



EXPRESSION OF INTEREST (EOI)  
FOR PROFESSIONAL ENGINEERING DESIGN SERVICES  
AND CONSTRUCTION MONITORING SERVICES FOR THE

**RICHARD MINE DRAINAGE ACCESS**  
**CRQS: DEP19\*05**  
**CEOI 0313 DEP1900000005**

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
ABANDONED MINE LANDS AND RECLAMATION

OCTOBER 9, 2018

**Michael Baker**  
**INTERNATIONAL**

RECEIVED

2018 OCT -9 AM 9:17

WV PURCHASING  
DIVISION

**Michael Baker**

**INTERNATIONAL**

*We Make a Difference*

October 9, 2018

Purchasing Division  
State of West Virginia Department of Administration  
2019 Washington Street, East  
Charleston, West Virginia 25305-0103

**Re: Expression of Interest (EOI) for Professional Engineering  
Design Services and Construction Monitoring Services for the  
Richard Mine Drainage Access (CEOI 0313 DEP1900000005)**

Dear Ms. Jessica Chambers:

Michael Baker International (Michael Baker) is pleased to present our response to your EOI related to the mapping and design services for the above referenced project in Harrison County. Michael Baker is honored to have built a 30-year relationship with the West Virginia Department of Environmental Protection (WVDEP), helping to solve complex mining and environmental challenges. Since 1983, we have worked together on more than 40 projects, and **have successfully received local and national recognition for our efforts**. At Michael Baker, we do not take the past for granted, but rather, look forward to opportunities to enhance the services we offer to the WVDEP. To meet your design requirements and respond to the EOI, Michael Baker has assembled a team of experienced personnel who have performed on previous similar assignments for WVDEP. Our proposed team members have also provided similar services for numerous mine reclamation and related projects over the years for a variety of clients as reflected in the enclosed documentation.

**Michael Baker's staff is experienced with all aspects of mine reclamation projects.** We have provided similar services to the WVDEP, as well as the Pennsylvania DEP, the Ohio DNR, and the U.S. Office of Surface Mining to name a few. We feel that our combination of regional experience, familiarity with the site, proximity, and reclamation specific knowledge and expertise is unique to Michael Baker, and we are confident we can provide efficient, timely, personal, cost effective, and quality solutions for the WVDEP on this assignment.

We look forward to a favorable review of our qualifications and the opportunity to personally present our proposed project approach. Should you have any questions or require additional information, please feel free to contact me at (724) 495-4225 [wneider@mbakerintl.com](mailto:wneider@mbakerintl.com).

Very truly yours,

**Michael Baker Jr., Inc.**



William D. Neider, P.E.  
Project Manager



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: 485901

Doc Description: EOI - Richard Mine Drainage Access

Proc Type: Central Purchase Order

Data Issued	Solicitation Closes	Solicitation No	Version
2018-09-07	2018-10-09 13:30:00	CEOI 0313 DEP1900000005	1

**BID RECEIVING LOCATION**

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

**VENDOR**

Vendor Name, Address and Telephone Number:

Michael Baker International, Inc.  
 100 Airside Drive  
 Moon Township, PA 15108  
 (724) 495-4225

**FOR INFORMATION CONTACT THE BUYER**

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

Signature X

FEIN # 25-1228638

DATE 10/8/18

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

The Acquisitions and Contract Administration Section of the Purchasing Division is soliciting Expression(s) of Interest for the West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation (WVDEP/AML), from qualified firms to provide architectural/engineering services as defined in the attached bid documents.

\*\*\*\*\*Please note online responses have been prohibited.

ENVIRONMENTAL PROTECTION OFFICE OF AML&R 601 57TH ST SE CHARLESTON WV25304 US	ENVIRONMENTAL PROTECTION OFFICE OF AML&R 601 57TH ST SE CHARLESTON WV 25304 US
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Line	Comm Ln Desc	Qty	Unit Issue
1	EOI Engineering Design Services		

Comm Code	Manufacturer	Specification	Model #
81100000			

**Extended Description :**

\*Dates of Service are estimated for bidding purposes only.

DEP1900000005	<b>Document Phase</b> Final	<b>Document Description</b> EOI - Richard Mine Drainage Access	<b>Page 3</b> of 3
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**ADDITIONAL TERMS AND CONDITIONS**

See attached document(s) for additional Terms and Conditions

STATE OF WEST VIRGINIA  
Purchasing Division

# PURCHASING AFFIDAVIT

**CONSTRUCTION CONTRACTS:** Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

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

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

**DEFINITIONS:**

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

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

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

**AFFIRMATION:** By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

**WITNESS THE FOLLOWING SIGNATURE:**

Vendor's Name: Michael Baker International, Inc.

Authorized Signature: [Signature] Date: 10/8/18

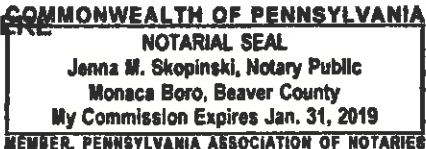
State of Pennsylvania

County of Allegheny, to-wit:

Taken, subscribed, and sworn to before me this 8<sup>th</sup> day of October, 20 18

My Commission expires January 31, 20 19.

AFFIX SEAL HERE



NOTARY PUBLIC Jenna M. Skopinski  
Purchasing Affidavit (Revised 01/19/2018)

## West Virginia Ethics Commission



### Disclosure of Interested Parties to Contracts

Pursuant to *W. Va. Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of \$1 million or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

*"Business entity"* means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation, but does not include publicly traded companies listed on a national or international stock exchange.

*"Interested party"* or *"Interested parties"* means:

- (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
- (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
- (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

*"State agency"* means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of *W. Va. Code* § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

*This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: [ethics@wv.gov](mailto:ethics@wv.gov); website: [www.ethics.wv.gov](http://www.ethics.wv.gov).*

Revised June 8, 2018

West Virginia Ethics Commission  
**Disclosure of Interested Parties to Contracts**

(Required by W. Va. Code § 6D-1-2)

Name of Contracting Business Entity: Michael Baker International Address: 100 Airside Drive  
Moon Township, PA 15108  
Name of Authorized Agent: Steven M. Savich Address: 100 Airside Drive, Moon Township, Pa  
Contract Number: EOI 0313 DEP1900000005ss Contract Description: EOI  
Governmental agency awarding contract: WVDEP

Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (attach additional pages if necessary):

1. **Subcontractors or other entities performing work or service under the Contract**

Check here if none, otherwise list entity/individual names below.

2. **Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)**

Check here if none, otherwise list entity/individual names below.

3. **Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)**

Check here if none, otherwise list entity/individual names below.

Signature: [Handwritten Signature] Date Signed: 10/8/18

**Notary Verification**

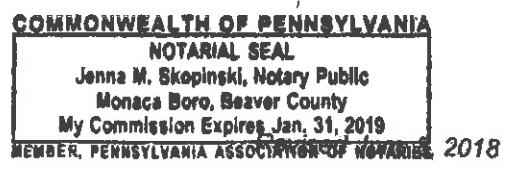
State of Pennsylvania, County of Allegheny

I, Steven M. Savich, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 8<sup>th</sup> day of October, 18.

Jenna M. Skopinski  
Notary Public's Signature

**To be completed by State Agency:**  
Date Received by State Agency: \_\_\_\_\_  
Date submitted to Ethics Commission: \_\_\_\_\_  
Governmental agency submitting Disclosure: \_\_\_\_\_






**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.

William D. Neider Project Manager  
(Name, Title)  
William D. Neider, P.E. Project Manager  
(Printed Name and Title)  
100 Airside Drive, Moon Township, PA 15108  
(Address)  
(724) 495-4225 / (412) 375-3980  
(Phone Number) / (Fax Number)  
wneider@mbakerintl.com  
(email address)

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

Michael Baker International  
(Company)  
 Associate Vice President  
(Authorized Signature) (Representative Name, Title)

Steven M. Savich, P.E., Associate Vice President  
(Printed Name and Title of Authorized Representative)

10/8/18  
(Date)

(412) 269-6467 / (412) 375-3980  
(Phone Number) (Fax Number)

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

<b>PROJECT NAME</b> Richard Mine Drainage Access Monongalia County, WV CEOI 0313 DEP1900000005		<b>DATE (DAY, MONTH, YEAR)</b>  October 9, 2018	<b>FEIN</b>  25-1228638
<b>1. FIRM NAME</b> Michael Baker International, Inc.		<b>2. HOME OFFICE BUSINESS ADDRESS</b> 100 Airside Drive Moon Township, Pennsylvania 15108	<b>3. FORMER FIRM NAME</b> Michael Baker Jr., Inc.
<b>4. HOME OFFICE TELEPHONE</b>  412.269.6300	<b>5. ESTABLISHED (YEAR)</b>  1940	<b>6. TYPE OWNERSHIP</b> Individual <u>Corporation</u> Partnership Joint-Venture	<b>6a. WV REGISTERED DBE (Disadvantaged Business Enterprise)</b>  YES <u>NO</u>
<b>7. PRIMARY AML DESIGN OFFICE: ADDRESS / TELEPHONE / PERSON IN CHARGE / NO. AML DESIGN PERSONNEL EACH OFFICE</b> Michael Baker International / 100 Airside Drive, Moon Township, PA 15108 / 724.495.4225 / William D. Neider, PE / 25 Russell E. (Rusty) Hall, PE, PS / 7 (Charleston, WV)			
<b>8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM</b> Steven M. Savich, PE, Associate Vice President – 412.269.6467		<b>8a. NAME, TITLE, &amp; TELEPHONE NUMBER - OTHER PRINCIPALS</b> Russell E. (Rusty) Hall, PE, PS, Assistant Vice President – 304.769.0821	
<b>9. PERSONNEL BY DISCIPLINE (Bold Lettering Indicates Minimum Design Team Members)</b>			
<u>79</u> ADMINISTRATIVE <u>12</u> ARCHITECTS <u><b>1</b></u> <b>BIOLOGISTS</b> <u><b>48</b></u> <b>CADD OPERATORS/DESIGNERS</b> <u>1</u> CHEMICAL ENGINEERS <u><b>66</b></u> <b>CIVIL ENGINEERS</b> <u>33</u> CONSTRUCTION INSPECTORS / Mgrs. <u>56</u> DESIGNERS <u>3</u> DRAFTSMEN	<u>1</u> ECOLOGISTS <u>0</u> ECONOMISTS <u>6</u> ELECTRICAL ENGINEERS <u>44</u> ENVIRONMENTALISTS <u>13</u> ESTIMATORS <u><b>19</b></u> <b>GEOLOGISTS</b> <u>7</u> HISTORIANS <u>3</u> HYDROLOGISTS	<u>2</u> LANDSCAPE ARCHITECTS <u>6</u> MECHANICAL ENGINEERS <u><b>2</b></u> <b>MINING ENGINEERS</b> <u>1</u> PHOTOGRAMMETRISTS <u>12</u> PLANNERS: URBAN/REGIONAL <u>0</u> SANITARY ENGINEERS <u>2</u> SOILS ENGINEERS <u>7</u> SPECIFICATION WRITERS	<u>16</u> STRUCTURAL ENGINEERS <u><b>18</b></u> <b>SURVEYORS/Technicians</b> <u>6</u> TRAFFIC ENGINEERS <u>38</u> ENGINEERING TECHNICIANS <u>73</u> PROJECT MANAGERS <u>34</u> GIS SPECIALISTS <u>130</u> OTHER  <u>738</u> TOTAL PERSONNEL (Moon Township, PA and Charleston, WV Offices)
<p><b>TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>19</u></b></p> <p>* RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.</p>			
<b>10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE?</b>			
<p align="center">_YES    _NO    <b>N/A</b></p>			

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**11. OUTSIDE KEY CONSULTANTS / SUB-CONSULTANTS ANTICIPATED TO BE USED.** Attach \*AML Consultant Confidential Qualification

<b>NAME AND ADDRESS:</b> NGE Consulting 650 MacCorkle Avenue West St. Albans, WV 25177	<b>SPECIALTY:</b> Drilling, Geotechnical Exploration, and Monitoring	<b>WORKED WITH BEFORE</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b> Bio-Chem Testing, Inc. (If Required) 5 Weatheridge Drive Hurricane, WV 25526	<b>SPECIALTY:</b> Water Testing	<b>WORKED WITH BEFORE</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b> Sturm Environmental Services Brushy Fork Road Bridgeport, WV 26330	<b>SPECIALTY:</b> Soil Testing	<b>WORKED WITH BEFORE</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>NAME AND ADDRESS:</b>	<b>SPECIALTY:</b>	<b>WORKED WITH BEFORE</b> <input type="checkbox"/> Yes <input type="checkbox"/> No

12. RELEVANT EXPERIENCE

A. Is your firm's personnel experienced in Abandoned Mine Lands (Remediation / Mine Reclamation Engineering)?

**YES** Description and Number of Projects:

Michael Baker has been assisting state and federal agencies with abandoned mine land (AML) restoration and acid mine drainage (AMD) remediation since 1977. Michael Baker's experience began with Operation Scarlift and now includes well over 200 AML/AMD remediation projects ranging from strip pit and highwall regrading subsidence control, mine sealing, reclamation of mine refuse piles, drainage improvements, revegetation, stream relocation, restoration of streams and wetlands, natural streambed design, landslide correction, and replacement of water supplies affected by abandoned mine lands to abatement of AMD problems. These services are accomplished by providing a "one-stop-shop" of professionals including engineers, geologists, surveyors, and environmental scientists to address essentially any issue that may be encountered on an AML project. These professionals combine diverse experience in:

- |                          |                              |                               |                        |
|--------------------------|------------------------------|-------------------------------|------------------------|
| • Mining                 | • Water Treatment            | • Stormwater Management       | • Surveying            |
| • Geotechnical           | • Water Line Design & Supply | • E&S Control                 | • Mapping              |
| • Geology                | • Grading                    | • Sustainable Design          | • Field Reconnaissance |
| • Hydraulics & Hydrology | • Earthwork Balance          | • Hazardous Waste Remediation | • Project Management   |
| • Groundwater            | • Highwall Elimination       | • Material Handling Plans     | • Quality Control      |

Michael Baker has been assisting West Virginia Department of Environmental Protection with Abandoned Mine Lands Remediation/Mine Reclamation Engineering design services ever since WVDEP initiated its AML Reclamation Program in 1983. In addition to WVDEP, we have also assisted PADEP with AML reclamation and AMD remediation designs. The "AML and related Project Experience Matrix" table provided at the end of this Consultant Qualification Questionnaire (CQQ) shows our experience on AML related projects for different state agencies, and for private clients.

NO

B. Is your firm experienced in soil analysis?

**YES** Description and Number of Projects:

Michael Baker has conducted in-house soil analysis for over 60 years. We take pride in our work that starts with a geologic literature review to identify and review available references that characterize the site soils and other factors influencing the development and condition of the soils. The task is followed by a geotechnical reconnaissance that is essentially a site view by a Michael Baker geologist or geotechnical engineer to characterize the site soil conditions. Lastly and as appropriate, a subsurface investigation is conducted to collect and identify site soils and assign appropriate engineering descriptions that, in turn, are utilized for soil analysis.

In designing AML reclamation projects, generally three types of soil analysis are needed. These analyses may include: a) geotechnical analysis/soil classification, b) soil analysis for revegetation potential (pH, Acid Base Accounting, Nutrients) and c) soil analysis for hazardous materials. Michael Baker is involved in selecting and collecting the soil samples and analyzing the results of laboratory testing as required for design. Laboratory testing is performed by a subcontractor. Of the 30 most recent AML projects, Michael Baker was involved in soil analysis for 23 projects. Michael Baker has also prepared reprocessing potential evaluations of coal refuse sites (10 projects).

12. RELEVANT EXPERIENCE.

which required evaluation of mine refuse based on laboratory test results. Refuse testing for these projects included refuse float/sink and proximate analysis, with results evaluated by Michael Baker to determine BTU content and reprocessing potential.

In addition to evaluating coal refuse for reprocessing, Michael Baker has experience in the design of coal refuse facilities through our work in supporting active mining. Michael Baker has conducted the geotechnical analysis related to slope stability and liner/cover soils permeability, as well as the analysis to support the staging required to construct the refuse area. Our experience includes coarse refuse piles, fine refuse (slurry) impoundments, and combined refuse areas. Michael Baker currently is involved with the final permitting of a refuse facility for which we have conducted all the geotechnical, civil, and hydraulic analysis for an approximate 300-acre refuse facility.

NO

C. Is your firm experienced in hydrology and hydraulics?

**YES** Description and Number of Projects:

Michael Baker's hydrology and hydraulic staff for AML remediation design are experts in the application of hydraulic models that include HEC-1, HEC-2, HEC-RAS, HY8, TR20, TR55, HAESTADS PONDS 2, FLOWMASTER, HYDROFLOW, KYPIPE 2, CYBERNET, SEDCAD 4, UNET, and DAMBRK. Michael Baker applies this experience to services such as stormwater management; culvert analysis; hydrologic and hydraulic studies; storm sewer design; floodplain modeling; channel design; watershed planning; energy dissipation; and waterline extension and distribution.

Expertise in hydrology and hydraulics is essential in any AML reclamation/remediation design. Of the 30 most recent AML projects, 28 projects needed hydrology/hydraulics expertise of the AML/AMD design group, and 100% of this work was conducted in-house.

NO

## 12. RELEVANT EXPERIENCE.

## D. Does your firm produce its own aerial photography and Develop Contour Mapping?

**YES** Description and Number of Projects:

Since 1983, Michael Baker has been designing AML/AMD remediation projects for WVDEP. For all the AML projects to date, WVDEP provided Michael Baker with contour maps developed from aerial photography of the project site. Michael Baker's responsibility was to verify the topographic map by check field surveying.

Michael Baker has a survey and photogrammetric department with a staff of 96. Michael Baker routinely performs aerial photography and contour mapping for federal and several state agencies, as well as for private clients. This includes mapping for special reclamation projects for WVDEP. Michael Baker's Survey and Photogrammetric Department is as old as the company itself is; however, Michael Baker always brings the latest technology to the table. Fixed, mobile, and aerial LiDAR equipment are "state-of-the-art" tools that Michael Baker can offer to add efficiencies to the field mapping process and enhance quality. Michael Baker is a national leader in the development and application of aerial LiDAR. During the last five years, Michael Baker has completed more than 50 mapping projects. Some examples are listed as follows:

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Maurice Jennings Coal Company S-61-83 and S-53-78, WVDEP** (Photogrammetric Mapping, Surveying Services, Bathymetric Surveying, and 4 Band Imagery).

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Masteller Coal Company S-125-82 and S-10-85-78, WVDEP** (Photogrammetric Mapping, Surveying Services, Bathymetric Surveying, and 4 Band Imagery).

**Professional Mapping and Design Services at the Bond Forfeited Permits of the F&M Coal Company S-1044-87 and S-57-84, WVDEP** (Photogrammetric Mapping, Surveying Services, Bathymetric Surveying, and 4 Band Imagery).

**Updating Boundary/Site Improvements and Utility Survey – 23 LPOEs, North and South U.S. Borders, US-VISIT** (Photogrammetric Mapping and Surveying Services).

**Rio Grande Valley Border Fence Boundary Surveys, Cameron and Hidalgo Counties, TX.** U.S. Army Corps of Engineers, Fort Worth District (Metes and Bounds Surveys and Legal Deed Descriptions)

**Land Ports of Entry (LPOEs) Aerial Mapping Refresh, North and South U.S. Borders.** Department of Homeland Security, US-VISIT (Mapping)

**Sewer Infrastructure Location/Verification, Allegheny County, PA.** 3 Rivers Wet Weather, Inc. (GPS or Conventional Survey Data by Others)

**Open-End Contract for Surveying and Photogrammetric Mapping Services, Statewide, Pennsylvania.** Pennsylvania Department of Transportation (Through a series of nine open-end contracts, Michael Baker has been providing surveying and mapping services to PennDOT continuously since 1986.

**Indefinite Delivery Contract A/E for Multidiscipline & Related Services for the Department of Homeland Security and Other Civil/Military Projects.** U.S. Army Corps of Engineers, Fort Worth District (Surveying and Mapping)

**Border Fence Project – PF225, Various Locations in TX, AZ, NM, CA.** U.S. Army Corps of Engineers, Fort Worth District. (Aerial Photography, Analytical Aerotriangulation, Stereo Mapping Compilation, Digital Orthophotography, Horizontal and Vertical Control Surveys, Geodetic Surveys)

**Land Ports of Entry (LPOEs) Aerial Mapping Refresh, North and South U.S. Borders.** Department of Homeland Security, US-VISIT (Aerial Photography Stereo Mapping Compilation/Topographic Mapping, Horizontal and Vertical Control Surveys, Geodetic Surveys)

**Aerial Photography, Contour Mapping, and Field Surveys** are at the core of Michael Baker's business and expertise.

NO

12. RELEVANT EXPERIENCE.

E. Is your firm experienced in domestic waterline design? (Include any experience your firm has in evaluation of aquifer degradation as a result of mining.)

**YES** Description and Number of Projects:

Michael Baker, to date, has designed eight (8) domestic waterlines for WVDEP and countless others for clients in West Virginia, Pennsylvania, Ohio, and elsewhere. In general, for each of these projects, Michael Baker performed field surveying of proposed routes, subsurface investigation for storage tank site foundations, water distribution system hydraulic modeling and analyses, pipeline design, storage tank sizing, sizing and designing booster pumping station, and electric and telemetric system. For the McDowell County Public Water Supply System, Michael Baker also designed a water treatment and filtration plant. Construction plans, specifications, cost estimate and bid schedules were prepared for each project.

Michael Baker has performed numerous waterline extension feasibility studies to determine if the pre-law mining had impacted area aquifers from which local residents obtained drinking water. The studies also involved evaluation of mining activities in the project area with regard to date and time of mining, and the effect of mining on the local aquifers and groundwater quality based on hydrogeological data, resident interview, water sampling and testing, and historic background water quality information. To date, Michael Baker has performed more than 16 water line feasibility studies.

NO

## 12. RELEVANT EXPERIENCE

## F. Is your firm experienced in Acid Mine Drainage Evaluation and Abatement Design?

**YES** Description and Number of Projects:

Michael Baker's design experience includes both active and passive treatment systems, which is based on the characterization of the AMD site as well as the flows and chemistry of the AMD. To this end, Michael Baker provides AMD sampling to determine chemical parameters as well as the flow measurements covering high- and low-flow periods that are most important in developing AMD abatement system. To date, Michael Baker has evaluated and designed 17 AMD abatement systems, four of which are passive treatment systems while the other 13 are active treatment facilities that have been constructed and are currently in service. A few examples are listed as follows:

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Maurice Jennings Coal Company S-61-83 and S-53-78**, West Virginia Department of Environmental Protection, Office of Special Reclamation, Michael Baker designed seep collectors, conveyance pipes, pump stations, force mains, and limestone lined conveyance channels to transfer AMD to a high density lime slurry treatment system consisting of a surge pond, equalization pond, clarification ponds and a terminal aerobic wetland.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Masteller Coal Company S-125-82 and S-10-85-78**, West Virginia Department of Environmental Protection, Office of Special Reclamation, Michael Baker designed seep collectors, conveyance pipes, and limestone lined conveyance channels to transfer AMD to a treatment system consisting of ponds for aeration, clarification, and sludge retention, a solar powered caustic soda feed pumps, and wholly passive treatment systems that do not include and water wheel lime feeders.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the F&M Coal Company S-1044-87 and S-57-84**, West Virginia Department of Environmental Protection, Office of Special Reclamation, Michael Baker designed seep collectors, conveyance pipes, pump stations, force mains, and limestone lined conveyance channels to transfer AMD to a high density lime slurry treatment system consisting of solar powered caustic soda feed pumps, surge ponds, equalization ponds, clarification ponds, and a terminal aerobic wetland.

**Kempton Refuse and Acid Mine Drainage/Abandoned Mine Lands, Tucker County, West Virginia**, West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands, Michael Baker designed conveyance pipes and limestone lined conveyance channels to transfer AMD to a treatment system consisting of an equalization pond, successive alkalinity producing system (SAPS pond), and aerobic wetland. The project was constructed in 2009.

**Lancashire Acid Mine Drainage Treatment Plant Design, Permitting, and Construction Phase Services, Ebensburg, PA**, Pennsylvania Department of Environmental Protection, Michael Baker directed a multi-disciplinary team of engineers in the design and permitting of an 11 MGD acid mine drainage treatment plant; and subsequently provided construction phase services through commissioning. The treatment plant was successfully commissioned in 2011.

**Condition Assessment and Operational Audit – Dumans Mine Water Treatment Plant, Barr Township, PA**, Pennsylvania Department of Environmental Protection, Michael Baker directed activities of a multi-disciplinary engineering team investigating avenues to reduce acid mine water treatment costs and improve operations at the pumping station, treatment plant, and sludge lagoons (9.4 MGD). Work involved review of records; numerous field measurements, bench-scale treatability studies; consultation with the electric company, cost estimating; and preparation of a report summarizing findings and recommendations. The team was charged with finding avenues to reduce the annual operation and maintenance cost of this facility materially while maintaining compliance with applicable effluent limitations.

Additionally, Michael Baker has designed ten AMD remediation projects for the WVDEP alone that included open limestone channel (OLC), anaerobic and aerobic wetlands and settling ponds, limestone sand dumping in the stream, and alkaline leach bed/anoxic limestone drains. Other Michael Baker AMD abatement designs have been designed for USACE's Baltimore and Nashville Districts, as well as the Pennsylvania Department of Environmental Protection.

NO



13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

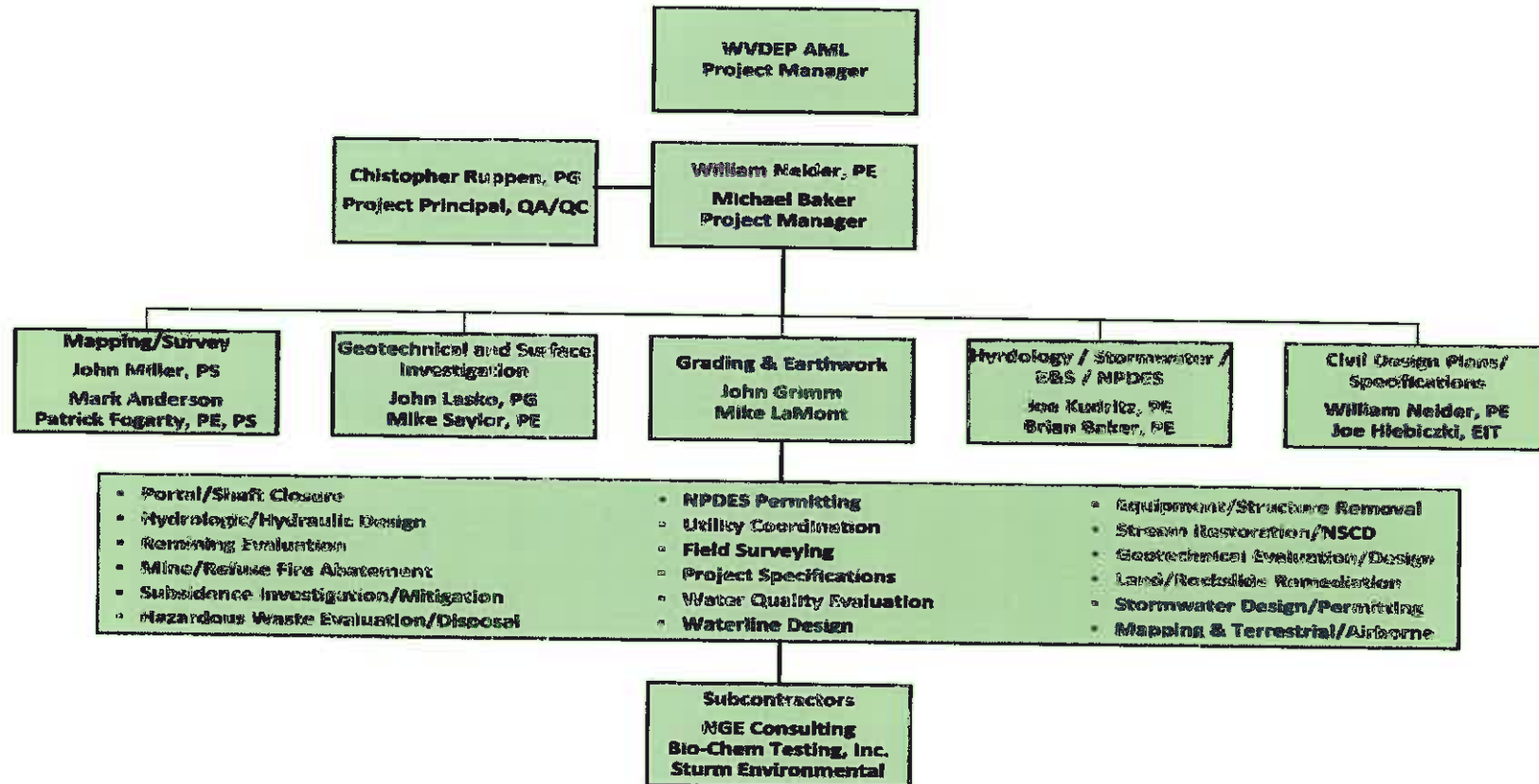
As depicted in Attachments B and C of this AML Consultant Questionnaire Form, Michael Baker can support this project with a variety and depth of technical resources as needed to deliver this project successfully. **However, the organization chart depicted on the following page identifies our core AML team that Michael Baker will dedicate to our WVDEP AML work.** This team will be led by Mr. Bill Neider, serving as Michael Baker's Special Reclamation Coordinator. Mr. Neider is a registered West Virginia Professional Engineer and will also be acting as Project Manager.

The balance of our committed team includes personnel with the type of capabilities required for a typical AML project, including a senior field investigator to help assess the site and understand the mining conditions, a geologist or civil associate to conduct subsurface investigations, a designer for grading and earthwork balance, a civil associate for stormwater/erosion & sedimentation control, and an engineer to assist with the design, plans and specifications.

Other technical disciplines are available to assess items like surface water quality, hazardous materials (past AMD treatment chemicals), cover soils, refuse stability, site access, bridges, etc.

This team will work together closely for design efficiency and can handle multiple concurrent projects, tapping other Michael Baker technical resources, as needed, to ensure project success.

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)



**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
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Attachment "B"

**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)**

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<b>Ruppen, Christopher A., P.G. Mining Services Manager</b>	<b>14</b>	<b>31</b>	<b>4</b>

**Brief Explanation of Responsibilities**

Mr. Ruppen is committed to client satisfaction and proactive coordination and communication with WVDEP. Based on the long running relationship between WVDEP and Michael Baker, Mr. Ruppen conveys this approach through Michael Baker's AML Team.

**Ebenezer Run Highwall #9, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection. Mining Service Manager.* Assisted the project manager in obtaining the necessary resources to keep the project on schedule and in line with the client's expectations. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Michael Baker prepared construction plans, specifications, stormwater pollution prevention plan services, and check survey.

**Waltman Barbe Highwall #1, Monongalia County, West Virginia.** *West Virginia Division of Environmental Protection. Technical Manager.* Participated in site field view, provided input into the subsurface investigation and interpretation and provided quality design reviews. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dumpsite containing non-hazardous construction debris and a suspected 11 mine openings. Michael Baker prepared construction plans, specifications, and a stormwater pollution prevention plan services.

**Collier Sportsman's Club Highwalls, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection. Technical Manager.* Participated in site field view, provided input into the subsurface investigation and interpretation and provided quality design reviews. Assisted with coordination and resolution of the planned gas line crossing and construction through the site. Michael Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

**Simpson Creek Highwall, Tipton, & Portals, Barbour County, West Virginia.** *West Virginia Division of Environmental Protection. Department Manager.* Responsible for the quality of the project managers' work on the project. Michael Baker was responsible for drilling by sub-consultants, performed research of geological data and mining maps, review of water quality data, preparation of WV Stormwater, USACE, and WVDOH permits. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site grading, mine seals, high density polyethylene (HDPE) culverts, a WVDOH box culvert crossing SR 76, grouted rip rap collection channels, soil cover placement, and revegetation.

**Foundation Mine Design/Permitting Shaft & Slope Site, Surface Facilities and Batch Weigh System Site, and RR Spur and Siding.** *Alpha Natural Resources, Inc. Project Manager.* Responsibilities included overseeing grading design of access roads, site development, and permitting requirements. Michael Baker was responsible for developing several conceptual layouts for shaft and slope sites and rail spur with rail car loadout arrangements and evaluating them in order to optimize and finalize the locations of various surface facilities relative to the shaft and slope including overland conveyors for raw and clean coal transport with transfer stations, raw and clean coal stockpiles and slot storage and reclamation tunnel for clean coal, coal preparation plant water storage tanks, access roads to surface facilities, and batch weigh loadout for rail cars. Michael Baker was also responsible for design of the rail spur, siding, and track layout for rail car loading.

**Design and Permitting for Surface Facilities of New Freeport Underground Mine, Clarksville, Pennsylvania.** *Alpha Natural Resources, Inc. Project Manager.* Aided in the engineering design of the project. Michael Baker prepared, submitted, and obtained Surface Mining Control and Reclamation Act and National Pollutant Discharge Elimination System permits for the proposed surface facilities associated with the new Freeport Underground Mine. Michael Baker was responsible for the design of the proposed surface facilities, including preparation of the earthwork and grading plan and the design of the foundations for all belt transfer structures, stockpiles, prep plant, clean coal silos, refuse conveyors, clean coal conveyors, and the harbor barge loading facility.

<b>EDUCATION (Degree, Year, Specialization)</b> Master's Certificate, 2005, Project Management   B.S., 1984, Conservation of Natural Resources   B.S., 1984, Geology	<b>REGISTRATION (Type, Year, State)</b> Professional Geologist, 1995, PA
<b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b> American Society of Highway Engineers (ASHE), Highway Geology Symposium (HGS), National Steering Committee, Pittsburgh Geological Society (PGS), Board of Directors and Past President, Member Transportation Research Board (TRB), Materials Engineering Geology and Subsurface Investigations	

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
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Attachment "B"

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Neider, William, D., P.E. Project Manager	7	20	12

**Brief Explanation of Responsibilities**

Mr. Neider will oversee all aspects of the design, construction document preparation and permitting for site civil engineering projects. He has worked in various areas of the civil engineering practice with his primary area of experience being focused in mining permitting and reclamation projects, oil and gas permitting, land development, local transportation projects, and municipal services. He has managed projects and designed the improvements and infrastructure for commercial development, military/U.S. Government, residential subdivisions, industrial parks and sites, educational facilities, and local streets. In addition to land development experience, he has designed and directed a number of mining facilities infrastructure permitting and reclamation projects including refuse impoundments, coarse refuse piles, erosion and sedimentation control plans, and site reclamation. He also performed municipal engineering designs that included water distribution extensions, sewer modeling/design, drainage studies, and flood abatement designs. In all areas of his experience, he has been involved in every aspect of the design and construction document preparation, as well as management of design teams and project management. Mr. Neider has also been involved in oversight of the construction phase of projects. His experience has been with coordinating the review of project submittals, answering requests for information, and resolving construction related issues to ensure proper conformance to the design intent.

**Mountain View Portals Mine Reclamation, Preston County, West Virginia.** *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews of the project, and project design. Also, responsible for construction cost estimate, stormwater pollution prevention plan, technical specifications, and NPDES permitting. The purpose of the project was to remediate subsidence areas, reestablish mine captured stream, provide drainage conveyances, install mine seals and bat gate mine seals, and perform refuse reclamation and revegetation of disturbed areas. Michael Baker prepared construction plans, specifications, stormwater pollution prevention plan services, and check survey.

**Ebenezer Run Highwall #9, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews of the project, and project design. Also responsible for construction cost estimate, stormwater pollution prevention plan, technical specifications, and NPDES permitting. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Michael Baker prepared construction plans, specifications, stormwater pollution prevention plan services, and check survey.

**Waitman Barbe Highwall #1, Monongalia County, West Virginia.** *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews of the project, and design of channels and channel linings at the toe of the backfilled highwall. Also responsible for construction cost estimate, stormwater pollution prevention plan, and technical specifications. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dumpsite containing non-hazardous construction debris and a suspected 11 mine openings. Michael Baker prepared construction plans, specifications, and a stormwater pollution prevention plan services.

**Collier Sportsman's Club Highwalls, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews, and design of channels and channel linings at the toe of the backfilled highwall. Also responsible for construction cost estimate, stormwater pollution prevention plan, and technical specifications. Involved with proposed gas line crossing with resolution and coordination between the gas line company and the WVDEP. The project consists of reclamation of an abandoned strip mine highwall and includes mine spoil, review of water quality data, design of wet and buried mine seals with bat gates at suspected mine entries, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Masteller Coal Company S-10-85 & S-125-82, Mineral County, West Virginia.** *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews of the project, and project design. Also responsible for construction cost estimate, stormwater pollution prevention plan, and technical specifications. The project consist of mapping, reclamation, and treatment for previously reclaimed highwalls, treatment ponds, and several acid mine drainage (AMD) seeps at the site of an abandoned strip mine.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the F&M Coal Company S-1044-87 & S-57-84, Preston County, West Virginia.** *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews of the project, and project design. Also responsible for construction cost estimate, stormwater pollution prevention plan, and technical specifications. The project consist of mapping, reclamation, and treatment for previously reclaimed highwalls, treatment ponds, and several acid mine drainage (AMD) seeps at the site of an abandoned strip mine.

EDUCATION (Degree, Year, Specialization)

B.S.A.S., 2001, Civil Engineering Technology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

N/A

REGISTRATION (Type, Year, State)

Professional Engineer, 2013, WV | Professional Engineer, 2007, PA

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**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN.** (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<b>John Miller, P.S. Senior Surveyor</b>	<b>4</b>	<b>46</b>	<b>0</b>

**Brief Explanation of Responsibilities**

Mr. Miller is a seasoned Licensed Surveyor with over 45 years of experience. He has managed and directed crews for various survey projects including control surveys for aerial mapping, as-built surveys, property surveys, subdivision and land development surveys, topographic surveys for sewer and water projects, and construction stakeouts. Mr. Miller has managed projects from initial client contact to completion, prepared cost estimates for projects, performed court house research, deed plotting, boundary line resolution, plotted and reduced field data, managed subdivision layout and erosion sedimentation plans, prepared Highway Occupancy Permits and DEP planning modules, prepared agency applications and obtained approvals, attended municipal meetings, prepared legal descriptions, created plans using computer aided drafting, and volume calculations for landfill air space.

**Mapping and Design Services for Special Mine Reclamation Permits, Preston County, West Virginia.** West Virginia Department of Environmental Protection. Surveyor. Directed survey crew in the location of mine openings, seeps, monitoring wells and test borings. Verified mapping contours by surveying cross-sections. This survey will be used for engineering design to treat the water from mine drainage. Michael Baker is providing engineering and mapping services to meet the requirements of special mine reclamation permits. Michael Baker's services include data collection and analysis, aerial mapping verification, supplemental field and bathymetric pond surveying, bench-scale treatability testing, acid-base accounting testing, engineering design and analysis, preparation of construction plans and specifications and stormwater pollution prevention plans; cost estimates, bidding-phase support; and construction services.

**Maurice Jennings Coal Company Site, Preston, West Virginia.** West Virginia Department of Environmental Protection. Surveyor. Directed survey crew in the location of mine openings, seeps, monitoring wells, treatment facilities and treatment ponds. Verified mapping contours by surveying cross-sections. This survey will be used for engineering design to treat the water from mine drainage. Michael Baker is providing engineering services for the special reclamation of Maurice Jennings Coal Company mining permits; S-61-83 and S-53-78. The project area consists of previously reclaimed highwalls, treatment ponds, and several acid mine drainage (AMD) seeps at the site of an abandoned strip mine. Michael Baker's services include aerial mapping, site reconnaissance, permit research and review, surveying, bench-scale treatability studies, AMD conveyance, AMD treatment, preparation of reclamation and treatment plans, stormwater pollution prevention plans, field water quality sampling, technical specifications, bidding-phase support, construction services, and right-of-way support.

**Masteller Coal Company Site, Mineral, West Virginia.** West Virginia Department of Environmental Protection. Surveyor. Directed survey crew in the location of mine openings, seeps, monitoring wells, treatment facilities and treatment ponds. Verified mapping contours by surveying cross-sections. This survey will be used for engineering design to treat the water from mine drainage. Michael Baker is providing engineering services for special reclamation of Masteller Coal Company mining permits; S-10-85 and S-125-82. The project area consists of previously reclaimed highwalls, treatment ponds, and several acid mine drainage (AMD) seeps. Michael Baker's services include site reconnaissance, permit research and review, aerial mapping, surveying, bench-scale treatability studies, AMD conveyance, AMD treatment, preparation of reclamation and treatment plans, stormwater pollution prevention plans, field water quality sampling, technical specifications, bidding-phase support, and construction services.

**Surveying Services for Natural Gas Lines, Washington County and Green County, Pennsylvania.** Vista Gathering, LLC. Surveyor. Directed survey crew, stakeout pipeline centerline, stakeout limit of disturbance, survey road crossings, stream crossings and utility locations for permitting and construction. Michael Baker provided surveying services for new natural gas pipelines ranging in length from one mile to nine miles throughout Southwestern Pennsylvania. Services included routing; re-routing; preliminary topographic surveys locating obstructions, property evidence, proposed route as indicated by land agents, woodland, utility, road, stream, and railroad crossings; and tying of the resultant mapping into the state plane coordinate system and vertical datum by the use of OPUS to generate the alignment sheets. Michael Baker also provided construction stake-out surveys, including preliminary centerline for property owner review and constructability walk; final stakeout for construction, including right-of-way and LOD; development of as-builts; and downloading and processing of data for submittal to and upload to client-specific geo-referenced GIS software.

**EDUCATION (Degree, Year, Specialization)**

A.S., 1972, Civil Engineering Technology

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

Pennsylvania Society of Land Surveyors (PSLS), Allegheny

**REGISTRATION (Type, Year, State)**

Professional Land Surveyor, 1984, PA

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NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Anderson, Mark William GIS Associate	0	11	0

**Brief Explanation of Responsibilities**

Mr. Anderson is a GIS Associate/LiDAR Technician in Michael Baker's Geographic Information Technologies Department. He has a background in both GIS and LiDAR with an emphasis in regional/environmental planning.

**Long-Term Stormwater Comprehensive Plan Engineering Services, Charleston, West Virginia.** *City of Charleston, West Virginia.* LiDAR Processor. Processed Mobile LiDAR to create survey accurate plans/DTMS, DEMS, and as-builts. Responsible for creating calibrated LAS files, adjusting them to known control to ensure the LiDAR accuracy, creating formulas to extract the bare earth, overseeing/coordinating the production of the required deliverables, and the QA/QC of the data. Michael Baker provided engineering services to support a long-term, comprehensive, stormwater management plan by mapping the city's stormwater infrastructure. Michael Baker's services included project management, research and data collection, data dictionary development, watershed and stream mapping, storm sewer infrastructure surveying and mapping, storm sewer pipe connectivity mapping, stormwater structure mapping, and geodatabase development.

**Orthophotography for Environmental Analysis, Oso Bay, Texas.** *Aerotec, LLC.* LiDAR Processor. Responsible for the setup of the aerial LiDAR project to produce classified LAS. Michael Baker is providing color digital orthophotography at a resolution of 0.5 feet in support of an environmental analysis over an area of approximately 56 square miles. Services include the acquisition of new digital aerial imagery with an UltraCam X digital camera system, airborne global positioning system (GPS) and inertial measurement unit collection and processing, GPS ground control surveys and pretargeting, aerotriangulation, digital terrain model generation, and orthorectification. Orthophotography will be delivered as 5,000-foot by 5,000-foot tiles on the Texas State Plane Coordinate System.

**Orthophotography for Corridor Routing, Yucca, Texas.** *Aerotec, LLC.* LiDAR Processor. Responsible for the setup of the aerial LiDAR project to produce classified LAS. Michael Baker is providing color digital orthophotography at a one-foot resolution over an area of approximately 233 square miles to support corridor routing applications. Services include the acquisition of new digital aerial imagery with an UltraCam X digital camera system, airborne global positioning system (GPS) and inertial measurement unit collection and processing, GPS ground control surveys and pretargeting, aerotriangulation, digital terrain model generation, and orthorectification. Orthophotography will be delivered as 10,000-foot by 10,000-foot tiles on the Texas State Plane Coordinate System.

**Surveying and Mapping Master Agreement, Statewide, Mississippi.** *Mississippi Department of Transportation.* LiDAR Processor. Processed Mobile LiDAR to create survey accurate plans/DTMS, DEMS, as-builts, etc. of a corridor along MDOT highways. Responsible for creating calibrated LAS files, adjusting them to known control to ensure the LiDAR accuracy, creating formulas to extract the bare earth, overseeing/coordinating the production of the required deliverables, and QA/QC of the data. Under a master agreement for surveying, mapping, and photogrammetry services, Michael Baker is performing surveys for a wide variety of transportation improvement projects, using state-of-the-art aerial and mobile Light Detection and Ranging (LiDAR) technology. This use of LiDAR and geographic information system (GIS) mapping allows Michael Baker to collect roadway feature and elevation information in heavily congested areas without disruption to traffic.

**Surveying and Mapping Services Agreement, Worldwide.** *U.S. Army Corps of Engineers, Mobile District.* LiDAR Processor. Reviewing raw aerial LiDAR data delivered for processing to ensure it meets client's specifications, then setting up the data in project to be classified and edited to aid the production of contours and models of structures. Michael Baker is providing surveying and mapping services under a five-year indefinite delivery, indefinite quantity agreement to support the district and the South Atlantic Division. Michael Baker's services included project management; topographic data collection; aerial photography; light detection and ranging data collection and analysis; geographic information system development; digital elevation modeling and digital terrain model development; and report preparation.

**Statewide Utility Relocation Design Regional Utilities Contract, Region V/Hampton Roads District, Virginia.** *Virginia Department of Transportation.* LiDAR Processor. Responsible for processing Mobile LiDAR to create survey accurate plans/DTMS, DEMS, and as-builts of a road corridor. Responsible for creating calibrated LAS files, adjusting them to known control to ensure the LiDAR accuracy, creating formulas to extract the bare earth, overseeing/coordinating the production of the required deliverables, and the QA/QC of the data. Michael Baker has been providing engineering services for the design of utility adjustment plans for VDOT for eight consecutive terms since 1992. Project assignments have included all aspects of utility relocations/adjustments, including more than 50 miles of water and sewer mains ranging in size from 4 inches to 54 inches; bridge crossings; overhead utility support structures; four pump station relocations; numerous water vault relocations, including a water booster pump station and a pressure reducing valve vault; private utility relocations/adjustments, including electrical duct banks, gas mains, steam lines, jet fuel lines and fiber optic communication systems; corrosion control analysis; railroad crossing permit applications and design and surveying.

**EDUCATION (Degree, Year, Specialization)**

M.S. 2000 Geography/Geographic Information Systems | B.A. 2003 Criminal Justice

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

N/A

**REGISTRATION (Type, Year, State)**

N/A

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Attachment "B"

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NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<b>Fogarty, Patrick W., P.E., P.S. Survey Engineer</b>	<b>22</b>	<b>32</b>	<b>23</b>

**Brief Explanation of Responsibilities**

Mr. Fogarty is responsible for technical and management aspects of civil design and surveying projects within the Charleston, WV, office. Mr. Fogarty has designed and managed projects in numerous disciplines including civil, structural and transportation engineering, site development, ecosystem restoration, planning and surveying. These projects have included stream restoration as well as boundary and topographic and photogrammetric surveys. Duties include field surveying, drawings and specification preparation, design, design drafting, construction inspection, quality control testing, shop drawing review, project management, contract administration, and report preparation. Management duties include financial planning, management and staff utilization, human resource planning, marketing, and strategic planning.

**Engineering Design for Remediation of Crooked Run #5, Harrison County, West Virginia.** WVDEP - Office of AML&R. Project Manager. Responsible for the management and coordination of all activities. Michael Baker provided engineering services to remediate seven abandoned mine sites along Crooked Run Stream near Clarksburg, West Virginia. Services included field investigation and surveys; core boring and water sampling; conceptual, preliminary, and final design of remediation measures; and bid phase and construction phase support.

**Mine Subsidence Remediation Design, Marlon County, West Virginia.** WVDEP - Office of AML&R. Project Manager. Engineer-of-Record responsible for the coordination of all activities. Michael Baker provided engineering services to mitigate the effects of mine subsidence at four residential sites. Michael Baker's services included surveying and mapping; field investigation; conceptual, preliminary, and final design of subsidence remediation measures; and bid-phase and construction-phase support.

**Engineering Services to Remediate Landslide Caused by Abandoned Mine Activity, McDowell County, West Virginia.** WVDEP - Office of AML&R. Project Manager. Responsible for the management and coordination of all activities. Michael Baker provided field investigation, engineering services, and construction support to remediate a landslide on private property caused by drainage from abandoned mine portals. Michael Baker provided conceptual, preliminary, and final design documents for remedial drainage measures and provided support during construction.

**Engineering Design for Remediation of Crooked Run #5, Harrison County, West Virginia.** WVDEP - Office of AML&R. Project Manager. Responsible for the management and coordination of all activities. Michael Baker provided engineering services to remediate seven abandoned mine sites along Crooked Run Stream near Clarksburg, West Virginia. Services included field investigation and surveys; core boring and water sampling; conceptual, preliminary, and final design of remediation measures; and bid phase and construction phase support.

**Drainage Improvements and Reclamation Measure Design for Four Abandoned Mine Sites, Kanawha County, West Virginia.** WVDEP - Office of AML&R. Project Manager. Responsible for the management and coordination of all activities. Michael Baker is providing surveying and mapping, field investigation, subsurface investigation, water testing and sampling, and conceptual, preliminary and final design for the reclamation of four abandoned mine sites that are affected by uncontrolled drainage, debris, and hazards from open portals. Michael Baker is also providing bid phase and construction phase support for the remedial measures.

**Engineering MSA (West Virginia, Kentucky, Pennsylvania).** NiSource Corporation. Surveyor of Record. Responsible for quality assurance of field and office activities. Michael Baker has provided NiSource with surveying services for many years. Under our existing MSA, surveying services have been provided for various locations throughout West Virginia, Kentucky, and Pennsylvania.

**EDUCATION (Degree, Year, Specialization)**

B.S., 1995, Civil Engineering | Diploma, 1993, Surveying and Mapping | Coursework: Business Administration

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

Association of State Floodplain Managers (ASFPM)

**REGISTRATION (Type, Year, State)**

Professional Engineer, 1990, West Virginia | Professional Surveyor, 1993, West Virginia  
LEED Green Associate, 2012, West Virginia  
Professional Engineer, 2000, Kentucky | Professional Engineer, 2002, Virginia | Professional Engineer, 2003, Pennsylvania | Professional Engineer, 1998, Ohio | Professional Surveyor, 2001, Kentucky | Professional Surveyor, Ohio, 1996

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NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Lasko, John D., P.G. Senior Geologist	11	30	0

Brief Explanation of Responsibilities

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 fieldwork.

**Waitman Barbe Highwall #1, Monongalia County, West Virginia.** *West Virginia Division of Environmental Protection.* Geologist. Assisted in the field view and determination of mining conditions. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dumpsite containing non-hazardous construction debris and a suspected 11 mine openings. Michael Baker prepared construction plans, specifications, and stormwater pollution prevention plan services.

**Collier Sportsman's Club Highwalls, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* Geologist. Assisted in the subsurface investigation. Michael Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants, and the preparation of the WV NPDES Stormwater Permit.

**Site Design and Permitting for Cumberland Mine Air Shaft Number 10, Greene County, Pennsylvania.** *Alpha Natural Resources, Inc.* Senior Staff Consultant. Responsible for site reconnaissance to evaluate landslide susceptibility for the project site. Evaluated overall site for landslide potential, groundwater conditions, bedrock, and structural geology. Evaluated proposed test boring program and recommended modifications to accommodate investigation of site conditions. Evaluated and modified testing program to accommodate site conditions. Prepared site reconnaissance plan, and provided recommendations for final subsurface investigation and testing and site design. Michael Baker developed site design and construction documents and cost estimates, and provided permitting services for the Number 10 air intake shaft and associated site infrastructure, including a one-mile-long access road at the Cumberland Mine.

**S.R. 0079, Section A23, Interstate 79 Missing Ramps, Collier and Robinson Townships, Pittsburgh, Pennsylvania.** *Pennsylvania Department of Transportation, District 11-0.* Senior Geologist. Performed field and office coordination for preliminary and final design as geotechnical task manager. Tasks included test boring layout and laboratory testing program development, Level 2 drilling supervision, field data compilation, slope evaluation, rockfall hazard evaluation, mine treatment evaluation, water quality evaluation, and preliminary reports preparation.

**Allegheny Valley Train Feasibility Study, Strip District, Pittsburgh to New Kensington, Pennsylvania.** *Southwestern Pennsylvania Commission.* Senior Geologist. Responsible for performing site reconnaissance of two-mile section of railway to identify areas of landslide susceptibility and investigate potential for mine subsidence. Developed recommendations memorandum and cost estimate to investigate, evaluate, and repair landslides. In addition, an assessment of mine subsidence potential and subgrade evaluation was performed.

**Cumberland Mine No. 8 Shaft Site Design and Permitting, Waynesburg, Pennsylvania.** *Foundation Coal.* Senior Geologist. Responsible for performance of slope stability analysis for proposed infrastructure related to construction shaft and bleeder sites. Tasks included site reconnaissance, subsurface investigation, slope stability analysis, and design drawings assistance. Michael Baker provided site design, permitting, and construction document preparation for the No. 8 shaft and portal facility.

**Freeport Mine - PH I - Preparation of 6 Design Build RFP Packages and 1 Site Design - Bid Build Package.** *Freeport Mining.* Task Manager. Responsible for preparation of Geotechnical Data Report and geotechnical evaluation and design for earthwork for proposed mining facility.

EDUCATION (Degree, Year, Specialization)

M.S., 1989, Earth Science and Geology; B.S., 1985, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS - N/A

REGISTRATION (Type, Year, State)

Professional Geologist, 1995, PA.



**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
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Attachment "B"

**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials.)**

<b>NAME &amp; TITLE (Last, First, Middle Init.)</b>  <b>Grimm, John R. (J.R.) Senior Designer</b>	<b>YEARS OF EXPERIENCE</b>		
	<b>YEARS OF AML DESIGN EXPERIENCE:</b>  <b>6</b>	<b>YEARS OF AML RELATED DESIGN EXPERIENCE:</b>  <b>30</b>	<b>YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:</b>  <b>0</b>

**Brief Explanation of Responsibilities**

Mr. Grimm is a designer with a background in pipelines, reclamation of abandoned mine lands including acid mine drainage abatement, earthwork, grading plans, stream channel restoration, sealing of mine portals and reclamation of coal refuse piles. While at Michael Baker he has worked on many abandoned mine land reclamation and mine shaft site design and permitting projects. His site / civil qualifications also consist of parking lot layout and design, roadway geometry, right-of-way acquisition, drainage, storm sewer and sanitary sewer design.

**Ebenezer Run Highwall #9, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* CADD Designer. Responsible for the preparation of construction drawings including the design of the proposed grading required to reclaim the existing highwall and balancing the earthwork on site. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Michael Baker prepared construction plans with specifications, stormwater pollution prevention plan services, NPDES permitting, and check survey.

**Waitman Barbe Highwall #1, Monongalia County, West Virginia.** *West Virginia Division of Environmental Protection.* CADD Designer. Responsible for the preparation of construction drawings including the design of the proposed grading required to reclaim the existing highwall and balance the earthwork on site. Design responsibilities also included the layout of several mine seals including bat gates where required. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dumpsite containing non-hazardous construction debris and a suspected 11 mine openings. Michael Baker prepared construction plans, specifications, and a stormwater pollution prevention plan services.

**Collier Sportsman's Club Highwalls, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* CADD Designer. Responsible for the preparation of construction drawings including the design of the proposed grading required to reclaim the existing high wall and balance the earthwork on site. Design responsibilities also included the layout of several mine seals including bat gates where required. Michael Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of on-site spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

**Simpson Creek Highwall, Tipple, & Portals, Barbour County, West Virginia.** *West Virginia Division of Environmental Protection.* CADD Designer. Responsible for the preparation of construction drawings including the design of the proposed grading required to reclaim the existing highwall, balance the earthwork on site, and provide adequate drainage from the site. Michael Baker was responsible for drilling by sub-consultants, performing research of geological data and mining maps, review of water quality data, preparation of WV Stormwater, USACE, and WVDOH permits. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site grading, mine seals, HDPE culverts, a WVDOH box culvert crossing SR 76, grouted rip rap collection channels, soil cover placement, and revegetation.

**2007-2008 Foundation Mine Design/Permitting Shaft & Slope Site, Surface Facilities and Batch Weigh System Site, and RR Spur and Siding.** *Alpha Natural Resources, Inc.* Designer. Responsibilities included grading design of access roads, site development, and permitting requirements. Michael Baker was responsible for developing several conceptual layouts for shaft and slope sites and rail spur with rail car loadout arrangements and evaluating them in order to optimize and finalize the locations of various surface facilities relative to shaft and slope including overland conveyors for raw and clean coal transport with transfer stations, raw and clean coal stockpiles and snot storage and reclamation tunnel for clean coal, coal preparation plant water storage tanks, access roads to surface facilities, and batch weigh loadout for rail cars. Michael Baker was also responsible to design the rail spur, siding and track layout for rail car loading.

**Design and Permitting for Surface Facilities of New Freeport Underground Mine, Clarksville, Pennsylvania.** *Alpha Natural Resources, Inc.* CADD Designer. Aided in the engineering design of the project. Michael Baker prepared, submitted, and obtained Surface Mining Control and Reclamation Act and National Pollutant Discharge Elimination System permits for the proposed surface facilities associated with the new Freeport Underground Mine. Michael Baker was responsible for the design of the proposed surface facilities, including preparation of the earthwork and grading plan and the design of the foundations for all belt transfer structures, stockpiles, preparation plant, clean coal silos, refuse conveyors, clean coal conveyors, and the harbor barge loading facility

**EDUCATION (Degree, Year, Specialization)**  
A.S., 1984; Mechanical Engineering Technology

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS - N/A**

**REGISTRATION (Type, Year, State) - N/A**

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Attachment "B"

**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN.** (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<b>LaMont, Michael, J. Technical Specialist</b>	<b>21</b>	<b>33</b>	<b>23</b>

**Brief Explanation of Responsibilities**

Mr. LaMont is a designer with a background in pipelines, telecommunications, reclamation of abandoned mine lands including acid mine drainage abatement, earthwork, grading plans, stream channel restoration, sealing of mine portals and reclamation of coal refuse piles. While at Michael Baker he has worked on many abandoned mine land reclamation and mine shaft site design and permitting projects. His site / civil qualifications also consist of parking lot layout and design, roadway geometry, right-of-way acquisition, drainage, storm sewer and sanitary sewer design. Additional telecommunications experience include fiber optic cable construction and installation drawings along highways, railroads and cross country routes, as well as stream and road crossing drawings and cross sections, and state, local, and environmental permit drawings.

**Waitman Barbe Highwall #1, Monongalia County, West Virginia.** *West Virginia Division of Environmental Protection.* Technical Specialist. Prepared construction plans, details, and cross-section sheets and earthwork balancing for the project, and highwall backfilling grading. Provided erosion and sedimentation control measures, site regrading, mine seals, and collection and diversion ditch alignments and profiles. Michael Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal, culverts and channel, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

**Coller Sportsman's Club Highwalls, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* Technical Specialist. Prepared construction plans, details, and cross-section sheets and earthwork balancing for the project, and highwall backfilling grading. Provided erosion and sedimentation control measures, site regrading, mine seals, and collection and diversion ditch alignments and profiles. Michael Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Maurice Jennings Coal Company S-81-83 & S-53-78, Preston County, West Virginia.** *West Virginia Division of Environmental Protection.* Technical Specialist. Responsibilities include Prepared construction plans and profiles, details, erosion and sediment control measures, collection and diversion channels, and revegetation.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Masteller Coal Company S-10-85 & S-125-82, Mineral County, West Virginia.** *West Virginia Division of Environmental Protection.* Technical Specialist. Responsibilities include Prepared construction plans and profiles, details, erosion and sediment control measures, collection and diversion channels, and revegetation.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the F&M Coal Company S-1044-87 & S-57-84, Preston County, West Virginia.** *West Virginia Division of Environmental Protection.* Technical Specialist. Responsibilities include Prepared construction plans and profiles, details, erosion and sediment control measures, collection and diversion channels, mine seals and revegetation.

**Maple Run Portals and Tipple, West Virginia.** *West Virginia Division of Environmental Protection.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing for the project, which included, site grading, mine seals, collection and diversion ditches, placement of soil cover, and revegetation.

**Emoryville Mine Complex, West Virginia.** *West Virginia Division of Environmental Protection.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing for the project which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, removal of abandoned barges and coal refuse from the North Branch of the Monongahela River, placement of soil cover, and revegetation.

**Watson Portal and Refuse Reclamation, West Virginia.** *West Virginia Division of Environmental Protection.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing for the project which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, removal of abandoned barges and coal refuse from the North Branch of the Monongahela River, placement of soil cover, and revegetation.

**Mountain View Portals Mine Reclamation, Preston County, West Virginia.** *West Virginia Division of Environmental Protection.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing for the project which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, stream re-channelization, placement of soil cover on exposed refuse, and revegetation.

EDUCATION (Degree, Year, Specialization)

Certificate, 1986, Computer Aided Drafting and Design

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS - N/A

REGISTRATION (Type, Year, State) - N/A

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<b>NAME &amp; TITLE (Last, First, Middle Init.)</b>  <b>Brian Baker, P.E. Civil Engineer</b>	<b>YEARS OF EXPERIENCE</b>		
	<b>YEARS OF AML DESIGN EXPERIENCE:</b>  <b>1</b>	<b>YEARS OF AML RELATED DESIGN EXPERIENCE:</b>  <b>9</b>	<b>YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:</b>  <b>4</b>

**Brief Explanation of Responsibilities**

Mr. Baker has been working in the site/civil group as an engineering associate and civil engineer since the Fall of 2009. He has worked on several housing development projects in the Pittsburgh area where he assisted in the grading, drainage, erosion and sedimentation control, and stormwater management features of the site. He started working on facility projects in 2011, designing Erosion and Sedimentation Control Plans, Post-Construction Stormwater Management Plans, and Stormwater Pollution Prevention Plans for various ARCs. He has also helped obtain various permits from the EPA and several different State Departments of Environmental Protection.

**Master Services Agreement - Surveying Services for Gathering Lines, Northern, Western, and Central Pennsylvania; and, Ohio. Confidential Client.** Civil Engineer. Responsibilities included developing a watershed model to determine the effects of gas industry developments within a watershed. This included using the ArcGIS, HECRAS, and HECHMS programs to assist in making maps and performing calculations. This included dividing the watershed into smaller watersheds and finding a land use and soil condition for the entire area. This was completed for both a "past" condition, which basically modeled the system before any developments took place, and a "present" condition which included future industry developments within the watershed. This also included modeling the effects of existing stormwater facilities at specific well pads within the watershed and taking into account the designed ponds outflows. Multiple maps were created and highlighted specific areas of concentrated development and the effects these areas had on areas directly downstream, as well as a whole for the watershed. A summary report was written as well to describe and explain all of the findings of the modeling and calculations. Michael Baker has been performing preconstruction surveys, preparing alignment sheets, performing construction staking, and conducting as-built surveys of over 100 miles of midstream pipelines. Michael Baker initially performs route staking and concentrates on property evidence, environmentally sensitive areas, tree clearing, stream crossings, and other design impacts to support permitting and constructibility issues. Upon routing stakeout and constructibility walk, final preconstruction surveys are performed and alignment sheets displaying a plan and profile of the pipeline are prepared. Michael Baker provides staking of proposed pipeline, limits of disturbance (LOD), and additional temporary work spaces (ATWS) prior to construction and performs in-ditch as-built surveys during construction. Final as-built alignment sheets are prepared and delivered base upon in-ditch as-builts, post-construction survey, inspector weld maps and pipe tallies, and other information.

**Design and Construction Management Master Services Contract, Southwestern Pennsylvania.** Duquesne Light Company. Civil Engineer. Responsibilities included going on site because of Stormwater Drainage and Erosion Control Issues. Developed a plan to prevent further erosion from occurring by directing water around the site to an existing drainage ditch. Tasks included mapping of drainage area, calculating stormwater draining towards site, and developing a grading and stormwater management plan to better control stormwater on site. Michael Baker is providing architectural and engineering services under a three-year master services agreement for design, preconstruction, bid phase, construction management, and other services for the renovation or improvements to the company's facilities and for major capital projects and programs. Michael Baker's services include project management, architectural and engineering design, design management and design reviews, cost estimates, construction sequencing, bidding-phase support, and construction management and inspection.

**Runway Extension and Environmental Assessment, Morgantown Municipal Airport (MGW), Morgantown, West Virginia.** Morgantown Municipal Airport. Civil Engineer. Responsible for stormwater management and erosion and sedimentation control design. This included stormwater detention basin design, stormwater pipe system design, and swales and channel design for stormwater conveyance. Steep slopes are a limiting factor and multiple ponds will be necessary to control and safely route the large amount of runoff the runway extension will produce. This also included modeling the affects the proposed flows will have on areas downstream of the airport runway extension and limiting the disturbances surrounding residents will notice. An existing stream will be relocated and routed through a large diameter pipe as part of the project. Michael Baker is developing an environmental assessment and runway extension design for the Morgantown Municipal Airport. Michael Baker also performed a benefit-cost analysis, which included a runway justification study for the runway extension. The environmental assessment is being developed in accordance with the National Environmental Policy Act of 1969 (NEPA); Federal Aviation Administration (FAA) Order 1050.F; Environmental Impacts: Policies and Procedures; and FAA Order 5050.4b, NEPA Implementing Instructions for Airport Actions. The runway extension design is being developed in accordance with all applicable FAA advisory circulars.

**Apache Civil Infrastructure.** Baker AECOM JV. Civil Engineer. Responsibilities included developing a stormwater management plan for an airfield in Qatar. This included the design of a dozen evaporation ponds on site because conveyance of stormwater was a not a viable solution due to site restrictions. Tasks included stormwater calculations of rate and runoff, designing stormwater pipe conveyance systems, and helping with grading and drainage on site, utility layouts, and detail sheets. Responsibilities also included attending project design meetings.

<b>EDUCATION (Degree, Year, Specialization)</b> B.C.E. 2009, Civil and Environmental	<b>REGISTRATION (Type, Year, State)</b> Professional Engineer: 2014, PA
<b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b> American Society of Civil Engineers (ASCE)	

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13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Saylor, Michael J., P.E. Geotechnical Engineer	5	6	2

**Brief Explanation of Responsibilities**

Mr. Saylor is a civil associate with Michael Baker Jr., Inc. He has supported erosion and sedimentation control plans such as designing collection channels, water conveyance structures, sedimentation ponds, sediment traps, and other control devices. Mr. Saylor also has experience reviewing flood plains, developing hydraulic models, performing stormwater management and conveyance calculations, and assists in NPDES Stormwater permitting. In the field, he has performed inspections for drilling, as well as sediment, surface soil, and surface water sampling for Michael Baker. Prior to coming to Michael Baker, he served as a laboratory technician testing a variety of soils and aggregates in accordance with AASHTO and ASTM standards.

**Ebenezer Run Highwall #9, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities included the conceptual design of stormwater channels, sediment basins, and additional erosion and sedimentation controls. Additional responsibilities were for the coordination and inspection of drilling by sub-consultants, collecting water quality samples, and preparation of the WV NPDES Stormwater Permit. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Michael Baker prepared construction plans, specifications, stormwater pollution prevention plan services, NPDES permitting and check survey.

**Waltman Barbe Highwall #1, Monongalia County, West Virginia.** *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities included developing the conceptual design, erosion and sediment control plans, and water conveyance structures. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dumpsite containing non-hazardous construction debris and a suspected 11 mine openings. Michael Baker prepared construction plans, specifications, and a stormwater pollution prevention plan services.

**Collier Sportsman's Club Highwalls, Brooke County, West Virginia.** *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities included developing the erosion and sediment control plans, helping prepare the specifications and plans of the report, and inspecting the drilling occurring on site. Michael Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Maurice Jennings Coal Company S-61-83 & S-53-78, Preston County, West Virginia.** *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities include calculations, design of conveyance channels, seep collectors, pump stations, design brief, and erosion and sedimentation controls. Also includes the preparation of construction plans, specifications, and cost estimate.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the Masteller Coal Company S-10-85 & S-125-82, Mineral County, West Virginia.** *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities include calculations design of conveyance channels, seep collectors, design brief, and erosion and sedimentation controls. Also includes the preparation of construction plans, specifications, and cost estimate.

**Professional Mapping and Design Services at the Bond Forfeited Permits of the F&M Coal Company S-1044-87 & S-57-84, Preston County, West Virginia.** *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities include calculations, design of conveyance channels, seep collectors, pump stations, design brief, and erosion and sedimentation controls. Also includes the preparation of construction plans, specifications, and cost estimate.

**EDUCATION (Degree, Year, Specialization)**

B.S. 2012, Civil Engineering

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

American Society of Civil Engineers (ASCE)

**REGISTRATION (Type, Year, State)**

Engineer-In-Training, 2012, OH

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NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<b>Kudritz, Joseph Lee, P.E. Civil Engineer</b>	<b>1</b>	<b>10</b>	<b>0</b>

**Brief Explanation of Responsibilities**

Mr. Kudritz is a Civil Engineer with experience involving water and wastewater collection including water and wastewater hydraulic studies, sewer and force main alignments, constructing pump station operation and maintenance manuals, and cost estimation. Much of his background involves hydraulic and hydrologic studies and models, creating water elevation profiles, and working with topographic maps.

**Simpson Creek Highwall, Tipple, and Portals Reclamation, Barbour County, West Virginia.** *West Virginia Department of Environmental Protection.* Civil Associate. Performed hydrologic and hydraulic analysis for several unnamed streams. Tasks on the projects included: sizing the channels, sizing the grouted rock protection, and developing peak flow rates based on the contributing drainage area. Michael Baker provided engineering services for the mine reclamation of the Simpson Creek Highwall, Tipple, and Portals. Michael Baker's services included site reconnaissance; records review; surveying; subsurface investigation; water sampling and laboratory testing; engineering analysis and design; preparation of construction plans, specifications, and cost estimate; permitting; bidding-phase support; and construction monitoring.

**Freeport Mine - PH I - Preparation of 6 Design Build RFP Packages and 1 Site Design -Bid Build Bid Package.** *Freeport Mining.* Civil Associate. Responsibilities included overseeing the drainage aspects on the entire site. Specific duties included, sizing the collection channels and the required erosion protection lining, sizing the necessary sediment traps, and coordinating the channel designs with those responsible for grading the proposed channels.

**E02313 - WO 2 SR 519-138 FD.** *Pennsylvania Department of Transportation, Central Office.* Civil Associate. Responsible for preparing the post construction stormwater management report and plans to be submitted with the NPDES Permit. Also responsible for specifying the required BMP stormwater controls and designing the stormwater detention basins at the site.

**Open End Agreement, District 12 - General Design Open End.** *Pennsylvania Department of Transportation, Central Office.* Civil Associate. Responsible for preparing the post construction stormwater management report and plans to be submitted with the NPDES Permit. Also responsible for specifying the required BMP stormwater controls and designing the stormwater detention basins at the site.

**FEMA WR 44 KDKA PGH SWMP.** *Kellogg Brown & Root.* Civil Associate. Performed all necessary calculations for the stormwater management controls used for the site. Prepared the stormwater management report for the project.

**Engineering Services for Enhancement of the Presidential Emergency Radio Transmission Facilities, Nationwide.** *U.S. Army Corps of Engineers, Omaha District.* Civil Associate. Performed all necessary calculations for the stormwater management controls used for the site. Prepared the stormwater management report for the project. Under a design-build relationship with a constructor, Michael Baker conducted site evaluations, designed prototype structures for transmitters and generators, and prepared site designs at 35 locations to upgrade the presidential radio broadcast system. The modular facilities were designed to backup AM and FM transmissions during emergencies and withstand electromagnetic pulses, high winds, and other disasters. Michael Baker's services included mechanical and electrical system design, generator and fuel storage system specifications, preparation of environmental surveys, adapting the prototype designs to individual site conditions, and construction management services during installation.

**1971- 2013, Municipal Engineering Services, Koppel, Pennsylvania.** *Koppel, Borough of.* Civil Associate. Responsible for determining the size and location of storm drains. From 1971 through 2013, Michael Baker served as the municipal engineer for the borough, providing annual on-call engineering services. Michael Baker's tasks ranged from planning and design through construction inspection to support the daily operations of the borough.

**EDUCATION (Degree, Year, Specialization)**

Graduate Studies, Water Resources & Environmental Engineering | B.S., 2007, Civil Engineering

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

Engineers Without Borders (EWB), Pittsburgh Professional Chapter

**REGISTRATION (Type, Year, State)**

Professional Engineer 2013, PA | ESRI Certification in ArcGIS 9.2: 2009, PA | AutoCAD Certification, 2008, PA.

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NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<b>William J. Hlebiczk, E.I.T. Civil Associate</b>	<b>3</b>	<b>3</b>	<b>0</b>

**Brief Explanation of Responsibilities**

Mr. Hlebiczk is a Civil Associate with a background in water resources engineering and site development. His experience includes stormwater management design, environmental permitting, site development plans, erosion and sediment control plans, and Dam Construction Inspection.

**Mountain View Portals Mine Reclamation, Preston County, West Virginia.** West Virginia Department of Environmental Protection. Civil Associate. Responsibilities include sampling water and acid-base accounting soil sampling, setting up drawings for drawing package, and designing toe of slope channels and collection channels. My experience using AutoCAD Civil 3D were helpful in designing the channels and setting up the plans. Michael Baker provided engineering services for the reclamation of the Mountain View Portals abandoned coal mine site. Michael Baker's services included site investigation; field survey; subsurface investigation; water quality and soil sampling and analysis; conceptual, preliminary, and final design; stream restoration; permitting; environmental investigations; bidding-phase support; and construction monitoring.

**Mapping and Design Services for Special Mine Reclamation Permits, Preston County, West Virginia.** West Virginia Department of Environmental Protection. Civil Associate. Responsible for drainage calculations for the channels, sampling acid mine drainage, doing a bathymetric test of the ponds onsite, and making some of the sheets for the drawing package. Some of these sheets included building floor plans, site plans, and profiles/cross sections of the site and the ponds. The tools that were used included Hydraflow Hydrographs and AutoCAD Civil 3D, Boat with Sonar, and mapping. Michael Baker is providing engineering and mapping services to meet the requirements of special mine reclamation permits. Michael Baker's services include data collection and analysis, aerial mapping verification, supplemental field and bathymetric pond surveying, bench-scale treatability testing, acid-base accounting testing, engineering design and analysis, preparation of construction plans and specifications and stormwater pollution prevention plans; cost estimates, bidding-phase support; and construction services.

**Summersville Five Block Mine Reclamation, Nicholas County, West Virginia.** WVDEP - Office of AML&R. Civil Associate. Responsibilities included setting up sheets for drawing package, making cross sections and profiles of the site and ponds, revising the site as conceptual changes were made, and storm water calculations, which included setting up drainage areas and designing diversion channels. I was able to stay with the project and quickly carry through the many aspects of the project that were affected by the changes that were made throughout the project. Tools used for this job included AutoCAD Civil 3D and its extension Hydraflow Hydrographs.

**Maurice Jennings Coal Company Site, Preston, West Virginia.** West Virginia Department of Environmental Protection. Civil Associate. Responsible for creating and revising drawing for submission to the WVDEP, as well as sampling the acid mine discharge water on the site. The tools used included mapping and AutoCAD Civil 3D. Michael Baker is providing engineering services for the special reclamation of Maurice Jennings Coal Company mining permits; S-61-83 and S-53-78. The project area consists of previously reclaimed highwalls, treatment ponds, and several acid mine drainage (AMD) seeps at the site of an abandoned strip mine. Michael Baker's services include aerial mapping, site reconnaissance, permit research and review, surveying, bench-scale treatability studies, AMD conveyance, AMD treatment, preparation of reclamation and treatment plans, stormwater pollution prevention plans, field water quality sampling, technical specifications, bidding-phase support, construction services, and right-of-way support.

**Masteller Coal Company Site, Mineral, West Virginia.** West Virginia Department of Environmental Protection. Civil Associate. Responsible for delineating drainage areas, channel design, culvert design, sampling acid mine drainage, specification modifications, and mapping. The tools used for this project included AutoCAD Civil 3D, Hydraflow Hydrographs, and Hydraflow Express. Michael Baker is providing engineering services for special reclamation of Masteller Coal Company mining permits; S-10-85 and S-125-82. The project area consists of previously reclaimed highwalls, treatment ponds, and several acid mine drainage (AMD) seeps. Michael Baker's services include site reconnaissance, permit research and review, aerial mapping, surveying, bench-scale treatability studies, AMD conveyance, AMD treatment, preparation of reclamation and treatment plans, stormwater pollution prevention plans, field water quality sampling, technical specifications, bidding-phase support, and construction services.

**EDUCATION (Degree, Year, Specialization)**

B.S. E., 2015, Civil Engineering

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

N/A

**REGISTRATION (Type, Year, State)**

Engineer-in-Training, 2015, PA

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)**

<b>NAME &amp; TITLE (Last, First, Middle Init.)</b>  <b>Robert B. Frye, P.E. Senior Bridge Engineer</b>	<b>YEARS OF EXPERIENCE</b>		
	<b>YEARS OF AML DESIGN EXPERIENCE:</b>  <b>0</b>	<b>YEARS OF AML RELATED DESIGN EXPERIENCE:</b>  <b>27</b>	<b>YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:</b>  <b>0</b>

**Brief Explanation of Responsibilities**

Mr. Frye has experience in bridge engineering including analysis, design, drafting, inspection, and project management. He has performed a wide array of structural analysis and design on long and short span bridges and a complete structure load rating. He has been involved in bridge design work from conceptual bridge type studies to final design. His bridge inspection experience includes long span bridge structures and tunnels and served as project engineer for the 2002 and 2003 safety inspection in preparation for Bridge Day on the New River Gorge Bridge. Mr. Frye recently completed the 1 week NHI Course "FHWA-NHI-130056 Safety Inspection of In-Service Bridges for Professional Engineers", which qualifies him as a bridge inspection team leader. He is also experienced in using free climbing techniques in bridge inspections. Recently, Mr. Frye served as project manager on several projects for the WV DOT-DOH and is currently the Charleston, West Virginia bridge group manager.

**Elk Two Mile Creek Bridge Design, Kanawha County, West Virginia. West Virginia Department of Transportation, Division of Highways.** Project Manager. Responsible for checking superstructure design calculations and designing substructure units. Also responsible for creating bridge construction drawings for submittal to the DOH. Also responsible for all project financials, including budgets and invoicing. This is a bridge replacement project. Due to the very tight geometric restrictions, the bridge was designed using staged construction, keeping one lane of traffic open at all times during construction rather than closing the roadway down. It is highly skewed (56 degrees), 8 steel girder system with a single span length of 49'-0" and a total deck width of 25'-4". Abutments are semi-integral and founded on steel piling. The bridge crosses a FEMA studied stream with an established floodway and is located in an area that is prone to flooding.

**Davis Creek Wye Bridge Design, Davis Creek Wye Bridge over Davis Creek, West Virginia. West Virginia Department of Transportation, Division of Highways.** Responsible for superstructure and substructure analysis and design. Also responsible for creating bridge construction drawings for submittal to the DOH. LRFD design principles were used for the analysis and design. Also responsible for all project financials, including budgets and invoicing. Michael Baker performed the study, design and preparation of construction contract plans and related documents for the replacement of the Davis Creek Wye Bridge. The new bridge will be constructed in the same location as the current bridge, using a detour to re-route traffic around the construction site. The bridge is designed as a 25° skewed, single span prestressed adjacent concrete beam superstructure, situated on full height concrete abutments founded on steel piling.

**Design-Build Coonskin Park Access Road Bridge, Charleston, West Virginia. West Virginia Department of Transportation, Division of Highways.** Responsible for general engineering. Michael Baker provided engineering services for the design-build construction of a new three-span girder bridge spanning the Elk River and providing access to Coonskin Park. Michael Baker's services included preliminary and final design, construction cost and quantities estimates, and shop drawing reviews.

**Twelvepole Creek Bridge Replacement, Wayne County, Ceredo, West Virginia. West Virginia Department of Transportation, Division of Highways.** Responsible for quantity calculations and checking design calculations. Michael Baker provided complete design calculations, plans, specifications and estimate for dual, nine-span, 1,218-foot, prestressed multi-I-girder (modified) structures over the creek, railroad, and highways. Michael Baker also provided construction phase services. The project replaced two girder dual steel bridges while maintaining two lanes of traffic in each direction utilizing extensive, multiphase staged construction.

**5th Street Bridge and 8th Street Bridge Replacement, Cabell County, West Virginia. West Virginia Department of Transportation, Division of Highways.** Responsible for the bridge analysis of both bridges and writing of the design study report. Michael Baker provided environmental and engineering services for the replacement of the 5th Street and 8th Street bridges in Ritter Park. Michael Baker's services included project management, environmental assessments, agency coordination, geographic information system development, a traffic analysis, preliminary engineering, alternatives analyses, and preparation of a design study report.

**EDUCATION (Degree, Year, Specialization)**

M.S., 2015, Engineering Management, Marshall University  
B.E., 1987, Civil Engineering, Youngstown State University

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

N/A

**REGISTRATION (Type, Year, State)**

Professional Engineer, 2002, West Virginia | NHI Bridge Inspection, 2018, WV

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 AML CONSULTANT QUALIFICATION QUESTIONNAIRE

Attachment "B"

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<b>Donald G. Marburger, P.E. Senior Bridge Engineer</b>	0	41	0

**Brief Explanation of Responsibilities**

Mr. Marburger's years of professional experience with Michael Baker have been in design, inspection, analysis, and rehabilitation of concrete and steel structures. This includes field inspection of over 100 bridges, structural analysis of many of these bridges to determine safe load capacity, written reports, and project planning and supervision. He also has worked on structural design of substructure and superstructure units for new bridges.

**Appalachian Corridor H, Various Counties, West Virginia. West Virginia Department of Transportation, Division of Highways.** Responsibilities included design engineer performing preliminary designs for the Clifford Hollow bridge. Investigated various span lengths, numbers of spans, girder spacing, and pier types. Appalachian Corridor H is a proposed four-lane highway that will provide access from Interstate 79 in western West Virginia through the rugged, mountainous terrain of West Virginia's Appalachian Highlands Region to Interstate 81 in western Virginia.

**Uffington Truss Rehabilitation Project, SR 0079 over Monongahela River, Morgantown, West Virginia. West Virginia Department of Transportation, Division of Highways.** Responsibilities included as Design Engineer performed design calculations for structural repairs for seismic upgrading. Inspection work included underbridge inspection unit (snooper), free-climbing trusses and inspection from the catwalk; Bosun chairs were used to inspect the piers. Rehabilitation design included deck repairs, structural steel strengthening, bearing realignment, seismic upgrading, substructure repairs, and painting specifications. BARS-7 software was used to analyze and rate truss members.

**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.** Responsibilities included design engineer performing Span Arrangement Studies for several structures. 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.

**Buffalo Creek Bridge & Lyndora Bridge Rehabilitations, Armstrong and Butler Counties, Pennsylvania. Pennsylvania Department of Transportation, District 10-0.** Responsibilities included directed and participated in the rehabilitation design. Rehabilitation include deck replacement, bearing replacement for seismic considerations, substructure repair, and expansion dam replacement. In addition, the scuppers and downspouting were also replaced. To eliminate deck joints, five simple spans of the bridge were replaced with a five-span continuous rolled beam unit. Michael Baker provided bridge inspection and analysis, field surveys, type, size and location studies, final design of structures, geotechnical, roadway approaches, lighting, traffic control, signing, utility and PUC coordination and construction phase services for two bridge structures. The Buffalo Creek Bridge carries four lanes of S.R. 28 over Buffalo Creek and is a 7-span, 1,500 foot long steel two-girder structure with main spans of 325 feet supported on 200 foot high piers. The Lyndora Viaduct is a 12-span, 1,000 foot long steel multi-girder structure which carries four lanes of S.R. 3001 over two railroads, two highways, and the Connequenessing Creek.

**Rehabilitation of Flat Top Lake Dam, Ghent, West Virginia. Flat Top Lake Association, Inc.** Responsibilities included developing a cost estimate for the installation of steel girders for the highway bridge at Flat Top Lake Dam. Michael Baker provided engineering services for rehabilitation of the Flat Top Lake Dam to ensure compliance with West Virginia Department of Environmental Protection regulations regarding spillway capacity and overtopping protection as the dam could not convey the design event. Michael Baker's tasks included reviewing drawings and reports; field-inspecting all elements, including spillways and gatehouse structures; 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.

**EDUCATION (Degree, Year, Specialization)**

B.S., 1974, Civil Engineering, Carnegie Mellon University

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

N/A

**REGISTRATION (Type, Year, State)**

Professional Engineer, 1983, PA | Professional Engineer, 2015, Arkansas



14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

**HYDROLOGY**

SEDCAD4 – Storm Routing through Detention Structures, Channel Design and Riprap Sizing.  
 TR20 – Project Formulation – Hydrology by SCS  
 TR55 – Urban Hydrology for Small Watersheds by SCS  
 HAESTADS POND2 – Storm Routing through Detention Structures  
 HEC1 – Flood Hydrograph Package by U.S.A.C.O.E.  
 HAESTADS QTRSS – Urban Hydrology for Watersheds  
 Hydroflow Hydrographs – Storm Routing Model

**HYDRAULICS – OPEN CHANNEL AND CULVERT**

HEC RAS/ - river Analysis System/Flood Plain Analysis/Water Surface Profile  
 HEC2 – Water Surface Profiles by U.S.A.C.O.E.  
 HY8 – Culvert Analysis by FHWA  
 FLOWMASTER – Channel and Pipeline Hydraulics by HAESTAD, Inc.  
 Hydroflow Express – Culverts, Channels, Inlets, and Weir Hydraulics

**PIPELINE HYDRAULICS**

WATERCAD – Water Distribution System Modeling  
 KYPIPE2 – Water Distribution System Modeling  
 CYBERNET – Water Distribution System Modeling  
 Hydroflow Storm Sewer – Stormwater Conveyance System Modeling

**GEOTECHNICAL**

Log Draft 5  
 gINT V8.3  
 FB-Multi-Pier Version 4.16  
 Slope/W 2007  
 Seep/W 2007  
 UTexas 4  
 GRL WEAP  
 L-Pile Versions 4, 5 or 6  
 COM 624P Version 2  
 GSTABL7 and STEDwin

**GEOTECHNICAL (continued)**

FIT Version 8.2  
 UniSettle, Version 3  
 DARwin 3.1  
 Midas GTS  
 GROUP Version 6  
 FE Flow 5.3  
 EMBANK  
 SPW 911  
 ProSheet  
 CRSP  
 DRIVEN  
 PASTABL6  
 RSS  
 HELP  
 SURFER  
 SlopeInc  
 PCASE 2.09.01  
 CPET-IT  
 FOSSA  
 MSEW

**STRUCTURAL – BRIDGE DESIGN**

MIDAS 2018 v2.3  
 STAAD.PRO V8.1  
 PCA COLUMN 3.60  
 ABUTWALL  
 LRFD SIMON – Steel Design and Optimization Program  
 NSBA SPLICE – LRFD Design of Field Splices for Steel Girders  
 MICROSTATION V8i SELECT Series 3  
 ASHTOWare BrR 6.8  
 COM 624P Version 2  
 L-Pile Versions 4,5, or 6  
 FP-Multi-Pier Version 4.16  
 Vbent 3.5

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

**DRAFTING AND SITE DESIGN**

AutoCAD – Civil 3D for Earthwork, Survey, Quantity, Calculations, Terrain Modeling, Coordinate Geometry, Site Grading, etc.

**SURVEY EQUIPMENT**

**Survey/Global Positioning System (GPS)**

- 12 – Leica System 500 - SR 530 RTK - GPS Receiver
- 2 – Leica RS500 Geodetic Reference Station (RTK – COR Station)
- 16 – Pacific Crest ADL Vantage Pro 2-35 Watt UHF – GPS-RTK Trans/Receiver
- 2 – Airlink Raven CDMA C3210 Wireless Modems – Sprint Service, Public Random IP
- 6 – Airlink Raven CDMA C3210 Wireless Modems – Verizon Service, Static IP
- 1 – Leica Disto – Pro (Handheld EDM)
- 32 – Leica Viva GNSS dual frequency receivers
- 3 – Leica 1230 GNSS dual frequency receivers
- 5 – Trimble R8 Model 3 GNSS dual frequency receivers

**Pipe/Cable Locators**

- 3 – Radio Detection RD4000 with 3 watt transmitters
- 5 – Radio Detection RD8000 with 10 watt transmitters
- 1 – Radio Detection RD7000 with 3 watt transmitter
- 5 – Optical Ranging Inc. Spar 300 locating system integrated with the Trimble R8 receivers

**Total Stations**

- 1 – Wild TC 2000

**Tripods**

64

**Total Stations with Onboard Data Collection**

- 1 – Leica TCRP 1200 total station, fully robotic
- 15 – Leica TS 15P total station, fully robotic
- Optical Plummet
- 1 – Wild ZNL-16 (11164)

**Magnetic Locators**

- 2 – Chicago Steel Tape - FT - 60
- 1 – Schoenstedt
- 6 – Subsurface Instrument – ML-1

**Hydrographic Survey Equipment**

- 1 - HyDrone Bathymetric System

**Unmanned Survey Equipment**

- 1 – Fixed-wing Precision Hawk Lancaster
- 1 – Phantom 3
- 1 – Phantom 2 Vision
- 1 – Phantom Inspire

**Levels (Engineering)**

- 9 – Zeiss Ni 2 automatic level with Nedo folding rod
- 1 – Wild N-3 with Nedo folding rod
- 2 – Topcon Dini digital levels with bar code rods
- 6 – Leica NA2 automatic level with 16 ft rod

**GPS Antennas**

- 12 – Leica AT502
- 1 – Leica AT503 w/Chokering and Ray-Dome
- 1 – Leica AT504 w/Chokering and Ray-Dome
- 32 – Leica GS 15
- 5 – Trimble R8 GNSS

**Vehicle / Boats**

- 12 – 4 Wheel Drive Suburbans
- 2 – 4 Wheel Drive Jeep
- 1 – 4 Wheel Drive Pickup
- 1 – 8 Wheel Argo – Amphibious ATV
- 3 – Utility Trailers (10' and 14')
- 2 – Yamaha- Quad ATV

**Fathometer**

- 1 – Innerspace Tech Model 455 – 200 KHz 8° Transducer

**Survey Software**

- 2 – Leica GIS Data Pro Version 3.0
- 1 – Innerspace Technology Version 6.0 Data Logging with Guidance
- 17 – Leica GeoOffice Version 7.5 and 8.3
- 2 – Trimble Pathfinder Office Version 4.0
- 22 – Listech – Liscad 10.0 (COGO)
- 5 – MicroStation Version V8i and XM
- 2 – Leica SPIDER CORS Controlling Software Version 2.0
- 10 – AutoCAD Civil 3D 2011 and 2014

**Field Laptops PCs**

- 30 – HP Elite laptop PCs
- 1 Panasonic Model CF19 Tough Book

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

**GIS SOFTWARE**

- ESRI: 4 – ARC/Info, Version 10.X
- 9 – ArcView, Version 10.X
- 10 – ArcEditor, Version 10.X
- 1 – Spatial Analyst
- 1 – 3D Analyst
- 1 – ArcCOGO

AutoCAD, Version 2014 and prior versions

- 1 – Visual Basic, Version 6
- 1 – Visual Studio 2013 Architects w/MSDN Premium
- 1 – Visual Studio 2013 Developers w/MSDN Premium
- 1 – Visual Studio 2013 Pro w/MSDN Premium

ARCInfo and ARCEditor are concurrent licenses  
 ARCView concurrent licenses

**MOBILE LIDAR**

**Sensor**

- 1 – LYNX Mobile Mapper System with 2 Sensors.

**LIDAR Processing WorkStations**

- 3 – HP E5540 2.53 GHz, 18 GB RAM, 1.4 TB of disc space

**Servers**

- 1 – HP DL380, 2.1 TB of disc space,
- 1 – ATMOS R610 DP Server GBE HA TITAN, 120 TB of disc space

**Software**

- 1 – Optech ALTM Navigation-Planner
- 1 – Applanix POS PAC
- 1 – Optech Dashmap
- 6 – TerraSolid TerraScan
- 5 – TerraSolid TerraMatch
- 6 – TerraSolid TerraModeler
- 1 – TerraSolid Terraphoto
- 1 – TerraSolid Terraslave
- 1 – GeoCue Enterprise Server

- 5 – GeoCue Client
- 5- Geocue LIDAR CuePac
- 1-Geocue LYNX MMS CuePac

**PHOTOGRAMMETRIC EQUIPMENT**

**Softcopy Stereoplotters**

- 1 – HP X5670 @ 2.93 GHz Processor X2 (Xeon), 18 GB RAM, 64 BIT Operating System
- 1 – HP E5645 @ 2.40 GHz Processor X2 (Xeon), 24 GB RAM, 64 BIT Operating System

**Digital Orthophoto**

- 2 – HP Z600 E5640 @ 2.67 GHz Processor X2, 120 GB RAM, 232 GB Disc Space

**Scanner**

- 1 – Z/I PhotoScan – Variable Resolution Settings from 7 to 256 microns.

**Server**

- 1 – Compaq Proliant DL380
- Xeon 3 GHz Processor
- 5.1 GB Memory
- 1 Terrabyte Disc Storage

1.2 Terrabyte Network Attached Storage

**Software**

- 1 – MrSID, Geo Express 8.5
- 1 – ImageStation Automatic Triangulation (ISAT) 6.2
- 7 – IRAS – C, Version 10.1
- 1 – Adobe Photo Shop 5, Version 10.0
- 1 – ERDAS Imagine, Version 2010
- 2 – ImageStation Base Rectifier-ISBR, Version 6.2
- 3 – ImageStation DTM Collection-ISDC, Version 6.2
- 3 – ImageStation Feature Collection (ISFC) 5.3
- 3 – ImageStation: Model Setup (SMS) 5.3
- 2 – ZI Ortho Pro/Geo Media, Version 6.2
- 34 – MicroStation – J & 8, Versions V8 and V8i
- 1 – MRF Mapping Tool Kit for GIS Linework Processing, Version 8.1
- 1 – Corporate licensed Axiom Productivity Kit including File Fixer and English to Metric Conversion packages

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD**

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
<p><b>Mountain View Portals Mine Reclamation</b> Preston County, West Virginia</p>	<p>West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands &amp; Reclamation 601 57th Street, SE Charleston, WV 25304</p>	<p>Michael Baker responsibilities includes providing engineering services for the reclamation of the Mountain View Portals abandoned coal mine site. Michael Baker's services included site investigation; field survey; subsurface investigation; water quality and soil sampling and analysis; conceptual, preliminary, and final design; stream restoration; permitting; environmental investigations; bidding-phase support; and construction monitoring.</p>	<p align="center">\$ 169,267 (Michael Baker Fee)</p>	<p align="center">90%</p>
<p><b>F&amp;M Coal Company, S-1044-87 &amp; S-57-84</b> <b>Mapping and Design Services</b> Preston County, West Virginia</p>	<p>West Virginia Department of Environmental Protection (WVDEP) Office of Special Reclamation 47 School Street, Suite 301 Philippi, WV 26416</p>	<p>Michael Baker was tasked to provide special reclamation construction documents to treat AMD discharge actively and passively to comply with current NPDES effluent limits. Michael Baker's responsibilities included research of existing geological data and mining maps, aerial mapping verification, supplemental field and bathymetric pond surveying, bench scale treatability testing, acid base accounting testing, engineering design and analysis, the preparation of construction plans and specifications, stormwater pollution prevention plans; cost estimating, bidding-phase support; and construction services.</p>	<p align="center">\$243,752 (Michael Baker Fee)</p>	<p align="center">90%</p>
<p><b>Masteller Coal Company, S-10-85 &amp; S-125-82</b> <b>Mapping and Design Services</b> Mineral County, West Virginia</p>	<p>West Virginia Department of Environmental Protection (WVDEP) Office of Special Reclamation 47 School Street, Suite 301 Philippi, WV 26416</p>	<p>Michael Baker was tasked to provide special reclamation construction documents to AMD discharge passively treat to comply with current NPDES effluent limits. Michael Baker's responsibilities included research of existing geological data and mining maps, aerial mapping verification, supplemental field and bathymetric pond surveying, bench scale treatability testing, acid base accounting testing, engineering design and analysis, the preparation of construction plans and specifications, stormwater pollution prevention plans; cost estimating, bidding-phase support; and construction services.</p>	<p align="center">\$168,937 (Michael Baker Fee)</p>	<p align="center">90%</p>

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD**

<b>PROJECT NAME, TYPE AND LOCATION</b>	<b>NAME AND ADDRESS OF OWNER</b>	<b>NATURE OF YOUR FIRM'S RESPONSIBILITY</b>	<b>ESTIMATED CONSTRUCTION COST</b>	<b>PERCENT COMPLETE</b>
<p><b>Maurice Jennings Coal Company, S-53-78 &amp; S-61-83</b> <b>Mapping and Design Services</b> Preston County, West Virginia</p>	<p>West Virginia Department of Environmental Protection (WVDEP) Office of Special Reclamation 47 School Street, Suite 301 Philippi, WV 26416</p>	<p>Michael Baker was tasked to provide special reclamation construction documents to treat AMD discharge passively and actively to comply with current NPDES effluent limits. Michael Baker's responsibilities included research of existing geological data and mining maps, aerial mapping verification, supplemental field and bathymetric pond surveying, bench scale treatability testing, acid base accounting testing, engineering design and analysis, the preparation of construction plans and specifications, stormwater pollution prevention plans; cost estimating, bidding-phase support; and construction services.</p>	<p align="center">\$217,982 (Michael Baker Fee)</p>	<p align="center">60%</p>
<p><b>Multi-Purpose Machine Gun Range Reconstitution</b> Camp Ravenna Joint Military Training Center, Ohio</p>	<p>USPFO-OH 2811 W. Dublin-Granville Road Columbus, OH 43235-2788</p>	<p>Michael Baker responsibilities include architectural, engineering, and environmental services for reconstitution of the Automated Multi-Purpose Machine Gun (MPMG) Range at Camp Ravenna Joint Military Training Center. Michael Baker provided topographic mapping and surveying, reviewed design documents against current codes, performed a new wetlands delineation, supporting facility design, stormwater collection and conveyance, site layout and development, targetry layout and associated automation, utilities, construction documents and cost estimate, updated and prepared required permits, and provided construction phase support.</p>	<p align="center">\$612,079 (Michael Baker Fee)</p>	<p align="center">90%</p>
<p><b>Small Arms Range Repair Evaluation</b> Mansfield, Ohio</p>	<p>OH Air National Guard 1947 Harrington Memorial Road Mansfield, OH 44903-0179</p>	<p>Michael Baker evaluated the small arms range at Mansfield Correctional Institution (ManCI) and prepared a feasibility report to identify key deficiencies of existing facilities, potential impacts of surrounding environs, and develop recommendations for needed repairs. Michael Baker performed a preliminary assessment of existing conditions; prepared an environmental baseline survey (EBS) that included a health and safety plan, soil sampling of the firing range, and stream and groundwater water sampling; and performed a</p>	<p align="center">\$124,834 (Michael Baker Fee)</p>	<p align="center">50%</p>

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD**

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
		Phase I archaeological field survey to identify potentially significant archaeological resources. Michael Baker developed a feasibility report with recommendations (including cost estimates) for capital improvements and preventative maintenance to allow for compliance with current standards and meet stated requirements for frequency of use.		
<b>Corridor H Quality Assurance Management (QAM) Services</b> Randolph and Tucker Counties, West Virginia.	West Virginia Department of Transportation Division of Highways Building 5 Charleston, WV 25305	Michael Baker provided quality assurance management (QAM) for construction of Sections 1, 2, and 3 of the Corridor H highway from Kerens to Parsons. During a long-term relationship with the client, Michael Baker served as the owner's representative to provide all the services needed from pre-award phase, through post-award and construction stages of their largest ever construction project being executed as design-build.	\$19,266,623 (Michael Baker Fee)	65%
<b>5<sup>th</sup> Street Bridge and 8<sup>th</sup> Street Bridge Replacement</b> Cabell County, West Virginia.	West Virginia Department of Transportation, Division of Highways Building 5 1900 Kanawha Boulevard, East Charleston, West Virginia 25305-0430	Michael Baker provided environmental and engineering services for the replacement of the 5th Street and 8th Street bridges in Ritter Park. Michael Baker's services included project management, environmental assessments, agency coordination, geographic information system (GIS) development, a traffic analysis, preliminary engineering, alternatives analyses, and preparation of a design study report.	\$855,823 (Michael Baker Fee)	80%
<b>I-79 Upgrade South Fairmont to Pleasant Valley Engineering Services,</b> Marion County, West Virginia.	West Virginia Department of Transportation Division of Highways Building 5 Charleston, WV 25305	Michael Baker is providing engineering and environmental services for the widening of I-79 to six lanes, from 0.38 miles south of U.S. 250 (exit 132) to 0.25 miles north of C.R. 64 (exit 135). This two-phased project provides the preparation of construction plans and related documents and includes the necessary NEPA services to facilitate project construction.	\$4,573,731 (Michael Baker Fee)	80%

TOTAL NUMBER OF PROJECTS:

9

TOTAL ESTIMATED CONSTRUCTION COSTS:

\$26,233,028 (Michael Baker Fee only)

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 AML CONSULTANT QUALIFICATION QUESTIONNAIRE

Attachment "B"

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRM'S RESPONSIBILITY
None					

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD**

<b>PROJECT NAME, TYPE AND LOCATION</b>	<b>NAME AND ADDRESS OF OWNER</b>	<b>ESTIMATED CONSTRUCTION COST</b>	<b>YEAR</b>	<b>CONSTRUCTED (YES OR NO)</b>
<b>Training Area and Maneuver Trails</b> Camp Ravenna Joint Military Training Center, Portage and Trumbull Counties, Ohio	21 OH Air National Guard 1438 S.R. 534 SW Newton Falls, Ohio 43217-1161	\$292,131 (Michael Baker Fee)	2018	Yes
<b>Ebenezer Run Highwall #9</b> Brooke County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	\$101,413 (Michael Baker Fee)	2015	Yes
<b>Design &amp; Construction Management Services for the Coney Island Water Pollution Control Plant Upgrade</b> New York	City of New York Dept. of Environmental Protection Elmhurst, New York	\$30,838,464 (Michael Baker Fee)	2015	Yes
<b>General Environmental Consulting Services and Technical Support Contract (2009-2015)</b> Various Sites in Pennsylvania	Pennsylvania Department of Environmental Protection Rachel Carson State Office Building P.O. Box 8471 400 Market Street Harrisburg, PA 17101	\$11,686,071 (Michael Baker Fee)	2015	Yes
<b>Currie Landfill and Kelly Farm Sludge Lagoon Remediation Design</b> Millicreek and Fairview Townships, Pennsylvania	Pennsylvania Department of Environmental Protection Rachel Carson State Office Building P.O. Box 8471 400 Market Street Harrisburg, PA 17101	\$1,378,433 (Michael Baker Fee)	2015	Yes
<b>Phase II Environmental Site Assessment of the Bear Creek Area Chemical Sites</b> Butler and Armstrong Counties, Pennsylvania	Pennsylvania Department of Environmental Protection Rachel Carson State Office Building P.O. Box 8471 400 Market Street Harrisburg, PA 17101	\$1,082,257 (Michael Baker Fee)	2015	No (Study)
<b>Collier Sportsman's Club Highwall</b> Brooke County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	\$139,821 (Michael Baker Fee)	2014	Yes



**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD**

<b>PROJECT NAME, TYPE AND LOCATION</b>	<b>NAME AND ADDRESS OF OWNER</b>	<b>ESTIMATED CONSTRUCTION COST</b>	<b>YEAR</b>	<b>CONSTRUCTED (YES OR NO)</b>
<b>Training Area and Maneuver Trails</b> Camp Ravenna Joint Military Training Center, Portage and Trumbull Counties, Ohio	121 OH Air National Guard 1438 S.R. 534 SW Newton Falls, Ohio 43217-1161	\$292,131 (Michael Baker Fee)	2018	Yes
<b>Ebenezer Run Highwall #9</b> Brooke County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	\$101,413 (Michael Baker Fee)	2015	Yes
<b>Waltman-Barbe Highwall #1</b> Monongalia County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	\$117,007 (Michael Baker Fee)	2014	Yes
<b>Simpson Highwall Project,</b> Barbour County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	\$119,000 (Michael Baker Fee)	2013	Yes
<b>Prime No. 1 Mine Fetty Portal</b> Monongalia County, West Virginia	Dana Mining 308 Dents Run Road Morgantown, WV 26501	\$103,000 (Michael Baker Fee)	2013	No
<b>PFC Abraham G. Sams Memorial Bridge Replacement</b> Clay County, West Virginia	West Virginia Department of Transportation, Division of Highways 1900 Kanawha Boulevard, East Charleston, West Virginia 25305-0430	\$998,196 (Michael Baker Fee)	2018	Yes
<b>Design-Build Coonskin Park Access Road Bridge</b> Charleston, West Virginia	West Virginia Department of Transportation, Division of Highways 1900 Kanawha Boulevard, East Charleston, West Virginia 25305-0430	\$6,200,000 (Construction)	2016	Yes

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

**18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS BEEN A SUB-CONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK FOR WHICH YOUR FIRM WAS RESPONSIBLE)**

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
None					

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

Michael Baker International, Inc. (Michael Baker) has been providing abandoned mine lands (AML) reclamation and acid mine drainage (AMD) remediation since the federal government first enacted legislation. Our work experience in AML/AMD started with Operation Scarlift in the 1970's, and we have been providing our engineering services in these areas to the West Virginia Department of Environmental Protection (WVDEP) since they initiated its AML Reclamation Program in 1983. Michael Baker's AML/AMD experience has developed the full skill set for reclamation projects. We also provide services in this area to the WVDEP OSR, Pennsylvania Department of Environmental Protection (PADEP), the Ohio Department of Natural Resources (ODNR), and the U.S. Office of Surface Mining (OSM), to name a few. Our recent experience on numerous AML reclamation and AMD remediation projects for the WVDEP, ODNR, PADEP and the U.S. Army Corps of Engineers, Nashville District, illustrates our track record for the completion of assignments on time and within budget. Through these experiences, Michael Baker has garnered AML/AMD-specific recognition and developed long-standing business relationships through successful endeavors based on our ability to provide the following services at a level that meets environmental standards while exceeding client expectations:

- ◆ Reclamation of mine refuse piles
- ◆ Mine Sealing
- ◆ Subsidence Control
- ◆ Balanced earthwork and grading
- ◆ Strip pit and high wall reclamation
- ◆ Drainage conveyance and improvements
- ◆ Revegetation of acid bearing ground
- ◆ Stream relocation and natural stream channel design
- ◆ Wetland assessments and inventory
- ◆ Restoration of streams and wetlands
- ◆ Landslide identification, investigation and remediation
- ◆ Replacement of water supplies affected by mining
- ◆ Efficient Passive and active AMD treatment systems



Although the projects presented in the Project Experience Matrix of Attachment "C" of the CQQ clearly show Michael Baker's AML design, water system design, and related experience, they only hint at the extensive human and material resources that especially qualify our firm for this project. Additionally, some projects may require some unique technical skills beyond a typical AML project, and as you may observe on our Organization chart included in Section 13 of this Expression of Interest, we can bring the full depth of in-house technical services to the project, as needed. Based on our initial investigations of the project, this includes items like inventorying and characterizing surface water seeps and mine discharge; completing a test boring program aimed at determining spoil, and evaluating any highwall or mine pool conditions to assist with reclamation; designing and maintaining a

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

treatment system for treating mine water and seepage; and LiDAR experts for securing mapping of large and altered sites, to name a few. The following narrative further describes our experience and provides insight into the special capabilities of Michael Baker.

The civil, mining, surveying, mapping, environmental, and geotechnical services of Michael Baker are available to respond to the needs of WVDEP immediately. Working from our Moon Township, Pennsylvania office and supported by our Charleston, West Virginia office, Michael Baker can expeditiously provide the full spectrum of services needed in water distribution system design as well as mine reclamation and mine drainage abatement operations. Some of the more important services our firm can provide to WVDEP include:

**Field Investigation and Design Solutions**

Sometimes it is about not reinventing the wheel. Our field investigations start with a literature review of any available mapping, historic mine maps, old aerial photographs, mined out area maps, landslide susceptibility maps, geologic maps, soil conservation service reports, etc. After compiling and review of available existing resources, we perform a field view of the project. Our specialized experience and technical ability has taught us that a typical AML project is a puzzle with many pieces.

Because of the history of the site, often pieces of the puzzle no longer exist. Michael Baker's responsibility is to uncover and connect the various puzzle pieces and utilize this information to develop an efficient, constructible, cost-effective design. We take this responsibility very seriously. The adjacent image is an example of present day aerial photography, historical mine maps, structure contours and field collected data. This becomes a valuable design tool.



19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

**Design Systems – Active and Passive**

Michael Baker's design experience includes both active and passive treatment systems, which are based on the characterization of the AMD site as well as the flows and chemistry of the AMD. To this end, Michael Baker provides AMD sampling to determine chemical parameters, as well as the flow measurements covering high- and low-flow periods that are most important in developing AMD abatement system. To date, Michael Baker has evaluated and designed 17 AMD abatement systems, four of which are passive treatment systems that have been recently constructed and are currently in service.

Additionally, Michael Baker has designed ten AMD remediation projects for WVDEP alone that included open limestone channel (OLC), anaerobic and aerobic wetlands and settling ponds, limestone sand dumping in the stream, and alkaline leach bed/anoxic limestone drains. Other Michael Baker AMD abatement designs have been designed for USACE's Baltimore and Nashville Districts.



**Geotechnical Investigation and Analysis**

In designing special reclamation projects, generally three types of soil analysis are needed. These analyses may include:

- ◆ Geotechnical analysis (bearing capacity, friction angle, etc.)
- ◆ Soil analysis for revegetation potential (pH, Acid Base Accounting, Nutrients)
- ◆ Soil analysis for hazardous materials where past dumping may have occurred.

Michael Baker is involved in selecting and collecting the soil samples and analyzing the results of laboratory testing as required for design. Of the 30 most recent AML projects, Michael Baker was involved in soil analysis for 23 projects.



**Hydrology and Hydraulic Analysis**

Michael Baker has used specialized regional and local hydrologic methods in our 50+ years of combined experience in the program and during our work on local and federal contracts. The team has experts in hydrologic analyses who have experience using a variety of current hydrologic methods, including HEC-1, HEC-2, HEC-RAS, HY8, TR20, TR55, HAESTADS PONDS 2,

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FLOWMASTER, HDYRDOFLOW, KYPIPE 2, CYBERNET, SEDCAD 4, UNET, and DAMBRK. Michael Baker applies these models to services such as stormwater management, culvert analysis, hydrologic and hydraulic studies, storm sewer design, floodplain modeling, channel design, watershed planning, energy dissipation, and waterline extension and distribution. The team is also skilled in calibrating the rainfall runoff models in to historical data to justify results. We realize that each watershed is different from the next and that knowledge of local characteristics can be important.

Expertise in hydrology and hydraulics is essential in any AML/AMD remediation design. **Of the 30 most recent AML/AMD projects, 28 projects needed hydrology/hydraulics expertise of the AML/AMD design group.**

### Stormwater Management

Michael Baker applies advancements in sediment control devices to provide an environmentally low impact, cost-effective design for reclamation projects. This approach uses sediment tube traps and wattles in lieu of the conventional sedimentation ponds. These devices filter sediment laden runoff through them while also reducing hydraulic energy. They also provide a higher efficiency of pollutant removal than conventional methods and reduce the project's total disturbed area typically needed when conventional sedimentation basins are utilized.

Michael Baker grades the site such that all stormwater runoff is directed towards a channel at the toe of the backfilled highwall which doesn't allow any runoff exiting the site without the benefit of treatment. This keeps all runoff within the limits of disturbance and allows for the erosion control devices to be placed incrementally as construction progresses.

Once the site is vegetated, the controls are removed without any further reclamation that typically occurs with traps and ponds. The application of these new technologies also results in lower construction cost and project duration while providing a high efficiency of pollutant removal.



19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

**Development of Balanced Earthwork and Grading**

Michael Baker typically employs AutoCAD Civil 3D for production of grading plans, profiles, details, cross sections, and balancing cut and fill volumes on AML projects. We have presented a team that includes experts in utilizing this tool for grading and evaluating excavation and fill quantities to produce a calculation of bid item quantities. AutoCAD Civil 3D is a powerful tool for abandoned mine land projects allowing the rapid evaluation of grading plan alternatives and refuse and gob piles, highwalls, and other abandoned surface disturbances. If required, Michael Baker is also capable of utilizing Bentley MicroStation for development of plans and earthwork balancing.

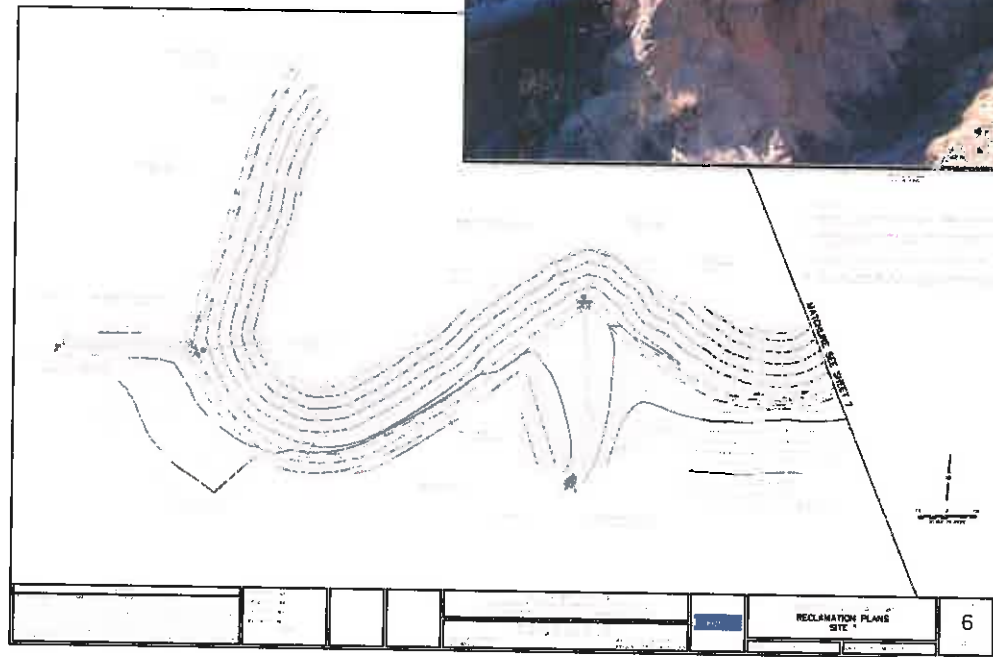
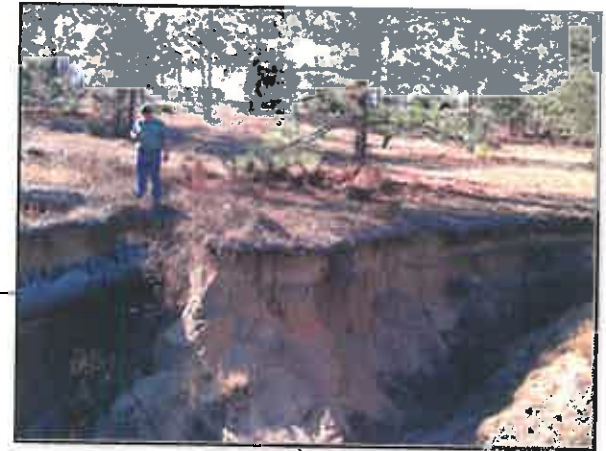
**Preliminary Design, Final Design, and Construction Documents**

Michael Baker's expert team of licensed professional engineers are experienced in preparing preliminary design reports, construction plans, specifications, bid tabs, and cost estimates for projects including mine subsidence and grouting, portal sealing, highwall backfilling, AMD Treatment and landslide stabilization.

Michael Baker was relied upon to write the manual for PADEP for the Permitting for Surface Facilities related to Coal Mining. A manual in which the guidelines are set for all mine permitting to be used by the Operators. This provides for a consistent and methodical process to permit the facilities and ensures the protection of the environment. This trust in Michael Baker by PADEP to take responsibility for this important document is just a sampling of the trust our clients have always placed in Michael Baker. It also demonstrates our knowledge of the mining processes and procedure. That understanding of how mining occurs today and historically yields valuable insight into developing solutions to deal with the resulting special reclamation projects.

**Permitting**

Every design project must be permitted; however the role of permitting is often overlooked. Michael Baker can prepare the required permitting documentation for AML designs to obtain required permits and authorizations. Michael Baker has an



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19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

experienced team of professionals that have a diverse background in environmental and regulatory permitting. Permits are prepared in-house by a team that is intimately involved with the design of the project and has working relationships with regulatory agencies. In many instances, our working relationships with the regulatory community have allowed us to fast-track permits or permit revisions due to unforeseen conditions. This has saved our client valuable time and funding during design and construction. Beyond the application, Michael Baker provides technical representation to support our client's position during the permit negotiations.

### Mobile and Aerial LiDAR Capabilities

Michael Baker's aerial light detection and ranging (LiDAR) service provides an efficient and affordable high-definition solution to digital terrain model surface creation and planimetric feature collection. Michael Baker owns and operates the latest in aerial LiDAR and positioning technology for outstanding productivity and survey efficiency. From a single aerial collection session, our aerial LiDAR system offers the ability to accurately capture and classify features that are important to you and the requirements of your project. With up to four range measurements, including first, second, third, and last return-point capture, you can be assured that all project data is accurately captured and available for classification

Michael Baker LiDAR provides the ability to accurately and effectively capture point-cloud terrain data for orthophoto rectification and planimetric or topographic map compilation. Products can be delivered as bare-earth DEM files, with the option of upgrading to digital terrain models for contour generation.

Some of the functions applicable to design projects for which Michael Baker routinely employs the LiDAR System:

- ◆ Aerial imagery (vertical) acquisition using digital/film based cameras.
- ◆ Aerial Light Detection and Ranging (LiDAR) collection
- ◆ Field survey, including photogrammetry control, densification, and accuracy testing
- ◆ Unmanned Aerial Surveys (UAS)
- ◆ LiDAR data processing
- ◆ Map reproduction
- ◆ Earthwork Volume Computations and Cost Estimates
- ◆ Aerial imagery (oblique photographs)
- ◆ Contour Mapping of the Surface and Subsurface
- ◆ Perform Fully Analytical Aerial Triangulation (FAAT)
- ◆ Stereo compilation of data
- ◆ Aerial Mosaic, including Ortho Imagery
- ◆ Facilities Layout and Site Design
- ◆ Drafting of Plans Profiles and Cross Sections

The LiDAR System and AutoCAD Civil 3D Design software are powerful cost saving tools for abandoned mine land projects since they can evaluate numerous configurations rapidly. They are especially useful for projects requiring extensive waterline plan and profile drawings and can interface with hydraulic models such as WaterCAD for analysis and design. They are also useful for projects requiring extensive backfilling and grading, such as may be required for water tank and pump station sites, and for the grading of refuse banks and gob piles, elimination of highwalls, and reclamation of other abandoned surface disturbances.



*Michael Baker owns fixed-wing and octocopter drones.*



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### Structural / Bridge Services

Baker enjoys a national reputation as a leader in bridge design, inspection, maintenance and engineering, and was ranked by ENR in 2012 as the 5th largest US bridge design firm. Baker's bridge engineers have designed several landmark structures across the country, including the world-famous New River Gorge Bridge, as well as a number of large cable-supported structures and major river crossings. Baker's bridge resume also includes extensive rehabilitation, analysis, inspection and load rating experience with structures of all types. Baker's bridge practice enjoys a wealth of technical diversity which is unique among engineering consultants. Baker's bridge engineers create and maintain software programs for the American Association of State Highway Transportation Officials (AASHTO) that perform analysis, design, and load rating and are used by departments of transportation across the US. We have also developed and taught training courses for the Federal Highway Administration (FHWA) on bridge inspection and design for decades and have conducted courses in each of the 50 states and outside the US. These unique services give our bridge engineers exceptional insight into the entire life cycle of bridges and structures.



Baker's bridge design practice has been responsible for the design of thousands of linear feet of new bridge structure, in all parts of the country and in all variety of environments. We continue to be a leading bridge consultant to many agencies across the country, including the West Virginia Department of Transportation. Our experience covers all different bridge types and all materials, from steel I-girder to concrete box girder. We take pride in making sure our bridge designs appropriately balance technical efficiency with aesthetics and cost, so important in today's climate of heightened public scrutiny.

Baker recently completed the design of two 2-span P/S concrete spread box beam bridges for Mark West Liberty Midstream and Resources LLC in Marshall County, West Virginia that are very similar in size and scope to the proposed bridge for the Richard Mine Drainage Access project. These bridges consist of spans of 63 feet and 77 feet, one with no skew and the other one on a 45-degree skew.

For decades, Baker's engineers have crossed the US teaching bridge inspectors in support of National Highway Institute (NHI) Course No. 130055 "Safety Inspection of In-Service Bridges". This course was developed by Baker for the FHWA and has resulted in the training of thousands of bridge inspectors in the safest and most current bridge inspection techniques. We have subsequently developed and delivered a number of other inspection-related courses for NHI, including courses on engineering concepts for bridge inspectors and inspection of fracture critical bridges. More recently, Baker has developed Load and Resistance Factor Design (LRFD) courses, and we continue to deliver LRFD training to bridge engineers across the US.

Baker literally wrote the book on bridge inspection, having authored the popular FHWA "Bridge Inspection Training Manual 90" (BITM 90) and subsequently updating it to the new "Bridge Inspector's Reference Manual" (BIRM). In addition, Baker also developed NHI Course No. 130055 "Safety Inspection of In-Service Bridges" to reflect the contents of the BIRM, and our engineers and inspectors have taught thousands of inspectors across the

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

country as part of this course. Over the years Baker has been called upon to inspect many major complex bridges and river crossings, including multiple inspections of the 900-ft. high New River Gorge Bridge in West Virginia and, most recently, several major structures for the Minnesota Department of Transportation.

**Additional Services**

Michael Baker also provides the following services for abandoned mine lands reclamation and water system design projects:

- ◆ Field Surveying
- ◆ Mapping Verification Surveying
- ◆ Bathymetric Surveying
- ◆ Environmental Evaluations and Assessments
- ◆ Data Acquisition and Interpretation
- ◆ Construction Management

Since we can furnish all of the engineering related services required for abandoned mine lands reclamation projects "in-house", we can work very efficiently and meet the strictest of schedules. Our efficiency is further heightened by the use of mapping systems and AutoCAD compatible design software to perform computer-assisted mapping, design and drafting.



*Michael Baker owns a HyDrone bathymetric system and has used it on numerous mine ponds.*

The experience of the key project personnel includes abandoned and active operations. Since we continually serve many of the Country's largest coal and mineral producers as well as industrial clients and state environmental agencies, several personnel listed under Item 13 of the CQQ also have experience in all phases of mining services, from survey, mapping, exploration and reserve analysis through mine planning, permitting, design, construction management, and final closure and reclamation. Since mining and reclamation projects (and WVDEP assignments in particular) comprise a large segment of our business, we work to assure that the mining services provided meet the needs and expectations of our clients and any regulatory agencies involved. Some of the many coal producers we have served are listed below:

- |                               |  |
|-------------------------------|--|
| ◆ Consolidation Coal Company  | ◆ Emerald Coal Resources LP              |
| ◆ Alpha Natural Resources     | ◆ Cumberland Coal Resources LP           |
| ◆ Westmoreland Coal Company   | ◆ Exxon Research and Engineering Company |
| ◆ U.S. Steel Mining Co., Inc. |  |

To further demonstrate Michael Baker's full service capabilities and experience, a national award-winning AML project description is provided below.

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

### ***State Funded Mine Reclamation and Pollution Abatement Projects – Kempton Refuse & AMD, West Virginia***

Michael Baker Jr., Inc. was retained by the West Virginia Department of Environmental Protection to prepare detailed design plans, and technical specifications for the Kempton Refuse & AMD project in Tucker County. The constructed project won a reclamation award and is described in a video on the WVDEP website.

The primary purpose of the Kempton Refuse & AMD project is to reclaim the remains of the pre-law underground and surface mines in the project area and divert AMD through a passive treatment system before discharging to existing streams in order to rehabilitate the watershed, and in turn the North Branch of the Potomac River.

The project involved the reclamation of over 60 acres of exposed refuse and mine spoil, re-establishment of 4,400 LF of stream, and conveyance and treatment of numerous AMD discharges. Site reconnaissance was performed to identify mine seepage points and AMD sources, subsidence features, and potential soil borrow areas. A wetland delineation and stream assessment were performed to determine design parameters and mitigation requirements for regulatory compliance. A series of bore holes were drilled to determine underground conditions including characteristics of refuse, soil, and rock, and to determine the elevation of critical mine entries.

Plans and specifications were prepared for the reestablishment of the unnamed tributary, grading of spoil and refuse to provide positive drainage, collection of acidic seepage, sealing of mine entries, AMD conveyance and treatment, and soil covering and revegetation of refuse materials.

Specifications for revegetation and reforestation of selected areas included soil amendments, seed mixtures, tree plantings, and mulching. Stream restoration designs required to reconstruct two unnamed tributaries in the Potomac watershed employed natural design techniques including a serpentine layout with pools and riffles.

The site included numerous mine seals and collection points to abate the AMD seepage. Mine seals consisting of clay seals, aggregate material, and PVC outlet pipes were proposed, with modified entries required to meet site specific artesian conditions. Conveyance pipes and limestone lined conveyance channels were provided to transfer AMD to a treatment system consisting of an equalization pond, successive alkalinity producing system (SAPS pond), and aerobic wetland. Project construction was completed in 2009.

### **Summary**

As a large, diverse engineering firm, Michael Baker has facilities available to properly conduct water distribution extension, abandoned mine land reclamation, and AMD remediation projects. The use of in-house capabilities facilities can speed project completion and facilitate tracking of progress. The in-house capabilities include:

- ◆ Data Processing
- ◆ Interactive Graphics and AutoCAD
- ◆ Word Processing
- ◆ Printing and Reproduction

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

Michael Baker's qualifications to provide engineering services for waterline and abandoned mine land projects, we offer the following response to the evaluation factors:

**1. Bidder Experience**

- ◆ Extensive experience in each area. Items 17 and 18 of the CQQ describe various projects for which we provided these services during the last five years. Projects and technical services listed under item 12 of the CQQ describe competencies typical of various projects for which we provided our services to WVDEP.

- ◆ Strong capabilities in each area. Item 13 of the CQQ lists our personnel by discipline. Our large multi-disciplinary staff is experienced in all aspects of Special Reclamation and AML reclamation; civil, environmental, mining, geotechnical and reclamation engineering applied to surface and underground coal mining; land restoration; stream and water restoration; and land use and natural resources planning. The attached "Project Experience Matrix" show various projects performed for various clients and also show primary participants responsible for these projects.



Kempton Refuse and Acid Mine Drainage/Abandoned Mine Lands Project in Tucker County, West Virginia. The West Virginia Department of Environmental Protection was honored by the U.S. Department of the Interior's Office of Surface Mining for its reclamation and restoration efforts on the Kempton Project. To find out more about West Virginia's Abandoned Mine Lands Program go to: <http://www.dep.wv.gov/aml/Pages/default.aspx>

**2. Qualification of Personnel** with respect to background, general experience, and experience relative to the requirements of the project.

- ◆ Michael Baker's key personnel are registered professional engineers experienced in a broad variety of water distribution and similar projects, as indicated item 13 of the CQQ.
- ◆ Our Project Professionals are veterans of many similar projects including past WVDEP projects.

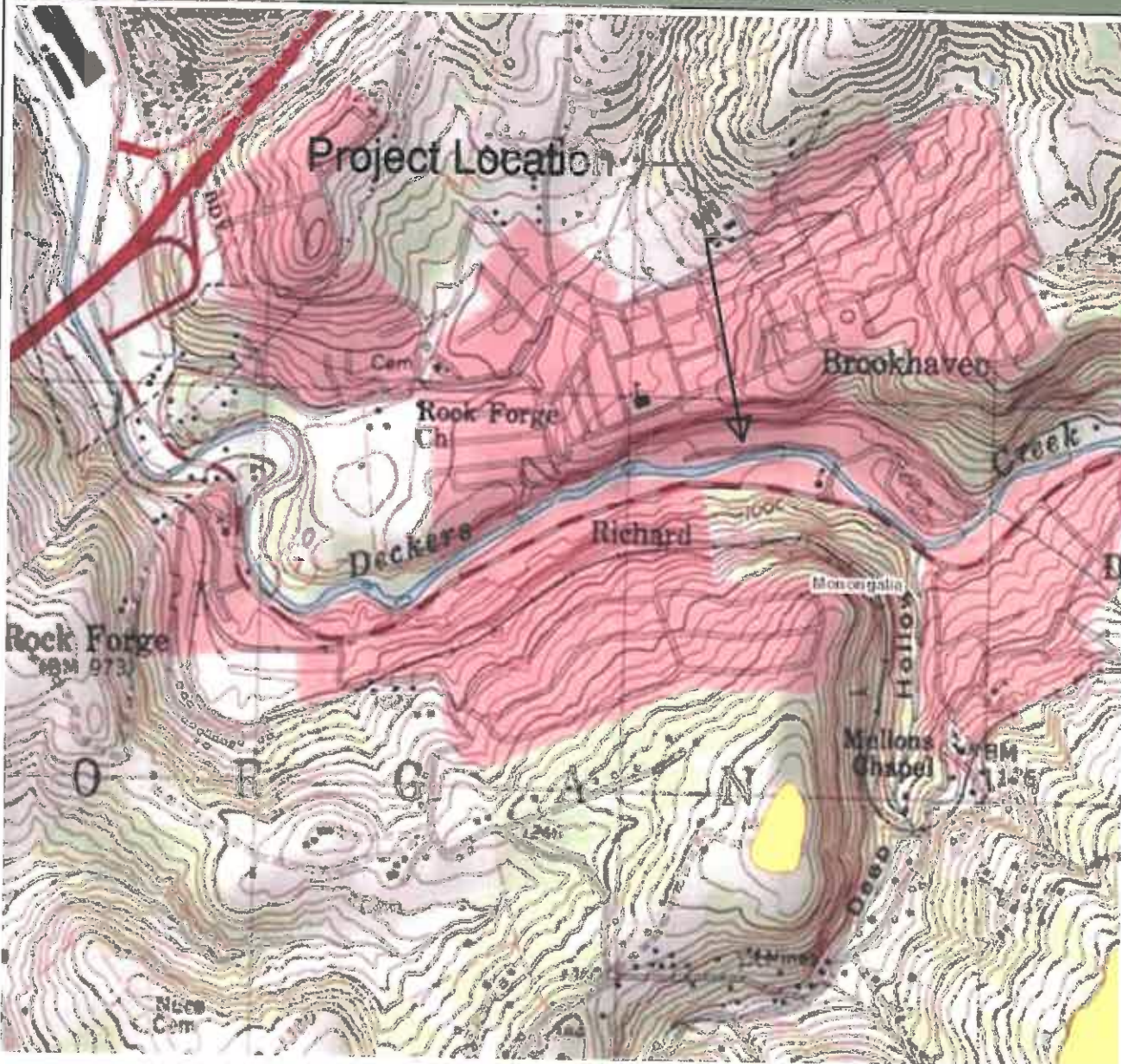
19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

- ◆ Our Mining Services Manager, Mr. Christopher Ruppen and our proposed Project Manager for this assignment, Mr. Bill Neider, both demonstrate the desire and commitment that WVDEP deserves and expects for this assignment.
- ◆ Our commitment is demonstrated by the fact that Michael Baker has conducted a comprehensive investigation of the project site and has been involved with the interpretation of the mining history leading to the current day site conditions.

**3. Corporate Specialized Experience and Demonstrated Abilities**

- ◆ Michael Baker's specialized experience with AML related problems is summarized in the abandoned mine lands reclamation and Related Projects Matrix in Appendix C. Our work has addressed the full spectrum of reclamation projects.
- ◆ The firm has a wealth of experience on similar projects, as evidenced by projects performed for mining and mineral companies. Moreover, Michael Baker's transportation, site development, and water resource projects in the tri-state area often address special reclamation problems.
- ◆ Michael Baker applies advancements in sediment control devices to provide an environmentally low impact, cost-effective design for reclamation projects. This approach uses sediment tube traps and wattles in lieu of the conventional sedimentation ponds. These devices filter sediment laden runoff through them while also reducing hydraulic energy. They also provide a higher efficiency of pollutant removal than conventional methods and reduce the project's total disturbed area typically needed when conventional sedimentation basins are utilized. Michael Baker grades the site such that all stormwater runoff is directed towards a channel at the toe of the backfilled highwall which doesn't allow any runoff exiting the site without the benefit of treatment. This keeps all runoff within the limits of disturbance and allows for the erosion control devices to be placed incrementally as construction progresses. Once the site is vegetated, the controls are removed without any further reclamation that typically occurs with traps and ponds. The application of these new technologies also results in lower construction cost and project duration while providing a high efficiency of pollutant removal.
- ◆ Our specialized experience and technical ability has taught us that a typical AML project is a puzzle with many pieces. Because of the past history of the site, often pieces of the puzzle no longer exist. Michael Baker's responsibility is to uncover and connect the various puzzle pieces and utilize this information to develop an efficient, constructible, and cost-effective design. We take this responsibility very seriously.

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.



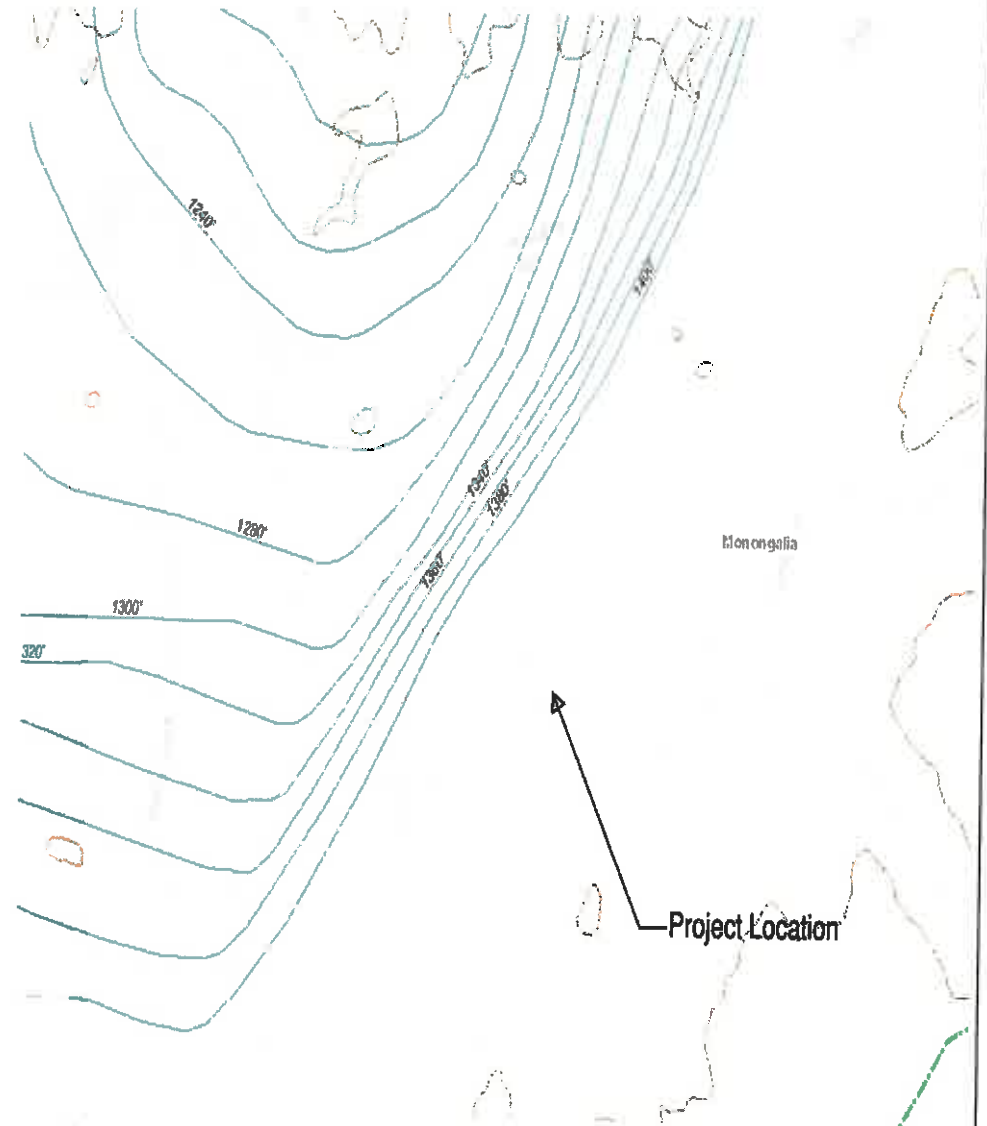
The image shown to the left is downloaded from the West Virginia Geologic and Economic Survey and starts to build the puzzle. For the Richard Mine Drainage Access site, the reference begins to depict adjacent areas of underground mining with headings and portals in the Pittsburgh, Sewickley, and Waynesburg Coal Seams (tan). Areas of surface mining in the same coal Seams (purple) also show up in the historical mine maps.

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◆ Michael Baker routinely finds these puzzle pieces and utilizing various tools, pieces various references together to depict a quick preliminary overview of the project. The image to the right combines various puzzle pieces for the Richard Mine Drainage Access site and includes the relative coal dip and historic mine maps, combined with some interpretation from our investigation. This information becomes a basis for all future work by providing a clear understanding of the history and the current disposition of the site. This tool becomes the foundation for developing a sound and efficient solution.

By utilizing this reference compilation, several things become quickly apparent:


- ◆ There are three coal seams involved with this site, but not directly at the site: the Pittsburgh, Waynesburg, and Sewickley Coal Seams which was both surfaced and deep-mined.
- ◆ Relative dip for the Pittsburgh Coal Seam, which is the closest seam, is to the northwest.
- ◆ A bridge crossing over Decker's Creek will be needed to access the site.
- ◆ The crossing will have an approximate span of 100'.
- ◆ Proposed bridge will have a roadway width of 16' and be capable of carrying all legal highway loads.
- ◆ Storm water and erosion and sedimentation controls will be needed for the site.



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AML CONSULTANT QUALIFICATION QUESTIONNAIRE

Attachment "B"

20. THE FOREGOING IS A STATEMENT OF FACTS

Signature:  Title: Associate Vice President Date: October 9, 2018  
Printed Name: Steven M. Savich, P.E.



Projects	* Exp. Basis C = Corp P = Personal	** Additional Info provided In Sections (s)	Project Experience Requirements																																	
			Abandoned Surface Mine Reclamation	Abandoned Deep Mine Reclamation	Portal / Shaft Closure	Hydrologic / Hydraulic Design / Eval.	Remaining Evaluation	Mine / Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Eval. Mitigation / Replacement	Construction Inspection / Management	Water Treatment	Equipment / Structure Removal	Stream Restoration	Geotechnical / Stability	NPDES/Stormwater Preparation	M   P	M   P	P	P	P	P	P	M   P	P	M & P	M   P	P	P	M   P	P	M		
1. Nine County Roads Water Supply Feasibility Study, Preston County, WV (WVDEP)	C&P					*					*	*				*																				
2. Beech Bottom Refuse (WVDEP)	C&P		*		*	*					*	*		*	*	*	*																			
3. Borgman Refuse & Portals (WVDEP)	C&P		*	*	*	*					*	*	*	*	*	*	*																			
4. Buckeye Reclamation Landfill CERCLA Site (Consol)	C&P		*			*					*	*	*	*	*	*	*																			
5. Chalk Mountain Mine (The Feldspar Corp)	C&P		*			*					*	*	*	*	*	*	*																			
6. Collier Sportmens Club Highwall (WVDEP)	C&P	17	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
7. Columbia Portland AML Reclamation (ODNR)	C&P		*	*	*	*					*	*	*	*	*	*	*																			
8. Crooked Run #5 Drainage, Refuse and Portals (WVDEP)	C&P		*	*	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
9. Davidson Highwall Project (WVDEP)	C&P		*		*	*					*	*	*	*	*	*	*																			
10. Dennison S.R. 800 AML Reclamation (ODNR)	C&P			*	*	*					*	*	*	*	*	*	*																			
11. Ebenezer Run Highwall #9 (WVDEP)	C&P	17	*		*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
12. Emoryville Mine Complex AML/AMD (WVDEP)	C&P		*	*	*	*					*	*	*	*	*	*	*																			
13. F&M Coal Company S-1044-87 & S-57-84	C&P	15	*		*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	



Projects	* Exp. Basis C = Corp P = Personal	** Additional Info provided In Sections (s)	Project Experience Requirements																																				
			Abandoned Surface Mine Reclamation	Abandoned Deep Mine Reclamation	Portal / Shaft Closure	Hydrologic / Hydraulic Design / Eval.	Remaining Evaluation	Mine / Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Eval. Mitigation / Replacement	Construction Inspection / Management	Water Treatment	Equipment / Structure Removal	Stream Restoration	Geotechnical / Stability	NPDES/Stormwater Preparation	M P	M P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
28. Mount Eaton Subsidence Stabilization (ODNR)	C&P					X			X		X							X																					
29. No. 4 Reclamation Masontown (WVDEP)	C&P		X	X	X	X					X	X	X	X	X	X																							
30. No. 6 Shaft and Dewatering Pipeline (Cumberland Coal Resources LP)	C&P				X	X					X	X	X	X	X	X																							
31. Powell River Ecosystem Restoration, Ely & Puckett Creek, Virginia (USACE)	C&P		X	X	X	X				X	X	X	X	X	X	X																							
32. Ruthbelle Refuse Fire (WVDEP)	C&P		X		X	X		X			X	X	X	X	X	X																							
33. Simpson Creek Tipple and Portals Project (WVDEP)	C&P	17	X		X	X					X	X	X	X	X	X	X																						
34. Turnhole Branch Reclamation (WVDEP)	C&P			X	X	X	X				X	X	X	X	X	X																							
35. Twilight Burning Refuse (WVDEP)	C&P		X	X	X	X		X			X	X	X	X	X	X																							
36. US Steel RCRA Closure Plan (USS)	C&P					X					X	X	X	X	X	X	X																						
37. Waltman Barbe Highwall #1 (WVDEP)	C&P	17	X		X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
38. Watson Portals & Refuse Reclamation (WVDEP)	C&P		X	X	X	X					X	X	X	X	X	X																							
39. Wymer Portals and AMD (WVDEP)	C&P		X		X	X					X	X	X	X	X	X																							
40. Mountain View Portals Mine Reclamation	C&P	15	X		X	X			X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

\*List whether project experience is corporate or personnel based or both. \*\*Use this area to provide specific sections or pages if needed for reference. \*\*\*List Primary Design personnel and their functional capacity for the projects listed.