Unheated Storage Building; 3,364 square yards of paved parking for military equipment; and parking for 128 privately owned vehicles. Michael Baker also designed a crushed stone path for physical training, which travels throughout the site and utilizes on-site paving where available.

The Training Building core areas consist of a weapons simulator room, an arms vault, physical readiness rooms with adjacent showers and locker rooms, classrooms, a library, a learning center, an assembly hall with associated kitchen and unit storage, offices, and administrative spaces. Support areas include heated storage spaces, mechanical and electrical rooms, and a janitor's closet.

The Training Building physical readiness room features a 1,600-square-foot fitness center with a full complement of athletic equipment, including treadmills, exercise bikes, steppers, nautilus machines, and free weights. Much of the equipment is designed for manual operation to reduce energy costs. The designs employ sound-absorbing building materials throughout and soft, absorbent flooring that reduces user fatigue and protects floor substrates.

The OMS is a separate facility surrounded by fenced military vehicle parking and access areas. The OMS houses two 1,100-square-foot work bays and includes tools and parts storage rooms, offices and administrative space. The structure includes a mechanical room, restrooms, and other areas that support building functions. The OMS also has a detached bi-level loading ramp and a pre-engineered, 800-square-foot covered wash bay.

The OMS work bays are single-story, ground-floor, column-free garage areas for the servicing and repair of the full range of Army tactical equipment. They contain maintenance work spaces, separate wash and welding bays, and data and communication connection points. A vehicle exhaust evacuation system and a compressed air system serve each work bay. The air system compressor is located in the building's mechanical room. Work bays are equipped with hose reels for the dispensing of oil and other lubricants and fluids required during inspection and

maintenance procedures. Emergency stations for eye washing, hand washing, and showering that meet OSHA standards are provided.

In addition to the Unheated Storage Building, supporting project elements include grading, paving, fencing, and signage; force protection measures; exterior lighting; utility and storm drainage system connections; fire protection and fire alarm and mass notification systems; and security lighting. Structures also provide access for disabled individuals.

Michael Baker designed the ARC to meet LEED® Silver certification. Michael Baker's services included engineering feasibility evaluation, architecture, surveys, geotechnical investigation, all site and building engineering, cost estimating, value engineering, and LEED® certification administration.

Overall Building Construction

The Training Building and OMS are of permanent construction and include reinforced concrete foundations and concrete floor slabs; structural steel framing; mechanical, electrical, information, security, and fire suppression sprinkler systems; automated building HVAC mechanical and lighting system controls; energy-efficient lighting; interior finishes; window systems; sloped metal roofing; and exterior finishes consisting of attractive masonry facades.

The Unheated Storage Building is a pre-engineered metal building supported by a reinforced concrete foundation with a cast-in-place concrete on-grade floor.

Building Envelope

A structural steel framing system with steel columns, beams, and joists forms the exterior envelope of each of the two primary buildings and supports gravity loads. The exterior wall system of both buildings is brick masonry veneer with rigid cavity insulation and concrete masonry unit (CMU) backup, and the foundation system is slab-on-grade concrete.

The second floor of the Training Building consists of composite steel beam floor framing with a composite steel deck and a reinforced concrete slab.

The Training Building's steel framing system will resist lateral loads imposed by wind and seismic forces. The exterior walls are designed to distribute lateral forces to the roof and floor diaphragms and then to the foundation system. The lateral resistance system of the OMS is a reinforced masonry shear-wall system combined with a semi-rigid moment. Lateral forces applied to the OMS are transmitted to the roof diaphragm and distributed to the shear walls, which then transfer the forces to the foundation.

The roofing system for the Training Building and OMS consists of a hipped, 50-year shingled roof with a 4:12 pitch, with low-sloped roofs over the one-story section of the Training Building and kitchen. All downspouts are connected to the site storm water system.

The Training Building and OMS incorporate thermally broken, anodized aluminum, fixed windows with aluminum storefront assemblies for large expanses of glazing and light at the major building entry point. Insulated, painted metal doors in hollow metal frames serve utilitarian areas.

The pre-engineered metal Unheated Storage Shed incorporates insulated metal wall and roof panels and non-insulated exterior walls.

Interior Systems

The interior design of the Training Building and OMS supports the client's functional and aesthetic needs. Painted gypsum wallboards are used for the majority of interior partitions in the Training Building. Painted CMUs are used for the interior partitions in the OMS. The Training Building unit storage area includes reinforced concrete walls for the arms vault in accordance with Unified Facilities Criteria (UFC); the supply office walls in this area are constructed with CMU for durability. Wall color and floor coverings comply with UFC 4-171-05.

HVAC

The HVAC systems reflect an array of design solutions to serve a variety of spaces and building functions.

The Training Building is served by a natural gas-fired central boiler and air-cooled rotary screw chiller plant with variable air volume air handling units, unit ventilators, and unit heaters. Office space for typical administrative functions is served with a variable air volume distribution system. Carbon dioxide sensors vary the outside air quantities based on real-time occupancies for energy savings. Energy recovery units are located in the toilet, shower, and locker rooms.

The OMS open-bay space is heated with gas-fired radiant heaters as well as a hydronic in-floor radiant heating system. Office space is heated and air conditioned with natural gas-fired furnace systems and split direct-expansion coil air conditioning.

The Training Building and OMS include a direct digital-control automatic temperature control system to regulate and monitor all building HVAC systems.

The Unheated Storage Building does not have HVAC.

Electrical Distribution System

Electrical distribution includes power, lighting, fire alarm and mass notification, structured cabling raceway, public address, cable television distribution, telecommunications, and security systems. The main switchboard, distribution panelboards, and lighting and appliance panelboards for the Training Building and OMS were selected for high reliability, low maintenance, efficiency, and maximum flexibility. As well, the step-down transformers were selected for low-energy loss and short-term overload capability.

Energy conservation was Michael Baker's design priority for interior and exterior building lighting. Interior lighting design incorporates low-maintenance fluorescent fixtures with energy-efficient electronic ballasts and T8 lamps. Interior systems include occupancy sensors to turn off lights and conserve energy in office areas, corridors, and restrooms. Exterior lighting includes building-mounted security lighting with energy-efficient, long-life LED lamp sources. The MEP hardstand includes pole-mounted security lighting.

Michael Baker oversaw preparation of specifications for a complete building lightning protection system with UL master labeling for the Training Building and OMS. The system consists of air terminals located at the roofline with grounding cables and down-conductors and a ground loop buried below grade and routed along the building exterior. Building grounding is accomplished by an underground perimeter grounding loop with bonding of the lightning protection system, metal underground utilities, building steel, and additional code-required items with a single neutral-ground connection point at the main panelboard grounding bus bar.

Plumbing and Fire Protection

The plumbing systems for the primary buildings provide connections for water, oily waste, and sanitary sewer services, including all pipes, fixtures, and equipment. Compressed air and a vehicle fluid delivery system are provided for the OMS building.

Natural gas-fired water heaters located in the Training Building and OMS mechanical rooms and manifold provide the flow rate required for the fixtures served. The water heaters incorporate multiple controllers, a temperature and pressure-relief valve, pressure regulators, shut-off valves, and drain valves. An in-line circulating pump controlled by a time clock and aqua stat maintains water temperature in the loop to the fixtures.

Michael Baker designed a six-inch collection line with four-inch service branches to connect the Training Building and OMS with an eight-inch sanitary main to convey sanitary waste off site.

Michael Baker also specified an industrial water system for the OMS vehicle maintenance bays to be supplied through a reduced-pressure-type backflow preventer feed from the domestic water system. Hose bibs include integral vacuum breakers. All cold-water systems are insulated, and an isolation valve is located upstream of each hose bib. Voltage drops are provided in two corners of each maintenance bay.

To fully protect the Training Building and OMS in the event of fire, an automatic wet-pipe sprinkler system was installed in accordance with UFC 3-600-01, NFPA 72 and UFC 4-021-01. Michael Baker also oversaw design of a fully addressable, intelligent fire alarm and mass notification system to serve each of the primary facilities. The annunciated system is configured for manual as well as automatic operation and electronic supervision. The signaling, initiating, and notification circuits are served by a Class A, looped system. Fire alarm circuit wiring is installed in conduit.

The kitchen hood and exhaust duct system in the Training Building are protected by a wet chemical extinguishing system.

Antiterrorism and Force Protection

Michael Baker and its team integrated protective measures into the design of the proposed ARC that meet U.S. Department of Defense antiterrorism and force protection setback requirements. These include siting of the ARC to achieve the maximum feasible standoff distance from roads, parking areas, and vehicle loading areas and the use of berms, heavy landscaping, and bollards to prevent access when standoff distances could not be maintained; the use of blast-resistant doors and windows; and the incorporation of an emergency shutdown switch to disable all HVAC air distribution systems, as previously described.

Sustainable Design

Sustainability initiatives were implemented throughout building design and construction. Building design incorporates materials and features to reduce environmental effects, save energy, and minimize costs. Materials that are locally available and products with 20-percent recyclable content were used. Occupancy sensors reduce lighting energy consumption. Interior building water-saving features, such as low-flow plumbing fixtures, reduce water consumption by 20 percent. Ozone-friendly refrigerants and refrigerant quantities will minimize ozone depletion.

Michael Baker prepared specifications for the site storm water management plan according to best management practices to ensure that post-development peak discharge rates and volumes are below the limits identified in

current state of Pennsylvania guidelines for the one- and two-year, 24-hour storm. The plan satisfies UFC 3-210-10 by reducing the percentage of impervious cover, providing devices for capturing and treating the runoff anticipated from 90 percent of the area's average annual rainfall, and promoting storm water infiltration through the use of low-impact design infiltration trench techniques.

Landscaping includes native, low-maintenance, drought-tolerant plants and preserves existing trees. The landscaping design minimizes the use of potable water.

Michael Baker also specified the use of measures during construction to prevent soil loss, sedimentation, and air pollution. In addition, construction waste was diverted from landfills to meet LEED® requirements.

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Army Reserve 1222nd Engineer Company Readiness Center

Mechanicsburg, Pennsylvania

Michael Baker is providing architectural and engineering services for a new 100-member U.S. Army Reserve training center. Michael Baker's services include conducting a design charrette, developing the conceptual design, preparing full design documents, performing value engineering, and providing a design-bid-build package. Supporting tasks include land clearing, paving, fencing, general site improvements, and extension of utilities.

The new 23.8-acre site is being developed to include two structures with a total of 26,855 square feet, including a one-story 21-square-foot readiness training center, and an organizational maintenance shop with a 5,368-square-foot integral unheated storage area. The readiness center will include administrative, educational and assembly facilities; a library; a learning center; a vault; and a weapons simulator, for the newly formed Army Reserve 1222nd Engineer Company. The organizational maintenance shop will provide work bays and maintenance administrative support areas. Adequate organizational parking spaces for all military-owned vehicles will also be provided.

The buildings will be of permanent construction, with heating, ventilation, air conditioning, plumbing, mechanical, security, and electrical systems. The structures will be in compliance with Americans with Disabilities Act accessibility requirements.

Antiterrorism and force protection measures will include maximum standoff distances from roads, parking areas, and vehicle unloading areas. Berms, heavy landscaping, and bollards will be used to prevent access where standoff distances cannot be maintained.

Client

U.S. Army Corps of Engineers,
Louisville District
Room 972
600 Dr. Martin Luther King, Jr.
Place, P.O. Box 59
Louisville, Kentucky 40202

Completion Date

2014

Michael Baker's Role

- Design charrette
- Sustainable design
- Site/civil engineering
- Anti-terrorism and force protection
- Demolition design
- Architecture
- Comprehensive interior design
- Structural engineering
- Mechanical engineering
- Plumbing design
- Fire protection engineering
- Electrical engineering
- Communications design
- Cost estimating
- Full design-bid-build documents

Michael Baker is providing sustainable design and development and Energy Policy Act of 2005 features to achieve Silver LEED® certification. Designed to maximize energy efficiency, the readiness center exceeds current energy standards by as much as 30 percent. Featuring water-efficient landscaping that maximizes open space, this structure is designed to reduce its ecological footprint. In addition, many recycled, low-emitting materials and finishes help keep the interior healthy for occupants and the planet.

The new Reserve Center is being constructed as part of the "Grow the Army Initiative."

Michael Baker
INTERNATIONAL

We Make a Difference

Six-Unit Reserve Center

Forks Township, Pennsylvania

Michael Baker provided design-bid-build documents for a 200-member, six-unit, 48,881-square-foot U.S. Army Reserve project.

As directed under the BRAC 2005 initiative, the Wilson-Kramer U.S. Army Reserve Center (USARC) in Bethlehem, PA was closed, and the six Reserve Units relocated into a new 200-member facility that provides adequate training space to complete unit's mission.

The new 7.85-acre site was developed to include three structures (totaling 48,881 square feet), including a two-story USARC Readiness Training Center (RC) (42,043 square feet), an Organizational Maintenance Shop (OMS) (5,480 square feet), and an Unheated Storage (UHS) facility (1,358 square feet). The RC offers administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for the six consolidated Army Reserve units. The OMS provides work bays and maintenance administrative support. A UHS and adequate organizational parking spaces for all military and privately-owned vehicles were also provided.

The Readiness Training Center contains a 1,600-square-foot fitness center outfitted with a full complement of various athletic equipment including treadmills, exercise bikes, steppers, nautilus machines, and free weights. Much of the equipment provided is human-powered, thereby reducing energy costs and eliminating any outside power requirements. The designs employ sound-absorbing building materials throughout and soft, absorbent flooring, which reduces user fatigue and protects floor substrates. To enhance the user's experience, cable television is provided as well as appropriate lighting and outside views. Supporting men's and women's showers and locker rooms are also included.

Client

U.S. Army Corps of Engineers,
Louisville District
Room 972
600 Dr. Martin Luther King, Jr.
Place, P.O. Box 59
Louisville, Kentucky 40202

Completion Date

2013

Michael Baker's Role

- Design charrette
- Value engineering
- Sustainable design
- Site/civil engineering
- Anti-terrorism and force protection
- Demolition design
- Comprehensive interior design
- Structural engineering
- Mechanical engineering
- Plumbing design
- Fire protection engineering
- Electrical engineering
- Communications design
- Cost estimating
- Full design-bid-build documents

Buildings are of permanent construction with HVAC, plumbing, mechanical, security, and electrical systems. The structures are in compliance with ADA requirements for accessibility by the disabled. Supporting facilities included land clearing, paving, fencing, general site improvements, and extension of utilities to serve the project. Anti-terrorism and force protection measures included maximum standoff distances from roads, parking areas, and vehicle unloading areas. Berms, heavy landscaping, and bollards were used to prevent access when standoff distances could not be maintained. Sustainable Design and Development (SDD) and Energy Policy Act of 2005 (EPAct05) features were provided to meet the Silver level of LEED®.

Michael Baker conducted a design charrette, developed the conceptual design, performed value engineering, and provided the client with a design-bid-build package.

Michael Baker
INTERNATIONAL

We Make a Difference

U.S. Army Reserve Center Design-Build Request-for-Proposal Document Development

Fort AP Hill, Caroline County, Virginia

Michael Baker prepared design-build request-for-proposal (RFP) performance specifications for the construction of a 200-member U.S. Army Reserve Center (ARC). The project was performed under an indefinite delivery-indefinite quantity contract.

The initiative addressed the U.S. Army Reserve's expanding needs for personnel training and equipment maintenance and supported the activation of additional brigade combat teams.

Michael Baker participated in a kickoff meeting, a design charrette, and a design review meeting to explore the range of user needs and preferences. Through an iterative and collaborative process, Michael Baker identified the general design features for desired building functionality to achieve mission goals.

The new ARC is located on a 15-acre parcel that the government purchased. Michael Baker conducted an engineering feasibility study and assisted with the land purchase, which included performing site surveys and establishing the property plat. Michael Baker's tasks included coordination with local and state authorities for the relocation of utilities and routing and installation of infrastructure to serve the site.

Client

U.S. Army Corps of Engineers,
Louisville District
Room 972
600 Dr. Martin Luther King, Jr.
Place, P.O. Box 59
Louisville, Kentucky 40202

Completion Date

2011

Michael Baker's Role

- RFP document preparation
- Planning
- Sustainable design
- Site and civil engineering
- Geotechnical engineering
- Architecture
- Interior design
- Structural engineering
- Mechanical engineering
- Plumbing design
- Fire protection engineering
- Electrical engineering
- Communications design

Michael Baker developed conceptual-level architecture and engineering drawings for the ARC buildings and the site. The conceptual designs met the user's preference and included a 32,914-square-foot, two-story training building; an approximately 7,526-square-foot, one-story organizational maintenance shop (OMS); an approximately 1,065-square-foot, one-story unheated storage building; and paved parking for military equipment and privately owned vehicles. Conceptual designs for the training building core areas included a weapons simulator room, an arms vault, physical readiness rooms with adjacent showers and locker rooms, classrooms, a library, a learning center, an assembly hall with associated kitchen and unit storage, offices, and administrative spaces. Support areas include heated storage spaces, mechanical and electrical rooms, and a janitor's closet. The proposed training building physical readiness room included a 1,600-square-foot fitness center with a full complement of athletic equipment.

The OMS was proposed as a standalone, 7,526-square-foot structure located behind the training building and surrounded by fenced military vehicle parking and access areas. Michael Baker's conceptual designs for the OMS included work bays, tools and parts storage rooms, and offices and administrative space, along with a mechanical room, restrooms, and other support areas. A covered drive-through wash rack was proposed adjacent to the OMS.

In keeping with general user preference, Michael Baker envisioned the OMS work bays as single-story, ground-floor, column-free garage areas for servicing and repair of the full range of army tactical equipment, with maintenance work spaces, separate wash and welding bays, and data and communication connection points. The conceptual designs specified hose reels for the dispensing of oil and other lubricants and fluids required during vehicle inspection and maintenance; a vehicle exhaust evacuation system and a compressed air system to serve each work bay; and emergency stations for eye washing, hand washing, and showering that met Occupational Safety and Health Act (OSHA) standards.

Michael Baker's conceptual designs for the new ARC met LEED® Silver certification and complied with applicable federal, state, and local codes and standards, including Unified Facilities Criteria; International Building Code; National Fire Protection Association standards; the Americans with Disabilities Act; the Environmental Protection Agency Clean Water and Clean Air acts; and the requirements of the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE), American National Standards Institute, American Society for Testing and Materials, and OSHA.

As envisioned, the project exceeds ASHRAE 90.1 2004 performance criteria by 30 percent, with proposed improvements that include specifications for recommended Training building and OMS betterments to reduce energy consumption, including improved R-value insulation for the training building and OMS roof and walls and OMS overhead doors; improved U-value high-performance windows for both buildings to enhance thermal performance; and a user-preferred white reflective floor surface in OMS bays to promote light reflectivity. Also, Michael Baker achieved LEED® Gold certification.

Michael Baker modified the conceptual designs based on user responses and ensured that the final RFP specifications package clearly conveyed the information necessary to design and construct the project, including structural and system functional requirements, user preferences, user concerns, and special considerations.

Michael Baker
INTERNATIONAL

We Make a Difference

U.S. Army Reserve Center Design-Build Request-for-Proposal Document Development

Chester, Pennsylvania

Michael Baker prepared design-build request-for-proposal performance specifications for the construction of a 200-member U.S. Army Reserve Center (ARC) at the client's Newton Square site. Services were provided under an indefinite delivery-indefinite quantity engineering contract.

The initiative addresses the U.S. Army Reserve's expanding needs for personnel training and equipment maintenance and supports the activation of additional Brigade Combat Teams.

Michael Baker participated in a kickoff meeting, a design charrette, and a design review meeting to explore the range of user needs and preferences. Through an iterative and collaborative process, Michael Baker identified the general design features for desired building functionality to achieve mission goals.

The new ARC will be located on a 40-acre parcel that the government is currently using as an ARC site. Michael Baker conducted an engineering feasibility study and coordinated with the existing property user to develop the site for the new and existing ARCs. This included performing site surveys and establishing the property plat. Michael Baker's tasks included coordination with local and state authorities for the relocation of utilities and routing and installation of infrastructure to serve the new and existing facilities to be located at the site.

Michael Baker developed conceptual-level architecture and engineering drawings for the ARC buildings and the site. The conceptual designs meet the user's preference and include a 35,758-square-foot, two-story Training Building; a 24,464-square-foot, one-story Organizational Maintenance Shop (OMS); a 1,823-square-foot, one-story Unheated Storage Building; and 4,980 square yards of paved parking for military equipment and parking for 14 privately owned vehicles.

Conceptual designs for the Training Building core areas include a weapons simulator room, an arms vault, physical readiness rooms with adjacent showers and locker rooms, classrooms, a library, a learning center, an assembly hall with associated kitchen and unit storage, offices, and administrative spaces. Support areas include heated storage spaces, mechanical and electrical rooms, and a janitor's closet.

Client

U.S. Army Corps of Engineers,
Louisville District
Room 972
600 Dr. Martin Luther King, Jr.
Place, P.O. Box 59
Louisville, Kentucky 40202

Completion Date

2014

Michael Baker's Role

- RFP document preparation
- Planning
- Sustainable design
- Site and civil engineering
- Geotechnical engineering
- Architecture
- Interior design
- Structural engineering
- Mechanical engineering
- Plumbing design
- Fire protection engineering
- Electrical engineering
- Communications design

The OMS is proposed as a standalone structure located at the extreme south end of the 40-acre site and surrounded by fenced military vehicle parking and access areas. Michael Baker's conceptual designs for the OMS included work bays, tools and parts storage rooms, and offices and administrative space, along with a mechanical room, restrooms, and other support areas. A covered drive-through wash rack is proposed adjacent to the OMS.

In keeping with general user preference, Michael Baker envisioned the OMS work bays as single-story, ground-floor, column-free garage areas for servicing and repair of the full range of Army tactical equipment, with maintenance work spaces, separate wash and welding bays, and data and communication connection points. The conceptual designs specify hose reels for the dispensing of oil and other lubricants and fluids required during vehicle inspection and maintenance; a vehicle exhaust evacuation system and a compressed air system to serve each work bay; and emergency stations for eye washing, hand washing, and showering that meet OSHA standards.

Michael Baker's conceptual designs for the new ARC meet LEED® Silver certification and comply with applicable federal, state, and local codes and standards, including the following: Unified Facilities Criteria; International Building Code; National Fire Protection Association standards; the Americans with Disabilities Act; the Environmental Protection Agency Clean Water and Clean Air acts; and ASHRAE, ANSI, ASTM, and OSHA requirements.

As envisioned, the project exceeds ASHRAE 90.1 2007 performance criteria by 40 percent. Michael Baker's conceptual designs included several provisions to satisfy the user's preference for sustainability, including a ground-mounted solar photovoltaic array and inverter system to provide electrical energy to offset up to 7.5 percent of ARC annual energy consumption, including site lighting; and a ground-source heat pump system for the Training Building. Conceptual designs also include an interior lighting system utilizing LED light fixtures.

Also, Michael Baker proposed achievement of LEED® Gold certification as an optional betterment for the general contractor.

Michael Baker modified the conceptual designs based on user responses and ensured that the final RFP specifications package clearly conveyed the information necessary to design and construct the project, including structural and system functional requirements, user preferences, user concerns, and special considerations.

APPENDIX 3 – References

Each of the Project Profiles found in Appendix 2 lists Michael Baker's client and contact information 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

- **West Virginia State University**
  P.O. Box 1000
  Institute, WV 25112-1000
  Mr. Marvin Smith, Facilities Director
  (304) 550-2839

- **West Virginia Department of Transportation – Division of Highways**
  1900 Kanawha Boulevard East,
  Building 5, Room A-109
  Charleston, WV 25305
  Mr. Ryan Burns, Grant Administration Project Manager
  (304) 558-3304

- **City of Nitro**
  2009 20th Street
  Nitro, WV 25143
  Honorable David Casebolt, Mayor
  (304) 419-3322

- **City of Winfield**
  1 Main Street
  Winfield, WV 25213
  Honorable Randy Barrett, Mayor
  (304) 586-2122