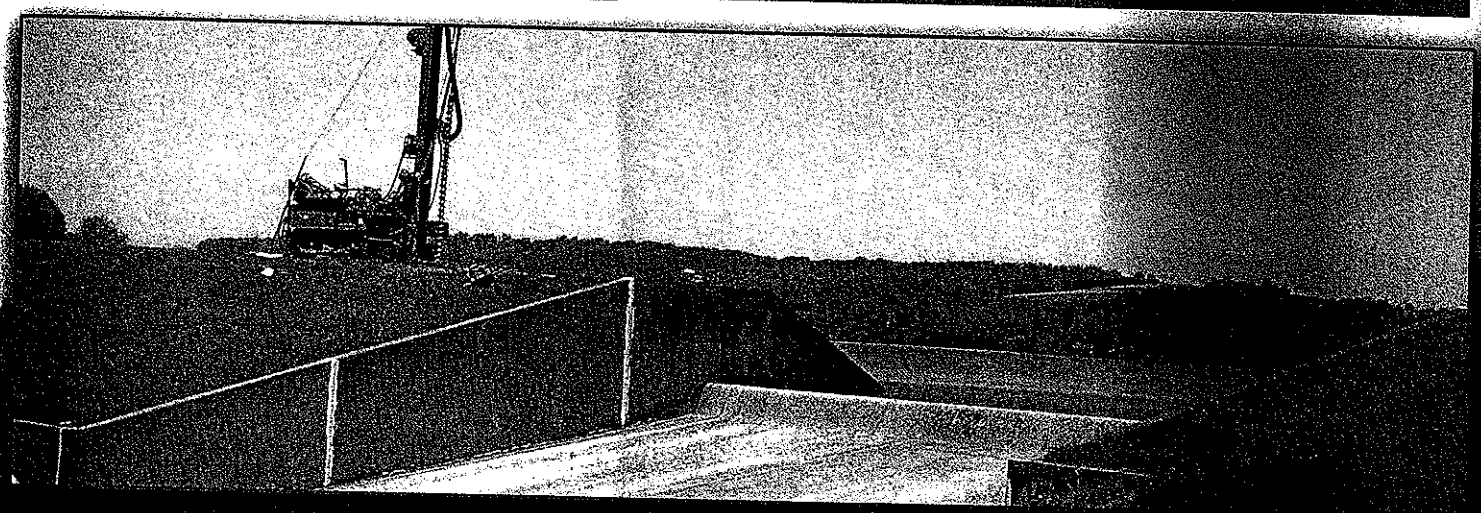
Expression of Interest

Cacapon Resort State Park Dams

Engineering Services, Construction Documents and Certificate of Approval

Berkeley Springs, West Virginia

DNR #211007



Submitted to

West Virginia Department of Natural Resources

Parks and Recreation Section

Submitted by

Michael Baker Jr., Inc.

Baker

August 24, 2010

Original

REQUEST FOR QUOTATION

Baker

Michael Baker Jr., Inc.

5088 W. Washington Street
Second Floor
Charleston, WV 25313

Phone: 304.769.0821
FAX: 304.769.0822

August 23 2010

Mr. Frank Whittaker
Department of Administration
Purchasing Division
Building 15
2019 Washington Street, East
Charleston, WV 25305-0130

RE: Expression of Interest (EOI)
Cacapon Resort State Park Dams
Engineering Investigation and Certificate of Approval
DNR #211007

Dear Mr. Whittaker:

Baker is honored to have the opportunity to present our EOI for the Cacapon Resort State Park Dams Project. Baker is a full-service national engineering firm with expertise in dam rehabilitations, water resources, geotechnical, structural, and environmental engineering, which allows Baker to provide all of the engineering services that the West Virginia Division of Natural Resources, Parks and Recreation Section (WVDNR) requires. This not only helps reduce costs, but also provides faster response, reduced coordination and ultimately, cost savings to WVDNR. In addition, Baker has the ability to reach out within its organization to technical experts in the fields of water resources, geotechnical, structural, and environmental engineering, if needed, for a particularly challenging aspect of a project to ensure the correct technical approach is determined. These are just a few of the advantages of working with a national firm, such as Baker, who can offer a full range of engineering services to its clients.

We have included in our proposal, project descriptions for our most recent dam rehabilitation projects. These dams are the primary focal point for each of their respective recreational parks. For these projects, Baker conducted hydrologic and hydraulic modeling, geotechnical and structural analysis, worked with regulatory agencies as well as local agencies, provided construction administration and conducted public relations. These projects showcase Baker's ability to balance the need to protect critical infrastructure, while embracing a natural park setting. In addition, Baker received the 2009 Diamond Award from the American Council of Engineering Companies of Pennsylvania for the Latodami Nature Center Pond Rehabilitation given its unique incorporation of infrastructure protection in conjunction with enhancing educational opportunities for local residents.

Baker brings the best expertise to WVDNR. The Relevant Project Experience Matrix illustrates our relevant projects including engineering requirements to bring Cacapon Upper and Lower Dams into compliance with current Dam Safety Regulations. In addition, we are utilizing the staff that is currently completing our relevant projects, as shown in the Key Personnel Participation in Relevant Projects matrix. This ensures WVDNR that Baker is going to provide our best dam rehabilitation technical expertise for this project. When you combine this with our past work, Baker is hard to match!

If you have any questions regarding our proposal, please feel free to contact me at 724-495-4302, or Rusty Hall at 304.769.2154 and we will be happy to discuss them with you. Once again, Baker appreciates the opportunity to provide our proposal to help WVDNR protect some of West Virginia's most important infrastructure located within some of our best state parks and forests.

Sincerely,

MICHAEL BAKER JR., INC.

William D. Trimbath, PE
Vice President

Russell E. Hall, PE
Assistant Vice President and Office Principal

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
DNRB11007	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE
Michael Baker Jr.,Inc.
5088 W. Washington Street
Second Floor
Charleston, WV 25313

SHIP TO
DIVISION OF NATURAL RESOURCES
PARKS & RECREATION SECTION

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
07/23/2010				

BID OPENING DATE: 08/24/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		906-00-00-001		

AE SERVICES

EXPRESSION OF INTEREST
(EOI)

THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF NATURAL RESOURCES IS SOLICITING EXPRESSIONS OF INTEREST FOR ENGINEERING SERVICES TO PREPARE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS TO BRING CACAPON UPPER AND LOWER DAMS, AT CACAPON STATE PARK, INTO COMPLIANCE WITH DAM SAFETY REQULATIONS PER THE ATTACHED.

TECHNICAL QUESTIONS CONCERNING THIS PROJECT MUST BE SUBMITTED IN WRITING TO FRANK WHITTAKER IN THE WV STATE PURCHASING DIVISION VIA MAIL AT THE ADDRESS SHOWN IN THE BODY OF THIS EOI, VIA FAX AT 304-558-4115, OR VIA EMAIL AT FRANK.M.WHITTAKER@WV.GOV. DEADLINE FOR ALL TECHNICAL QUESTIONS IS 08/03/2010 AT THE CLOSE OF BUSINESS. ALL TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY ADDENDUM AFTER THE DEADLINE HAS LAPSED.

QUESTIONS CONCERNING THE ACTUAL PROCESS BY WHICH A FIRM MAY SUBMIT AN EXPRESSION OF INTEREST TO THE STATE OF WEST VIRGINIA ARE NOT CONSIDERED TO BE TECHNICAL QUESTIONS AND MAY BE SUBMITTED AT ANY TIME PRIOR TO THE BID OPENING AND IN ANY FORMAT.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
	724.495.4186	August 23, 2010

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
Project Manager	25-1228638	

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
DNRB11007	2

COPY ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER 304-558-2316

VENDOR

RFQ COPY
TYPE NAME/ADDRESS HERE
Michael Baker Jr., Inc.
5088 W. Washington Street
Second Floor
Charleston, WV 25313

SHIP TO

DIVISION OF NATURAL RESOURCES
PARKS & RECREATION SECTION

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

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EXHIBIT 10

REQUISITION NO.: .....

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 .....

NO. 2 .....

NO. 3 .....

NO. 4 .....

NO. 5 .....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF PROPOSALS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

.....
SIGNATURE

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
	724.495.4186	August 23, 2010
TITLE: Project Manager	FEIN: 25-1228638	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
DNRB11007	3

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE
Michael Baker Jr., Inc.
5088 W. Washington Street
Second Floor
Charleston, WV 25315

SHIP TO
DIVISION OF NATURAL RESOURCES
PARKS & RECREATION SECTION

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
07/23/2010				

BID OPENING DATE: 08/24/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT

Michael Baker Jr. Inc.
COMPANY

August 23, 2010
DATE

NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED WITH THE PROPOSAL.

REV. 09/21/2009

BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.

NOTICE

A SIGNED EOI MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE EOI SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE EOI MAY NOT BE CONSIDERED:

SEALED EOI

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
	724.495.4186	August 23, 2010
TITLE: Project Manager	FEIN: 25-1228638	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
DNRB11007	4

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE
Michael Baker Jr., Inc.
5088 W. Washington Street
Second Floor
Charleston, WV 25313

SHIP TO
DIVISION OF NATURAL RESOURCES
PARKS & RECREATION SECTION

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

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07/23/2010				

BID OPENING DATE: 08/24/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOM	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
	BUYER:			44		
	EOI. NO.:			DNRB11007		
	BID OPENING DATE:			08/24/2010		
	EOI OPENING TIME:			1:30 PM		
	PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR PROPOSAL: 724.495.4112					
	CONTACT PERSON (PLEASE PRINT CLEARLY): John A. Dziubek, PE					
	****** THIS IS THE END OF RFQ DNRB11007 ****** TOTAL:					

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
[signature]	724.495.4186	August 23, 2010
TITLE Project Manager	FEIN 25-1228638	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL INFORMATION

Expression of Interest for Cacapon Resort State Park Dams

General Information

CONTRACT INFORMATION

PROJECT TITLE AND LOCATION (City and State)

Cacapon Resort State Park Dams

Engineering Investigation and Certificate of Approval

PUBLIC NOTICE DATE	RFQ NUMBER
July 23, 2010	**DNR #211007**

FIRM POINT OF CONTACT

PROJECT REPRESENTATIVE NAME AND TITLE	PRESIDENT / CEO
Jack Dziubek, PE, Project Manager	**Bradley Mallory**

NAME OF FIRM

Michael Baker Jr., Inc.

TELEPHONE NUMBER	FAX NUMBER	E-MAIL ADDRESS
724.495.4186	**724.495.4112**	**jdziubek@mbakercorp.com**
COUNTY	FTID NUMBER	WEB ADDRESS
Beaver	**25-1228638**	**www.mbakercorp.com**

PROPOSED TEAM

(Complete this section for the lead firm or joint venture partners, and all key consultants.)

FIRM NAME	ADDRESS	ROLE IN THIS CONTRACT
Baker **Michael Baker Jr., Inc.**	4301 Dutch Ridge Road Beaver, PA 15009	
Baker **Michael Baker Jr., Inc.**	5088 W. Washington Street Second Floor Charleston, WV 25313	

TECHNICAL APPROACH

PROJECT APPROACH

Project Team

Proven Dam Rehabilitation Team Committed to WVDNR

To assist the West Virginia Department of Natural Resources, Parks and Recreation Section (WVDNR) in providing professional engineering services to bring the upper and lower dams into compliance with WV Dam Safety Regulations at the Cacapon Resort State Park Dams, Baker is proposing to utilize its already proven Dam Rehabilitation Team of highly skilled water resources, geotechnical and structural engineers. This team is successfully completing the rehabilitation design of five dams very similar to the Cacapon Resort State Park Dams and they are prepared to make this project successful for WVDNR. Baker not only has the experience, but also the depth and breadth of professional resources to provide WVDNR with a timely response to the needs of this contract.

Baker Purpose Statement:
Creating value by delivering innovative and sustainable solutions for infrastructure and the environment.

Michael Baker Jr., Inc. (BAKER) was founded in 1940 as a civil engineering and surveying firm. Baker is now one of the largest professional services firms, consistently ranked in the top 10% of engineering firms by the Engineering-News Record (ENR), recently placing 11th in water-related services, as published in the April 2010 issue of ENR. Today, Baker provides professional engineering and consulting services for its clients worldwide. Services span the complete life cycle of infrastructure and managed asset projects, including planning, design, construction services, asset management and asset renewal. The skills, talents and knowledge of our people are the real value in development of the innovative, sustainable solutions we provide to a broad spectrum of clients. Headquartered near Pittsburgh, Pennsylvania, Baker employs over 3,000 professionals in over 75 offices nationwide, including a Charleston, West Virginia office. Within the tri-state area, Baker has nine offices and employs nearly 900 professionals. Baker has been working with WVDNR since the late 1970's and has been providing a wide array of services including Dam Safety and Rehabilitation Design as well as Acid Mine Drainage and Abandoned Mine Reclamation. Baker's experience in dam safety, hydrologic and hydraulic modeling, geotechnical and structural analysis, experience with regulatory agencies, construction administration, and experience working with local agencies; including WVDNR, will be critical to the success of this contract. Baker is committed to delivering quality work on time and on budget.

Baker Organization

The organization is intended to provide WVDNR our best technical expertise with respect to your projects. Given that Baker is a full-service engineering firm; we can provide the services that WVDNR requires in-house. This not only helps reduce costs, but also provides faster response, reduced coordination, consistent quality and ultimately, cost savings to WVDNR. In addition, Baker has the ability to reach out within its organization to technical experts in the fields of water resources, geotechnical, structural, and environmental, if needed for a particularly challenging aspect of a project to ensure the correct technical approach is determined. These are just

PROJECT APPROACH

a few of the advantages of working with a national firm such as Baker, who can offer a full range of engineering services to its clients.

Baker Team provides expertise in all of the relevant scope-of-work requirements.

As mentioned previously, Baker will utilize its proven Dam Rehabilitation Team of highly skilled Water Resources, Geotechnical and Structural engineers which is currently completing the rehabilitation design of five dams (included in the Relevant Projects Section as Projects 1 through 5) which are very similar to Cacapon Resort State Park Dams and is prepared to make these projects successful for WVDNR. As shown by the Relevant Project Experience Matrix and the Key Personnel Participation in Relevant Projects, Baker provides expertise in all of the relevant requirements as set forth by the Expression of Interest. The organizational chart and a brief description of the key personal is included below. Full resumes are available within the Resumes of Key Personnel Section of this Expression of Interest.

- **44 years of Experience**
- **Inspected over 100 dams**
- **30+ Dam Rehabilitation Designs**
- **Past work with WVDNR**

Jack Dziubek, PE will serve as Project Manager and will be WVDNR's single point of contact. He will be responsible for coordinating the efforts of the team on your projects to ensure that they are completed on time and within budget. Mr. Dziubek has been performing and managing geotechnical engineering and design projects for 44 years. Over the course of his career, he has inspected, as well as supervised the inspection of, more than 100 dams, including dams built for Pennsylvania Glass Sand in Berkeley Springs, West Virginia. Additionally, he has performed rehabilitation design for more than 30 dams; many of these dams were in park settings similar to Cacapon Resort State Park Dams. Mr. Dziubek's extensive experience also includes conducting geotechnical investigations for levees, hydraulic structures, mines, marine structures, buildings, and foundations. He also has managed public and private sector projects for the U.S. Army Corps of Engineers, U.S. Navy, state departments of transportation, and major industrial clients which have ranged from $1,000,000 to $10,000,000 and have required civil, geotechnical, mining and environmental engineering expertise. Mr. Dziubek has provided Senior Technical expertise for projects 1 through 9 listed in the Relevant Projects Section and is ready to lead the Baker Team. His extensive experience in dam inspection and rehabilitation design will ensure that WVDNR's projects are a success.

- **Vice President**
- **Served as Principal-in-Charge for past WVDNR Projects**

William Trimbath, PE will serve as the Principal-in-Charge. Mr. Trimbath oversees the Civil Engineering Group at Baker which is comprised of the civil, water resources, geotechnical, mining, municipal, and telecommunications services. Mr. Trimbath has been with Baker for over 23 years and has served as the Principal-in-Charge for the past work with WVDNR as well as the projects 1 through 8 listed in the Relevant Projects Section. Through these projects, he has developed relationships with WVDNR and has established a level of trust that Baker will deliver its best and brightest resources for WVDNR to ensure the project is a success.

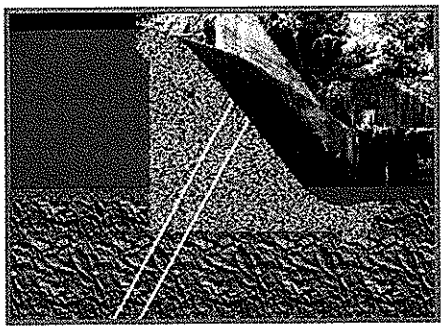
PROJECT APPROACH

- Assistant Vice President
- 43 years of Experience
- Inspected and Designed Dams
- Past work with WVDNR

Larry Diday, PE, PLS will provide as QA/QC Review. Mr. Diday has worked for Baker for 43 years and is Assistant Vice President and the Engineering Manager of Baker's Civil Group. Mr. Diday has expertise in water resources, civil and environmental engineering investigations, design, project management, design review, technical analysis, and permitting, for various governmental, industrial and private sector clients. He has completed projects for public clients such as the WVDNR, U.S. Army Corps of Engineers, Federal Emergency Management Agency, and various counties and municipalities. In fact, he developed the conceptual design for Guilford Lake. He has performed and managed infrastructure design, conducted dam inspections and designed high-hazard dams, conducted flood insurance and flood protection studies, and prepared stormwater management plans and environmental permit applications for local, state, and federal agencies. Mr. Diday has served as Principal-in-Charge on projects 1 through 8 listed in the Relevant Projects Section and is ready to continue in this role for WVDNR.

- Experience with WVDNR
- H&H Expertise in Dams
- Dam Rehabilitation Expertise
- Emergency Action Plans

Chad Davis, PE will serve as the Hydrology and Hydraulics Lead. Mr. Davis is a Water Resources Engineer with an expertise in hydrology and hydraulic modeling, dam design, spillway capacity analysis, overtopping protection design, dam rehabilitation, Emergency Action Plans, construction oversight, stormwater drainage, channel stabilization/restoration, stormwater management, and utility relocations. He provided Hydrology and Hydraulics as well as civil engineering expertise for projects 1 through 8 listed in the Relevant Projects Section and is ready to lead the Hydrology and Hydraulics aspects of this project.



- Geotechnical Analysis Expertise
- Embankment Stability Expertise
- Post Tensioned Anchor Expertise for Concrete Gravity Dams

Donald Green, PE will serve as the Geotechnical Lead. Mr. Green is a Geotechnical Engineer with 32 years of geotechnical consulting experience in dam inspection and design, geotechnical and environmental engineering, planning, laboratory and field investigations, engineering analysis and design, preparation of plans and specifications, and project supervision and management. He has spent the majority of his career working with dams across the nation. Mr. Green is also an expert in regards to the post tensioning of concrete gravity dams. Mr. Green provided geotechnical expertise for projects 1 through 5 listed in the Relevant

PROJECT APPROACH

Projects Section and his past efforts in designing post tensioned rock anchors to stabilize concrete gravity dams will be essential for any overturning issues that may arise with concrete structures.

- Structural Expertise in Dams
- Spillway Analysis and Design

Donald Marburger, PE will serve as the Structural Lead. Mr. Marburger's 36 years of professional experience, 34 years with Baker, has been in design, inspection, analysis, and rehabilitation of concrete and steel structures. He conducted the structural assessment to determine the integrity of the structures and designed the new spillways and stilling basins for projects 1 through 5, and 9 listed in the Relevant Projects Section. One of these projects was a labyrinth spillway while the other was a more conventional spillway. He has also designed for extreme loadings for structures used on airports and under railroad lines. Mr. Marburger has conducted numerous structural analysis of existing bridges and culverts including bridges and tunnels on airports.

Experience with WVDEP

Baker has been working with WVDEP since 1983 providing a wide array of engineering services to support the Abandoned Mine Land Reclamation program. These projects have included abandoned mine reclamation and acid mine drainage abatement, and also water distribution and water treatment systems, subsidence investigation and stabilization, water feasibility studies, and re-mining studies. Baker's current WVDEP projects, currently under construction, include the Wymer Portals and AMD project, and the Davidson Highwall project.

Wymer Portals and AMD, & Davidson Highwall Projects:
In 2009, Baker prepared design plans, specifications, and construction cost estimates for reclamation of pair of large abandoned mine complexes located in Monongalia County. The sites included numerous exposed mine entries, steep highwalls, acid mine drainage, water impoundments, and barren refuse areas. Baker developed detailed reclamations plans including site grading, surface and mine water conveyance structures, mine seals, access roads, culvert crossings, and bat gates for selected entries. The projects required surveying services for development of base mapping at a two foot contour interval. Geotechnical investigation consisting of site reconnaissance, research of mining documents, and exploratory drilling was required to determine the underground soil, rock, groundwater, and mine characteristics.

PROJECT APPROACH

Construction of these two projects commenced in July, 2010. Baker provided assistance to WVDEP during project bidding by providing engineering representation at pre-bid meetings for each project. During these on site meetings Baker's project manager presented the projects to prospective bidders, discussing in detail the project requirements, answering questions, and leading walking tours of the sites. Baker also provided engineering representation at preconstruction meetings, and remains available for construction monitoring services on an 'as needed' basis.

Past Work for WVDEP:

Baker has provided design and bidding phase services for numerous projects for WVDEP. In addition to Abandoned Mine Land Reclamation projects such as those discussed above, Baker has completed many water feasibility studies, the most recent of which was the Miller Mountain Water Feasibility Study in Webster County. The study included investigation of local water sources and mining histories in order to determine if "pre-law" mining activities had contributed significantly to the degradation of local water supplies. This required interviews with area residents and testing of representative water samples obtained from wells, springs, and streams. Extensive research of available literature and mining maps was performed to identify relationships between past mining, local groundwater aquifers, and surface waters. After determining the Miller Mountain area water supplies had been negatively impacted by past mining activities, Baker provided alternative methods and recommendations for providing safe drinking water to area residents. The preferred alternative was extension of a nearby water distribution system to serve residences in the project area. A feasibility level cost estimate for the extension of waterlines and preliminary hydraulic analysis was provided.

Baker has also provided WVDEP with full design of water distribution and treatment facilities. One large project in McDowell County provided complete replacement of an inadequate water system which did not meet regulatory requirements. The McDowell Water Supply project included design of a 300 gpm water filtration plant, two water storage standpipes, one booster pumping station, and 29 miles of water distribution piping to serve 900 residences.

Baker has also prepared stabilization plans required to address subsidence issues associated with past mining activities. These projects are typically in high visibility residential areas and require extensive site investigation and detailed grouting plans to provide a permanent solution to sinkholes and other subsidence features. Re-mining studies have also been undertaken in order to evaluate the potential uses of coal refuse materials and assess their commercial value.

Project Management Approach

Ensuring Quality. The quality of our projects is evident in the fact that we have built long-term relationships with many of our clients. In fact, over 80% of Baker's workload is repeat business, which is directly attributable to our commitment to delivering quality projects. In addition, our clients have the peace of mind that comes from knowing that their projects will be completed on time without cost overruns.

If desired, Baker can come to WVDNR's office and conduct a presentation on our Project Management – The Baker Way

To ensure the quality of our work, our senior technical personnel provide guidance and oversight throughout the design of all projects. We make certain that they are available to assist when needed, and ensure that all products meet our high level of quality. In addition to the oversight that is provided throughout the design, all of our work receives a thorough technical and peer review by a senior staff member. In most cases a minimum of two reviews are performed by senior staff prior to the final submission of the design. These reviews by senior staff verify that the design meets all applicable requirements and we are providing a technically sound design. No final product leaves our office until it has been reviewed by senior staff, which assures that it meets the level of quality expected by our clients.

Project Management – "The Baker Way". Baker has a longstanding history of providing timely engineering services within budget on assigned projects. Baker will endeavor to always keep WVDNR informed of the status of the work, to complete all assignments on time, and to submit deliverables on schedule.

Effective management plans ensure tasks are being performed by the right staff, at the right time, with the right tools, and that communication flows efficiently and effectively. To ensure that Baker's project managers closely monitor project progress, resource allocation, budgets and schedule, they are required to employ "Project Management – The Baker Way", a manual that defines the processes for which all Baker projects are managed. The objective is to improve project performance through product delivery excellence. Better organization, tools and methods to monitor budgets, an emphasis on communication both internally and externally with the customer and stakeholders, and a structured approach to delivering quality are a few examples for improving project performance that are included in the manual.

Schedule and Budget Control. Baker's project control system follows a pre-established format. It is an Internet-based Oracle database system that combines financial monitoring with an assessment of progress, client satisfaction and technical performance. The control system requires that program managers regularly update, assess and report on their projects. A baseline of planned costs and schedules is entered into Oracle. Through Oracle, project control is achieved by processing the data to compare expenditures and actual completion with respect to time. Outputs highlight status by trending budget variance, schedule variance, milestone

accomplishments and technical performance over time. By regularly assessing the status of these key indicators, potential problems can be identified at an early stage and their resolution determined before there is a major impact.

Project Management Plan. At Baker, we do not believe that project success just happens, but rather it comes from a well thought out approach to manage and execute the work. All Baker projects have a Project Management Plan (PMP) prior to project initiation. The PMP is a collection of all pertinent information required to successfully manage and execute a project. Features of the PMP include:

- Project purpose
- Scope-of-work and contract
- Documentation of critical assumptions and constraints
- Project team and stakeholders
- Communications plan
- Project procurement and subcontracting
- Project schedule
- Project budget and invoicing
- Quality management plan
- Risk management plan
- Closeout plan

Quality Process and Quality Control Procedures. Quality Planning is done up front. Quality assurance and quality control are continuous over the life of the project. Baker utilizes three elements in our quality process:

- Quality Planning. In the planning stage, we identify clients' program requirements, determine which quality standards apply, and determine what will be done to satisfy these program requirements.
- Quality Assurance. During the course of the project, we make sure that quality control efforts are taking place; we verify that efforts are producing the desired results, and we make adjustments to the processes as necessary.
- Quality Control. We perform inspection directly on the product itself to determine if it meets the requirements developed in the quality planning stage. We also identify ways to eliminate causes of unsatisfactory results such as change orders created by errors and omissions.

Proven Track Record. Our track record for meeting demanding schedules is well-documented. Baker has proven our ability to be cost effective, responsive to aggressive schedules, and able to tackle any challenge through this contract. Baker is committed to developing and adhering to a mutually agreeable schedule for

completing your projects. The combination of our most experienced engineers and respected subconsultants (if required) makes Baker well prepared to meet WVDNR's project needs Baker prides itself in striving to meet all of our clients' project goals and schedules. One of Baker's core values is customer commitment, and we are committed to understanding the importance of, and meeting, your project schedules. Baker also has a track record of successfully performing projects of all sizes. We work on projects for our municipal clients that are less than $5,000, as well as complex program projects with numerous concurrent task orders that combine for a total contract value of nearly $500 million. Regardless of the project size, Baker has the ability to deliver for our clients.

Why Baker

In preparing our response to the Request for Qualifications, we developed a team that brings the best expertise for each of the nine scope-of-work requirements as illustrated below. As shown in the Relevant Project Experience Matrix of this proposal, our example projects include the requested scope-of-work requirements and we are going to utilize the staff that is currently completing our relevant projects as shown in the Key Personnel Participation In Example Projects matrix of this proposal. This should ensure WVDNR that Baker is going to provide the best for this project. Following is a listing to help illustrate how we will fulfill the requirements to bring these dams into compliance with current dam safety regulations through just the Relevant Projects alone :

Engineering Requirements:

- **Experience in hydrologic and hydraulic analyses to develop watershed data for inclusion into analysis for Emergency Action Plan.**
  - Chad Davis completed this type of hydrologic and hydraulic analyses for projects 1 through 8.
- **Experience in hydrologic and hydraulic analyses to determine adequacy of spillway systems.**
  - Chad Davis completed this type of hydrologic and hydraulic analyses for projects 1 through 8.
- **Experience in performing geotechnical analyses to determine embankment stability.**
  - Don Green completed this type of geotechnical analyses for projects 1 through 5.
- **Experience in performing structural analyses to determine integrity of concrete structures.**
  - Don Marburger completed this type of structural analyses for projects 1 through 8.
- **Experience with regulatory agencies with authority over dam and water resource related projects.**
  - The team has experience with regulatory agencies as shown in all the example projects.
- **Experience in design of dam-related projects.**
  - The team has experience in the design of dam-related projects as shown in projects 1 through 8.

PROJECT APPROACH

- **Experience with construction administration of dam-related projects.**
  - The team has experience with construction administration as shown in projects 1 through 8.
- **Experience working with local agencies.**
  - The team has experience in working with local agencies as shown in all the example projects.

The bottom line is that we have the expertise to ensure these projects are a success and we look forward to working with WVDNR.

KEY PERSONNEL SECTION

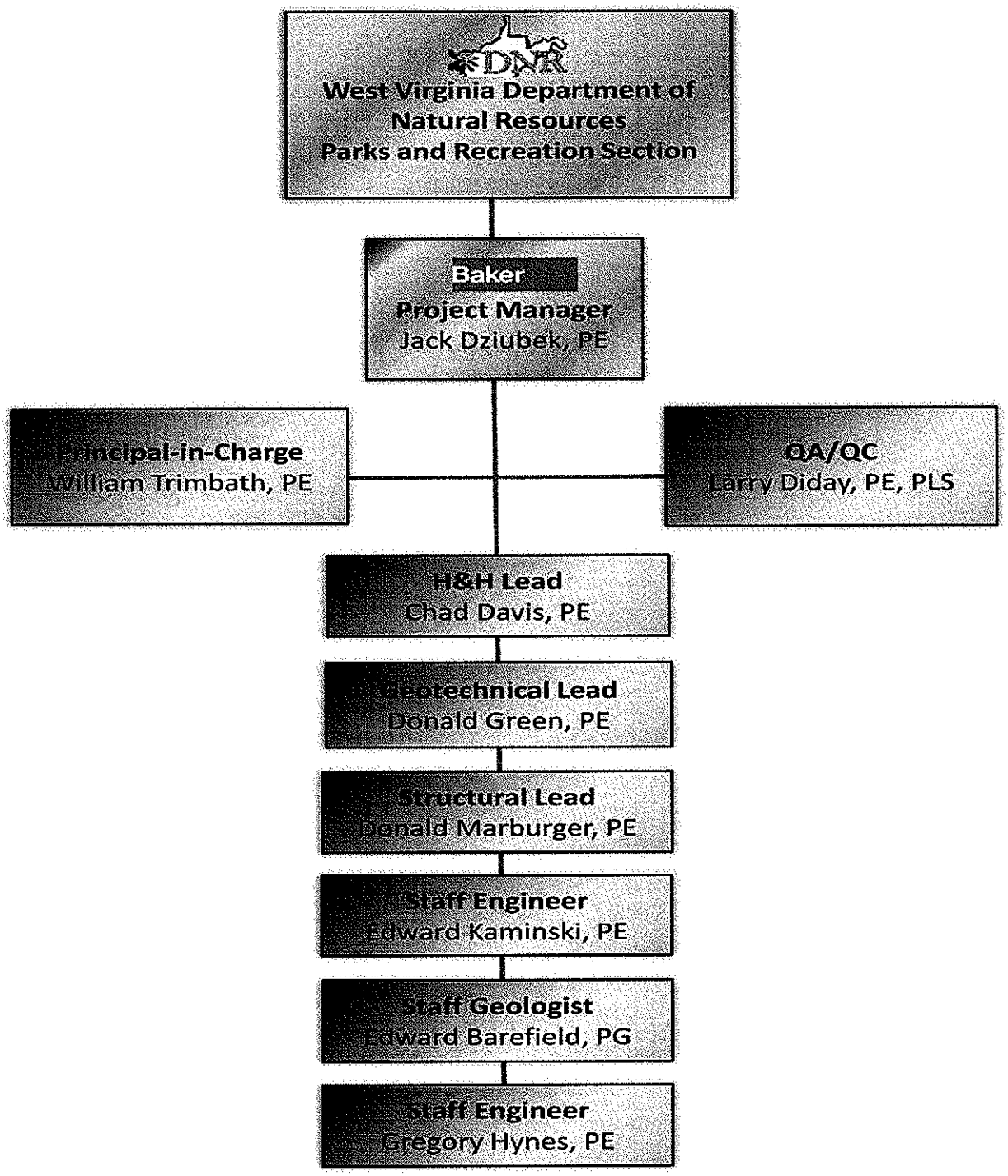
ORGANIZATION CHART

RESUMES

KEY PERSONNEL PARTICIPATION IN RELEVANT PROJECTS

KEY PERSONNEL SECTION

ORGANIZATION CHART



RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Jack Dziubek, PE	**Project Manager**	44	27

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Beaver, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)	CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
MSCE, Civil Engineering, Purdue University	Professional Engineer: WV, PA, OH

GENERAL QUALIFICATIONS

Dziubek has been performing and managing geotechnical engineering and design projects for 44 years. Over the course of his career, he has inspected, as well as supervised the inspection of, more than 100 dams. Additionally, he has performed rehabilitation design for more than 30 dams. Many of these dams were in park settings similar to Cacapon Resort State Park, including dams in Berkeley Springs, West Virginia and Gore, Pennsylvania. Mr. Dziubek's extensive experience also includes conducting geotechnical investigations for levees, hydraulic structures, mines, marine structures, buildings, and foundations. Mr. Dziubek has provided Senior Technical expertise for projects 1 through 9 listed in the Relevant Projects Section and is ready to lead the Baker Team. His extensive experience in dam inspection and rehabilitation design will ensure that WVDNR's project is a success.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Dutch Fork Lake Dam - Dam Renovations Donegal Township, Pennsylvania	2012 (est.)	2012 (est.)	1

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Sr. Geotechnical Engineer. Responsible for Sr. Technical Guidance and QA of geotechnical report, plans and specifications for earth dam and spillway reconstruction. Baker was responsible for the evaluation of Dutch Fork Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new spillway and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $482,700 (Fee), $4,765,000 (Est. Construction)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Donegal Lake Dam - Dam Renovations Donegal, Pennsylvania	2012 (est.)	2013 (est.)	2

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Sr. Geotechnical Engineer. Responsible for Sr. Technical Guidance and QA of geotechnical report, plans and specifications for earth dam and spillway reconstruction. Baker was responsible for the evaluation of Donegal Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New stilling basin slabs and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $428,724 (Fee), $3,377,000 (Est. Construction)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations Jefferson County, Pennsylvania	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Sr. Geotechnical Engineer. Responsible for Sr. Technical Guidance and QA of geotechnical report, plans and specifications for earth dam and spillway reconstruction. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker also performed oversight to ensure that the construction was conducted in accordance with the contract documents. *Cost: $451,188 (Fee); $3,420,000 (Est.Construction)*

d.

(TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Somerset Lake Dam Renovations Somerset Township, Pennsylvania	2012 (est.)	2013 (est.)	4

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Sr. Geotechnical Engineer. Responsible for Sr. Technical Guidance and QA of geotechnical report, plans and specifications for earth dam and spillway reconstruction. Baker was responsible for the evaluation of Somerset Lake Dam to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A labyrinth spillway with a parapet wall was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that construction is conducted in accordance with contract documents. *Cost: $402,651 (Fee), $3,820,000 (Est. Construction)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Canonsburg Lake Dam - Dam Renovations Canonsburg Lake, Pennsylvania	2012 (est.)	2012 (est.)	5

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Sr. Geotechnical Engineer. Responsible for Sr. Technical Guidance and QA of geotechnical report, plans and specifications for earth dam and spillway reconstruction.. Baker was responsible for the evaluation of Canonsburg Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding the stability of the concrete gravity dam. A post tensioning anchoring system was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $369,300 (Fee), $3,500,000 (Est. Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
William D. Trimbath, PE	**Principal-in-Charge**	36	23

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Beaver, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)	CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
M.S., Civil Engineering, University of Pittsburgh B.S., Civil Engineering, West Virginia University	Professional Engineer: PA

GENERAL QUALIFICATIONS

Mr. Trimbath oversees the Civil Engineering Group at Baker which is comprises the civil, water resources, geotechnical, mining, municipal, and telecommunications services for Baker. Mr. Trimbath has been with Baker for over 23 years and has served as the Principal-in-Charge for the past work with WVDNR as well as the projects 1 through 9 listed in the Relevant Projects Section. Through these projects, he has developed relationships and has established a level of trust that Baker will deliver its best and brightest resources for WVDNR to ensure the project is a success.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
United States Steel Corporation – EAP and OMI Development for Existing Dam Lorain, Ohio	2010	NA	

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

United States Steel Corporation. Principal-in-Charge. Responsible for overall project performance and client satisfaction. Baker developed an Operation, Maintenance, and Inspection (OMI) and an Emergency Action Plan (EAP) for an existing impoundment located in Lorain, Ohio. The OMI Manual was prepared in accordance with ODNR's "Guidelines for an Operation, Maintenance and Inspection Manual". It was prepared to give the client instruction on the safe operation of the dam, provide direction for their inspector's to enable them to recognize situations that could impact the embankment's structural integrity, and describe both the routine and non-routine maintenance activities required to ensure the long term stability of the structure. The EAP was developed in accordance with ODNR's "Emergency Action Plan (EAP) Guidelines" and followed the format proposed by the Interagency Committee on Dam Safety (ICODS). It provided the client with easy to follow guidance for the selection and implementation of appropriate level of action, monitoring, and notification in a potential dam failure situation. *Cost: $40,800 (Fee)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Dutch Fork Lake Dam - Dam Renovations Donegal Township, Pennsylvania	2012 (est.)	2012 (est.)	1

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Principal-in-Charge. Responsible for overall project performance and client satisfaction. Baker was responsible for the evaluation of Dutch Fork Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new spillway and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $482,700 (Fee), $4,765,000 (Est. Construction)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations Jefferson County, Pennsylvania	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Principal-in-Charge. Responsible for overall project performance and client satisfaction. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $451,188 (Fee), $3,420,000 (Est. Construction)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Canonsburg Lake Dam - Dam Renovations Canonsburg Lake, Pennsylvania	2012 (est.)	2012 (est.)	5

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Principal-in-Charge. Responsible for overall project performance and client satisfaction. Baker was responsible for the evaluation of Canonsburg Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding the stability of the concrete gravity dam. A post tensioning anchoring system was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $369,300 (Fee), $3,500,000 (Est. Construction)*

e.

(1) TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Monte-Mere Lake Dam Rehabilitation Geauga County, Ohio	2010	2011 (est.)	9

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Monte-Mere Lake Association. Principal-in-Charge. Responsible for overall project performance and client satisfaction. Baker conducted an inspection of the dam and developed an approach to repair the existing concrete apron. This approach would utilize pressure grouting conducted on a grid pattern to fill the voids under the concrete apron. Consulted with ODNR to discuss the concern regarding an underdrain believed to be directly connected to the reservoir and the required documentation. Working with the Association to conduct hydraulic modeling of a dam break. Results of dam break modeling will be used to determine if the classification of the dam can be reduced, allowing them to avoid additional rehabilitation. *Cost: $45,000 (Fee), $300,000 (Est. Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Larry Diday, PE, PLS	**Quality Assurance / Control**	43	43

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Beaver, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)	CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
A.S., Mechanical and Structural Design	Professional Engineer, PA; Professional Land Surveyor, PA

OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)
Mr. Diday has worked for Baker for 43 years and is Assistant Vice President and the Engineering Manager of Baker's Civil Group. Mr. Diday has expertise in water resources, civil and environmental engineering investigations, design, project management, design review, technical analysis, and permitting, for various governmental, industrial and private sector clients. He has completed projects for public clients such as the WVDNR, U.S. Army Corps of Engineers, Federal Emergency Management Agency, and various counties and municipalities. He has performed and managed infrastructure design, conducted dam inspections and designed high-hazard dams, conducted flood insurance and flood protection studies, and prepared stormwater management plans and permit applications for local, state, and federal agencies.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
United States Steel Corporation – EAP and OMI Development for Existing Dam Lorain, Ohio	2010	NA	NA

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

United States Steel Corporation. QA/QC. Reviewed Operation, Maintenance, and Inspection (OMI) and an Emergency Action Plan (EAP) for an existing impoundment located in Lorain, Ohio. The OMI Manual was prepared in accordance with ODNR's "Guidelines for an Operation, Maintenance and Inspection Manual". It was prepared to give the client instruction on the safe operation of the dam, provide direction for their inspector's to enable them to recognize situations that could impact the embankment's structural integrity, and describe both the routine and non-routine maintenance activities required to ensure the long term stability of the structure. The EAP was developed in accordance with ODNR's "Emergency Action Plan (EAP) Guidelines" and followed the format proposed by the Interagency Committee on Dam Safety (ICODS). It provided the client with easy to follow guidance for the selection and implementation of appropriate level of action, monitoring, and notification in a potential dam failure situation. *Cost: $40,800 (Fee)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Donegal Lake Dam - Dam Renovations Donegal, Pennsylvania	2012 (est.)	2013 (est.)	2

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. QA/QC. Responsible for QA/QC review of all deliverables. Baker was responsible for the evaluation of Donegal Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New stilling basin slabs and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $428,724 (Fee); $3,377,000 (Est. Construction)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations Jefferson County, Pennsylvania	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. QA/QC. Responsible for QA/QC review of all deliverables. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $451,188 (Fee) $3,420,000 (Est. Construction)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Somerset Lake Dam Renovations Somerset Township, Pennsylvania	2012 (est.)	(2013 (est.)	4

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. QA/QC. Responsible for QA/QC review of all deliverables. Baker was responsible for the evaluation of Somerset Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new labyrinth spillway with a parapet wall was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that construction is conducted in accordance with contract documents. *Cost: $402,651 (Fee); $3,820,000 (Est. Construction)*

e.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Monte-Mere Lake Dam Rehabilitation Geauga County, Ohio	2010	2011 (est.)	9

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Monte-Mere Lake Association. QA/QC. Responsible for QA/QC review of all deliverables. Baker conducted an inspection of the dam and developed an approach to repair the existing concrete apron. This approach would utilize pressure grouting conducted on a grid pattern to fill the voids under the concrete apron. Consulted with ODNR to discuss the concern regarding an underdrain believed to be directly connected to the reservoir and the required documentation. Working with the Association to conduct hydraulic modeling of a dam break. Results of dam break modeling will be used to determine if the classification of the dam can be reduced, allowing them to avoid additional rehabilitation. *Cost: $45,000 (Fee), $300,000 (Est. Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Chad Davis, PE	**Hydrology and Hydraulics Lead**	9	7

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Beaver, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)	21. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
M.S., Civil Engineering, The Pennsylvania State University	Professional Engineer: PA, CO, TX

GENERAL QUALIFICATIONS

Mr. Davis is a Water Resources Engineer with an expertise in hydrology and hydraulic modeling, dam design, spillway capacity analysis, overtopping protection design, dam rehabilitation, Emergency Action Plans, construction oversight, stormwater drainage, channel stabilization/restoration, stormwater management, and utility relocations. Mr. Davis has recently assisted with the development of an EAP which is currently being reviewed by ODNR. He is also working with the Monte-Mere Lake Association to bring their dam into compliance with current ODNR Regulations.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
United States Steel Corporation – EAP and OMI Development for Existing Dam Lorain, Ohio	2010	NA	NA

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

United States Steel Corporation. Water Resources Engineer. Developed an Operation, Maintenance, and Inspection (OMI) and an Emergency Action Plan (EAP) for an existing impoundment located in Lorain, Ohio. The OMI Manual was prepared in accordance with ODNR's "Guidelines for an Operation, Maintenance and Inspection Manual". It was prepared to give the client instruction on the safe operation of the dam, provide direction for their inspector's to enable them to recognize situations that could impact the embankment's structural integrity, and describe both the routine and non-routine maintenance activities required to ensure the long term stability of the structure. The EAP was developed in accordance with ODNR's "Emergency Action Plan (EAP) Guidelines" and followed the format proposed by the Interagency Committee on Dam Safety (ICODS). It provided the client with easy to follow guidance for the selection and implementation of appropriate level of action, monitoring, and notification in a potential dam failure situation. *Cost: $40,800 (Fee)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Dutch Fork Lake Dam - Dam Renovations Donegal Township, Pennsylvania	2012 (est.)	2012 (est.)	1

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Water Resources Engineer. Responsible for preparation of Hydrologic and Hydraulic analysis, plans and specifications for embankment overtopping protection and spillway replacement. Baker was responsible for the evaluation of Dutch Fork Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new spillway and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $482,700 (Fee), $4,765,000 (Est. Construction)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Donegal Lake Dam - Dam Renovations Donegal, Pennsylvania	2012 (est.)	2013 (est.)	2

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Water Resources Engineer. Responsible for preparation of Hydrologic and Hydraulic analysis, plans and specifications for embankment overtopping protection and spillway reconstruction. Baker was responsible for the evaluation of Donegal Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New stilling basin slabs and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $428,724 (Fee), $3,377,000 (Est. Construction)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations Jefferson County, Pennsylvania	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Water Resources Engineer. Responsible for preparation of Hydrologic and Hydraulic analysis, plans and specifications for embankment overtopping protection and spillway reconstruction. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $451,188 (Fee), $3,420,000 (Est. Construction)*

e.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Monte-Mere Lake Dam Rehabilitation Geauga County, Ohio	2010	2011 (est.)	9

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Monte-Mere Lake Association. Water Resources Engineer. Conducted an inspection of the dam and developed an approach to repair the existing concrete apron. This approach would utilize pressure grouting conducted on a grid pattern to fill the voids under the concrete apron. Consulted with ODNR to discuss the concern regarding an underdrain believed to be directly connected to the reservoir and the required documentation. Working with the Association to conduct hydraulic modeling of a dam break. Results of dam break modeling will be used to determine if the classification of the dam can be reduced, allowing them to avoid additional rehabilitation. *Cost: $45,000 (Fee), $300,000 (Est. Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Donald Green, PE	**Geotechnical Lead**	32	5

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Moon Township, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)	CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
M.S., Civil Engineering, University of Pittsburgh	Professional Engineer: WV, PA

OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)
Mr. Green is a Geotechnical Engineer with 32 years of geotechnical consulting experience in dam inspection and design, geotechnical and environmental engineering, planning, laboratory and field investigations, engineering analysis and design, preparation of plans and specifications, and project supervision and management. He has spent the majority of his career working with dams across the nation. Mr. Green is also an expert in regards to the post tensioning of concrete gravity dams. Mr. Green provided Geotechnical expertise for projects 1 through 5 listed in the Relevant Experience Section and his past efforts in designing post tensioned rock anchors to stabilize concrete gravity dams will be essential for any overturning issues that may arise with concrete structures.

RELEVANT PROJECTS *(Up to a maximum of 5 samples)*

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Dutch Fork Lake Dam - Dam Renovations Donegal Township, Pennsylvania	2012 (est.)	2012 (est.)	1

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geotechnical Engineer. Responsible for completing a geotechnical investigation to provide design recommendations to improve spillway capacity and provide overtopping protection for an existing earth dam. Baker was responsible for the evaluation of Dutch Fork Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new spillway and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $482,700 (Fee); $4,765,000 (est.)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Donegal Lake Dam - Dam Renovations Donegal, Pennsylvania	2012 (est.)	2013 (est.)	2

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geotechnical Engineer. Responsible for completing a geotechnical investigation to provide design recommendations to improve spillway capacity and provide overtopping protection for an existing earth dam. Baker was responsible for the evaluation of Donegal Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New stilling basin slabs and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $428,724 (Fee): $3,377,000 (Construction)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations Jefferson County, Pennsylvania	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geotechnical Engineer. Responsible for completing a geotechnical investigation to provide design recommendations to improve spillway capacity and provide overtopping protection for an existing earth dam. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $451,188 (Fee); $3,420,000 (Construction)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Somerset Lake Dam Renovations Somerset Township, Pennsylvania	2012 (est.)	2013 (est.)	4

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geotechnical Engineer. Responsible for completing a geotechnical investigation to provide design recommendations to improve spillway capacity and provide overtopping protection for an existing earth dam. Baker was responsible for the evaluation of Somerset Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new labyrinth spillway with a parapet wall was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $402,651 (Fee); $3,820,000 (Construction)*

e.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Canonsburg Lake Dam - Dam Renovations Canonsburg Lake, Pennsylvania	2012 (est.)	2012 (est.)	5

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geotechnical Engineer. Responsible preparing the design of a system to anchor the concrete dam to bedrock in order to provide resistance to sliding. Assisted in the development of complex hydrologic and hydraulic calculations, geotechnical investigation and structural analysis for the dam. Worked with PADGS, PFBC, and PADEP to determine the best approach to be advanced to final design. Baker was responsible for the evaluation of Canonsburg Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding the stability of the concrete gravity dam. A post tensioning anchoring system was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $369,300 (Fee); $3,500,000 (Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Donald Marburger, PE	**Structural Lead**	36	34

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Moon Township, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)	CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
B.S., Civil Engineering, Carnegie Mellon University	Professional Engineer: PA

GENERAL QUALIFICATIONS
Mr. Marburger's 36 years of professional experience, 34 years with Baker, has been in design, inspection, analysis, and rehabilitation of concrete and steel structures. He conducted the structural assessment to determine the integrity of the structures and designed the new spillways and stilling basins for projects 1 through 5, and 9 listed in the Relevant Projects Section. One of these projects was a labyrinth spillway while the other was a more conventional spillway. He has also designed for extreme loadings for structures used on airports and under railroad lines. Mr. Marburger has conducted numerous structural analysis of existing bridges and culverts including bridges and tunnels on airports.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Dutch Fork Lake Dam - Dam Renovations **Donegal Township, Pennsylvania**	2012 (est.)	2012 (est.)	1

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Senior Structural Engineer. Responsible for the structural investigation, assessment, analysis and design for spillway reconstruction. Baker was responsible for the evaluation of Dutch Fork Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new spillway and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $482,700 (Fee); $4,765,000 (Est.Construction)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Donegal Lake Dam - Dam Renovations **Donegal, Pennsylvania**	2012 (est.)	2013 (est.)	2

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Senior Structural Engineer. Responsible for the structural investigation, assessment, analysis and design for spillway reconstruction. Baker was responsible for the evaluation of Donegal Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New stilling basin slabs and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $428,724 (Fee); $3,377,000 (Est. Construction)*

c.

(1) TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations **Jefferson County, Pennsylvania**	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Senior Structural Engineer. Responsible for the structural investigation, assessment, analysis and design for spillway and gate house reconstruction. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $451,188 (Fee); $3,420,000 (Est. Construction)*

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Somerset Lake Dam Renovations **Somerset Township, Pennsylvania**	2012 (est.)	2013 (est.)	4

(4) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Senior Structural Engineer. Responsible for the structural investigation, assessment, analysis and design for spillway replacement. Baker was responsible for the evaluation of Somerset Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new labyrinth spillway with a parapet wall was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $402,651 (Fee); $3,820,000 (Est. Construction)*

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Monte-Mere Lake Dam Rehabilitation **Geauga County, Ohio**	2010	2011 (est.)	9

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Monte-Mere Lake Association. Senior Structural Engineer. Responsible for the structural investigation, assessment, analysis and structural. Conducted an inspection of the dam and developed an approach to repair the existing concrete apron. This approach would utilize pressure grouting conducted on a grid pattern to fill the voids under the concrete apron. Consulted with ODNR to discuss the concern regarding an underdrain believed to be directly connected to the reservoir and the required documentation. Working with the Association to conduct hydraulic modeling of a dam break. Results of dam break modeling will be used to determine if the classification of the dam can be reduced, allowing them to avoid additional rehabilitation. *Cost: $45,000 (Fee), $300,000 (Est. Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Edward Kaminski, PE	**Staff Engineer**	6	6

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Moon Township, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)	CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS, Civil Engineering, The Pennsylvania State University	Professional Engineer: PA

GENERAL QUALIFICATIONS

Mr. Kaminski is a Water Resources Engineer experienced in hydrologic and hydraulic computer modeling, reservoir routing, dam break modeling, dewatering time calculations, spillway adequacy determination, stilling basin design, labyrinth capacity determination, overtopping revetment design, outlet work replacement, and inundation mapping. Mr. Kaminski has developed Stormwater Management reports, NPDES Permit Applications, Erosion and Sedimentation Control Plans, and wetland mitigation plans.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
United States Steel Corporation – EAP and OMI Development for Existing Dam Lorain, Ohio	2010	2012 (est.)	**NA**

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

United States Steel Corporation. Staff Engineer. Developed an Operation, Maintenance, and Inspection (OMI) and an Emergency Action Plan (EAP) for an existing impoundment located in Lorain, Ohio. The OMI Manual was prepared in accordance with ODNR's "Guidelines for an Operation, Maintenance and Inspection Manual". It was prepared to give the client instruction on the safe operation of the dam, provide direction for their inspector's to enable them to recognize situations that could impact the embankment's structural integrity, and describe both the routine and non-routine maintenance activities required to ensure the long term stability of the structure. The EAP was developed in accordance with ODNR's "Emergency Action Plan (EAP) Guidelines" and followed the format proposed by the Interagency Committee on Dam Safety (ICODS). It provided the client with easy to follow guidance for the selection and implementation of appropriate level of action, monitoring, and notification in a potential dam failure situation. *Cost: $40,800 (Fee)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Dutch Fork Lake Dam - Dam Renovations Donegal Township, Pennsylvania	2012 (est.)	2012 (est.)	1

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Staff Engineer. Responsible for preparation of Hydrologic and Hydraulic analysis, plans and specifications for embankment overtopping protection and spillway replacement. Baker was responsible for the evaluation of Dutch Fork Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new spillway and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $482,700 (Fee), $4,765,000 (Est. Construction)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations Jefferson County, Pennsylvania	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Staff Engineer. Responsible for preparation of Hydrologic and Hydraulic analysis, plans and specifications for embankment overtopping protection and spillway reconstruction. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $451,188 (Fee), $3,420,000 (Est. Construction)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Somerset Lake Dam Renovations Somerset Township, Pennsylvania	2012 (est.)	2013 (est.)	4

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Staff Engineer. Developed Hydrologic and Hydraulic analysis, plans and specifications for embankment overtopping protection and spillway replacement. Baker was responsible for the evaluation of Somerset Lake Dam to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A labyrinth spillway with a parapet wall was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that construction is conducted in accordance with contract documents. *Cost: $402,651 (Fee), $3,820,000 (Est. Construction)*

e.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Canonsburg Lake Dam - Dam Renovations Canonsburg Lake, Pennsylvania	2012 (est.)	2012 (est.)	5

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Staff Engineer. Developed Hydrologic and Hydraulic analysis, including loading determination and backwater effects due to constrictions within the valley downstream of the dam. Overtopping depths exceeded 18ft with backwater depths in excess of 45ft. Baker was responsible for the evaluation of Canonsburg Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding the stability of the concrete gravity dam. A post tensioning anchoring system was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $369,300 (Fee), $3,500,000 (Est. Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Edward Barefield, PG	**Staff Geologist**	5	5

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Beaver, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)
MS, Engineering Geology, Kent State University

21. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
Professional Geologist: PA

GENERAL QUALIFICATIONS
Mr. Barefield is an Engineering Geologist within the Geotechnical Group at Baker. His geotechnical experience includes drilling inspection and subcontract administration/coordination, laboratory testing interpretations and subcontract administration/coordination, subsurface geology geotechnical interpretation, detailed soil and rock slope stability analyses, structure foundation bearing capacity and settlement calculations, mine subsidence evaluations, aerial and satellite photograph interpretation, field geology reconnaissance and sampling, geotechnical literature review, drilling and laboratory testing program preparation and execution, and geotechnical report preparation and reviews.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Dutch Fork Lake Dam - Dam Renovations Donegal Township, Pennsylvania	2012 (est.)	2012 (est.)	1

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geologic Associate. Responsible for geotechnical drilling inspection and laboratory sample selection, test boring log preparation, geotechnical site reconnaissance, and dam inspection. Also prepared cost estimates for drilling and testing work using established drilling and testing unit prices. Baker was responsible for the evaluation of Dutch Fork Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new spillway and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $482,700 (Fee); $4,765,000 (Est. Construction)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Donegal Lake Dam - Dam Renovations Donegal, Pennsylvania	2012 (est.)	2013 (est.)	2

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geologic Associate. Responsible for on-site test boring inspection and oversight. Performed dam inspection. Developed geotechnical laboratory testing program for design of dam rehabilitation. Baker was responsible for the evaluation of Donegal Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New stilling basin slabs and roller compacted concrete overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $428,724 (Fee); $3,377,000 (Est. Construction)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kyle Lake Dam - Dam Renovations Kyle Lake, Pennsylvania	2012 (est.)	2013 (est.)	3

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geologic Associate. Responsible for geotechnical drilling inspection and laboratory sample selection, test boring log preparation, geotechnical site reconnaissance, and dam inspection. Also, prepared cost estimates for drilling and testing work using established drilling and testing unit prices. Baker was responsible for the evaluation of Kyle Lake Dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. New gate house, outlet works, and articulated concrete block overtopping protection were designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents.. *Cost: $451,188 (Fee); $3,420,000 (Est. Construction)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Somerset Lake Dam Renovations Somerset Township, Pennsylvania	2012 (est.)	2013 (est.)	4

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Geologic Associate. Responsible for geotechnical drilling inspection and laboratory sample selection, test boring log preparation, geotechnical site reconnaissance, and dam inspection. Prepared cost estimates for drilling and testing work using established drilling and testing unit prices. Baker was responsible for the evaluation of the dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding spillway capacity and resistance to overtopping. A new labyrinth spillway with a parapet wall was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $402,651 (Fee); $3,820,000 (Est. Construction)*

e.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Canonsburg Lake Dam - Dam Renovations Canonsburg Lake, Pennsylvania	2012 (est.)	2012 (est.)	5

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services Geologic Associate. Responsible for geotechnical drilling inspection and laboratory sample selection, test boring log preparation, geotechnical site reconnaissance, and dam inspection. Also prepared cost estimates for drilling and testing work using established drilling and testing unit prices. Baker was responsible for the evaluation of the dam to determine what measures were needed to bring the dam into compliance with PADEP regulations regarding the stability of the concrete gravity dam. A post tensioning anchoring system was designed. Construction drawings and specifications of the selected alternative were prepared. Baker will perform oversight to ensure that the construction is conducted in accordance with the contract documents. *Cost: $369,300 (Fee); $3,500,000 (Est. Construction)*

RESUMES OF KEY PERSONNEL

NAME	ROLE IN THIS CONTRACT	YEARS EXPERIENCE	
		TOTAL	WITH CURRENT FIRM
Gregory P. Hynes, PE	**Senior Engineer**	23	19

FIRM NAME AND LOCATION (City and State)
Michael Baker Jr., Inc., Beaver, Pennsylvania

EDUCATION (DEGREE AND SPECIALIZATION)
M.S., Civil Engineering, Youngstown State University
B.E., Civil Engineering, Youngstown State University

21. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
Professional Engineer, WV, OH, VA, PA

GENERAL QUALIFICATIONS
Mr. Hynes is an engineer with a background in reclamation of abandoned mine lands, including acid mine drainage abatement, earthwork and grading plans preparation, hydrologic and hydraulic analysis, and erosion and sediment control structures. He also has extensive experience in the design of water distribution systems, hydraulic structures, and sanitary collection systems; and permitting of mining facilities. At Baker, he has worked on over thirty abandoned mine land reclamation projects which include reclamation of coal refuse piles, sealing of mine portals, grouting for mine subsidence, treatment of passive and active water, evaluation of pre-law mining impacts on drinking water supplies, and restoration of stream channels. Many of these projects have been for the West Virginia Department of Environmental Protection, Abandoned Mine Lands and Reclamation Office. He has also served as project engineer for over 30 water distribution projects located in Ohio, Pennsylvania, and West Virginia.

RELEVANT PROJECTS

a.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Wymer Portals and Refuse & Davidson Highwall, Monongalia County, WV	2009		10

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

West Virginia Department of Environmental Protection. Project Manager/Senior Engineer. Arranged for mapping and drilling by subconsultants, oversaw assistant engineers, performed research of geological data and mining maps, review of water quality data, preparation of USACE and WVDOH permits for stream channel relocation and highway crossings. Prepared construction plans and specifications and attendance at pre-bid and preconstruction meetings for the project which included erosion and sedimentation control measures, site grading, mine seals, bat gates, reestablished and relocated stream channels, open limestone channels, collection and diversion ditches, backfilling a dangerous highwall, soil cover placement, and revegetation. *Cost: $229,665 (Fee)*

b.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Powell River Ecosystem Restoration Project, Virginia	2004		

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

U.S. Army Corps of Engineers, Nashville District. Senior Engineer. Performed research of geological data and mining maps, review of water quality data, and design of acid mine drainage abatement measures, including aerobic wetlands, successive alkalinity producing systems, metals settling ponds, open limestone channels, and fly ash soil amendments. Prepared plans, specifications, and detailed cost estimates for the project, which included site grading, mine seals, collection and diversion ditches, soil cover, and revegetation. *Cost: $487,789 (Fee)*

c.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Borgman Portals and Refuse, Preston County, WV.	2007		

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

West Virginia Department of Environmental Protection. Senior Engineer. Duties included research of geological data and mining maps, review of water quality data, and initial design of acid mine drainage abatement measures including open limestone channels, limestone ponds, and aerobic wetlands. Final design was provided without wetlands and ponds per request of the client. Prepared construction plans and specifications and attendance at pre-bid and preconstruction meetings for the project, which included site grading, mine seals, collection and diversion ditches, soil cover placement, and revegetation. *Cost: $108,427 (Fee)*

d.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Miller Mountain Feasibility Study, Preston County, WV.	2008		

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

West Virginia Department of Environmental Protection. Senior Engineer. Provided conceptual water system evaluation and distribution system extension requirements including design, cost estimate, and narrative as part of a feasibility report which assessed pre-law mining impacts to local groundwater and provided water supply alternatives including the extension of a nearby distribution system. Cost: *$42,618 (Fee)*

e.

TITLE AND LOCATION (City and State)	YEAR COMPLETED		RELEVANT PROJECT NUMBER
	DESIGN	CONSTRUCTION	
Kempton Refuse and AMD, Tucker County, WV.	2007		

BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE ☒ Check if project performed with current firm

West Virginia Department of Environmental Protection. Senior Engineer. Performed research of geological data and mining maps, review of water quality data, and design of acid mine drainage abatement measures, including open limestone channels, a limestone pond, a Successive Alkalinity Producing System, and an aerobic wetland. Prepared construction plans and specifications and attendance at pre-bid and preconstruction meetings for the project which included erosion and sedimentation control measures, site grading, mine seals, rock underdrains, collection and diversion ditches, backfilling a dangerous highwall, soil cover placement, revegetation, and reforestation. *Cost: $208,358 (Fee)*

Key Personnel Participation In Relevant Projects

NAMES OF KEY PERSONNEL	ROLE IN THIS CONTRACT	RELEVANT PROJECTS (Fill in "Relevant Projects Key" section below before completing table. Place "X" under project key number for participation in same or similar role.)									
		1	2	3	4	5	6	7	8	9	10
Michael Baker Jr., Inc.											
Jack Dziubek, PE	Project Manager	❶	❷	❸	❹	❺	❻	❼	❽	❾	
William D. Trimbath, PE	Principal-in-Charge	❶	❷	❸	❹	❺	❻	❼	❽	❾	
Larry Diday, PE, PLS	Quality Assurance / Control	❶	❷	❸	❹	❺	❻	❼	❽	❾	
Chad Davis, PE	H&H Lead	❶	❷	❸	❹	❺	❻	❼	❽	❾	
Donald Green, PE	Geotechnical Lead	❶	❷	❸	❹	❺					
Donald Marburger, PE	Structural Lead	❶	❷	❸	❹	❺	❻	❼	❽	❾	
Edward Kaminski, PE	Staff Engineer	❶	❷	❸	❹	❺	❻	❼	❽		
Edward Barefield, PG	Staff Geologist	❶	❷	❸	❹	❺					
Greg Hynes, PE	Senior Engineer										❿

EXAMPLE PROJECTS KEY

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
❶	**Dutch Fork Dam - Dam Renovations Donegal Township, Washington County, Pennsylvania**	❻	**North Park Lake Dam Rehabilitation Wexford, Pennsylvania**
❷	**Donegal Lake Dam - Dam Renovations Donegal Township, Westmoreland County, Pennsylvania**	❼	**Deer Lakes Park Dam Improvement Project Frazer and West Deer Township, Pennsylvania**
❸	**Kyle Lake Dam - Dam Renovations Washington Township, Jefferson County, Pennsylvania**	❽	**Latodomi Nature Center Pond Restoration Wexford, Pennsylvania**
❹	**Somerset Lake Dam - Dam Renovations Somerset Township, Somerset County, Pennsylvania**	❾	**Monte-Mere Lake Dam Rehabilitation Montville Township, Geauga County, Ohio**
❺	**Canonsburg Lake Dam – Dam Renovations Peters and North Strabane Townships, Washington County, Pennsylvania**	❿	**Wymer Portals AMD and Davidson Highwall, Monongalia County, West Virginia**

RELEVANT PROJECTS SECTION

RELEVANT PROJECT EXPERIENCE MATRIX

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER: 1

TITLE AND LOCATION *(City and State)*
Dutch Fork Dam - Dam Renovations
Donegal Township, Washington County, Pennsylvania

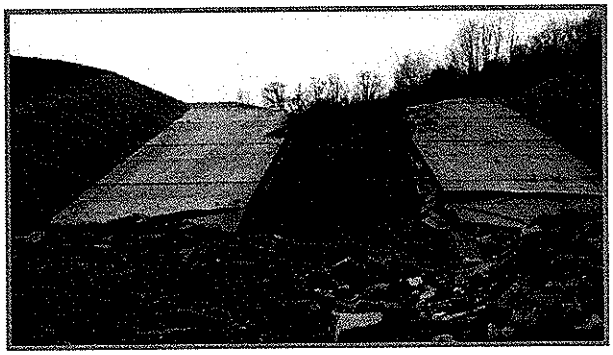
Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2012 (estimated)	2012 (estimated)

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Pennsylvania Department of General Services Pennsylvania Fish and Boat Commission	Dwight Herrmann, PE Jerry Woomer, PE	717.787.6609 814.359.5170

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



Dutch Fork Lake Dam, located in Washington County, Pennsylvania, is owned by the Pennsylvania Fish & Boat Commission (PFBC). The dam was constructed in 1959 and created Dutch Fork Lake which was a heavily utilized recreational facility before the dam was breached by the PFBC in 2005 after damage to the spillway occurred during Hurricane Ivan. Under contract with the Pennsylvania Department of General Services (PADGS), Baker was responsible for designing the replacement of the spillway and evaluating the dam's compliance with the current Pennsylvania Department of Environmental Protection (PADEP) regulations with regard to overtopping protection during the design event. Baker reviewed existing drawings and reports, performed field inspections, and conducted a topographical survey and subsurface investigation to evaluate the current condition of the dam.

In addition to the need for a new spillway, it was determined that due to the height of overtopping a Roller Compacted Concrete (RCC) protection system was required. Options to replace the outlet works of the existing control tower, including the reuse of the existing structure while incorporating a dewatering valve and aluminum stoplogs, were also developed. Conceptual cost estimates and design documentation were developed for each of the alternatives.

Hydrologic and Hydraulic Analysis. The hydrologic and hydraulic analysis included the determination of the Probable Maximum Flood (PMF) as well as the 100-year design storm. A stage discharge curve was developed and flows were routed through the reservoir in order to determine the outflow from the dam, and the duration and height of overtopping. A backwater analysis was conducted to determine the appropriate tailwater conditions based on various overtopping depths. This was then used to evaluate the overtopping flow in order to design the appropriate runout length of the RCC revetment to contain the hydraulic jump. Dewatering calculations were developed to determine the maximum drawdown of the lake as well as verify that the existing outlet conduit is sufficient.

Geotechnical Investigation. A geotechnical investigation was conducted to determine the conditions under the existing spillway as well as providing information if widening the spillway is required. This was achieved by collecting borings and corings which were analyzed along with the information that was collected from previous studies.

Structural Analysis. A structural assessment of the existing spillway and control tower was conducted. The primary spillway was breached in 2005 and required complete replacement. The control tower inspection indicated that the structure was in good condition and did not require any structural work at this time.

Coordination with Regulatory Agencies. Baker took a proactive approach with the regulatory agencies by holding joint meetings with the owner and presenting the viable alternatives. By doing so, the regulatory agency was involved in the selection of the alternative and the owner understood the cost implications of the alternatives and was able to discuss that with the regulatory agency. This has expedited the review process and achieved buy-in from PADGS, PFBC, and PADEP on the decisions.

Construction Administration. Baker will provide construction management oversight to ensure that the construction is conducted in accordance with the drawings and specifications. This will involve site inspections, progress meetings, and daily inspections during the construction of key components.

Project Cost: $482,700 (Fee); $4,765,000 (Estimated Construction)

FIRMS INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Dam Inspection; Rehabilitation Design; Hydrologic and Hydraulic Analysis; Geotechnical Investigation; Structural Analysis; Alternative Development, Analysis, and Screening; Construction Management

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER 2

TITLE AND LOCATION *(City and State)*
Donegal Lake Dam - Dam Renovations
Donegal Township, Westmoreland County, Pennsylvania

Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2012 (estimated)	2013 (estimated)

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Pennsylvania Department of General Services Pennsylvania Fish and Boat Commission	Dwight Herrmann, PE Jerry Woomer, PE	717.787.6609 814.359.5170

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

Donegal Lake Dam, located in Westmoreland County, Pennsylvania, is owned by the Pennsylvania Fish & Boat Commission (PFBC). The dam was constructed in 1967 and creates Donegal Lake which is a heavily utilized recreational facility. Under contract with the Pennsylvania Department of General Services (PADGS), Baker was responsible for evaluating the dam's compliance with the current Pennsylvania Department of Environmental Protection (PADEP) regulations regarding spillway capacity and overtopping protection during the design event. Baker reviewed existing drawings and reports, performed field inspections, and conducted a topographical survey and subsurface investigation to evaluate the current condition of the dam.

Alternatives were evaluated for widening the spillway as well as protecting the embankment during overtopping. It was determined that due to the depth of overtopping a Roller Compacted Concrete (RCC) protection system was required. The primary spillway was determined to be in good condition and could adequately convey the 100-year storm event. In addition, options to replace the outlet works in the existing control tower were developed, including the reuse of the existing structure while incorporating a dewatering valve and aluminum stoplogs. Conceptual cost estimates and design documentation were developed for each of the alternatives.

Hydrologic and Hydraulic Analysis. The hydrologic and hydraulic analysis included the determination of the Probable Maximum Flood (PMF) as well as the 100-year design storm. A stage discharge curve was developed and flows were routed through the reservoir in order to determine the outflow from the dam, and the duration and height of overtopping. A backwater analysis was conducted to determine the appropriate tailwater conditions based on various overtopping depths. This was then used to evaluate the overtopping flow in order to design the appropriate runout length of the RCC revetment to contain the hydraulic jump. Dewatering calculations were developed to determine the maximum drawdown of the lake as well as verify that the existing outlet conduit is sufficient.

Geotechnical Investigation. A geotechnical investigation was conducted to determine the conditions of the existing spillway as well as providing information if widening the spillway is required. This was achieved by collecting borings and corings of the concrete to assess the condition of the concrete as well as the condition of the existing drainage features under the structure.

Structural Analysis. A structural assessment of the existing spillway and control tower was conducted. The primary spillway was found to be in good condition and only minor spall and crack repairs were required. The control tower inspection indicated that the structure was in good condition and did not require any structural work at this time.

Coordination with Regulatory Agencies. Baker took a proactive approach with the regulatory agencies by holding joint meetings with the owner and presenting the viable alternatives. By doing so, the regulatory agency was involved in the selection of the alternative and the owner understood the cost implications of the alternatives and was able to discuss that with the regulatory agency. This has expedited the review process and achieved buy-in from PADGS, PFBC, and PADEP on the decisions.

Construction Administration. Baker will provide construction management oversight to ensure that the construction is conducted in accordance with the drawings and specifications. This will involve site inspections, progress meetings, and daily inspections during the construction of key components.

Project Cost: $428,724 (Fee); $3,377,000 (Estimated Construction)

FIRMS INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Dam Inspection; Rehabilitation Design; Hydrologic and Hydraulic Analysis; Geotechnical Investigation; Structural Analysis; Alternative Development, Analysis, and Screening; Construction Management

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER: 3

TITLE AND LOCATION *(City and State)*
Kyle Lake Dam - Dam Renovations
Washington Township, Jefferson County, Pennsylvania

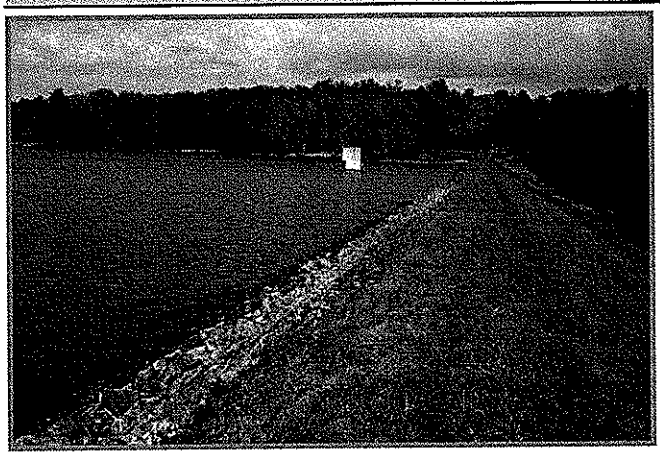
Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2012 (estimated)	2013 (estimated)

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Pennsylvania Department of General Services Pennsylvania Fish and Boat Commission	Dwight Herrmann, PE Jerry Woomer, PE	717.787.6609 814.359.5170

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



Kyle Lake Dam, located in Jefferson County, Pennsylvania, is owned by the Pennsylvania Fish & Boat Commission (PFBC). The dam was constructed in 1910 and creates Kyle Lake which is a heavily utilized recreational facility. Under contract with the Pennsylvania Department of General Services (PADGS), Baker was responsible for evaluating the dam's compliance with the current Pennsylvania Department of Environmental Protection (PADEP) regulations regarding spillway capacity and overtopping protection during the design event. Baker reviewed existing drawings and reports, performed field inspections including an internal assessment of the gate house structure, and conducted a topographical survey and subsurface investigation to evaluate the current condition of the dam.

Alternatives were evaluated for widening the spillway as well as protecting the embankment during overtopping. It was determined that due to the relatively low depth of overtopping an Articulated Concrete Block (ACB) protection system would be the most cost-effective solution. The auxiliary spillway was determined to be in poor condition and alternatives were developed for its replacement. In addition, the existing gate house was found to be in poor condition and rehabilitation options were developed, which included the replacement of the outlet works. Conceptual cost estimates and design documentation were developed for each of the alternatives.

Hydrologic and Hydraulic Analysis. The hydrologic and hydraulic analysis included the determination of the Probable Maximum Flood (PMF) as well as the 100-year design storm. A stage discharge curve was developed and flows were routed through the reservoir in order to determine the outflow from the dam and the duration and height of overtopping. A backwater analysis was conducted to determine the appropriate tailwater conditions based on various overtopping depths. This was then used to evaluate the overtopping flow in order to design the appropriate runout length of the ACB revetment to contain the hydraulic jump as well as determine the size of ACB required. Dewatering calculations were developed to determine the maximum drawdown of the lake as well as verify that the existing outlet conduits were sufficient.

Geotechnical Investigation. A geotechnical investigation was conducted to determine the appropriate foundation design for the spillway and gate house. Soil borings and concrete corings were taken to assess the condition of the concrete as well as the condition of the existing drainage features under the structure. Barge drilling was required for the intake structure.

Structural Analysis. A structural assessment of both existing spillways and the gate house were conducted. The auxiliary spillway was found to be in poor condition while the primary spillway was in good condition. The gate house inspection required the structure to be dewatered by closing the intake valves and opening the outlet valves before entering into the structure. This assessment determined that the concrete at the normal water level of the reservoir was in poor condition and required replacement.

Coordination with Regulatory Agencies. Baker took a proactive approach with the regulatory agencies by holding joint meetings with the owner and presenting the viable alternatives. By doing so, the regulatory agency was involved in the selection of the alternative and the owner understood the cost implications of the alternatives and was able to discuss that with the regulatory agency. This has expedited the review process and achieved buy-in from PADGS, PFBC, and PADEP on the decisions.

Construction Administration. Baker will provide construction management oversight to ensure that the construction is conducted in accordance with the drawings and specifications. This will involve site inspections, progress meetings, and daily inspections during the construction of key components.

Project Cost: $451,188 (Fee); $3,420,000 (Estimated Construction)

FIRMS INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Dam Inspection; Rehabilitation Design; Hydrologic and Hydraulic Analysis; Geotechnical Investigation; Structural Analysis; Alternative Development, Analysis, and Screening; Construction Management

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER: 4

TITLE AND LOCATION *(City and State)*
Somerset Lake Dam - Dam Renovations
Somerset Township, Somerset County, Pennsylvania

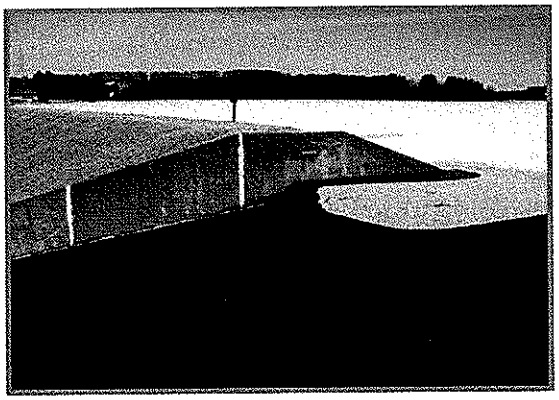
Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2012 (estimated)	2013 (estimated)

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Pennsylvania Department of General Services	Dwight Herrmann, PE	717.787.6609
Pennsylvania Fish and Boat Commission	Jerry Woomer, PE	814.359.5170

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



Somerset Lake Dam, located in Somerset County, Pennsylvania, is owned by the Pennsylvania Fish & Boat Commission (PFBC). The dam was constructed in 1956 and creates Somerset Lake which is a heavily utilized recreational facility. Under contract with the Pennsylvania Department of General Services (PADGS), Baker was responsible for evaluating the dam's compliance with the current Pennsylvania Department of Environmental Protection (PADEP) regulations regarding spillway capacity and overtopping protection during the design event. Baker reviewed existing drawings and reports, performed field inspections, and conducted a topographical survey and subsurface investigation to evaluate the current condition of the dam.

Alternatives were evaluated for widening the spillway as well as protecting the embankment during overtopping. It was determined that the existing spillway needed to be replaced due to contamination in the underdrain system. A new labyrinth weir spillway which would contain the entire design event was determined to be the most cost effective alternative. No overtopping protection would be required with this alternative. In addition, options to replace the outlet works in the existing control tower were developed, including the reuse of the existing structure while incorporating a dewatering valve and aluminum stoplogs. Conceptual cost estimates and design documentation was developed for each of the alternatives.

Hydrologic and Hydraulic Analysis. The hydrologic and hydraulic analysis included determination of the Probable Maximum Flood (PMF) as well as the 100-year design storm. A stage discharge curve was developed and flows were routed through the reservoir in order to determine the outflow from the dam and the duration and height of overtopping. A backwater analysis was conducted to determine the appropriate tailwater conditions based on various overtopping depths. This was then used to design a labyrinth weir spillway that is capable of conveying the PMF event. Dewatering calculations were developed to determine the maximum drawdown of the lake as well as verify that the existing outlet conduit is sufficient.

Geotechnical Investigation. A geotechnical investigation was conducted to determine the conditions of the existing spillway as well as providing information if widening the spillway is required. This was achieved by collecting borings and corings of the concrete to assess the condition of the concrete as well as the condition of the existing drainage features under the structure. This investigation concluded that the drainage material was contaminated which resulted in the decision to replace the spillway.

Structural Analysis. A structural assessment of the existing spillway and control tower was conducted. The primary spillway was found to be in good structural condition and only minor spall and crack repairs were required from a structural standpoint. The control tower inspection indicated that the structure was in good condition and did not require any structural work at this time.

Coordination with Regulatory Agencies. Baker took a proactive approach with the regulatory agencies by holding joint meetings with the owner and presenting the viable alternatives. By doing so, the regulatory agency was involved in the selection of the alternative and the owner understood the cost implications of the alternatives and was able to discuss that with the regulatory agency. This has expedited the review process and achieved buy-in from PADGS, PFBC, and PADEP on the decisions.

Construction Administration. Baker will provide construction management oversight to ensure that the construction is conducted in accordance with the drawings and specifications. This will involve site inspections, progress meetings, and daily inspections during the construction of key components.

Project Cost: $402,651 (Fee); $3,820,000 (Estimated Construction)

FIRMS INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Dam Inspection; Rehabilitation Design; Hydrologic and Hydraulic Analysis; Geotechnical Investigation; Structural Analysis; Alternative Development, Analysis, and Screening; Construction Management

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER 5

TITLE AND LOCATION *(City and State)*
Canonsburg Lake Dam – Dam Renovations
Peters and North Strabane Townships, Washington County, Pennsylvania

Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2012 (estimated)	2012 (estimated)

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Pennsylvania Department of General Services Pennsylvania Fish and Boat Commission	Dwight Herrmann, PE Jerry Woomer, PE	717.787.6609 814.359.5170

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

Canonsburg Lake Dam, located in Washington County, Pennsylvania, is owned by the Pennsylvania Fish & Boat Commission (PFBC). The dam was built in 1943 to create a water supply for ALCOA's Canonsburg Forging Plant during World War II. Canonsburg Lake is currently used as a recreational facility. Under contract with the Pennsylvania Department of General Services (PADGS), Baker was responsible for designing a system to anchor the concrete dam to bedrock in order to provide resistance to sliding. Baker reviewed existing drawings and reports, performed field inspections, and conducted a subsurface investigation to evaluate the current condition of the dam.

Hydrologic and Hydraulic Analysis. Extensive hydrologic and hydraulic modeling was conducted in order to develop the hydraulic loading parameters for the stability analysis. This evaluation included the development of a complex stage discharge curve for the spillway as well as the remainder of the structure given that it is completely overtopped during the Probable Maximum Flood (PMF).

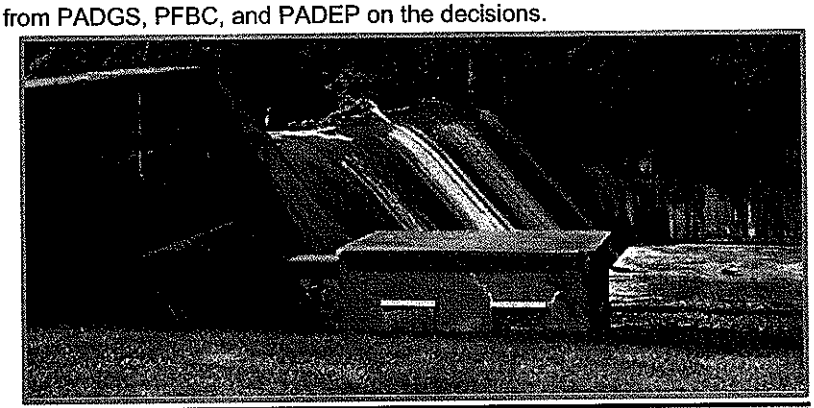
Geotechnical Investigation. A geotechnical investigation was conducted to evaluate the foundation conditions for the design of the rock anchors. This required barge drilling and existing information from previous studies was utilized to help reduce the amount of drilling that was required.

Structural /Stability Analysis. A stability analysis was conducted based on the US Army Corps of Engineers (USACE) guidance, EM 1110-2-2100. This analysis determined the number, size and location of anchors that were needed to meet the required safety factors for sliding and overturning. Conceptual cost estimates and design documentation were developed for the anchoring.

Coordination with Regulatory Agencies. Baker took a proactive approach with the regulatory agencies by holding joint meetings with the owner and presenting the viable alternatives. By doing so, the regulatory agency was involved in the selection of the alternative and the owner understood the cost implications of the alternatives and was able to discuss that with the regulatory agency. This has expedited the review process and achieved buy-in from PADGS, PFBC, and PADEP on the decisions.

Construction Administration. Baker will provide construction management oversight to ensure that the construction is conducted in accordance with the drawings and specifications. This will involve site inspections, progress meetings, and daily inspections during the construction of key components.

Project Cost: $269,960 (Fee); $3,500,000 (Estimated Construction)



FIRMS INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Dam Inspection; Rehabilitation Design; Hydrologic and Hydraulic Analysis; Geotechnical Investigation; Structural Analysis; Alternative Development, Analysis, and Screening; Construction Management

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER: 6

TITLE AND LOCATION *(City and State)*
North Park Lake Dam Rehabilitation
Wexford, Pennsylvania

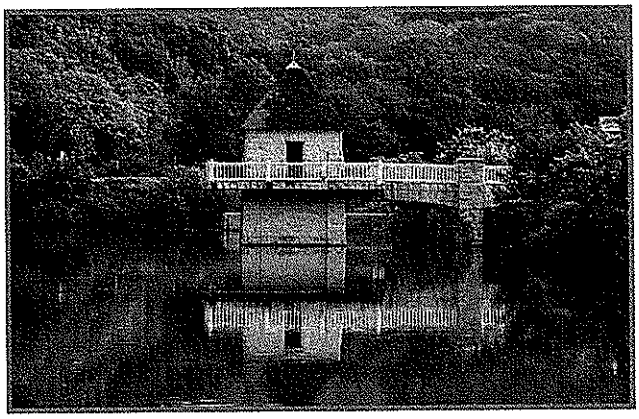
Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2006	2008

27. PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Allegheny County Department of Public Works	Joseph Olczak	412.350.4005

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



The North Park Lake Dam is a 1,130-foot long, 35-foot high earthen dam constructed in 1936 to create North Park Lake. North Park Lake, with a surface area of 75 acres, is the largest recreational lake in Allegheny County and is the central attraction in the Park. Baker was tasked with bringing the dam and concrete spillway into compliance with the current regulations of the PADEP's Division of Dam Safety and to maintain the certification of the dam. Baker conducted annual inspections and completed construction documents to provide overtopping protection of the embankment.

Hydrologic and Hydraulic Analysis. The hydrologic and hydraulic analysis of the Probable Maximum Flood (PMF) event revealed an expected overtopping depth of 11 feet. Through the innovative use of an earthen berm to divert the flow, Baker was able to reduce the total area requiring protection to approximately one-fourth of the original design which provided a substantial cost savings. Roller Compacted Concrete (RCC), Reinforced Concrete, and Articulated Concrete Block (ACB) alternatives were presented to the County and regulatory agencies. An ACB system was selected given it was the most economical, aesthetically pleasing, and functional system.

Structural Analysis. The outlet works of the gate house, consisting of a stop log system and sluice gate were rehabilitated / replaced based on the results of underwater inspections. Streambank stabilization was designed to repair severe erosion of the downstream channel that occurred due to Hurricane Ivan during the design stage of the project.

Emergency Action Plan. A dam break analysis was conducted to develop inundation mapping to support a revision to the Emergency Action Plan.

Coordination with Regulatory Agencies. The PADEP Division of Dam Safety was continually involved in the development of the design of the project. This was crucial in obtaining their approval of the diversion berm and overtopping protection plan which provided a substantial cost savings.

Construction Services. Construction services were provided throughout the project. These included; prebid meeting; bid review and recommendations; attendance at progress meetings, review and approval of shop drawings, pay requests, and change orders; onsite inspections as needed; final inspection; and generation of as-built drawings.

Project Cost: $175,500 (Fee), $1,100,000 (Construction)

FIRMS INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Annual Dam Inspections; Agency Coordination and Permitting; Hydrologic and Hydraulic Modeling; Overtopping Protection Alternative Evaluation; Plans and Specifications for Rehabilitation of Dam, Gatehouse, and Spillway Construction Assistance

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER: 7

TITLE AND LOCATION *(City and State)*
Deer Lakes Park Dam Improvement Project
Frazer and West Deer Township, Pennsylvania

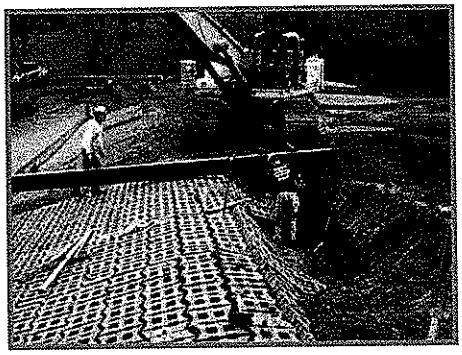
Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2005	2006

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Allegheny County Department of Public Works	Joseph Olczak	412.350.4005

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



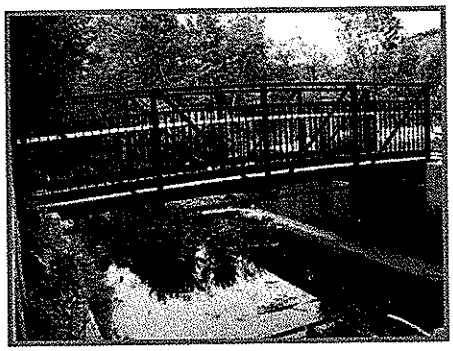
Deer Lakes Park, owned by Allegheny County, is a recreational facility whose prominent feature is a series of three man-made lakes and associated dams. Lake No. 1 was constructed as a commercial fishing facility before the County purchased the property in 1959 and Lakes 2 and 3 were constructed by the County in the early 1970s. Through this project, the Lake No. 1 dam, which was permitted as a Class C1 High Hazard Dam, was brought into compliance with current Pennsylvania Department of Environmental Protection (PADEP) Division of Dam Safety regulations.

Hydrologic and Hydraulic Analysis. The C1 classification required the dam to safely convey the Probable Maximum Flood (PMF). Hydrology and hydraulic analyses determined that the spillway could not convey the 100-year event. Spillway modification options to convey the PMF were determined to be cost prohibitive. . Providing overtopping protection for the embankment was recommended by Baker as the most cost effective option to meet current regulations. Roller Compacted Concrete (RCC), Reinforced Concrete, and Articulated Concrete Block (ACB) alternatives were developed and presented to the County and regulatory agencies. The ACB system was selected given it was the most economical and visually appealing. An open cell ACB system was selected and the voids were filled with soil allowing the concrete blocks to be covered with vegetation and retaining a natural appearance. Due to the large depth to bedrock present at the toe of the dam, a submerged bucket design was used to control downstream scour, minimize the area of revetment required, and avoid impacting an existing wetland downstream of the embankment.

In order to meet current regulatory requirements, a dewatering system was provided. The system needed to provide dewatering capabilities with minimal impacts to the existing embankment; therefore, a siphon system was recommended. The system incorporated an 8-inch ductile iron pipe and a set of valves that allowed County staff to activate the siphon with minimal effort, which was essential given the remote location of the dam. This system provided for the dewatering of half the volume of the lake within 42 hours.

Structural Analysis. A structural assessment of the existing spillway was conducted and it was determined that only minor crack repairs were required. As part of this project, the existing wooden pedestrian bridge was replaced with a prefabricated steel bridge. Modifications to the walls of the spillway were designed to provide a bridge seat for the structure.

Coordination with Regulatory Agencies. Throughout the project, Baker worked closely with the County and PADEP Division of Dam Safety to develop a project that met the requirements of the regulatory agency in the most cost effective manner.



Emergency Action Plan. A dam break model was developed and used to determine the inundation mapping for the Emergency Action Plan. It was determined that the failure of this dam would result in the failure of the two dams immediately downstream, resulting in the potential for loss of life in the community downstream. As part of the Emergency Action Plan development, Baker met with the downstream community and developed a notification protocol in the event of a failure of the dam.

Construction Services. Construction services were provided throughout the project. These included; prebid meeting; bid review and recommendations; attendance at progress meetings, review and approval of shop drawings, pay requests, and change orders; onsite inspections as needed; final inspection; and generation of as-built drawings.

Project Cost: $95,000 (Fee); $375,000 (Construction)

FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Annual Dam Inspections; Agency Coordination and Permitting; Hydrologic and Hydraulic Modeling; Overtopping Protection Alternative Evaluation; Plans and Specifications for Rehabilitation of Dam, Gatehouse, and Spillway Construction Assistance

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER 8

TITLE AND LOCATION *(City and State)*
Latodomi Nature Center Pond Restoration
Wexford, Pennsylvania

Baker

YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2007	2008

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Allegheny County Department of Public Works	Joseph Olczak	412.350.4005

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

Recipient of the 2009 Pennsylvania ACEC Diamond Award for Environmental, Restoration/Reclamation

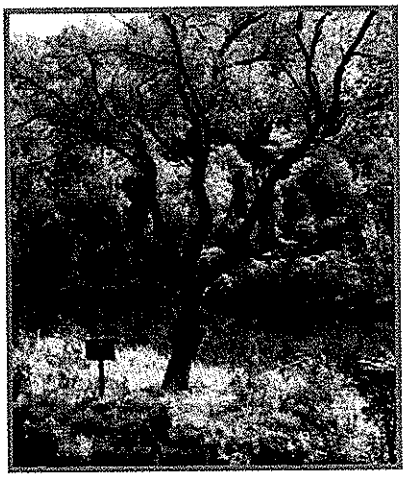
Originally part of a private farm, the pond is the focal point of the North Park Nature Center. Over the years the pond had filled with sediment, the embankment of the dam had been overgrown with trees, and the outlet channel had severely degraded to the point of becoming a safety concern. Baker's restoration design brought the facility into compliance with the current regulations of the PA Department of Environmental Protection (DEP) Division of Dam Safety in an ecologically friendly manner.

Hydrologic and Hydraulic Analysis. A hydrologic and hydraulic analyses were conducted for the existing dam. A lackof maintenance had resulted in the primary outlet structure, a brick tower, to deteriorate to the point of becoming non-functional. This had resulted in the emergency spillway acting as the primary spillway which led to severe undercutting of concrete channel.

Structural Analysis. A structural assessment indicated that the spillway was structurally deficient and replacement was required. A concrete control weir was designed along with a riprap lined outlet channel and energy dissipation basin. The existing trees on the embankment were removed and the embankement was regraded to provide a level crest and a flatter downstream slope.

The existing control tower was determined to be structurally deficient and a replacement structure was designed. The new structure provided a low level valve, two feet of stop logs, and a trash rack. This structure provided additional operational flexability for the County.

Dredging. Sediment removal was essential to restoring the pond and regaining educational opportunities at the Nature Center. Sediment had reduced the water surface to a 25% of its original size and the water depth had been reduced to less than two feet. A removal plan was developed to remove over 5,500 cubic yards of sediment and restore the pond to its original size and depth. A sediment forebay was established adjacent to the road to allow for easy maintenance to prevent sediment from entering the pond.



Coordination with Regulatory Agencies. Throughout the design, Baker actively involved the County and regulatory agencies to ensure concurrence on the project.

This project restored a sediment filled pond to a fully functional facility that not only provides educational opportunities for the public, but also reintroduced aquatic life and increased the available habitat.

Project Cost: $65,000 (Fee); $265,000 (Construction)

FIRMS INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Hydrologic and Hydraulic Analyses; Structural Analyses; Regulatory Agency Coordination and Permitting; Embankment Protection; Spillway and Control Tower Replacement; Plans and Specifications for Construction; Dam Break Analysis; Dam Inspection and Construction Services

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER
9

TITLE AND LOCATION *(City and State)*
Monte-Mere Lake Dam Rehabilitation
Montville Township, Geauga County, Ohio

Baker

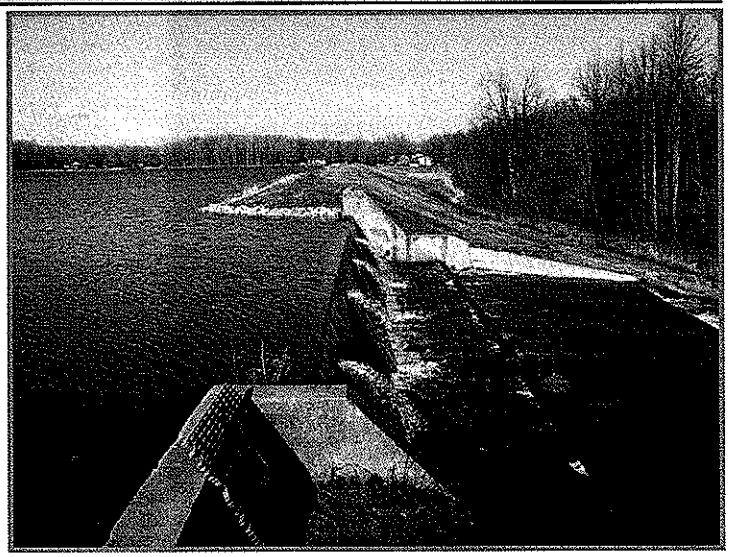
YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2010	2010

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
Monte-Mere Lake Homeowners Association, Inc.	Mike Aschenbrener	216.952.2255

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

Monte-Mere Lake Dam (ODNR File Number 1510-001) is a Class I dam that was constructed in 1969. The original design included a straight drop principal spillway which relied on a plunge pool below to dissipate the energy of the flow. A concrete apron was added downstream of the spillway in 1973. In 2007, a geotechnical investigation revealed that voids are present under the existing concrete apron. This report also highlighted the finding of the 1980 Phase I Inspection which indicates that the spillway does not provide adequate energy dissipation, resulting in the continued erosion of the downstream channel.



The Monte-Mere Lake Association, Inc. (Association) is working with Baker to evaluate options and determine the most cost effective approach to meeting the current regulations. Baker conducted an inspection of the dam and developed an approach to repair the existing concrete apron. This approach would utilize pressure grouting conducted on a grid pattern to fill the voids under the concrete apron. There is also concern regarding the right training wall on the concrete apron which is currently leaning. Given the low height of the wall, it was felt that the best solution would be to buttress the existing wall with new walls that would be dowelled into the existing concrete apron.

Baker has also consulted with ODNR to discuss the concern regarding an underdrain that is thought to be directly connected to the reservoir. While the Association has drawn down the lake level in the past and bypassed the water through a temporary pipe in order to determine if this pipe underdrain was conveying water from the lake or collecting seepage from under the spillway structure, formal documentation was not submitted to ODNR. Baker is working with the Association to conduct another drawdown and document the results in order to provide a determination of the source of the pipe connection to ODNR.

Baker is also working with the Association to conduct hydraulic modeling of a dam break. The results of this model will establish if the dam classification can be reduced from a Class I given there may be no loss of life due a failure of the dam. Currently the dam would be a lower classification based on height and storage volume; however, it is classified as a Class I dam given it was felt that loss of life was possible. If the modeling does indicate that loss of life is probable, options to convey the PMF event will be evaluated. This would include expansion of the emergency spillway, replacement of the primary spillway and/or overtopping embankment protection.

FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Moon Township, Pennsylvania	Hydrologic and Hydraulic Analyses; Structural Analyses; Regulatory Agency Coordination and Permitting; Spillway and Rehabilitation; Plans and Specifications for Construction; Dam Break Analysis; Dam Inspection and Construction Services

RELEVANT PROJECTS SECTION

RELEVANT PROJECT NUMBER: 10

TITLE AND LOCATION *(City and State)*	YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Wymer Portals and AMD, & Davidson Highwall Monongalia County, West Virginia	2009	

PROJECT OWNER'S INFORMATION

PROJECT OWNER	POINT OF CONTACT NAME	POINT OF CONTACT TELEPHONE NUMBER
West Virginia Department of Environmental Protection Division of Land Restoration, Abandoned Mine Lands and Reclamation	Gregg A. Smith, P.E. Project Manager	304-457-3219

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

In 2009,. Baker prepared design plans, specifications, and construction cost estimates for reclamation of pair of large abandoned mine complexes located in Monongalia County. The sites included numerous exposed mine entries, steep highwalls, acid mine drainage, water impoundments, and barren refuse areas. Baker developed detailed reclamations plans including site grading, surface and mine water conveyance structures, mine seals, access roads, culvert crossings, and bat gates for selected entries. The projects required surveying services for development of base mapping at a two foot contour interval. Geotechnical investigation consisting of site reconnaissance, research of mining documents, and exploratory drilling was required to determine the underground soil, rock, groundwater, and mine characteristics.

Construction of these two projects commenced in July, 2010. Baker provided assistance to WVDEP during project bidding by providing engineering representation at pre-bid meetings for each project. During these on site meetings Baker's project manager presented the projects to prospective bidders, discussing in detail the project requirements, answering questions, and leading walking tours of the sites. Baker also provided engineering representation at preconstruction meetings, and remains available for construction monitoring services on an "as needed" basis.

FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Michael Baker Jr., Inc.	Beaver, Pennsylvania	Design Plans, Specifications, and Construction Cost Estimates

RELEVANT PROJECT EXPERIENCE MATRIX

	Example Project Name (Place "X" under Project Scope)	Hydrologic and hydraulic analyses to develop watershed data for inclusion into analyses for Emergency Action Plans	Hydrologic and hydraulic analyses to determine adequacy of spillway systems	Performing geotechnical analyses to determine embankment stability	Performing structural analyses to determine integrity of concrete structures	Regulatory agencies with authority over dam and water resource related projects	Design of dam-related projects	Construction administration of dam-related projects	Working with local agencies	Public relations and meetings
1	**Dutch Fork Dam - Dam Renovations Donegal Township, Washington County, Pennsylvania**	X	X	X	X	X	X	X	X	X
2	**Donegal Lake Dam - Dam Renovations Donegal Township, Westmoreland County, Pennsylvania**	X	X	X	X	X	X	X	X	
3	**Kyle Lake Dam - Dam Renovations Washington Township, Jefferson County, Pennsylvania**	X	X	X	X	X	X	X	X	
4	**Somerset Lake Dam - Dam Renovations Somerset Township, Somerset County, Pennsylvania**	X	X	X	X	X	X	X	X	X
5	**Canonsburg Lake Dam – Dam Renovations Peters and North Strabane Townships, Washington County, Pennsylvania**	X	X	X	X	X	X	X	X	X
6	**North Park Lake Dam Rehabilitation Wexford, Pennsylvania**	X	X		X	X	X	X	X	
7	**Deer Lakes Park Dam Improvement Project Frazer and West Deer Township, Pennsylvania**	X	X		X	X	X	X	X	
8	**Latodomi Nature Center Pond Restoration Wexford, Pennsylvania**	X	X		X	X	X	X	X	X
9	**Monte-Mere Lake Dam Rehabilitation Montville Township, Geauga County, Ohio**	X	X		X	X	X	X	X	X
10	**Wymer Portals AMD & Davidson Highwall Projects Monongalia County, West Virginia**			X					X	X

PURCHASING AFFIDAVIT

RFQ No. DNR #211007

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: 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 the debt owed is an amount greater than one thousand dollars in the aggregate

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.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities, "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this 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.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this said affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: **Michael Baker Jr., Inc.**

Authorized Signature: William D. Trimbath Date: **August 23, 2010**

State of **Pennsylvania**

County of **Beaver**, To-wit:

Taken, subscribed, and sworn to before me this 23 day of August, 2010

My Commission expires August 1, 2012

AFFIX SEAL HERE

NOTARY PUBLIC Linda L. Montagna

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Linda L. Montagna, Notary Public
Brighton Twp., Beaver County
My Commission Expires Aug. 1, 2012
Member, Pennsylvania Association of Notaries