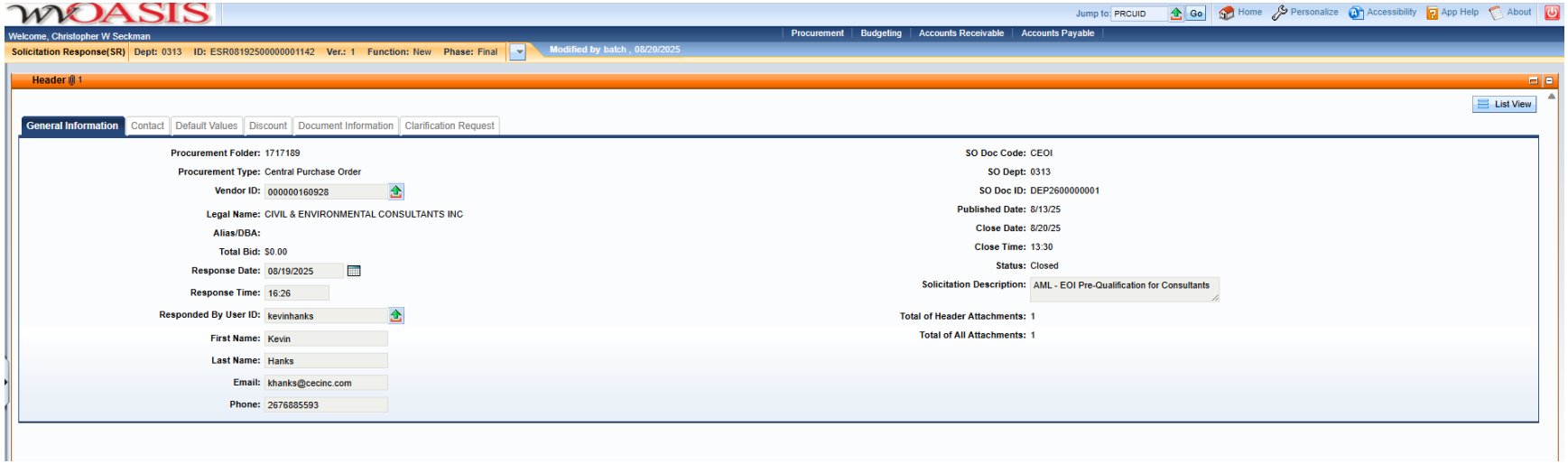
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.


WVOASIS
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Accessibility
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About
Welcome, Christopher W Seckman
Procurement | Budgeting | Accounts Receivable | Accounts Payable
Solicitation Response(SR) Dept: 0313 ID: ESR08192500000001142 Ver.: 1 Function: New Phase: Final
Modified by batch , 08/20/2025
Header 1
List View
General Information
Contact
Default Values
Discount
Document Information
Clarification Request
Procurement Folder: 1717189
Procurement Type: Central Purchase Order
Vendor ID: 000000160928
Legal Name: CIVIL & ENVIRONMENTAL CONSULTANTS INC
Alias/DBA:
Total Bid: $0.00
Response Date: 08/19/2025
Response Time: 16:26
Responded By User ID: kevinhanks
First Name: Kevin
Last Name: Hanks
Email: khanks@cecinc.com
Phone: 2676885593
SO Doc Code: CEOI
SO Dept: 0313
SO Doc ID: DEP2600000001
Published Date: 8/13/25
Close Date: 8/20/25
Close Time: 13:30
Status: Closed
Solicitation Description: AML - EOI Pre-Qualification for Consultants
Total of Header Attachments: 1
Total of All Attachments: 1

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

State of West Virginia
Solicitation Response

Proc Folder:	1717189
Solicitation Description:	AML - EOI Pre-Qualification for Consultants
Proc Type:	Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2025-08-20 13:30	SR 0313 ESR08192500000001142	1

VENDOR

000000160928
CIVIL & ENVIRONMENTAL CONSULTANTS INC

Solicitation Number: CEOI 0313 DEP2600000001

Total Bid: 0 **Response Date:** 2025-08-19 **Response Time:** 16:26:35

Comments:

FOR INFORMATION CONTACT THE BUYER
Joseph (Josh) E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor
Signature X **FEIN#** **DATE**

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

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	EOI Engineering Design Services				0.00

Comm Code	Manufacturer	Specification	Model #
81100000			

Commodity Line Comments:

Extended Description:

EOI Engineering Design Services

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

State of West Virginia
Centralized Expression of Interest

Proc Folder:	1717189		Reason for Modification:
Doc Description:	AML - EOI Pre-Qualification for Consultants		
Proc Type:	Central Purchase Order		
Date Issued	**Solicitation Closes**	**Solicitation No**	**Version**
2025-08-01	2025-08-20 13:30	CEOI 0313 DEP2600000001	1

BID RECEIVING LOCATION

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

VENDOR

Vendor Customer Code: 000000160928

Vendor Name : Civil & Environmental Consultants, Inc.

Address : 120 Genesis Boulevard

Street :

City : Bridgeport

State : WV **Country :** USA **Zip :** 26330

Principal Contact : Joseph Robinson

Vendor Contact Phone: 304-933-3119 **Extension:**

FOR INFORMATION CONTACT THE BUYER

Joseph (Josh) E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor Signature X Joseph D. Robinson **FEIN#** 25-1599565 **DATE** August 20, 2025

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

Civil & Environmental Consultants, Inc.

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

EOI - PRE-QUALIFICATION FOR CONSULTANTS
CEOI 0313 DEP210000006

CEC | BRIDGEPORT
Project 355-363
August 20, 2025

August 20, 2025

Mr. Joseph E. Hager III
Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, West Virginia 25305-0130

Dear Mr. Hager:

Subject: Proposal for Professional Engineering Services
Solicitation No. CEOI 0313 DEP2600000001
EOI – 2023 AML Contract N2
CEC Project: 355-363

Civil & Environmental Consultants, Inc. (CEC) is pleased to submit this Expression of Interest (EOI) to the West Virginia Department of Environmental Protection, Division of Land Restoration, Office of Abandoned Mine Lands and Reclamation (WVDEP-DLR-AML), in response to Solicitation No. CEOI 0313 DEP2600000001. We acknowledge Addendum #1 and understand that this process will establish a list of pre-qualified consultants to provide engineering design services pursuant to HB 3429.

CEC maintains a strong and growing presence in West Virginia, with offices in **Bridgeport, Charleston, and Martinsburg**. These three locations collectively house more than 150 professionals, including engineers, surveyors, geologists, hydrologists, permitting specialists, and construction technicians—who live and work in the state. Our teams offer comprehensive services, including civil, geotechnical, hydrological, hydrogeological, transportation, surveying/geo-spatial, ecological, and environmental engineering. By leveraging expertise across our West Virginia offices, we provide clients with responsive local service, supported by the broader resources of CEC's 34 offices nationwide.

CEC understands the importance of the WVDEP-DLR-AMLprogram and the funding mechanisms that support it. We approach every project with fiscal responsibility, treating state resources as our own, while delivering quality solutions that meet scope, schedule, and budget. We also maintain established partnerships with local drilling and materials testing firms to further expand our service capabilities while keeping project delivery efficient and cost-effective.

Enclosed are our qualifications, highlighting past project experience and the capabilities of our West Virginia staff. CEC is committed to supporting WVDEP-DLR-AMLin its mission to reclaim and restore lands impacted by mining and to improve the quality of life for communities across the state.

Thank you for the opportunity to submit our qualifications. Should you have any questions, please contact Joseph D. Robinson at (443) 366-2606 or Steve Cain at (304) 669-3940. We look forward to discussing how CEC's West Virginia offices can support WVDEP's ongoing and future reclamation efforts.

Respectfully submitted,
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Joseph D. Robinson, P.E.
Vice President

Steve A. Cain, P.E.
Vice President

PROFESSIONAL ENGINEERING SERVICES FOR WVDEP AML

CONTENTS

APPENDICES

1.0 Firm Overview

In 1989, four engineers and scientists came together with a singular vision: to be a people-first company, one that promotes a culture where clients and employees enjoy working together, and that is responsive to client needs with integrated services and high-quality work for projects both complex and routine. More than 36 years later, Civil & Environmental Consultants, Inc. (CEC) has 1,600+ team members in offices nationwide. Headquartered in Pittsburgh, Pennsylvania, we are consistently ranked on Engineering News-Record's annual lists of the Top Design Firms and Top Environmental Firms in the nation.

#1
West Virginia ENR's Top Design Firms

#97
ENR's Top 500 Design Firms

#24
ENR's Mid-Atlantic Design Firm

#107
ENR's Top 200 Environmental Firms

CEC's West Virginia (Bridgeport, Charleston, Martinsburg) offices are comprised of senior leaders, master planners, engineers, project managers and support staff all with significant private and public infrastructure planning, design and engineering experience. Our offices are adequately staffed with a variety of professionals to ensure appropriate staff is assigned to any task.

CEC West Virginia enjoys a positive relationship with local, regional and state regulatory officials. These relationships are critical to navigating the permitting process through the increasingly difficult regulatory environment. CEC understands the length of time required for permitting tasks and can assist the client in developing accurate project schedules. This knowledge of local construction techniques and a thorough understanding of the design and operation/maintenance of public infrastructure provide a technical advantage to CEC.

CEC's team provides a balance of public and private sector experience that allows us to offer an exceptional prospective to our consulting services. Our team has proven experience in both private and public sector projects, meeting intensive schedules for projects and locally funded projects while maintaining quality work. We understand the balance and collaboration required between private site development projects and the public development process.

CEC is an expanding, multi-disciplined company that is home to:

- Civil Engineers
- Geotechnical Engineers
- Transportation Engineers
- Structural Engineers
- Environmental Scientists
- Environmental Engineers
- Chemical Engineers
- Geologists
- Hydrogeologists
- Hydrologists
- Ecologists
- Biologists
- Wetland Scientists
- Threatened & Endangered Species Experts
- Agronomists/Soil Scientists
- Emissions Testing Professionals
- Meteorologists
- Chemists
- Archaeologists
- Construction Managers and Inspectors
- Environmental Technicians
- Watershed Planners
- Grant Writers
- Land Surveyors
- Landscape Architects
- GIS Analysts and Programmers

1.1 Commitment to Safety

CEC is committed to conducting its business in a manner that sustains and protects the safety and health of its employees. CEC strives for continuous improvement in the effectiveness of its safety and health programs. We affirm that:

- Working safely is a key corporate value and a condition of employment.
- All workplace hazards can be safeguarded against by using proactive measures and actions.
- Occupational safety and health is part of every employee's total job performance.
- Each CEC employee is responsible, and is held accountable for establishing safe workplace conditions to prevent injuries and occupational illnesses.
- Training employees to work safely is essential and is the responsibility of CEC Managers and Supervisors.
- Creating and maintaining a safe workplace, combined with the prevention of personal injuries and accidents, is good business.
- An effective Safety Program is part of CEC's vision and mission.

CEC's Workplace Safety Program and Manual provides general physical hazard assessments for tasks commonly performed by CEC employees. The program requires a hazard assessment and preparation of a project safety plan for all field operations. The plans are continuously updated through the use of Job Safety Assessments and on-site safety meetings for CEC personnel.

1.2 Attention to Quality

CEC performs our professional services under our corporate Quality Assurance Plan (QAP). This QAP was developed to verify the engineering, design, plans and other deliverables prepared by the project team and the various disciplines are supported by comprehensive studies and sound engineering judgment, in compliance with established policies, guidelines and standards, and contain appropriate design flexibility and cost saving measures. This QAP entails a comprehensive listing of CEC quality policies and standard operating procedures that are available on CEC's internal network. It is consistently reviewed and updated by a multi-office team of experienced professionals to ensure "Best Quality Control Practices" are uniformly applied. In support of this QAP, CEC is committed to the application of established design policies, guidelines, and processes developed and published by review and resource agencies. From a quality standpoint, technical personnel review the technical quality, accuracy and completeness of all designs, analyses, drawings, estimates, and report text.

Peer-level personnel are responsible for the performance of an independent check of all calculations and project deliverables prior to each project milestone submission.

As part of the QAP, reviews will be performed for the appropriate element throughout the design/construction process. These reviews will be completed prior to submitting reports, plans, construction documentation, or other deliverables. These reviews will verify the adequacy of the information presented and compliance with established guidance documents. The QAP also documents procedures for work procedure and equipment use, employee and project safety, project management and records and communications. The goal and objective of the QA/QC Policy is to provide a safe and consistent delivery of quality services to the WVDEP.

1.3 Controlling Costs and Maintaining Schedules

CEC has written quality policies that are provided to all employees; these policies define critical work quality and internal control procedures. Employees are instructed and required to record hours worked daily in the Deltek system and each employee-prepared time sheet is reviewed and approved by a system defined supervisor. Project management personnel have online access to project budgets, project cost and hours, billing and accounts receivable information. In addition to online access, each month the Accounting Department distributes to the project manager and principal-in-charge copies of a summary project status report showing budget and actual project information.

Project cost controls are provided by our fully integrated accounting system. The management information system is used to compile and control costs by project and by task, independent of personnel used, or their office location. Costs specific to the project are consolidated by accounting and verified by the CEC project manager for accuracy. Further accounting control is provided for monthly reviews of all projects. The costs incurred are compared to progress on the projects to confirm that the expenditures of budgeted funds correlate to the overall progress on the projects.

1.4 Staff Availability

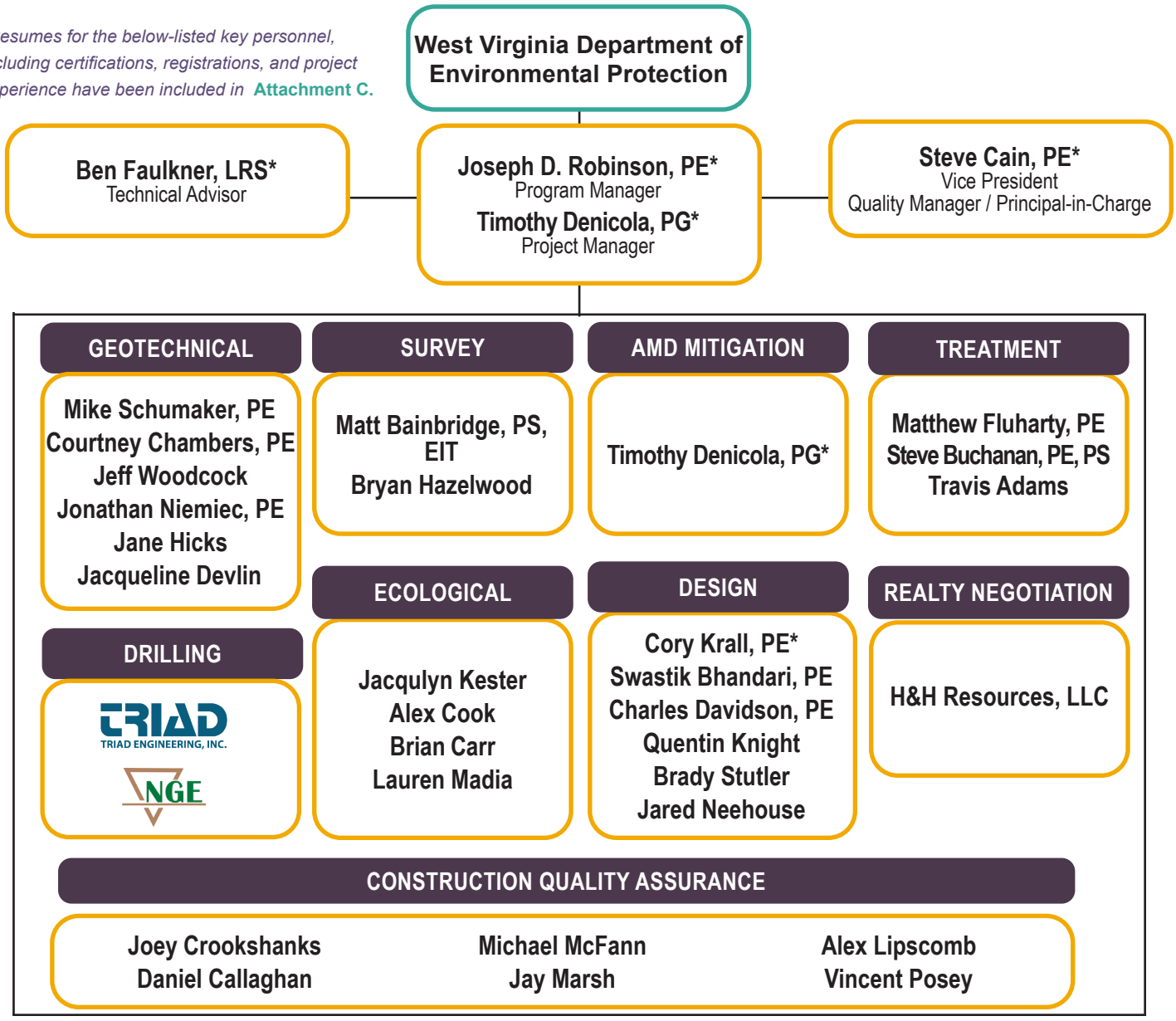
CEC regularly reviews workload by office and by Practice through a series of regularly scheduled meetings/reviews. Each office holds a weekly meeting to review new and upcoming proposal activity and reports shared opportunities. Additional practice meetings/ reviews are held to review workload, schedule manpower and anticipate schedule changes. CEC regularly monitors our workload and backlog against staff availability and adds personnel, as necessary, to meet client and project requirements.

2.0 Key Personnel & Sub-Consultants

The following key personnel will assist on any assigned project. CEC's project team is comprised of individuals that have the technical knowledge, professional experience and project understanding to support the West Virginia Department of Environmental Protection, Division of Land Restoration, Office of Abandoned Mine Lands and Reclamation (WVDEP-DLR-AML) with geotechnical investigation and design of landslides, investigation/reclamation/design of dangerous impoundments and highwalls, acid mine drainage (AMD) investigation and mitigation, portal sealing and hydraulic engineering. The project team identified to work with the WVDEP has extensive experience in full service design solutions for performing site assessments and design remediation and mitigation services throughout West Virginia. In addition, our team has extensive experience in ecosystem restoration, and Clean Water Act Permitting and NEPA. Each of the anticipated team members presented in the organizational chart that follows is based out of CEC's West Virginia and Pennsylvania offices, will be crucial in the successful execution of these projects.

In addition to the key personnel noted in the organizational chart below, CEC's West Virginia offices has more than 160 technical and managerial personnel who can provide a wide range of services, including but not limited to Construction Field Services, Environmental Engineering, Permitting and Ecological Services.

Resumes for the below-listed key personnel, including certifications, registrations, and project experience have been included in* **Attachment C.



Name	Role	Years of Experience	Education	Registrations
Joseph Robinson, PE	Program Manager	21	B.S., Civil Engineering, West Virginia University	Professional Engineer (WV, OH, PA, TX, VA, MD)
Steve Cain, PE	Quality Manager/ Principal-in-Charge	32	B.S., Engineering Technology - (Civil Emphasis), Fairmont State University	Professional Engineer (WV, PA, MD)
Ben Faulkner	Technical Advisor	46	Certificate, Environmental Studies, WV College of Graduate Studies B.S., Biology, Concord University	
Timothy Denicola, PG	Project Manager/ AMD Mitigation	18	M.S., Geology, West Virginia University B.S., Chemistry, Clarion University of Pennsylvania	Professional Geologist (PA) Certified Floodplain Manager
Jacqulyn Kester	Ecological	20	B.S., Environmental Sciences, West Virginia University	
Michael Schumaker, PE	Geotechnical	32	M.S., Civil Engineering, University of Pittsburgh B.S., Civil Engineering, University of Pittsburgh	Professional Engineer (WV, AR, IL, IN, IA, KS, KY, MI, NJ, NY, NC, OH, OK, PA, TN, VA, WI)
Courtney Chambers, PE	Geotechnical	8	B.S., Civil and Environmental Engineering, West Virginia University	Professional Engineer (WV)
Jeff Woodcock	Geotechnical	42	B.S., Civil Engineering, The Pennsylvania State University	Professional Engineer (PA, OH)
Jonathan Niemiec, PE	Geotechnical	19	M.S., Civil Engineering, West Virginia University B.S., Civil Engineering, West Virginia University	Professional Engineer (WV, OH, PA)
Jane Hicks	Geotechnical	28	M.A., Education, West Virginia University B.S., Mining Engineering, West Virginia University	
Jacqueline Devlin	Geotechnical	1	B.S., Civil and Environmental Engineering, West Virginia University	
Matt Bainbridge, PS, EI	Survey	21	B.S., Civil Engineering Technology, Fairmont State University B.S., Mathematics, Fairmont State University	Professional Surveyor (WV) Engineer in Training (WV)
Bryan Hazelwood	Aerial Mapping	27	A.A.S., Professional Pilot, Community College of Beaver County	
Matthew Fluharty, PE	Treatment	25	B.S., Civil Engineering, West Virginia University	Professional Engineer (WV, PA, OH, MD)
Steve Buchanan, PE, PS	Treatment	41	B.S., Civil Engineering, West Virginia University	Professional Engineer (WV, PA, MD, OH) Professional Surveyor (WV)
Travis Adams	Treatment	27	B.S., Environmental Science (Emphasis on Water Quality), West Virginia University	
Brian Carr	Ecological	4	B.S., Environmental Science, Water Science, West Virginia University	
Lauren Madia	Ecological	20	B.S., Ecology and Evolution, The Ohio State University	

Name	Role	Years of Experience	Education	Registrations
Brady Stutler	Design	21	Certificate, Civil Engineering Technology, Fairmont State College Certificate, Computer Aided Drafting & Design, United Technical Center	
Corey Krall	Design	8	B.S., Mining Engineering, West Virginia University	Professional Engineer (WV)
Swastik Bhandari, PE	Design	11	M.S., Civil Engineering, Southern Illinois University 2013: B.S., Civil Engineering, Tribhuvan University	Professional Engineer (WV, NC)
Quentin Knight	Design	8	B.S., Civil Engineering Technology, Fairmont State University	
Charles Davidson	Design	8	B.S., Civil Engineering, Clarkson University	Professional Engineer (WV, NY, SD)
Jared Neehouse	Design	6	B.S., Civil Engineering Technology, Fairmont State University B.S., Surveying and Geomatics Engineering Technology, Fairmont State University	

2.1 West Virginia Offices Personnel

WEST VIRGINIA OPERATIONS CHART (Updated August 2025)

WEST VIRGINIA OPERATIONS LEAD	
Steve Cain	Vice President

OFFICE LEADS	
David Gilmore	Charleston
Chris Waddell	Martinsburg

OFFICE SAFETY COORDINATOR	
Joshua Strand	Safety Coordinator

ADMINISTRATIVE	
Amy Miller	Administrative Manager
Sydney Hood	Administrative Assistant
Sherrie-Lynn Hollomon (Martinsburg)	Administrative Assistant
Lori Miller	Administrative Assistant
Ashly Wagner	Administrative Assistant

CIVIL ENGINEERING	
PRACTICE LEAD- JOSEPH D. ROBINSON, VICE PRESIDENT	
Tom Adams	Principal
Erasamo Rizo	Principal
Ryan Haws	Senior Project Manager
Abraham Jones	Senior Project Manager
Marc Mezzanotte (Martinsburg)	Senior Project Manager
David Foster	Project Manager III
Scott Love (Charleston)	Project Manager III
Lucas Gardner	Project Manager II
Cory Krall	Project Manager II
Swastik Bhandari	Assistant Project Manager
Charles Davidson	Assistant Project Manager
Quentin Knight	Assistant Project Manager
Shannon Shank (Charleston)	Assistant Project Manager
Joey Crookshanks (Charleston)	Project Consultant
Seth Friel	Project Consultant
Jared Neehouse	Project Consultant
Addison Watkins	Project Consultant
Matthew Barrish	Project Consultant
Lane Tobin (Martinsburg)	Project Consultant
Dylan Jumper (Martinsburg)	Project Consultant
Cade McCullough	Staff Consultant
Brian Henderson	Staff Consultant
Justin Jones	Staff Consultant
Logan Paxton (Charleston)	Staff Consultant
Brian Robair (Martinsburg)	Technician I
Braxton Moore	Technician II
Bill Suddueth (Martinsburg)	Designer

LANDSCAPE	
Jim Christie	Principal
Matt Pizatella	Project Manager II
Colin McCardle	Project Manager I
Jon Michaux	Senior Consultant
Dustin Toothman	Project Consultant
Andrew Gosnell	Project Consultant
Chelsea Elliot	Staff Consultant

STRUCTURAL	
Ryan Minor	Project Manager III
Courtney Chambers	Project Manager I
Jonas Kavi	Project Manager I
Steve Schumacher	Senior Consultant
Daniel Smith	Project Consultant
Exavier Posey	Staff Consultant

CADD	
Brady Stutler	Project Manager I
Kevin Poth	Senior CADD Technician
Julie Spriggs	Senior CADD Technician

GEOTECHNICAL	
SUB PRACTICE LEAD- JANE HICKS, PRINCIPAL	
Joe Wheeling	Project Manager II
Foster Tucker	Assistant Project Manager
Lauren Mayle	Project Consultant
Nolan Sollenberger	Project Scientist
Jacqueline Devlin	Staff Consultant
Davonne Mobsy (Martinsburg)	Staff Consultant
Don Kincell	Senior Technician
Fredric Alie (Martinsburg)	Senior Technician
Kole Bozic	Technician II
Adrian Costello	Technician II
Michael McFann	Technician II

FIELD SERVICES	
Tim LeMasters	Field Service Manager
Jay Marsh	Field Service Manager
Diane Thompson	Construction Service Manager
Robert Adams	Senior Technician
Ron Layhew	Senior Technician
Donna McCullough	Senior Technician
Vince Posey	Senior Technician
Kevin Baker	Technician III
Alex Lipscomb	Technician III
Justin Wise	Technician III

WATER	
PRACTICE LEAD- MATT FLUHARTY, VICE PRESIDENT	
Steve Buchanan	Principal
Travis Adams	Senior Project Manager
Jason Pauley	Senior Project Manager
David Watson	Senior Project Manager
Eleni Knight	Project Manager II
Jason Heflin	Project Manager I
Noah Gatten	Assistant Project Manager
Roger Hager	Assistant Project Manager
Nathan Adkins (Charleston)	Assistant Project Manager
Jared Ringer	Assistant Project Manager
Evan Barnette	Field Service Manager
Emory Armstrong	Project Consultant
Adam Newlon	Project Consultant
Rajati Dahal	Staff Consultant
Hunter Friel	Staff Consultant
Bob Brooks	Senior Technician
Scott Carder	Senior Technician
Don Kincell	Senior Technician
Michael Runion	Senior Technician
Brian Moore	Senior Technician
Anthony Bender	Technician III
Dustyn Kessler	Technician II
Jonathan Hopkins	Technician I

SURVEY	
PRACTICE LEAD- MATT BAINBRIDGE, PRINCIPAL	
Eli Gain	Project Manager III
Zachary Hupp (Charleston)	Project Manager II
Alex Shifler (Martinsburg)	Project Manager II
Rick Adams	Project Manager II
Phillip Harper	Assistant Project Manager
Ken Simmons	Assistant Project Manager
Daniel Callaghan (Charleston)	Assistant Project Manager
Jared Stocking	Project Manager I
Dave Yazvac	Senior Land Surveyor
Eli Henthorn	Project Surveyor
Chris Becker (Martinsburg)	Technician IV
Caleb Heise	Technician IV
JD Patterson	Technician IV
Nate Thomas	Technician IV
Austin Thompson	Technician III
Mike Metz	Technician III
Derek Scritchfield	Technician III
Dakota Laughlin	Technician III
Caleb Anderson	Technician III
Camron Sheldon	Technician II
Benjamin Sturtevant	Technician II
Ian Peterson	Technician I
Devon Harris	Technician I
Noah Sandefur (Charleston)	Technician I
David Snodgrass	Technician I

ECOLOGICAL	
PRACTICE LEAD- JACQULYN KESTER, PRINCIPAL	
Alex Cook (Charleston)	Project Manager III
Tim Denicola	Project Manager III
Grant Maltba	Project Manager II
Cosmo Scott	Project Scientist
Josh Johnson	Project Scientist
Tyler Morlachetta	Project Scientist
Brian Carr	Staff Scientist
Lauren Madia	Staff Scientist
Brad Frye	GIS Analyst II

ENVIRONMENTAL	
PRACTICE LEAD- EDDIE CARDER, SENIOR PROJECT MANAGER	
Chad Carmichael (Charleston)	Project Manager I
Brittany Hedrick	Project Manager I
Jeremy Moore	Project Manager I
Timothy Andrew	Assistant Project Manager
Ben Faulkner	Senior Consultant
Logan Burkhammer	Project Scientist
Steve Pyle	Technician II
Jaden Froamming	Technician II
Brock Willis	Technician II
Tyrell Hill	Technician II
Haley Pumphrey	Technician I
Chase Freeman	Technician I
Maverick Gray	Technician I
Westin Heldreth	Technician I
Lucas Savage	Technician I
Noah Rush	Technician I
Trenton Westfall	Technician I
Asa Post	Technician I

2.2 Sub Consultants

Triad Engineering Inc. will assist CEC with their geotechnical investigation by performing subsurface drilling. Since the 1990s, Triad has performed geotechnical drilling and/or geotechnical engineering services on 100s of West Virginia DEP AML&R projects. Triad has maintained open-ended drilling contracts from 2014 to 2017 and 2019 to present. Drilling services include the following:

- Soil Drilling and Sampling using hollow stem augers and split spoon sampling
- Rock coring using NQ coring tools to collect core samples of the underlying bedrock
- Installation of piezometers into mine voids to allow for water level determination and water sampling
- Installation of slope inclinometers and other instrumentation to monitor slope movements.

NAICS CODE: 541330 | SERVICE(S): ENGINEERING SERVICES | CERTIFICATION: Current SBA Small Business Status for 541330

CEC will use **Novel Geo-Environmental, LLC (NGE)** to assist in performing additional geotechnical investigation by performing the subsurface drilling. Since inception in 2003, NGE has performed geotechnical engineering and/or geotechnical drilling services on over 110 West Virginia DEP AML projects. Geotechnical drilling services for AML projects have included the following services:

- Soil drilling and sampling using hollow-stem augers and split-spoon sampling.
- Rock coring using a NQ-wireline system to collect continuous samples of bedrock.
- Installation of piezometers into mine voids to allow for water level determination and water sampling.
- Installation of inclinometers to allow for prolonged monitoring of slope movements.

Minority Business Enterprise Program:
CERTIFICATION: MBE/DBE/SBE
NAICS CODE: 541330
SERVICE(S): ENGINEERING SERVICES
CERTIFICATION: MBE/DBE/SBE
NAICS CODE: 541620
SERVICE(S): ENVIRONMENTAL CONSULTING SERVICES

CEC will also utilize **H&H Resources LLC** to assist in performing the field investigations and construction execution by negotiating right-of-way acquisition from multiple landowners. Since inception in 2015, H&H Resources LLC has negotiated for and been involved in over 500 miles of pipeline and 25 miles of electric transmission line right of way acquisition. H&H Resources LLC would utilize the following services for CEC to complete projects in a timely manner:

- Strong experience managing midstream right-of-way development and acquisition and procuring compressor sites and land purchases.
- Adept at coordinating and streamlining contributions from site development, mapping and GIS, title, document specialists, field agents, right of way technicians, and professionals charged with handling post acquisition matters from project initiation through construction and reclamation.
- Dynamic negotiator who utilizes outstanding negotiation skills with and exceptionally high rate of successful outcomes.

CERTIFICATION: IRWA (International Right of Way Association)

Discharge from Browntown AML Site

3.0 Project Overview

CEC's professional services will consist of providing the WVDEP-DLR-AML with site reconnaissance, Landowner negotiation and easement procurement, site access plans, a geotechnical subsurface investigation, MS4 compliance (if applicable), water quality tests, preparation of designs, plans, and specifications relating to landslide stabilization, site access, impoundment and highwall reclamation, portal sealing, subsidence remediation, erosion and sediment controls, time-sensitive project oversight and clearing and grubbing/site revegetation to be performed within the limits of disturbance. Permitting applications will also be submitted as necessary for the project's successful completion. CEC plans to continue to partner with the WVDEP-DLR-AML team to further develop the programmatic approach to remove hazards from the inventory while balancing coordination with regulatory agencies, landowners and meeting the goal of effective and timely reclamation of abandoned mine lands. The following sections of this letter include our understanding of the project requirements.

3.1 Understanding of Project Requirements

On-site Reconnaissance

CEC will conduct an on-site reconnaissance to characterize the various features requiring resolution. The reconnaissance will include viewing areas where abandoned mine entries may be currently discharging AMD onto the slope. The surrounding terrain around landslides, subsidence areas, spoil piles, waterbodies, and portal openings along with documentation of general site conditions will be characterized. In addition, the site reconnaissance will include a review of existing and previous AML mine seals and conveyance systems, as well as identifying possible site access for equipment. CEC will conduct a desktop review of available landslide mapping and soil maps to identify additional high risk areas near the area prior to the site visit. The findings of this site visit will be incorporated into the layout and design of the remediation plans as well as restoration and management practices.

Topographic and Planimetric Survey.

CEC will perform a topographic and planimetric survey of the project sites. This survey will provide the existing contour mapping of the site at the time of the Small Unmanned Aerial System (sUAS) Flight. This sUAS flight will be supplemented with more traditional survey methods to provide a detailed base map suitable for developing construction drawings.

Ecological Delineation

Wetlands will be identified and delineated in accordance with the routine determination methodology described in the 1987 USACE Wetlands Delineation Manual (USACE Manual), supplemented by the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (USACE Supplement), National Wetland Plant List, and USDA 1991 Hydric Soils of the United States. Streams and other waters, such as ponds, seeps, springs, etc., will be identified by the presence of an ordinary high water mark as defined in 33 CFR Part 328.3(e) and USACE Regulatory Guidance Letter No. 05-05. Streams will be classified as perennial, intermittent, and ephemeral as defined in the 2017 Nationwide Permits. Floodplains will be identified and delineated from Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps and other available state or local floodplain mapping information.

Wetland and waters determination data will be recorded on field data forms and each aquatic resource will be photographed. CEC will mark the boundaries of wetlands and other waters with consecutively numbered surveyor's ribbon and locate the boundaries using aerial/LiDAR topographic mapping and Trimble® Geo-XT or Geo-XH Global Positioning System (GPS) equipment. The mapping and GPS boundary locations will be used to prepare a wetland and waters delineation map.

After completing the identification, field delineation, and classification of wetlands, buffers, other waters, and floodplains within the study area, CEC will prepare a wetland and stream delineation report. The report will include a description of the classification and delineation methods, wetland and waters determination field data forms and photographs, tabulation of the type and quantities of each aquatic resource, and a wetland, waters, and floodplain delineation map showing the location, extent, and classification of each aquatic resource within the Site.

Geotechnical and Water Chemistry Investigation

A subsurface drilling plan is anticipated to be generated and implemented on any project. CEC will coordinate with a drilling subcontractor to perform exploratory borings at appropriate locations suitable to quantify and qualify onsite materials needed for backfilling and grading disturbed areas as well as characterizing mine pool elevations. Test bores will also be drilled to assess for physical and chemical properties of unreclaimed refuse and spoil as applicable.

Water quality samples may be collected from surface waters and field identified groundwater seeps in pertinent features to be reclaimed to quantify contaminant loads in the shallow aquifer. Water quality parameters may include field temperature, pH, specific conductivity, dissolved oxygen, and oxidation-reduction potential. Laboratory parameters may include acidity, alkalinity, total iron aluminum and manganese, dissolved iron aluminum and manganese, calcium, magnesium, and sulfate. Discharge measurements will be collected from GIS and field identified surface waters using a SonTek FlowTracker 2 Acoustic Doppler Velocity Meter. Drainage conveyances to be installed or repaired in the mitigation of dangerous impoundments or chronic AMD discharges in particular may reference the results of the water chemistry testing to facilitate a suitable selection of channel protection or lining material.

The results of the geotechnical and water chemistry investigation will be incorporated into a Water Chemistry and Geotechnical Investigation Report. CEC will submit a report to the WVDEP-DLR-AML summarizing its findings and conclusions. These findings will be incorporated in the design of the proposed drainage and mitigation features.

Acid Mine Drainage Treatment & Remediation

CEC has developed designs to mitigate both the generation of AMD, and to treat the AMD once it has been generated and reached the surface. CEC has developed designs to mitigate AMD generation ranging from systems to control water levels in mines, to the addition of buffering agents to control AMD generation by spoils and refuse. CEC has also designed both passive and active systems to treat AMD. CEC has designed wetland systems to address AMD discharges where the AMD chemistry and flow volumes are appropriate for passive treatment.

CEC has extensive experience developing mine water remediation plans for active permitted coal mines, bond forfeiture sites (BFS), and AML. CEC has designed and implemented active, semi-active, and passive mine water treatment technologies ranging from large-scale, automated facilities to mitigate large volume/poor quality discharges, to water-driven alkaline reagent dosers, to successive alkalinity producing systems (SAPS) which incorporate various passive technologies. Additional approaches have included water level control in mines and extensive land reclamation to mitigate acid generation from poor quality spoils and refuse.

CEC offers full-service mine water remediation including pre-engineering surveying and data collection, engineering design, construction specifications and cost estimate, bid and contract documents, construction oversight, and post- construction monitoring. Services include assessment and recommendations of existing mine water treatment systems and development of operations, maintenance, and replacement plans. CEC is experienced in managing all aspects of regulatory compliance associated with land reclamation and water remediation activities and regularly communicates with regional councils, state environmental agencies, Office of Surface Mining and Reclamation and Enforcement (OSMRE), and the United States Army Corps of Engineers (USACE).

Mine water assessment services include:

- Watershed-scale assessments
- Chemical, biological and hydrologic data collection
- Bench scale chemical laboratory testing
- Hydrologic dye tracer testing
- Geological and subsurface hydrologic investigations
- Surface and groundwater monitoring
- Soils geotechnical and chemical analysis
- Geochemical modeling
- Mine pool geotechnical studies
- Assessments and recommendations

Mine water remediation services include:

- Active, semi-active, and passive treatment systems
- Topographic and planimetric surveying of existing and as-built conditions
- Collection and conveyance of surface, ground, and mine water
- Engineering design (conceptual, preliminary, and final designs)
- Construction specifications, cost estimates, and bid/contract documents

- Regulatory permitting
- Erosion and sediment control planning
- Construction oversight
- Post-construction water quality monitoring
- Sludge management
- Operations, maintenance, and replacement plans
- Existing AMD treatment system improvements
- Metal sludge resource recovery
- Innovative AMD treatment technologies

Mine water passive and semi-active treatment technology experience includes:

- Flushable limestone beds (FLB)
- Vertical flow wetlands (VFW)
- Anoxic limestone drains (ALD)
- Successive alkalinity producing systems (SAPS)
- Aerobic and anaerobic wetlands
- Hydraulically driven tipping bucket and auger driven lime dosing systems
- Limestone leach beds (LLBs)
- Oxic limestone channels (OLC)
- Sulfate reducing bioreactors (SRB)
- Settling ponds with proper flow retention and sludge handling features
- Manganese removal beds
- Gravity induced and water powered aeration and mixing

Geochemical calculations include:

- Metals acidity
- Metals loading
- Metals speciation
- Acidity loading
- Required alkalinity generation rate
- Reagent feed rate (lime, peroxide, flocculant)
- Iron oxidation rate
- Manganese oxidation rate
- Chemical oxygen demand
- Solids precipitation volume
- Required hydraulic retention time
- Best management practice (BMP) sizing
- Required maintenance cycles
- Watershed mass balance calculations
- Watershed hydrologic balance calculations

Semiactive treatment experience includes:

- Auger driven calcium hydroxide dosers
- Tipping bucket calcium hydroxide dosers
- Gravity driven aeration basins
- Post-dosing BMP sizing including settling ponds and polishing wetlands

Active treatment experience includes:

- Mine pool elevation, volume, and water quality assessments via monitoring wells
- Vertical turbine pump specifications for mine pool water extraction
- Pre-aeration basin sizing
- Calcium oxide lime slaker specifications
- Rapid mix tank specifications
- Clarifier sizing and operation
- High density sludge recirculation
- Sludge disposal pump specifications
- Mine pool sludge disposal locations, volumes, and capacities

Clearing and Grubbing

CEC will design and develop a Clearing and Grubbing plan to remove woody vegetation and accumulated trash to prepare the site for construction. Delineated wetlands and waterways will be protected by biodegradable filter sock. Several of the projects are in close proximity to residential structures. Clearing and grubbing and earthwork operations upslope from the residential structure will consider the use of super silt fence between the work and the structures to be protected.

Access Roads

CEC will design year round construction access roads to facilitate access to the project sites. Where construction is anticipated to impact public roadways, a Maintenance of Traffic (MOT) plan will be developed using the standards from the West Virginia Department of Transportation, Division of Highways, Manual on Temporary Traffic Control for Streets and Roadways to enable construction operations while limiting impact to public travel ways and a provide safe interaction between public traffic and construction operations.

Landslide Stabilization

CEC will incorporate the data collected and conclusions established in the geotechnical investigation to develop stabilization design plans and specifications for the landslides on the applicable projects. CEC anticipates earthwork operations can be performed in a manner that will reuse the landslide material to restore natural grade on the stabilization locations. Diversion ditches will be evaluated for use upslope of the stabilization area to intercept and divert upland overland flows and reduce the presence of potentially erosive shallow concentrated flows from freely running over top of the proposed grades. Intermediate subsurface drains installed in conjunction with foundation keys and intermediate benching may be utilized to further reduce the saturation of the stabilized material from groundwater seeps and springs that may be present between the existing ground and stabilized soil. Temporary and permanent stabilization in the form of erosion and sediment controls and planting will be designed and implemented as necessary.

Portal Sealing and Regrading

Several projects have numerous portals that are noted as being open, partially collapsed, or completely collapsed with active AMD seepage. These are to be sealed and/or regraded. CEC will evaluate the condition of the portals to identify an ideal sealing strategy for each. Wet mine seals, modified mine

seals, or bat gate seals will be designed as appropriate to properly close all open entryways and provide hydraulic relief to collapsed portals.

A mine pool dewatering plan will be designed and incorporated as necessary that will treat existing AMD water prior to release into project area streams. The results from the water chemistry investigation will form the basis of this plan.

Earthwork operations will be designed to provide positive drainage throughout the project areas and utilize excavated materials to backfill the mine seal installations and subsidence features, thereby reducing falling hazards and mine entry points while reestablishing stream flows in channels and/or existing or proposed drainage facilities.

Highwall Reclamation

CEC will complete the layout of the reclamation of the disturbed areas and establish the proposed final elevations and grades for the site. CEC will finalize the site plan for the proposed development in accordance with the WVDEP-DLR-AML requirements. Onsite soil refuse that is to be disposed of will be placed in compacted lifts per geotechnical recommendations. CEC will prepare the final site grading plan to include two-foot contours to represent proposed site grading and spot elevations within the proposed disturbance.

CEC intends to provide a project site with balanced earthwork and will prepare earthwork volumes accounting for topsoil stripping and shrink/swell adjustments. Soil blending will be investigated and incorporated into the design to reuse as much onsite material as can be reasonably feasible. Onsite mine refuse will be placed against the toe of the highwall and buried beneath the subsequent compacted fill layers during the highwall reclamation process to form a cap around the entirety of the refuse. Earthwork operations will be designed to provide positive drainage throughout the project areas and utilize excavated materials to raise the gradient in front of the highwalls to provide a gradual slope along the project limits, reducing falling hazards.

Subsidence/Deep Mine Investigations

CEC intends to provide effective investigative methods to establish solutions for mine voids and subsidence. CEC has experience overseeing the following methods utilizing the experience of the mining and geotechnical professionals.

- Cross-Hole Seismic Imaging (THG)
- Down Hole Sonar Scanning (WSP)
- **Data Assessment, Subsidence Risk and Reporting**

Grouting Design and Implementation

- **Grouting Material Selection:** Choose grout materials (e.g., cementitious, polyurethane) based on site geology and stabilization needs.
- **Grouting Zones and Injection Planning:** Define grouting zones, establish injection points, and calculate volumes to achieve full void filling and stabilization.
- **Grouting Techniques:** Tailor grouting methods, such as permeation or compaction grouting, to address subsurface conditions effectively and mitigate potential subsidence.

Monitoring and Quality Assurance

- **Grouting Process Monitoring:** Establish a monitoring plan during grouting operations to ensure the injection process meets design specifications and achieves intended stabilization.
- **Post-Grouting Verification:** Conduct surveys after grouting to confirm grout distribution and stability improvements.

Mine Spoil Refuse and Gob Pile Reclamation

CEC will evaluate the site to identify suitable locations to spread and dispose of mine spoil refuse and gob material. Topsoil will be stockpiled to set aside valuable organic material for later use. In order to provide a soil cap over the refuse of suitable thickness, onsite borrow areas may need to be used. Subsurface investigation will be completed as needed to identify suitable borrow locations within the project area. The borrow material will be reused as a cap over the mine spoil refuse and will be topped with the stockpiled topsoil to better facilitate revegetation. The final grade will be blended into the existing topography and graded to drain in a manner that reconnects stream flows and moves overland and subsurface flows offsite.

Repair or Replacement of Existing Drainage Systems

CEC understands that existing impoundments, faulty drainage systems, or lack of drainage systems may be the cause of the current drainage issues. Furthermore, existing AML mine seals and conveyance systems may be failing. As such, CEC will review the existing drainage systems and features onsite system and propose either maintenance, repair, replacement, or new systems be installed if conditions warrant.

Hydraulic and Hydrological Assessment, Stormwater Management, and Conveyance Structures

The purpose of this task is to prepare a stormwater management plan for collection, conveyance, and detention measures as required for post development conditions in accordance with the requirements of WVDEP-DLR-AML.

- CEC will perform a preliminary pre- and post-development hydrologic and hydraulic analysis to determine stormwater management requirements for post-development conditions as required.
- CEC will perform detailed engineering analysis and design for stormwater collection, conveyance, and detention systems required for the sites. CEC will prepare design drawings and specifications for the stormwater drainage system design to include plan view layout, cross sections (as needed) and construction details in accordance with WVDEP-DLR-AML standards.

CEC will design open channel flow limestone ditches to capture

surface runoff and ground water and direct the flow around or through the Project site. Care will be taken to divert uphill/offsite runoff around proposed grades. Designed ditches will have engineered linings to provide stability and resist tractive stream forces. Limestone may be specified for riprap lined ditches to add alkalinity to captured waters. Pipes will be designed to transport captured ditch flows where necessary. Horizontal borings will be considered as a means of relieving hydraulic pressure conveying flows through to receiving ditches. CEC will design subsurface drains (where necessary) to safely convey ground water into constructed ditches or directly into receiving streams.

CEC is experienced in hydraulic and hydrologic analysis, dynamic two (2) dimensional flow modelling, culvert and bridge design, and preparation of hydraulic reports necessary to support the findings. Natural Channel Design (NCD) techniques will be considered where appropriate as an alternative to conveyance ditches. NCD will also be considered where needed to help restore natural order to clogged and impacted streams.

Where proposed open channel ditches traverse through subsidence zones or other areas where stream water loss is evident, CEC will propose the use of grouted riprap or geosynthetic clay liners to span these locations and reduce flow loss to deep underlying mines.

Realty Negotiation and Acquisition

CEC will subcontract H&H Resources, LLC (H&H Resources) to perform realty negation and acquisition. H&H Resources has strong experience in managing right of way acquisition projects with recent clients such as Antero Midstream, Competitive Power Ventures and First Energy Corporation. With this relevant experience, H&H Resources will be able to match the needs of the client with the roles of the mapping department, title determination, documents specialists, managers, and other professionals handling projects in the post-acquisition phase of CEC. By facilitating the lines of communication and reporting between CEC and the WVDEP, progression of projects will be efficient and as seamless as possible. H&H Resources has an established organizational process for developing and maintaining records, reports and other mechanisms for tracking the progress toward meeting the client's objectives and goals. CEC, the WVDEP, and H&H Resources will work together towards meeting with landowners, evaluating and approving negotiations, developing contracts, and more.

Revegetation of Disturbed Areas

CEC will develop temporary and permanent revegetation plans for disturbed areas. Revegetation plans will utilize either mining reclamation standard revegetation specifications or a more diverse native non-invasive planting scenario including grass seed mixes, woody and herbaceous shrubs, and hardwood trees.

Permitting Submittals

CEC experts will prepare and submit the following necessary permits as applicable and as determined at the pre-design meeting:

- West Virginia Department of Environmental Protection Division of Water and Waste Management (WVDEP-DWWM) National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit
- United States Army Corps of Engineers (USACE) Regional General Permit for Abandoned Mine Lands (Section 404 and 401)
- West Virginia Department of Highways (WVDOH) MM-109 Encroachment Permit

Additional permits and coordination efforts may become necessary as investigation into each of the project locations progresses. Those permits may include, but not be limited to:

- USACE Jurisdictional Determination and coordination for Waters of the U.S.
- WVDEP-DWWM State Waters Permit
- West Virginia Division of Natural Resources (WVDNR), Office of Land and Streams Stream Activity Application
- WVDNR Fish Spawning Waiver
- County Floodplain Permit
- Various Agency Technical Assistance Letters

CEC will notify the WVDEP-DLR-AML in the event that any additional permits become necessary and collaborate towards a solution.

Three-Dimensional (3D) Stream Design

To improve efficiency and precision of stream restoration designs, CEC developed custom tools (for high-gradient and low-gradient streams) for use within AutoCAD® Civil 3D® Corridors to handle the complex transitions of stream geometry. CEC's 3D stream designs contain facet slopes of natural rivers, which can be adjusted to maintain channel stability or to provide favorable slopes for spawning habitat. Utilizing Corridors for stream modeling inherently and dynamically links the three components of a stream (pattern, profile, and dimension), allowing a designer to make iterative changes with instantaneous and accurate 3D updates. CEC's process provides optimization and balancing of earthwork volumes, accurate grading plans and quantities, precision construction grades, and cost savings during design and construction. Additionally, CEC's customized tools and processes allow for accurate, early-stage design decisions.

CEC's 3D designs are provided to contractors for use on GPS-guided construction equipment or to use for their own conventional construction layout. Additionally, CEC's

construction inspectors use these files to provide quality assurance on client projects. In the instance that satellite signal is poor, CEC will use a Robotic Total Station to provide the same service with the 3D layout files.

3D Stream Surveying

CEC employs the latest 3D laser-scanning technology for topographic surveying to create detailed geomorphic surveys and stream restoration as-builts. The laser-scanning equipment increases efficiency while capturing high-resolution data. The technology enables the rapid capture of detailed bank profiles for quick and accurate BEHI calculations, precise topographic surveys, vegetation identification, detailed cross-sections, exact locations and size of in-stream structures, and much more. The stream survey is then augmented with underwater survey shots to create a seamless surface for topographic and geomorphic surveys.

National Environmental Policy Act (NEPA)

CEC would commence the ecological services component of the project by performing desktop reviews of the following resources, at a minimum:

- Available aerial imagery and topographic maps to assess areas that may have a higher probability of containing streams and/or wetlands
- United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation website to generate a list of federally protected species that may be within range of the project
- State Historic Preservation Office's (SHPO) interactive website to review known cemetery locations, archaeological sites, or architectural resources that may be present onsite or within the viewshed of the project
- Review of local, state, or national parks including refuge lands and wildlife management areas
- West Virginia's National Wild and Scenic Rivers Systems website
- Federal Emergency Management Agency (FEMA) mapped flood hazard areas
- West Virginia Department of Environmental Protection's (WVDEP) Technical Applications and Geographic Information System (TAGIS) for public water supplies, aquifers, or principal drinking water areas; and,
- United States Department of Agriculture's (USDA) web soil survey to assess mapped soils and prime farmlands

These desktop reviews would assist CEC in determining required field surveys and to aid in a targeted field approach. CEC would perform a wetland and stream delineation based on the footprint of the preliminary design to assess the project areas for onsite aquatic resources. Based on the results of the aforementioned desktop reviews, CEC could also conduct bat habitat assessments, bat hibernacula surveys, and pedestrian review for potential cultural resources concurrent with the delineations, thus reducing mobilizations. During the onsite reconnaissance, CEC would also collect information regarding existing site conditions and land-use. The information collected during the desktop analysis and field review would later be utilized as part of the early consultation process with resource agencies during scoping.

Once the results of the field survey(s) have been completed, the data would be post-processed and reviewed in accordance with CEC's Quality Control Manual. Following the review, the data would be supplied to engineering for incorporation into a final plan set, that would avoid and/or minimize impacts to onsite identified resources, to the extent feasible.

Once the final design is complete, CEC would analyze the project for its potential to impact identified resources and would solicit comments from state and federal resource agencies. Per previous coordination with WVDEP-DLR-AML, CEC will not contact USFWS unless specifically directed by WVDEP-DLR-AML. CEC would prepare, at a minimum, letter requests to the following agencies to solicit comments on the proposed action:

- WVDNR for a review of state and federal protected species and habitats (using the WVDEP-DLR-AML approved template).
- SHPO for a cultural resources review.
- County Floodplain Manager to ensure the project is compliant with Executive Order 11988.

CEC would review the comment letters received from the various agencies to determine if the proposed action would be within the constraints of a Categorical Exclusion (CE), or if additional level of reviews [Environmental Assessment (EA) or Environmental Impact Statement (EIS)] would be required. If it is determined that the project would not have significant effects on the quality of the human environment (individually or cumulatively), CEC would complete the Categorical Exclusion Determination Form and provide the necessary supporting documents (figures) and attachments (agency consultation letters and responses) to support the determination.

If the proposed action would have the potential for measurable impacts on the environment, CEC would prepare an EA or EIS consistent with the structural layout provided in the OSMRE's 2019 *Handbook on Procedures for Implementing the National Environmental Policy Act*. The format would generally include:

- Title page.
- Table of contents.
- **Purpose and Need for the Proposal:** CEC would include a succinct description of the proposed project, a brief statement of what the proposal is and why the action is

being considered, and the need for the action. The purpose and need statement would be carefully crafted as to control the scope of the analysis yet without narrowing it so much as to preclude reasonable alternatives.

- **Proposed Action and Appropriate Alternatives:** CEC would include a description of the No-Action Alternative, Proposed Action, Reasonable Alternatives, and any Alternatives Considered but Eliminated.
- **Affected Environment:** This section is not necessarily required but a discussion can be useful in analyzing the context and intensity of the impacts.
- **Environmental Impacts:** This section of the analysis would include a discussion of short- and long-term impacts, direct and indirect impacts, and cumulative impacts. This chapter would also include discussions on the resources referenced in the aforementioned desktop review section.
- **Consultation and Coordination:** This section would contain a list of parties that were consulted, including a record of compliance with other applicable statutes and regulations including the clean water act.
- References Cited.

Through recent and ongoing coordination with AML on similar projects, CEC understands the WVDEP-DLR-AML standard operating procedures, including language used to discuss current laws and executive orders for NEPA documents submitted to OSMRE.

The level of public involvement would vary with the differing types of NEPA compliance. CEC does not anticipate the need for development of an EIS and though formal scoping does not necessarily apply to CEs or EAs, CEC would work with OSMRE to provide necessary information to support a public notice regarding the preparation of environmental documents. In conjunction with OSMRE, CEC would identify agencies/ stakeholders known to be interested or affected by the proposed action and work to develop schedules for soliciting comments. If it is determined the proposed action would have significant impacts requiring an EIS, CEC could also work with OSMRE to develop an appropriate public involvement plan and strategies.

Infrastructure Investment Jobs Act (IIJA) Compliance

CEC understands that the NEPA documents would need to maintain compliance with the Bipartisan Infrastructure Law (BIL), also known at the Infrastructure Investment and Jobs Act (IIJA). As such, we have familiarized ourselves with the *Draft Guidance on the Bipartisan Infrastructure Law Abandoned Mine Land Grant Implementation* document as well as attended the June 9, 2022 OSMRE's Virtual Public Briefing on the BIL. CEC would ensure that the NEPA documents have a focus on projects positively affecting disadvantaged communities, and proposed actions promoting the revitalization of coal communities, consistent with Executive Order 14008 (Justice40) and the BIL. CEC further understands that one of the priorities of the BIL AML grants are to demonstrate a reduction in methane gas emissions. For those projects that are suspected of methane liberation, CEC can work with OSMRE utilizing a combination of our optical gas imaging (OGI) and/or portable gas-detectors to measure the type or amount of gas potentially being released from a site. CEC would utilize the information obtained for discussion in the environmental impacts section of the EA or EIS.

CEC has experience with methane gas detection and monitoring techniques and has staff who are certified thermographers. An OGI sensor can be used to detect the presence of hydrocarbon emissions in a targeted area. Once the source of the emission is identified, a portable gas-detector can be used to reliably quantify the rate of methane emission. CEC has utilized these techniques on pipeline projects to identify leakage along long corridors much more efficiently and safely than hands-on inspection and detection.

Construction Phase Services

CEC's commitment to project success extends well beyond

engineering and design. We remain engaged through construction, providing hands-on support to ensure our clients' projects are implemented effectively, efficiently, and with the highest quality standards.

Our experienced professionals, technicians, and inspectors—supported by specialized field equipment—deliver full construction-phase services for a wide range of restoration projects. These services include:

- Development of construction specifications and bid packages
- Fish and wildlife protection and relocation
- Construction stakeout
- Preparation of as-built drawings and certification reports
- Confirmation sampling
- Construction management
- Construction quality assurance and observation
- Construction Management

CEC assists clients throughout the entire construction process, from bidding through close-out. Our services include preparing bid documents, soliciting and evaluating bids, negotiating contracts, and managing construction activities to ensure compliance with specifications, budgets, and schedules. During construction, we monitor costs, review change orders, and coordinate closely with contractors to keep work on track. At project completion, we manage site restoration, final project requirements, and close-out activities.

Design-Build Services

As an engineer-led design-build provider, CEC assumes responsibility for both design and construction. This delivery method offers our clients a single point of contact and accountability, fostering collaboration between engineers and contractors. The result is a streamlined process that reduces disputes, minimizes change orders, and can shorten project schedules—providing a more cost-effective solution than traditional design-bid-build methods.

Experience and Expertise

CEC has successfully monitored and managed construction for a wide range of stream and wetland restoration projects, including large-scale earthmoving. Our role has included verifying borrow and fill material sources, ensuring placement and stabilization meet specifications, and overseeing repairs of subsidence and flow loss in areas overlying deep mines.

Our staff is also trained in natural channel design techniques and certified through pre-qualification programs that meet construction plan and bid document requirements. This ensures that we can effectively implement in-stream hydraulic and habitat structures in both design-build and design-bid-build settings.

Construction Quality Assurance / Quality Control (QA/QC)

CEC provides full-time construction inspectors to observe, document, and verify construction activities. Our inspectors monitor key activities such as drainage conveyance installation, reclamation of mine spoil and coal refuse, and highwall reclamation. Daily communication is maintained with the DEP AML and the CEC project manager, supported by detailed field reports, activity logs, and photographic documentation.

Importantly, our inspectors have the authority to stop work for safety reasons or when activities deviate from approved designs. Throughout construction, CEC's engineering experts remain available to provide technical support and oversight, ensuring quality results and client confidence.

Performance Monitoring

Permit-required monitoring is the last phase of a restoration project, and CEC has a proven track record of completing this phase on time and on budget. Our monitoring experience ranges from preparation of the monitoring plan through 20 years of monitoring surveys. The as-built survey and record drawings are prepared to complement the monitoring requirements. Geomorphologists survey the permanent cross-section and profiles for stability and function, and botanists survey vegetation transects and plots for survival of planted species. Aquatic macroinvertebrates and invertebrates are collected by our aquatic ecologists to show increase in biomass and diversity of aquatic species populations and aquatic life use attainment. The reports are published to comply with state and federal requirements and are completed to observe with the permitting schedule.

4.0 References

We encourage WVDEP to contact the following client contacts to discuss our previous performance on similar projects.

Mr. Lee Kaplan, PG, MPH
Posillico, Inc.
Project Executive
I750 New Highway
Farmingdale, NY 11735
Phone:917-868-5472
Email: lkaplan@posillicoinc.com

Ms. Deborah Demyan
WVDNR Project Engineer
Planning, Engineering and Maintenance Section
324 4th Avenue
South Charleston, WV 25303
Phone: 304-550-4892
Email: Debbie.D.Demyan@wv.gov

Mr. Tim Miller
Maryland Department of the Environment
Regulatory & Compliance Engineer Senior -
Abandoned Mine Land Division
160 South Water Street
Frostburg, MD 21532
Phone: 304-689-1465
Email: tim.miller@maryland.gov

Mr. Arik Way
Howard Concrete Pumping
Project Manager
2327 Hill Church Houston Road
Cannonsburg, PA 15317
Phone: 412-257-1800
Email: away@howardconcretepumping.com

Mr. Ben Sampson
Lyons Run Watershed Association
President
Phone: 412-347-1060
Email: bsampson@sampsonmorrisgroup.com

A. AML Consultant Qualification Questionnaire

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT QUALIFICATION QUESTIONNAIRE

Attachment "B"

PROJECT NAME	DATE (DAY, MONTH, YEAR)	FEIN
Pre-Qualification for Consultants	August 20, 2023	25-1599565

1. FIRM NAME	2. HOME OFFICE BUSINESS ADDRESS	3. FORMER FIRM NAME
Civil & Environmental Consultants, Inc.	700 Cherrington Parkway Moon Township, PA 15108	N/A

4. HOME OFFICE TELEPHONE	5. ESTABLISHED (YEAR)	6. TYPE OWNERSHIP	6a. WV REGISTERED DBE Disadvantaged Business Enterprise)
412.429.2324	1989	☐ Individual ☒ Corporation ☐ Partnership ☐ Joint-Venture	☐ Yes ☒ No

7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE
Bridgeport Office | 120 Genesis Boulevard, Bridgeport, WV 26330 | 304.933.3119 | Joseph D. Robinson, PE | 23

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM	8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
Dustin Kuhlman | PE | CEO Harry Dravecky | PE | COO	Steven Cain | PE | Vice President & Office Lead

9. PERSONNEL BY DISCIPLINE

153	ADMINISTRATIVE	118	ECOLOGISTS	15	LANDSCAPE ARCHITECTS	17	STRUCTURAL ENGINEERS
3	ARCHITECTS		ECONOMISTS	17	MECHANICAL ENGINEERS	177	SURVEYORS
7	BIOLOGIST	16	ELECTRICAL ENGINEERS		MINING ENGINEERS	13	TRANSPORTATION ENGINEERS
77	CADD OPERATORS	229	ENVIRONMENTALISTS	10	PHOTOGRAMMETRISTS	283	OTHER
6	CHEMICAL ENGINEERS		ESTIMATORS		PLANNERS: URBAN/REGIONAL		
373	CIVIL ENGINEERS	27	GEOLOGISTS	1	SANITARY ENGINEERS		
51	CONSTRUCTION INSPECTORS		HISTORIANS	2	SOILS ENGINEERS		
	DESIGNERS		HYDROLOGISTS		SPECIFICATION WRITER	**1595**	**TOTAL PERSONNEL**

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 15 WV Professional Engineers in Bridgeport (63 companywide)

*RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.

10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? ☐ Yes ☐ No

11. OUTSIDE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "AML Consultant Qualification Questionnaire".

NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE
TRIAD Engineering, Inc. 10541 Teays Valley Road, Scott Depot, WV 25560	geotechnical investigation services including drilling investigation and technical reporting of findings	☒ Yes ☐ No
NAME AND ADDRESS: H&H Resources 1536 Rock Run Road West Union, WV 26454	SPECIALTY: Realty negotiation and acquisition as well as supporting services such as title research and documentation	WORKED WITH BEFORE ☒ Yes ☐No
NAME AND ADDRESS: Novel Geo-Environmental, LLC 650 MacCorkle Avenue West St. Albans, WV 25177	SPECIALTY: geotechnical investigation services including drilling investigation and technical reporting of findings	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No

12. Experience

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

YES Description and Number of Projects: CEC personnel have 90 years of direct Abandoned Mine Lands Remediation/Mine Reclamation Engineering experience. In 2018, CEC was awarded the Excellence in Construction Award for the Shinns Run Portals Reclamation Design Project by the Associated Builders and Contractors, Inc. CEC personnel have also designed the Ohio Abandoned Mine Lands Project – Flint Run Acid Mine Drainage that received a national award. The list below is some of the project that CEC personnel have designed in the past.

1. Stollings (White) Portals, three mine seals, sediment and erosion control
2. Norton Highwall #1 reclamation design to eliminate 8,900 LF of highwall with 11,145 LF of drainage ditches
3. Virginia DMME AMD Passive Treatment System (non-BFS) – sulfate reducing bioreactor, settling pond, aerobic wetlands
4. Tub Run Highwall and Refuse Phase II, reclamation design to eliminate 12,500 LF of highwall with 11,400 LF of drainage ditch design and roadway design
5. Tub Run Highwall and Refuse Phase I, reclamation design to eliminate 10,000 LF of highwall with 9,900 LF of drainage ditch design with a large box culvert
6. Greenbrier Hollow Refuse, reclamation design removal of cast over the hill coal refuse pile, 2 mine seals and 1,015 LF of drainage ditch design.
7. Island AMD Passive Treatment System (non-BFS) – iron oxidation, acid neutralization, metal precipitation/ collection, hydrologic conveyances
8. Sauls Run Strip and Landslide "Emergency AML Project" This project was completed from start to finish in (4) weeks including field survey, design, subsurface investigation plan, design and removal of three slips behind house on Sauls Run.
9. North Taylor AMD Passive Treatment System (non-BFS) – acid neutralization, mixing basin, aerobic wetlands, hydrologic conveyances, revegetation

CEC personnel have successfully completed 20+ acid mine drainage evaluation and abatement design

projects.

NO

B. Is your firm experienced in Soil Analysis?

YES Description and Number of Projects: CEC has routinely completed soil analysis and acid base accounting for mining impacted properties including the West Virginia Department of Environmental Protection Office of Abandoned Mine Lands. On all of our past AML reclamation design projects, CEC performed soil analysis or had the analysis performed by subconsultants. CEC has routinely completed soil analysis on AML for stream restoration focusing on ABA, Pyritic Sulfur, and Nutrient Content. CEC has also performed soil analysis for the Oil & Gas Industry focusing on VOCs, PAHs, Phthalate Esters, Petroleum Compounds, Metals, Anion, and Radionuclides. CEC has completed soil analysis on approximately 50 projects.

NO

C. Is your firm experienced in hydrology and hydraulics?

YES Description and Number of Projects: CEC personnel have successfully completed numerous hydrology and hydraulics projects associated with bridges, box culverts, piping, ditchwork, and sediment ponds. CEC personnel have completed 60 AML related hydrology and hydraulics projects. Swastik Bhandari from the Bridgeport CEC office has Master's Degree in Water Resources (hydrology and hydraulics, proficient with Flowmaster- Storm Drainage Design – Storm Drainage Modeling – Stormwater BMP Research and Design – Surface Water Hydraulics/Hydrology – HydroCad v8.0, have been published numerous times and a licensed Professional Engineering. CEC has local industry experts as noted above in hydrology and hydraulics.

1. Shinns Run Portals (WVDEP) – field surveying, subsurface investigations of impounded mine pools, records review, HEC-RAS hydrologic evaluation, streambed seals, ditchwork, piping, subsurface drains, stream bank protection, roadbed protection, soil testing, preliminary and final designs / construction plans, dewatering operation, mine drainage treatment, opinion of cost, bid schedule, calculation brief, meeting attendance
2. Pageton (Lambert) Portals (WVDEP) – Reclamation design of coal refuse pile with 51,000 cubic yards of excavation, 24 wet mine seals, 13,700 L.F. sediment control, 1,600 L.F. ditchwork, piping, streambank protection, 24 acres revegetation, topographic surveying, construction mapping, soil testing, hydraulic studies and design, preliminary and final design, construction plans and specifications, engineers cost estimate, bid schedule, calculations brief, onsite preliminary design/pre-bid/pre-construction meetings, reporting and invoicing
3. Birds Creek Number 4 (WVDEP) – Reclamation design of coal refuse pile with 35,000 cubic yards of excavation, 8 wet mine seals, 5 bat gate designs, 18 acres revegetation, topographic surveying, construction mapping, soil testing, hydraulic studies and design, preliminary and final design, construction plans and specifications, engineers cost estimate, bid schedule, calculations brief, onsite preliminary design/pre-bid/pre-construction meetings, reporting and invoicing.

NO

D. Does your firm produce its own Aerial Photography and Develop Contour Mapping?

YES Description and Number of Projects: CEC routinely collects LiDAR topographic data and aerial imagery with more than 250 projects successfully delivered for various state, federal and private clients. Typical resolution of contour mapping is suitable to produce 1ft contours. Also CEC personnel managed the North and South mapping contract for several years for the West Virginia Department of Environmental Protection, Division of Land Restoration, Office of Abandoned Mine Lands. The contract consisted of a 3 year assignment with the WVDEP and involved surveying and mapping services to be used for the design and construction of Abandoned mine lands projects located throughout the northern counties of West Virginia.

NO

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

YES Description and Number of Projects: CEC's Bridgeport office has a water resources group which has 10 staff members and has over 100 years of experience with domestic waterline design and construction. This group has also performed design and construction of several AML waterline projects including Terra Alta, Masontown, Tunnelton and 2 projects in Lewis County. CEC completes extensive water transfer projects for the oil & gas industry and municipal water supplies on approximately 50 projects. CEC personnel have also worked on over 8 waterline feasibility studies with the West Virginia Department of Environmental Protection office of Abandoned Mine Lands.

CEC staff members have extensive experience in the evaluation of aquifer degradation as a result of mining to determine if abandoned mine lands impact to groundwater and surface water. In the Town of Newburg, WV CEC looked at impact for 96 homes. Correspondence from the Newburg PSD indicated past mining operations may contribute to their water quantity and quality problems. The Project involved a Preliminary Investigation to determine the impact pre-law mining had on the water resources within the study area. The investigation included project mapping, public and private record search and surface, ground water sampling along with resident interviews, geologic and hydraulic investigations and review and identification of historic mining operations in or near the project area. Mining has impacted potable water supplies and a further determination was made if the mining occurred before or after the Surface Mining and Reclamation Control Act of August 3, 1977 (pre-law mining). Pre-law impacts qualify for assistance from the Abandoned Mine Lands program. The investigation concluded all seven (7) resident's water supplies have been impacted by abandoned pre-law deep mines and qualify for AML funding. Alternatives investigated for mediation included No Action, Individual Well and Water Treatment Systems, and extension of the Norton Harding Jimtown PSD distribution system to the affected 7 residents at an estimated cost of $378,000.

Another project involved extending approximately 15 miles of waterline to serve 103 residents whose water supply had been diminished or contaminated. The project involved a preliminary investigation to determine the impact pre-law mining had on the water resources within the study area. This study included surface and ground water sampling and reporting; public and private record search to determine if residents potable water supply have been impacted by mining; and secondly, if the mining that impacted potable water supplies occurred prior to the Surface Mining and Reclamation Control Act of August 3, 1977. Pre-law impacts qualify for assistance from the Abandoned Mine Lands (AML) Program. The preliminary investigation included a complete hydrologic and geologic investigation of the study area and development of supporting documents and maps to apply for the AML&R Grant for the waterline extension. The study determined that residents water supplies have not been impacted by abandoned mine lands.

NO

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

YES Description and Number of Projects: CEC routinely assesses AMD and designs passive and active treatment management practices for treatment of acid mine drainage. CEC has completed approximately 20 AMD remediation projects. CEC employs mining geochemists with nearly 30 AMD remediation projects in prior and current employment.

Benjamin Faulkner, LRS has 44 years of experience working in West Virginia on Acid Mine Drainage projects and is on the Acid Mine Drainage Task Force. Timothy Denicola, PG CFM has 7 years of experience with acid mine drainage projects.

NO

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

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Faulkner, Benjamin B. Bridgeport, WV Office	44	46	2

Brief Explanation of Responsibilities
Mr. Faulkner provide technical expertise and oversight with regard to all aspects of the project. His start to end project delivery experience and history of research in environmental matters will aid the project team to deliver a successful project tailored to the needs of the WV DEP.

EDUCATION (Degree, Year, Specialization)
Graduate Certificate, 1986, Environmental Studies, WV College of Graduate Studies
B.S., 1979, Biology, Concord University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
-Society of Environmental Toxicology and Chemistry -West Virginia Mine Drainage Task Force -Society for Freshwater Science -West Virginia Coal Association, Inc. -International Mine Water Association -American Society of Mining and Reclamation -Society for Mining, Metallurgy, and Exploration, Inc. -Air & Waste Management Association -American Society of Reclamation Sciences	Licensed Remediation Specialist, West Virginia Approved Person - Surface Mine/Quarry Permit Applications, West Virginia Department of Environmental Protection Mines and Minerals

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE: N/A	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Cain, Steve, A. Bridgeport, WV Office		32	27 Domestic 0 AML

Brief Explanation of Responsibilities
Mr. Cain will be the Principal in Charge for these projects. Of his 30 years of experience, 24 have been spent working on water and wastewater projects with the West Virginia Department of Environmental Protection, WDTRF and SRF utility design and construction programs. Mr. Cain has performed preliminary design and facilities planning, surveying and mapping, design plan preparation, construction monitoring and post design/construction projects. Mr. Cain also has been the principal in charge and civil practice lead for several large civil engineering and construction projects. Over the past year Mr. Cain has served as the office lead and COA for all engineering projects in WV.

EDUCATION (Degree, Year, Specialization)
B.S., Engineering Technology - (Civil Emphasis), Fairmont State University, 1992

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Fairmont State University Technology Advisory Board West Virginia Rural Water Association American Society of Highway Engineers	Professional Engineer, WV, MD, PA SafeLand USA - Basic Orientation, PEC Safety 10-hour Construction Safety, Occupational Safety & Health Administration

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Robinson, Joseph, D. Bridgeport, WV Office	3	21	5

Brief Explanation of Responsibilities

Mr. Robinson will be the overall CEC/AML program manager acting as a main point of contact and coordinating the managers and professional staff for the planned projects. Mr. Robinson has nineteen years of diverse experience in civil, geotechnical, water resources, structural engineering, Oil & Gas site & pipeline design and residential/commercial site design. Mr. Robinson has designed various projects including site layouts, grading plans, sanitary sewer, storm water management, impoundments, roads, sediment control measures, segmental retaining walls, flood plain analyses and concrete design projects. Mr. Robinson has currently been responsible for the Bridgeport civil practice, construction management of WVDNR and Oil & Gas Sites, design lead on AMLER funded developments, actively managing the AML Contract 8 and Special Inspector of Record for the Texas border wall projects.

EDUCATION (Degree, Year, Specialization)

B.S., Civil Engineering, West Virginia University, 2004

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Concrete Institute American Society of Civil Engineers National Council of Examiners for Engineers and Surveyors Ohio Oil & Gas Association West Virginia Oil and Natural Gas Association	Professional Engineer, WV, OH, PA, MD, VA, TX

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Hicks, Jane Bridgeport, WV Office	30	30	0

Brief Explanation of Responsibilities

Ms. Hicks is a Principal with CEC’s Bridgeport Office and will be responsible for geotechnical aspects as well as monitoring project progress.

EDUCATION (Degree, Year, Specialization)

M.A., Education, West Virginia University

B.S., Mining Engineering, West Virginia University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Denicola, Timothy A. Bridgeport, WV Office	11	11	0

Brief Explanation of Responsibilities
Mr. Denicola will conduct water quality and soil chemical sampling along with provide any AMD remediation design that may be required.

EDUCATION (Degree, Year, Specialization)
M.S., 2013, Geology, West Virginia University
B.S., 2006, Chemistry, Clarion University of Pennsylvania

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Member of several northern WV non-profit watershed associations	Erosion and Sediment Control Responsible Personnel (Green Card), 2015, Maryland, No. RPC004062 State Highway Administration Erosion and Sediment Control (Yellow Card), 2015, Maryland, No. 15-477 Association of State Floodplain Managers (ASFPM) Certified Floodplain Manager (CFM), No. US-18-10271

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Fluharty, Matthew W. Bridgeport, WV Office	21	27	27

Brief Explanation of Responsibilities
Mr. Fluharty will be in charge of any domestic waterline design that may accompany the projects associated with this solicitation.

EDUCATION (Degree, Year, Specialization)
B.S., 2000, Civil Engineering, West Virginia University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Water Works Association American Society of Civil Engineers	Professional Engineer, West Virginia Professional Engineer, Pennsylvania Professional Engineer, Maryland Professional Engineer, Ohio

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Adams, Travis W. Bridgeport, WV Office	22	25	25

Brief Explanation of Responsibilities
Mr. Adams will be a part of any domestic waterline design that may accompany the projects associated with this solicitation.

EDUCATION (Degree, Year, Specialization)
B.S., 1998, Environmental Science (Emphasis on Water Quality), West Virginia University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES	
1.	AutoCAD Civil 3D
2.	ESRI ArcGIS
3.	Topcon, Nikon, and Trimble Robotic Total Stations
4.	Topcon, Trimble RTK-GPS
5.	Leica Terrestrial LIDAR 3D Scanner
6.	Velodyne Mobile LIDAR (ground and aerial based)
7.	DJI small unmanned aircraft system (sUAS)
8.	Topcon, Nikon automatic levels
9.	Trimble GeoExplorer 6000 Series
10.	YSI ProPlus Multi-parameter Probe
11.	Marsh McBirney Flow Meter
12.	Hanna HI 98703 Turbidity Meter
13.	Hanna HI 99121 Direct Soil pH Meter
14.	Submersible and Peristaltic Pumps
15.	Mini RAE 3000 Portable Handheld VOC Monitor
16.	Corel 98 Suite
17.	Microsoft Office Suite
18.	North American Green Erosion Control Blanket Software
19.	KY Pipe Water and Sewer Line Software
20.	Bentley MicroStation with InRoads

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

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Francis Drainage Maintenance Harrison County, West Virginia	West Virginia Department of Environmental Protection - Abandoned Mine Lands, 101 Cambridge Place Bridgeport, WV 26330	Surveying, Geotechnical and Subsurface Investigation, AMD Evaluation and Passive Treatment Design, Drainage and Stormwater Design, and earthwork	$4,700,000	95%
Border Wall RGV 08 and RGV 09 Design Build – Civil, Structural, H&H, Electrical Rio Grande Valley, Texas	United States Army Corps of Engineers, 819 Taylor St, Fort Worth, TX 76102	Border wall structural design and layout, new road design, site grading, stormwater systems, surveying/mapping, construction stakeout and inspection	$541,000,000	Design: 100% Construction: 20%
Sand Spring Run - Stream Sealing and Restoration Frostburg, Maryland	Maryland Department of the Environment - Abandoned Mine Land Division 160 South Water St, Frostburg, Maryland 21532	Stream restoration design and Geosynthetic liner design and sealing, sanitary sewer relocation.	$491,000	Design: 100% Construction start: Spring 2022
Lyons Run AMD Remediation Project and Mitigation Bank Westmoreland County, PA	Lyons Run Watershed Association 2500 Eldo Road Monroeville, PA	Historic water quality review, water quality sampling, remediation design, development of mitigation banking prospectus, ecological delineation, survey.	$1,800,000	Design: 90% Construction Start: Spring 2022
Export/Delmont AMD Remediation Westmoreland County, PA	Lyons Run Watershed Association 2500 Eldo Road Monroeville, PA	Historic water quality review and sampling, Ecological delineation, chemical loading and treatment calculations, engineering design of an automated calcium oxide slurry treatment system and development of solids handling practices.	$5,500,000	Design: 30% Construction Start: 2023
MND 9 Landslide Stabilization, Moundsville, WV	HG Energy, LLC 5260 Dupont Road Parkersburg WV	Site survey, ecological delineations, permitting, geotechnical engineering design of the landslide remediation and stabilization, construction inspection and compaction testing.	$350,000	Design: 100% Construction: 80%

Kirk Pad Landslide Remediation Salem, WV	Antero Resources Corporation 535 White Oaks Blvd Bridgeport WV	Site assessment, topographic survey, permitting, Geotechnical investigation and remediation design.	$300,000	Design: 100% Construction: 80%
River Road Slips Landslide and Road Repair Monongalia County, WV	WVDOH District Four 2460 Murhpys Run Road Bridgeport, WV 26330	Complete surveying, permitting, right of way, utility coordination, and geotechnical investigation/design of pile and lag walls, soil nail walls, and tieback walls for 20 landslides along County Route 45 (River Road) in Morgantown.	$4,250,000	Design: 100% Construction start: Spring 2022
Moose Lake subsidence mitigation and construction inspection for multiple panels Cameron, WV	MarkWest Energy Partners, LP 4600 J. Barry Court Suite 500 Canonsburg, PA	Engineering, survey, geotechnical, permitting, and construction engineering and inspection in support of subsidence mitigation around sensitive infrastructure during long wall mining operations.	$3,000,000	Design: 100% Construction: 50%
Monongah Precast Mine Grouting Plan and Bridge Replacement, Monongah, WV	WVDOH District Four 2460 Murhpys Run Road Bridgeport, WV 26330	Mine subsidence evaluation, mine subsidence grouting and stabilization plan, survey, ecological delineations and permitting, geotechnical investigation and design, bridge replacement design, roadway improvements and staged construction design.	$2,500,000	Design: 100% Construction start: Summer 2022
Buffalo Creek Mine Subsidence Bridge Replacement, Mannington, WV	EQT Production Company 400 Woodcliff Drive Canonsburg PA WVDOH District Four 2460 Murhpys Run Road Bridgeport, WV 26330	Mine subsidence evaluation, survey, ecological delineations and permitting, geotechnical investigation and design, bridge replacement design, roadway improvements and temporary traffic control plans.	$2,500,000	Design: 90% Construction start: November 2021
TOTAL NUMBER OF PROJECTS: 10 (CEC has many more projects running concurrently. These are the most applicable		TOTAL ESTIMATED CONSTRUCTION COSTS: $561,691,000		

CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS					
PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
Border Wall RGV 08 and RGV 09 Design Build – Civil, Structural, H&H, Electrical Rio Grande Valley, Texas	Border wall structural design and layout, new road design, site grading, stormwater systems, surveying/mapping, construction stakeout and inspection.	United States Army Corps of Engineers, 819 Taylor St, Fort Worth, TX 76102	2023	$541,000,000	$35,000,000
Guyan Creek Bridge Construction Engineering Mount Olive, WV	Demolition Plan, Erection Plan, Shoring Design, Temporary Bridge Design	West Virginia Division of Highways, Engineering Division, Capitol Complex, Building 5, 1900 Kanawha Blvd., East, Charleston, WV	2021	$751,306	$751,306
Marshall County Airport Extension NPDES Permitting Marshall County, WV	NDPES permitting and construction services	Ohio-West Virginia Excavating, Co. 56461 Ferry Landing Road Shadyside OH	2023	$3,000,000	$15,000
Exelon Clearsight TX Power 1 Surveying Lubbock, TX	Right-of-way mapping, vegetation analysis, power line compliance reporting	South Plains Electric Cooperative Incorporated	December 2021	Undisclosed	$60,000
Cubby’s Daycare Site Development Bridgeport, WV	Water/sewer line design, Surveying, Construction Inspection, Geotechnical and Civil Engineering	CUBBY'S CHILD CARE CENTER, INC 801 Genesis Blvd Bridgeport, WV 26330	Summer 2022	$3,000,000	$300,000
Hawk’s Nest State Park Improvements Ansted, WV	Civil Site design, ADA Pathways, Construction Administration	West Virginia Division of Natural Resources 324 4th Avenue South Charleston, WV 25303	Spring 2022	Undisclosed	$200,000

16. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Beaver Creek Passive AMD Treatment Preston County, WV	Friend of the Cheat, Inc. 119 South Price Street Suite 206 Kingwood, WV 26537	$296,000	2020	Yes
Shinns Run Portals Subsidence and Portal Sealing Shinnston, WV	WVDEP, Office of Abandoned Mine Lands 601 57th St. SE, Box 20 Charleston, WV 25340	$1,617,796	2016	Yes
Mcalpin Portals and Drainage Mine portal sealing and drainage structure maintenance Bridgeport, WV	WVDEP, Office of Abandoned Mine Lands 601 57th St. SE, Box 20 Charleston, WV 25340	$1,351,743	2018	Yes
Charles Pointe Development Commercial site development and mass earthwork with complete infrastructure design Bridgeport, WV	Genesis Partners, LP P.O. box 1000 Bridgeport, WV 26330	$20,000,000	2018	Yes
Lower Dempsey Stream Restoration highwall grading on AML Logan, WV	Ecosystem Investment Partners, LLC 5550 Newbury St, Ste B Baltimore, MD 21209 Canaan Valley Institute, Inc. 494 Riverstone Rd Davis, WV 26260	$5,200,000	2016	Yes
Georges Creek Shaft Stream restoration and sealing and mine portal closure Frostburg, WV	Maryland Department of the Environment - Abandoned Mine Land Division 160 South Water St, Frostburg, Maryland 21532	$5,216,206	2018	No
Dulaney Subsidence Damage Complaint Mine Subsidence Evaluation and Report for Structure Damage Colliers, WV	State of West Virginia Board of Risk and Insurance Management 1124 Smith Street Suite 4300 Charleston, WV 25301	undetermined	2020	N/A
St. Clair Subsidence Damage Complaint Mine Subsidence Evaluation and Report for Structure Damage Brenton, WV	State of West Virginia Board of Risk and Insurance Management 1124 Smith Street Suite 4300 Charleston, WV 25301	undetermined	2019	N/A

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

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
Corduroy Inn at Snowshoe	Omni Associates 207 Jefferson St. Fairmont, WV 26554	$21,000	2019	Yes	Omni Associates
MCPARC Wave Pool Improvements	Omni Associates 207 Jefferson St. Fairmont, WV 26554	$24,000	2018	Yes	Omni Associates
Elkins Mon General	Omni Associates 207 Jefferson St. Fairmont, WV 26554	$24,000	2018	Yes	Omni Associates
East Side Fire Station	Omni Associates 207 Jefferson St. Fairmont, WV 26554	$22,000	2019	Yes	Omni Associates
Bridgeport Rec Center, Site Development	City of Bridgeport 515 West Main St. Bridgeport, WV 265330	$600,000	2019	Yes	Omni Associates
First Exchange Bank	Omni Associates 207 Jefferson St. Fairmont, WV 26554	$23,000	2019	Yes	Omni Associates
Pike Fork Bridge Construction Engineering Webster Springs, WV	WVDOH, District 7 131 highland Drive West, WV 26452	$1,600,000	2019	Yes	Bear Contracting, LLC

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

Civil & Environmental Consultants, Inc. (CEC) personnel have experience with esoteric aspects of mine land reclamation and mine water remediation. CEC does not employ generic remediation strategies but assesses and evaluates critical details of water chemistry, reaction dynamics, soil properties, hydrologic properties, regional geology, and client and landowner needs. CEC personnel have decades of experience in the reclamation community, familiarity with modern reclamation techniques, and access to a suite of engineering design/geocheiliical software. Site grading, volumetric analysis, and hydraulic assessments constitute a bulk of work completed by CEC Bridgeport. CEC presents an interdisciplinary team utilizing a data and client-driven approach to mine land reclamation and mine water remediation:

19. The foregoing is a statement of facts.

Signature: Steven A. Cain Title: Vice President Date: 8/19/2025

Printed Name: Steven A. Cain

B. AML and Related Project Experience Matrix

AML and RELATED PROJECT EXPERIENCE MATRIX

PROJECT	Exp. Basis C=Corp. P=Personnel *	Additional Info Provided in Section (s) **	PROJECT EXPERIENCE REQUIREMENTS															PRIMARY STAFF PARTICIPATION/CAPACITY *** M=Management P=Professional				
			Abandoned Surface Mine Reclamation	Abandoned Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/Eval.	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation/ Mitigation/ Replacement	Construction Inspection/ Management	Water Treatment	Equipment/ Structure Removal	Stream Restoration	Geotechnical/Stability	Timothy Denicola, PG AMD Design	Steve Cain, PE QA/QC Manager	Ben Faulkner, LRS Technical Advisor	4 Survey Crews	5 CADD Operators
Francis Drainage Maintenace	P		X			X					X	X			X		X	P	M	P	P	P
McAlpin Portals and Drainage	P		X	X	X	X			X		X	X		X		X	X				P	P
Lyons Run AMD Remediation	P		X			X					X	X		X			X	P		P	P	P
Export AMD Assessment	P		X			X					X	X		X			X	P		P	P	P
Hodgesville (Wright) Mine Blowout	C		X	X	X	X			X		X	X		X							P	P
Arlington (Gain) Highwall	C		X			X					X								P		P	P
Camden (Hartley) Dangerous Landslide*	C		X			X					X	X					X				P	P
Shinns Run Portals	P			X	X	X			X		X	X		X		X			P		P	P
Special Rec. Multiple Projects	C		X	X	X	X			X		X	X		X			X				P	P
Norton Highwall #1	P		X	X	X	X					X			X	X				P		P	P
Tub Run Highwall and Refuse Phase II	P		X	X	X	X				X	X			X	X						P	P
Tub Run Highwall and Refuse Phase I	P		X			X					X				X						P	P
Newburg Waterline Feasibility Study	P					X						X		X								P
Point Mtn. Waterline Feasibility Study	P					X						X		X								P
Greenbrier Hollow Refuse	P		X	X	X	X					X			X	X						P	P
Sauls Run (Carpenter) Landslide	P		X	X	X	X					X			X	X		X		M		P	P
Pageton (Lambert) Portals	P		X	X	X	X					X			X	X						P	P
Birds Creek #4	P		X	X	X	X					X			X	X						P	P
Church Creek/Manown Highwall	P		X		X	X					X				X	X					P	P
Racine (Bradshaw) Portals	P			X	X	X					X				X	X					P	P
Hampton #4 Maintenance	P		X			X					X	X				X	X		M		P	P
Howesville Sites	P		X	X	X	X				X	X	X			X	X	X				P	P
Sandy Run Highwall and Portals	P		X	X	X	X				X	X	X			X	X	X				P	P
Wilsie-Rosedale Waterline Feasibility I.D. # 324	P					X						X		X			X					P
Laurel Valley (Daniels) Landslide	P		X			X					X						X		M		P	P
Price Hill Airshaft/Buildings	P			X	X	X					X	X		X	X		X		M		P	P
Glady Fork AMD Trmt. Plant.	P			X		X					X	X	X	X			X		M		P	P

AML and RELATED PROJECT EXPERIENCE MATRIX

PROJECT	Exp. Basis C=Corp. P=Personnel *	Additional Info Provided in Section (s) **	PROJECT EXPERIENCE REQUIREMENTS															PRIMARY STAFF PARTICIPATION/CAPACITY *** M=Management P=Professional				
			Abandoned Surface Mine Reclamation	Abandoned Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/Eval.	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation/ Mitigation/ Replacement	Construction Inspection/ Management	Water Treatment	Equipment/ Structure Removal	Stream Restoration	Geotechnical/Stability	Timothy Deniciola, PG AMD Design	Steve Cain, PE QA/QC Manager	Ben Faulkner, LRS Technical Advisor	4 Survey Crews	5 CADD Operators
Weaver Portals, Ph. I & II	P		X	X	X	X			X		X	X	X	X	X	X	X		M		P	P
Nixon Run AMD	P		X	X	X	X					X	X		X	X	X	X		M		P	P
Taylor Waterline Feasibility, I.D. # 309	P					X						X		X								P
Poplar Ridge Waterline Feasibility, I.D. # 298	P					X						X		X								P
Summit Park Waterline Feasibility I.D. # 288	P					X						X		X								P
Fairmont (Hendrickson) Subsidence	P			X		X			X		X	X					X		M		P	P
Tunnelton (Dillsworth) Landslide	P			X		X			X	X	X				X		X		M		P	P
Arlington (Cox) Drainage	P			X	X	X			X		X		X				X		M		P	P
Sauls Run Strip and Landslide	P		X			X					X		X			X	X		M		P	P
Hodgesville Waterline Feasibility I.D. # 275	P					X						X		X								P
McElwain Waterline Feasibility I.D. # 271	P					X						X		X								P
Old Bridgeport Hill Mine Drainage, Ph II	P		X	X	X	X			X		X	X		X	X	X	X		M		P	P
Flint Run East Acid Mine Drainage	P		X			X				X	X	X		X	X	X	X			P	P	P
Murray City AMD and Art Project	P			X	X	X					X	X		X							P	P
Danehart Acid Mine Drainage	P		X			X			X		X	X		X			X		M		P	P
Nutters Tipple Bond Forfeiture	P		X			X				X	X				X	X	X		M		P	P
Lake Milton Acid Mine Drainage	P		X			X					X	X		X	X	X	X				P	P

* List whether project experience is corporate or personnel based or both.

** Use this area to provide specific sections or pages if needed for reference.

*** List Primary Design personnel and their functional capacity for the projects listed.

Attachment "C"

C. Key Personnel Qualifications & Resumes

Joseph D. Robinson, P.E.
Program Manager

21 YEARS OF EXPERIENCE

EDUCATION

B.S., Civil Engineering, West Virginia University, 2004

EXPERTISE

Project planning, permitting and coordination of projects in WV

Diverse experience in civil, geotechnical, water resources, structural engineering, site design, construction management and construction QA/QC

REGISTRATIONS

Professional Engineer
- WV 19756
- OH 77637
- MD 45171
- VA 0402053304
- PA 083558
- TX 139413

Joseph is a Vice President with twenty years of diverse experience in civil, geotechnical, water resources, structural engineering, Oil & Gas site & pipeline design and residential/commercial site design. He has designed various projects including site layouts, grading plans, sanitary sewer, storm water management, impoundments, roads, sediment control measures, segmental retaining walls, flood plain analyses and concrete design projects. Mr. Robinson has currently been responsible for civil design including site developments, WV 6A well sites, distribution and transmission pipelines, AML/AMLER projects, WVDNR site developments, construction testing/management and permitting and management associated with these projects with the oversight of West Virginia projects for CEC.

PROJECT EXPERIENCE

Federal/State Tactical Infrastructure Projects

TFC, Texas Facilities Commission, Texas

Role: Special Inspector of Record (SIOR)

Provided oversight of Construction Quality Assurance for Quality Control (QC) and Special Inspections (SI) for approximately 3 miles of border wall infrastructure. Includes daily coordination/reporting with field team and weekly correspondence with TFC.

DESIGN-BUILD OF RGV 08 & RGV 09, FENCE SEGMENT, Starr and Hidalgo Counties, TX

Role: Design Manager/Special Inspector of Record

Responsible for site quality control/assurance and special inspections including soil compaction, concrete/grout testing, full penetration welds, welding shop compliance and compliance with specifications for design plans and tactical infrastructure standards. Construction of approximate 40 miles of border wall, roads, drainage, and lighting for providing border security.

AML/AMLER Projects

Shiloh Development, Anmoore, WV

Role: Engineer of Record and funding advisor

Responsible for site design/construction documents, geotechnical investigation, utility coordination, state and federal permitting, WVDOH permitting and design, bidding/construction conferences and construction inspection/management. Phase I site includes approximately 90 acres of property remediation and site development of a 28+ acre pad for economic development in the region with over $9M AMLER funds with future phase potential to develop 90+ acres of usable pad area.

Brownton Refuse #2, WV

Role: Engineer of Record and program manager

Responsible for management of Agency coordination, Federal and State permitting, phase 2 presence/absence portal survey, survey/mapping, reality coordination for exploratory/construction, geotechnical investigation, water quality checks, civil site design, bidding/construction conferences and construction inspection/management. Project includes 9200LF of access road, 6100LF of priority 2 high walls, 565,000CY of grading, dry/wet mine seals, clogged stream drainage remediation, and 31,000CY of refuse remediation with approximate $13-14M construction cost.

Joseph D. Robinson, P.E.
Program Manager

Civil Site Design Experience

Field Office and Warehouse Projects, Antero Resources, WV

Role: Engineer of Record and construction advisor/manager

Responsible for field office and warehouse for the Antero Midstream group for operations. Project included corporate leadership coordination, site development, utilities, permitting, 6,583 SF field office, 20,490 SF warehouse, quality control testing and construction oversight. Responsible for field office and site development for the Antero Production group for operations. Project included site development, permitting, utilities, 8,385 SF field office, 3,200 SF warehouse, quality control testing and construction management.

Coopers Rock State Forest, WVDNR, WV

Role: Engineer of Record and construction manager

Responsible for site development and construction management of 25 new RV locations with site improvements and 20 A-frame cabins with site improvements and sewage pump station with the project kicking off West Viginia tourism's dark sky initiative.

Mon General*

Segmental Retaining Wall Redesign Project Responsible for segmental retaining wall design, design plan production and construction. The site location was in an area of previous segmental retaining wall failures.

Health Care Facility Design*

UHC Project - Jerry Dove Drive, Bridgeport, WV Responsible for final site grading, drafting and segmental retaining wall design & construction. Physicians Office Building - Jerry Dove Drive, Bridgeport, WV Responsible for final site grading, drafting and construction oversight.

City development Projects, Clarksburg*

Clarksburg Safe Routes Project. Responsible for design layout, quantities, plan production and construction. Clarksburg Streetscape Project 2010 Responsible for site layout, quantities, design plan production and survey stakeout.

Natural Gas Development Experience

6A Well Site Projects, Antero Resources, WV

Professional Engineer and Project Manager with project experience for several design aspects including 50+ well site designs, 3 pit closures, several site NOV improvement projects, facility design, slip repairs, facility geotechnical design and construction oversight. Project management of these sites include civil site design, ecological impacts, surveying and geotechnical investigation. *Professional Engineer for 21 well sites and 2 freshwater impoundment designs in Doddridge, Harrison, Ritchie and Tyler counties, West Virginia. Design elements for the site included associated impoundments (fracture pits), freshwater impoundments, well pad, manifold pad, offload pad, staging pad, production pads, water truck turnaround pad, spoil pads and access roads. Design tasks included design grading, erosion & sediment controls, site balancing & quantities and design plan production.

Eastern Panhandle Expansion Project, Mountaineer Gas Company, WV

Role: Engineer of Record

Planning and permitting support for the 21.5 mile long Eastern Panhandle Expansion project. Services included routing assistance, alignment plans, survey, aerial mapping, aquatic resource delineations, bat habitat survey, subsurface exploration, HDD evaluation, ESC design and permitting, and environmental inspection.

ACP, Dominion Energy, VA

Role: Engineer of Record

Engineering, construction and stormwater compliance. Design of temporary access roads for spreads 3A, 4A, and 4. Preparation of permit/construction plans, stormwater management calculation packages, and associated relevant documentation for each temporary access road in compliance with Dominion's Annual Standards and Specifications for review by DEQ. Collaboration with project prime consultant and third-party reviewer to complete full deliverable packages and compliance documentation. Coordination with Dominion's permitting group to provide compliance with aquatic features and karst areas, and to resolve connections with ESC and water conveyance on pipeline ROW.

** Work performed prior to joining CEC*

Steve A. Cain, P.E.
Quality Manager / Principal in Charge

32 YEARS OF EXPERIENCE

EDUCATION

B.S., Engineering Technology - (Civil Emphasis), Fairmont State University, 1992

EXPERTISE

Sanitary Sewer Evaluation Surveys

Wastewater Pumping System Design & Rehabilitation

REGISTRATIONS

Professional Engineer
- WV 15264
- MD 33727
- PA PE056215

CERTIFICATIONS

SafeLand USA - Basic Orientation, PEC Safety

10-hour Construction Safety, Occupational Safety & Health Administration

Steve, a professional engineer with CEC, has 32 years of experience in civil engineering design and project management.

Steve's experience in civil engineering design encompasses many aspects of civil engineering design including land surveying, mapping, site development, sanitary sewer system design, storm sewer system design, potable water distribution system design and hydraulic modeling. Additionally, Steve also has experience in water treatment system design and rehabilitation as well as wastewater treatment design.

Steve has also spent a large part of his career in managing projects from conception to completion. As a project manager Steve has assisted clients in identifying potential project needs, assisting the client in securing project funds, performed and directed detail design, and participated in and managed construction activities.

Steve also has lead and managed over 100 miles of mid-stream natural gas pipeline design projects. These projects encompassed preliminary alignment selection, in the field alignment routing, oversight of property "deed mosaics", construction plan oversight, and as-built preparation.

PROJECT EXPERIENCE

Wastewater

Barry Street Sanitary Sewer Evaluation Survey (SSES), City of Fairmont, Fairmont, WV*

Steve was the Project Manager for providing SSES to determine the cause of basement flooding of 10 residents from the sanitary sewer system along Barry Street in the City of Fairmont. The work included smoke testing the Barry Street drainage shed that provides sanitary and storm sewer service to approximately 200 City of Fairmont customers to determine illegal connections to the sanitary sewer system. Steve performed dye testing and coordinated Close Circuit TV inspection services to determine the cross connections of the storm sewer to the sanitary sewer. A written report was provided summarizing the deficiencies found and provided a written recommendation for corrections that included a preliminary cost estimate for construction.

Sanitary Sewer Improvements Phase II, City of Shinnston, Shinnston, WV*

Steve was the Project Manager for the preliminary and final engineering design services for the sanitary sewer system extensions for the Shinnston Sanitary Board. The project consists of the extension of gravity sewer collection and transmission system into areas outside of the City of Shinnston corporate limits to provide public wastewater treatment to approximately 170 new customers. The project area encompasses areas know as Drain Hill, WV20 (Haywood Road), Gypsy Hill, and Gypsy Hill Road. The new system will include six new duplex pump stations and will transport customer wastewater to the City of Shinnston existing wastewater treatment plant.

Steve A. Cain, P.E.

Quality Manager / Principal in Charge

Sanitary Sewer Improvement Project, City of Grafton, Grafton, WV*

Steve was the Project Engineer for investigating and recommending sanitary sewer improvements that were necessary for compliance with the City of Grafton's Long Term Control Plan (LTCP). The planned improvements included the installation of a new sanitary collection system in the older downtown area of the city that currently has a combined storm/sanitary system. The project will include approximately 10,000 LF of line installation, along with 54 manholes.

Wastewater System Improvements, Town of Franklin, Franklin, WV*

Steve prepared for submission to the West Virginia Infrastructure Jobs and Development Council for a preliminary engineering report detailing the proposed upgrades and improvements to the Town of Franklin's existing 200,000 GPD lagoon system wastewater treatment plant. The project also included collection system improvements by means of internal pipe lining systems and the installation of the new manholes within the Town's older downtown collection system. Steve also provided final design of the proposed improvements.

Kingmill Valley PSD Sewer Upgrades Phase II, KMVPSD, Marion County, WV*

Steve prepared the preliminary engineering report for the submission to the West Virginia Infrastructure Jobs and Development Council for the design and construction of a new wastewater collection system for the Millersville area of Pleasant Valley, West Virginia. The project also included the design of upgrades to nine existing wastewater pumping stations. Preliminary engineering report included preliminary engineering design, cost estimates, and proposed funding scenarios.

Sanitary Sewer Improvements Phase I, City of Shinnston, Shinnston, WV*

Steve was the Project Manager for the preliminary and final engineering design services for the sanitary sewer system improvements for the Shinnston Sanitary Board. The project consisted of the study of the city's entire sanitary sewer system and identifying areas where significant amounts of inflow and infiltration are entering the sanitary sewer system and proposing corrective action. Preliminary engineering services included extensive sanitary sewer evaluation surveys, which included detailed field inspections of existing facilities, smoke and dye testing, flow monitoring, line videos, and hydraulic modeling. Preliminary engineering services also included the planning of proposed improvements, feasibility studies, and assistance in obtaining funding. Final design of accepted alternatives, bid package preparation, construction management and inspection services, and as-built drawing preparation were also part of this project.

Sanitary Sewer Improvements, City of Fairmont, Fairmont, WV*

Steve was the Project Engineer for the preliminary and final engineering design services for the sanitary sewer system improvements for the Fairmont Sanitary Board. The project consisted of the study of the city's entire sanitary sewer system and identifying areas where significant amounts of inflow and infiltration are entering the sanitary sewer system and proposing corrective action. Preliminary engineering services included extensive sanitary sewer evaluation surveys, which included detailed field inspection of existing facilities, smoke and dye testing, flow monitoring, line videos, and hydraulic modeling. Preliminary engineering services also included the planning of proposed improvements, feasibility studies, and assistance in obtaining funding. Final design of accepted alternatives, bid package preparation, construction management and inspection services, and as-built drawing preparation were also part of this project.

Dakota/Meredith Springs Wastewater System Extension, City of Fairmont, Marion County, WV*

Steve was the Project Engineer for the planning, design, and construction inspection services for a sanitary sewer extension serving approximately 100 residences in the Meredith Springs/Dakota Camp Area within the City of Fairmont service area. The project also included the preparation of a facilities plan and funding applications for submission to the West Virginia Department of Environmental Protection. Design services included the routing and design of a gravity sewer system, manholes, lift stations, and all appurtenances, the preparation of specifications, bidding, and contact documents, solicitation of bidders, and recommendation for award. Steve was also responsible for providing construction management services and overseeing construction inspection services including constructability review, project inspection, contractor pay request reviews and as-built drawing preparation.

Town Of Flemington Sewer System, Town of Flemington, Taylor County, WV*

Steve was responsible for the preparation of the preliminary engineering report, funding applications, overall design, bidding documents with technical specifications, bidding procedures, construction engineering, and budget control for a sanitary sewer collection and treatment system. The project consisted of nearly six miles of gravity and pressure collections lines. The project also included the design and construction of four sewage lift stations and a 50,000-GPD extended aeration wastewater treatment plant.

Other responsibilities included the acquiring of a wasteload allocation, West Virginia Public Service Commission certificate, West Virginia Division of Environmental Protection National Pollutant Discharge Elimination System permit, West Virginia Division of Highways permit and all other permits necessary for construction.

Town of Farmington Wastewater Improvements, Town of Farmington, Farmington, WV*
Steve performed inflow and infiltration investigation by means of visual inspection, smoke testing, dye testing, and television video. Steve was also responsible for overall design of improvements, bidding documents with technical specifications, bidding procedures, construction engineering, and budget control. Steve provided construction management duties during the construction phase of improvements that included the construction of a 125,000-GPD oxidation ditch wastewater treatment plant.

Hurrican Damage Assessment to Wastewater Pumping Stations, Virgin Islands Waste Management Authority, US Virgin Islands
Role: Field Engineer
Part of a two teams performing hurricane damage assessments of 8 major and 22 minor pump stations in the US Virgin Islands. Assessment teams performed comprehensive evaluations of the civil, mechanical and electrical conditions of each pump station and made determinations as to the causes of each identified issue and whether the damages were pre-existing or storm-related. The assessment reports provided the authority with a path forward for restoring normal operations, upgrading the reliability and weather resistance of the stations, and provided the basis for an application to FEMA for financial assistance to repair the storm-related damages. At several stations, the team was able to perform temporary repairs to address safety and operational issues.

Wastewater Treatment Consolidation Study, Chemung County Sewer Districts, Elmira Chemung County, NY
Role: Task Manager and Field Engineer
Part of a team that evaluated two publicly owned wastewater treatment plants and developed recommendations for upgrades based on long term reliability, improving treatment performance, and achieving compliance with Total Maximum Daily Loads (TMDLs) for total nitrogen and phosphorous, which take effect in 2025 as part of the Chesapeake Bay TMDL. Developed budgetary capital costs for two upgrade alternatives: 1) upgrading each facility separately at the current locations, and 2) abandoning the 50+ year old facility and consolidating all treatment at the location of the 30+ year old facility.

Water

Water System Improvements Phase II, City of Shinnston, Shinnston, WV*
Steve was the Project Manager for the preliminary and final engineering design services for the replacement of approximately 11 miles of existing 10" cast iron water line with new 12" PVC water line from the City's water treatment facility to the connection point in the City limits. Preliminary engineering services included the planning of proposed line replacement improvements, feasibility studies, and assistance in obtaining project funding. Final design included the line replacement, the design of a Johnson Screen at the raw water intake, and bid package preparation.

Stonewood Water System Improvements, City of Stonewood, Stonewood, WV*
Steve was the Project Manager for conducting a water loss study for the City of Stonewood that identified that the unaccounted water loss ranged on average from 15 to 30 percent. The water loss study included the review of the existing system data, acoustical testing, correlation testing, pressure evaluations, evaluation of break reports and review of the billing records. Steve also provided oversight of design for the proposed improvements. The project was designed for the replacement of the 50 year old existing water distribution system throughout the City of Stonewood's residential communities. The construction was completed in 2015.

Jane Lew Water System Improvements, Jane Lew PSD, Lewis County, WV*
Steve was the Project Manager for the design and construction of approximately 11,500 LF of two-inch galvanized waterline including valves, the removal and replacement of 25 existing gate valves, the installation of 17 new gate valves in the existing distribution system, and installation of 13 bypass meters. The project also included the installation of an eight-inch diameter river crossing pipe to replace an existing crossing, the installation of a supervisory control and data acquisition (SCADA) controlled solenoid valve station and booster chlorination station. Additionally, the project included the extension of 1,500 LF of two-inch polyvinyl chloride water line and a 37 GPM booster pump station to provide service to six new customers and included the fencing of the existing 100,000 gallon water storage tank for security purposes.

Steve A. Cain, P.E.

Quality Manager / Principal in Charge

Fairmont-Mannington Water Main, City of Fairmont, Marion County, WV*
Steve was the Project Manager for the planning, design, and construction inspection of a 13-mile water main extension from the City of Fairmont to serve the City of Mannington. The project included mapping, route surveys utilizing GPS, assistance in obtaining project funding, design of the 13-mile, 12-inch, and 16-inch water main, preparation of specifications, bid and contract documents, right-of-way acquisition, construction surveys, and construction management and inspection services.

Alpine Lake Water System Improvements, ALPUC, Preston County, WV*
Steve was the project engineer for the preliminary design, detailed design, and construction services for a water system improvement project. Improvements to the water system included the design of four booster pump station upgrades, distribution line replacement, and storage tank improvements. The project also included the planning and design of two new source wells and the design and construction of a new potable water treatment facility.

Water System Improvements, City of Shinnston, Shinnston, WV*
Steve was the Project Engineer for the planning, design, and construction inspection services for a water distribution system upgrade for the City of Shinnston. Services included the mapping and hydraulic modeling of the existing water distribution network, the identification of problem areas, forecasting future water usage for projected growth areas and the completion of funding applications, detailed design drawings, specifications, bidding, and contract documents, solicitation of bidders and recommendations for award. CEI services include constructability reviews, construction management, project inspection, processing routine pay requests and the preparation of as-builts drawings. The project successfully reduced unaccounted for water from 35% to 10%.

Kanawha Falls Water System Improvements, Kanawha Falls PSD, Gauley Bridge, WV*
Steve was the Project Manager for the preliminary design and detailed design services for a water system extension project to provide potable water service to approximately 50 new customers in the Kanawha Falls and Boonesborough area of Fayette County, West Virginia. The project includes the construction of a new distribution system and a 30 GPM hydro-pneumatic booster pump station.
** Work performed prior to joining CEC*

PROFESSIONAL AFFILIATIONS

Fairmont State University Technology Advisory Board

West Virginia Rural Water Association

American Society of Highway Engineers

Ben B. Faulkner
Technical Advisor

46 YEARS OF EXPERIENCE

EDUCATION

Certificate, Environmental Studies, WV College of Graduate Studies, 1986

B.S., Biology, Concord University, 1979

Ben Faulkner is experienced in all environmental aspects of mining with over 40 years of experience in environmental matters. He has enjoyed diverse perspectives as environmental permit manager, regulator, preparer, researcher, and consultant. His focus has been on environmental compliance and characterization of mined properties, with 5 years of mine law enforcement and over 35 years as industry manager, academic research associate, and private consultant to the coal, hard rock, and aggregate mining industries. His experience spans working in state mining programs in IL, OH, KY, PA, SC, TN, TX, VA and WV and CERCLA projects in GA, TN and OH. International projects include USVI, Canada, and Wales. He is recognized as a Federal Court expert witness in characterization and chemical/passive treatment of mine drainage as well as land reclamation and aquatic restoration/evaluation of dramatically disturbed lands. He is the only person to serve on both editorial committees of the Office of Surface Mining's Acid Drainage Technical Initiative for coal and metal mining sectors. He is also qualified through ASTM as an Environmental Professional for the purpose of conducting Environmental Site Assessments, Environmental Compliance Audits, and Due Diligence Inquiries. Recent work with USDoE grant took him to over 140 mine sites in 5 states for characterization of drainage treatment and precipitates potential for Rare Earth Elements recovery.

PROJECT EXPERIENCE

EIP SWV Stream Mitigation Bank CQA, Ecosystem Investment Partners, Davy McDowell, WV

2016. Served as Senior Consultant when this Stream Restoration Project encountered deep mine drainage that manifested as visible red seepage in the restored stream channel. High iron concentrations and copious staining and precipitation compromised water uses and the macroinvertebrate assemblage. Mr. Faulkner characterized the drainage and outlined/critiqued several proposed alternatives for remedy. He designed and field supervised an alternative involving careful excavation of the deep mine outcrop to divert the pooled mine water into a design diversion away from problematic spoil. He also designed passive treatment systems to mitigate the impacts of several localized drainage influences at the project.

Attorney-Client Privileged Information, Babst- Calland, Confidential Confidential, WV

2016. Mr. Faulkner's expertise was sought in this legal matter where a land developer had altered headwater streams. The regulatory authority brought an enforcement action against the landowner requiring stream restoration involving disturbance of previously undisturbed strata. Mr. Faulkner reviewed the soils/water sampling and characterization effort and offered an interpretation of the results of the Acid Base Accounting, Synthetic Precipitation Leaching Procedure, and prediction of water quality for the proposed mitigation effort.

EXPERTISE

Experienced wheel loader and track excavator operator

REGISTRATIONS

Licensed Remediation Specialist
- WV 300

CERTIFICATIONS

Certified Blaster, West Virginia Department of Environmental Protection Ofice of Explosives and Blasting

Class 32 Safety Sensitive Personnel, West Virginia Office of Miner's Health, Safety & Training

MSHA Surface Miner, Mine Safety And Health Administration

8-hour HAZWOPER Refresher Training, Safety Unlimited, Inc.

Hydrogen Sulfide Awareness Training, Safety Unlimited, Inc.

40-Hour OSHA HAZWOPER, Occupational Safety & Health Administration

Environmental Professional, ASTM

Approved Person - Surface Mine/Quarry Permit Applications, West Virginia Department of Environmental Protection Mines and Minerals

Heartsaver CPR AED, American Heart Association

SafeLand USA - Basic Orientation, PEC Safety

West Virginia Scientific Collecting Permit, Division of Natural Resources

Private Applicator Certification, Tennessee Dept. of Agriculture

10-Hour OSHA Construction Safety (Occupational Safety & Health Administration), OSHA

ATV Safety Institute Training, ATV Safety Institute

Recreational Off-Highway Vehicle Training, Recreational Off-Highway Vehicle Association

Phase I and II Environmental Site Assessment, ASTM

E1527 Standard Practice for Phase I Environmental Site Assessment, ASTM

Ben B. Faulkner
Technical Advisor

Pedigree Study for Polycystic Kidney Research Foundation, J.W. Riley Hospital, Department of Medical Genetics, Indianapolis, IN*
2010. Mr. Faulkner completed a genetic study for the research of Adult Polycystic Kidney Disease.

Freshwater Institute Mine Aquaculture Research Project, The Conservation Fund, statewide, WV*
1995-1996. Mr. Faulkner served as Principal Investigator in preparing an inventory of mine drainage resources in West Virginia suitable for aquaculture. Grants from US Department of Agriculture allowed Mr. Faulkner the opportunity to research mine-related water resources through his established relationships with mine engineers and managers. He located the high flow discharges (many abandoned and isolated) and characterized the seasonal flow and water quality, providing a practical working inventory of these precious resources for the development of aquaculture and other water uses. As a follow up to the project, he provided location, sampling, characterization and site evaluation services to West Virginia University (WVU) Extension Service Aquaculture Projects.

Environmental Site Assessment for US Food & Drug Administration, AquaBounty Technologies, Lindside Monroe, WV*
2011. Mr. Faulkner prepared this Site Assessment for an aquaculture grow-out facility to satisfy USFDA concerns about genetically modified Atlantic Salmon. The assessment was patterned after an international study involving egg production and culture in Prince Edward Island, Canada and grow-out in Panama, Central America. Mr. Faulkner was responsible for surveying and mapping the facility, and evaluating the potential for native species impact should the fish escape from the facility. He evaluated water quality and fish habitat/assemblage downstream in Rich Creek and in the New River in two states.

WV-10 Evaluation of Reclamation Techniques, WVU Research Corporation, statewide, WV*
1990-1991. Mr. Faulkner worked with three PhD researchers in two states, examining various reclamation techniques and passive treatment technologies and their long-term efficacy. The project involved evaluation of the profitability of re-mining and water quality at re-mining sites.

Stormwater Permits for Chromated Copper Arsenate Wood Preservative Facilities, various, statewide, WV*
1991-1992. Enactment of a new WV State Code required that NPDES stormwater permits be obtained by the wood preservative industry for all treatment facilities. Mr. Faulkner led a team of scientists and investigators who contacted five individual facility operators in four WV counties. He was responsible for coordinating the land surveying, mapping, site characterization, human and eco-risk assessment and remediation efforts that were associated with obtaining stormwater permits for these previously unregulated facilities.

Acid Mine Drainage Bond Forfeiture Project, WVDEP, statewide, WV*
1987-2002. When coal operations fail to meet their reclamation and water quality obligations under their environmental permits, the regulatory authority revokes their permits and they forfeit their performance bonds. For 14 years, Mr. Faulkner was the Project Principal for a contract to evaluate the water quality impacts from 890 revoked sites. He either personally sampled or supervised the extended water sampling effort for these sites in 39 counties, and maintained a database of site information and water quality. He represented WVDEP in negotiations with US Department of Interior Office of Surface Mining, Reclamation and Enforcement in developing policy and a program for dealing with water quality at revoked sites, including the characterization and prioritization of the sties, designing and implementing chemical and passive treatment systems, evaluations of the treatment, and policy refinement. Mr. Faulkner worked closely with the Stream Restoration Group and Abandoned Mine Lands (AML) offices of WVDEP to coordinate mitigation efforts and served as special consultant to the WVDEP Director for special projects. He regularly assessed stream impacts for the State by macroinvertebrate monitoring using EPA's Rapid Bioassessment Protocol.

Problematic Active Mine Drainage Inventory, WVDEP, statewide, WV*
1984-2001. Beginning in 1994, the WV Legislature ordered an inventory of problematic drainage at active coal mine sites that threatened the solvency of the Special Reclamation Fund. The fund is generated through taxes on the coal industry and used by WVDEP to address delinquent land reclamation and water quality issues. Mr. Faulkner served as Project Principal under a personal services contract with WVDEP to work closely with reclamation inspectors to sample and inventory raw water sources that required treatment to meet effluent limits. This field work was repeated in 1996, 1998, and 2000 and remains the most comprehensive study of mine water quality in the state. Mr. Faulkner coordinated the identification, sampling, laboratory contracts and data management, and prepared detailed GIS analysis of the occurrence, source, chemical loading, and treatment technology from the over 600 sources of drainage identified in the study.

Ben B. Faulkner
Technical Advisor

AML Problem Area Descriptions - Remediation Projects, former employer, statewide WV & OH*
1987-2015. Mr. Faulkner field reviewed hundreds of Abandoned Mine Lands sites in WV and prepared Problem Area Descriptions for the State of WV. After prioritization and selection of the individual project, Mr. Faulkner prepared mitigation alternatives that addressed land stabilization and water quality improvement. Some of these projects were watershed level and others were focused sites. He worked closely with mining engineers, land surveyors, and other scientists to design detailed reclamation plans and treatment strategies to accomplish these objectives in both WV and OH.

Elgin Equipment Water Quality Projects, Elgin Equipment Group- Norris Screen & Manufacturing, Cook Legacy Water & Energy, WV, VA, PA, IL, CA*
2013-2015. Elgin Equipment Group is a leading global manufacturer of products and solutions for the mining and materials handling industries. Mr. Faulkner was contracted by Elgin to evaluate the application and development of proprietary pressurized membrane technologies and proprietary anti-biological coatings of water handling equipment. This work involved Mr. Faulkner's field and laboratory efforts to characterize mine drainage and the bench/pilot/full-scale application of pressurized membrane separation technologies to achieve metals, selenium, chloride, sulfate, and other TDS treatment objectives at several mine sites and shallow groundwater mitigation sites in several states. Mr. Faulkner also designed and conducted laboratory efforts to demonstrate the efficacy of a proprietary equipment coating in resisting mollusk colonization.

Mine Drainage Investigation, Luminant Mining, TX*
2015-2016. Mr. Faulkner has investigated problematic mine drainage at Luminant's Oak Hill lignite coal surface mine and submitted a work plan for further characterization of the hydrology of the site. Working with Dr. Jeff Skousen of WVU, the team addressed limnology of a mine pit, groundwater and surface water monitoring to gather information to remediate problematic drainage.

Austinville, VA Lead Mine Issues, Attorney Client Privileged, Austinville Wythe, VA*
2014-2018. Mr. Faulkner was engaged by the landowner of a US Revolutionary War era mine site to address water quality issues associated with this underground lead/zinc mine. He has characterized the drainage at the site and prepared a Substantive Rationale for the improvement of water quality by appropriate land reclamation and water management. Relying on successful CERCLA projects, Faulkner employed an adaptive management strategy in making specific water management recommendations and assisted professional engineers in designing permanent drainage and remediation structures. He represented the client in Federal District Court (Roanoke, VA) as an Expert Witness on mine drainage and land reclamation. The court ruled for the client.

Copper Basin Project, OXY, USA - Glenn Springs Holdings, Inc., Ducktown Polk, TN*
Ben 1997-current. Mr. Faulkner was engaged by OXY subsidiary GSHI to lead the initial investigation of water quality at this former copper mining and sulfuric acid manufacturing site in TN. As the project matured to a Voluntary Cleanup Oversight and Assistance Program project under CERCLA, Faulkner provided characterization of the surface water impacts from mine waste and identified a remediation strategy at the several thousand-acre site in two watersheds. Since 1997, Faulkner has been a principal investigator and designer at this environmental award-winning site. This project has been championed by both the Tennessee Department of Conservation and Environment and USEPA as a model for the nation to deal with CERCLA mine sites because of the prompt, dramatic improvement in aesthetics and water quality in the affected watersheds and the recovery of the Ocoee River. The project received the 2015 TN Governor's Environmental Stewardship Award, allowing OXY to negotiate a settlement with USEPA. Faulkner was the principal designer of passive systems at the project, and participated in the establishment of Biological Performance Goals, Annual Macroinverebrate Monitoring, Stream Habitat Restoration and Wetland efforts and banking, Waste Characterization and Remediation, preparation of Engineering Evaluation/Cost Analysis (EE/CA) and Remedial Investigation documents. He has served as curator of historic and remediation images for the documentation of efforts at the site. He continues to monitor the re-establishment of habitat and fauna at the site through focused monitoring of streams and wildlife. He materially participates in field monitoring and/or evaluation of a diverse list of environmentally focused activities at the project. He coordinates the Wildlife Habitat Council Program. He has reported on the approach and progress of the project at a number of state, national, and international symposia.

Columbia Phosphorous Facility, OXY, USA, Glenn Springs Holding, Inc., Columbia Maury, TN*
2008-current. OXY, USA's subsidiary GSHI operated a phosphorous mining and processing facility near Columbia, TN until the 1970's. Mr. Faulkner was commissioned to pioneer the removal of P4 and other contaminants from a wastewater stream from the legacy property. He applied successful principles in constructed treatment wetlands to design two phases of passive systems to

successfully remediate the contaminants. He continues to assist GSHI in monitoring the site and development of wildlife habitat for their Wildlife Habitat Council Program.

Greenbrier Streams Biosurvey, Greenbrier Minerals, a subsidiary of Coronado Coal LLC, Anjean Greenbrier, WV*
1984-current. Mr. Faulkner has conducted macroinvertebrate monitoring and stream characterization using EPA's Rapid Bioassessment Protocol and WVSCI methods at over 40 sites within an environmentally sensitive 30,000-acre property. Faulkner is wholly responsible for conducting the field work, works closely with a Society for Freshwater Science qualified taxonomist for identification to the genus level, and prepares the appropriate reports for NPDES and Aquatic Ecosystem Protection Plans. The reports are cumulative for the 30+ year study.

Special Selenium and Raw Water study for major Appalachian Coal concern, Confidential, WV*
2012-2018. Mr. Faulkner has been the project principal for a special study of a major idled coal property in West Virginia where the company was under a consent decree to characterize and reduce selenium concentrations in their multiple discharges from surface, underground and refuse operations. He led teams collecting water samples and maintained a comprehensive water quality database for over 3 years. The study included real time flow monitoring employing pressure transducers at over 30 surface water weirs. The project matured to including raw water sampling to facilitate application for post-mining effluent limits. Faulkner helped design, construct, maintain, and monitor several very large bioreactors for selenium removal.

Arch Coal Subsidiaries - Special Projects, Arch Coal Leer Mine, Mountain Laurel, and (formerly ICG) Patriot, Eastern, Hazard, others, Statewide WV & KY*
2006-current. Mr. Faulkner has provided professional services to several Arch coal subsidiaries since 2006. For ICG Eastern in Nicholas/Webster counties, WV, he collected raw and stream water samples for new permits, worked to insure chemical and passive treatment system compliance, and obtained permit release. He implemented several dye tracer studies to determine local hydrology related to problematic drainage. He conducted macroinvertebrate stream studies. He designed bioreactor systems to effectively collect and treat selenium laden drainage. This was implemented after bench and pilot scale efforts designed, monitored, and evaluated by Mr. Faulkner. Until the property became idle in 2014, Faulkner maintained a database of water quality for this work, consisting of over 11,000 samples. For Arch's northern WV mine sites, Faulkner was commissioned to evaluate problematic drainage near Morgantown and Bruceton Mills and refine existing chemical treatment and evaluate the opportunity to implement passive strategies. At the new Leer Mine, Faulkner conducted a chemical treatability study for problematic drainage and presented an array of treatment alternatives and associated cost-benefit analysis. In Mingo and Logan counties, WV, Faulkner conducted a dye tracer study to determine the groundwater path from an impoundment near a community. He dealt with a unique calcium deposition issue at the ICG Hazard Surface Mine Complex. He conducted dye-tracer studies for the Vindex complex near Mount Storm. He reviewed water quality and operations of a chemical treatment system for a legacy flooded mine in Preston County to propose changes in pumping and water management efforts.

Richard Mine Drainage AML Project, WV Conservation Agency through GAI Consultants, Morgantown Monongalia, WV*
2007-2008. Mr. Faulkner was commissioned by GAI to characterize the Richard Mine Drainage and its effects on Decker's Creek. Faulkner collected samples based on extensive mine mapping reconnaissance, and performed field testing and detailed laboratory bench scale chemical treatment studies at the facilities of REIC Laboratories, Inc. From this, he developed a feasibility study involving several chemical treatment alternatives strategies that could be employed by WVCA and its partners in the AMD treatment project.

Copperhill Industries Special Projects, Copperhill Industries, Copperhill Polk, TN*
2013-2018. Mr. Faulkner has assisted this materials reprocessing firm with stormwater and NPDES permit requirements on a CERCLA/RCRA property. He has collected and evaluated surface and groundwater samples to prepare detailed plans for waste and water management including surface diversions and passive treatment systems. Faulkner has also assisted the firm with collection and analysis of mine waste materials for the purpose of characterization and marketing.

Mettiki Coal Special Projects, Alliance Resource Partners, LP, Mt. Storm Tucker, WV*
2001-2016. Mr. Faulkner has performed special projects for Mettiki since 2001. He conducted surface and groundwater studies on surface properties overlaying a critical subsidence zone. At Mettiki's request, he proposed and designed a surface water diversion and passive treatment system to deal with AML drainage as a mitigation proposal for Mettiki to mitigate proposed activities elsewhere. Faulkner has most recently assisted Mettiki with selenium abatement efforts in-situ by subsurface water management and treatment. He is also evaluating the performance of their existing chemical treatment plant at the Oakland, MD site.

Ben B. Faulkner
Technical Advisor

Peabody Coal - Will Scarlett Mine Environmental Suit, Confidential - Attorney Client Privilege, Stonefort, IL*
2010. The Will Scarlett Mine has been represented as the most severe acid mine drainage issue in Illinois. Mr. Faulkner was commissioned by Peabody to characterize the AMD issues at the site, and to document the evolution of the chemical treatment efforts. His work included a comparison of the historic decade-long relationship between AMD treatment costs with precipitation. He also evaluated the empirical costs to achieve NPDES compliance for the site based on historic expenditures and a treatability study.

Preservati Special Projects, Met Coal and Land Development Construction Sites, Princeton Mercer, WV*
2002-2013. Mr. Faulkner has assisted this coal company with stormwater permits and drainage studies at its land development interests for more than a decade. His work included runoff analysis and designing diversion and sediment control structures. He has also assisted with re-vegetation issues in a recent large-scale Lepidopteran-based issue at their surface mining operations.

Martin Marietta Auburn Quarry Drainage, Martin Marietta, Auburn, GA*
2008. Mr. Faulkner was contracted by MM to characterize problematic drainage at this granite quarry near Atlanta. His work included soils/overburden Acid Base Account and a chemical treatment evaluation where he proposed materials handling alternatives and chemical treatment scenarios for meeting pH limits for the NPDES permit.

Coalfields Expressway Mine Drainage Issue, Marshall Miller & Associates, Maxie Buckhannon, VA*
2001-2002. Coal bearing strata and abandoned coal refuse areas lay in the path of the proposed Coalfields Expressway. MMA was commissioned by the VA Dept. of Transportation to perform the geotechnical and environmental work for the design of the project. MMA contracted Mr. Faulkner to assist with the chemical stabilization of the coal refuse associated with the project. The work was accomplished to ensure minimal impact to the environment and involved water and soils sampling and Acid Base Accounting analysis.

Carmeuse Glass Rock Plant and Quarry Drainage Issue, Carmeuse Lime through BBC&M, Glenford Perry, OH*
2008-2009. Mr. Faulkner characterized metals and Total Suspended Solids drainage issues at this quarry operation. He collected water samples and prepared recommendations for water treatment and management, and materials handling as needed to achieve NPDES effluent limits.

Coal Mine Drainage Issues in TN, various, statewide, TN*
2005-2010. Mr. Faulkner was engaged to characterize drainage issues from coal mine operations at several coal interests in the State of TN. His clients included Crossville Coal and Sequatchie Valley Coal treatment issues.

Krypton Slope Stability Project, Confidential - Attorney Client Privilege, KY
2012. A coal client contracted Mr. Faulkner to perform water quality characterization and determine groundwater paths associated with a civil suit involving a large landslide. Mr. Faulkner designed and implemented a dye/tracer study to assist with the characterization of the drainage. The project involved remote sensors for specific conductance and charcoal dye traps to determine the presence and intensity of tracers introduced in the subject drainage.

Mine Complex Management - Permitting & Compliance, Island Creek Coal, Holden Logan, WV*
1985-1988. Mr. Faulkner worked as an in-house consultant for Island Creek Coal. His work involved preparing mining and NPDES permits and ensuring environmental compliance at seven mine complexes in WV and Kentucky. He dealt with prospect, underground, surface and preparation issues and conducted numerous Probable Hydrologic Consequences Studies and prepared all necessary permitting and compliance duties associated with a major corporate mining interest.

Mine Management - Permitting and Environmental Compliance, Leckie Smokeless Coal Co., Anjean Greenbrier, WV*
1983-1990. Mr. Faulkner was the Environmental Compliance Manager for this coal operation on 30,000 acres in a native trout watershed. In addition to managing daily environmental compliance at the many surface preparation/refuse and deep mine operations, he obtained permits and handled public relations. During his tenure, the company was awarded a number of WV Surface Mine & Reclamation Association Reclamation Awards. Mr. Faulkner departed the firm but continued to perform consulting services for them for many years.

Ben B. Faulkner
Technical Advisor

Helvetia Artesian Mine Drainage Project, Carter Roag Coal Co. (United Coal Co.), Helvetia Randolph, WV*
2012. This completed deep mine allowed mine water with high iron concentrations to discharge through an existing bore hole to a sensitive trout stream. Mr. Faulkner was contracted to characterize the drainage and make recommendations as to improve treatment. His work involved drainage characterization, aeration and oxidizer efforts, and addition of polymers and flocculants.

Penn Virginia Special Projects, Penn Coal Corporation, Charleston, WV*
2000-2011. Penn Virginia contracted Mr. Faulkner to conduct stream characterization at its many operations in Boone and Kanawha Counties. This involved macroinvertebrate collection and stream habitat evaluation utilizing USEPA Rapid Bioassessment Protocol. Mr. Faulkner also assisted Penn Virginia with the design, construction and evaluation of a number of passive treatment systems.

West Virginia DNR Surface Mine Reclamation Inspector, WVDNR, predecessor to WVDoE and WVDEP, statewide, WV*
1979-1984. Mr. Faulkner began his environmental career as a State Mine Inspector in McDowell and Wyoming Counties. There he inspected over 100 deep mine operations, 30 surface mine operations, and a number of coal preparation facilities and refuse areas. He received training in coal refuse site inspection, hydrology and drainage control, and best management practices. He transferred to Greenbrier/Fayette/Nicholas/Summers Counties where he inspected a dozen limestone quarries and over 100 mine sites. In this capacity, he reviewed mine permit applications, oversaw the permit application process, and ensured environmental compliance of the permits when issues. He had statewide responsibilities with special drainage projects

Haile Gold Mine Drainage, Haile Mining, Kinross Gold, Kershaw, SC*
2001-2002. Mr. Faulkner reviewed mine waste management and chemical treatment efforts at this historic mining property and designed passive treatment systems to mitigate constituents of environmental concern. The company implemented the systems which performed satisfactorily for many years until decommissioned upon mine reactivation.

City of Princeton Phase I ESA for The Dean Company, City of Princeton WV, Princeton Mercer, WV
The Dean Company operated a log veneer processing facility in Princeton, WV for decades before moving its operations out-of-state. The 35 acre facility with multiple structures totaling 275,000 square feet was characterized under ASTM standards E1527-13.

Antero Special Projects - Gas monitoring, Clearwater site characterization, monitoring, Antero Energy, Pennsboro Ritchie, WV
Background water sampling and drainage characterization for a $800M central water treatment facility for this Natural Gas firm included dedicated landfill and on-going monitoring of receiving streams for watershed organization. Gas monitoring of waste lagoons for more than a dozen facilities.

Dominion Gas Phase I ESA Glade Creek Industrial Park, Dominion, Summersville Nicholas, WV
Performed Environmental Site Assessment for new warehouse and maintenance facility under ASTM standards.

WVU Emergency UST, West Virginia University, Beckley Raleigh, WV
WVU purchased the campus of Mountain State University and encountered subsurface UST issues associated with a residence hall. Investigated the issue with Ground Penetrating Radar and subsequent excavation.

V&S Enterprises Phase I ESA, V&S Land, Clarksburg Harrison, WV
V&S leases property with commercial structures for the oil & gas industries. Two properties (one in Clarksburg, WV and another in Bealsville, OH (project 185-865 in 2018) were characterized under ASTM standards.

Williams Threedubs Compressor Facility Coal Mining Incidental to Land Development, Williams Company, West Liberty, WV
Role: Senior Consultant
In developing its multi-million dollar compressor facility near West Liberty, WV, Williams encountered coal that complicated the stability of the pad. Under WV law, coal removal incidental to land development is required to obtain a special surface mining permit. Requirements for this permit satisfy the requirements of federal and state mining laws with respect to all major environmental and legal issues. This involved characterization of soils, overburden, coal, drainage, safety, and property issues. Similar characterization efforts were conducted for another Compressor Facility in Brooke County to the northeast in 2018 where

coal removal was also necessary. Faulkner reported on the permit preparation at the 2019 International SME Conference in Denver, CO.

Surface Coal Mine Drainage, Attorney Client Privileged, Wise Wise, VA*
2019-2019 A lawsuit between a major environmental group and established coal mining concern involved TDS from mine drainage and associated fills. Plaintiff alleged violations of Clean Water Act, RCRA and SMCRA. Faulkner conducted extensive file work and field work to characterize the drainage and mining history to represent the company in Federal court (Abingdon) as an expert witness in mine drainage and land reclamation. It was established that valley fills were point-sources under NPDES and that the operator had been in compliance with applicable statutes for TDS and other chemical parameters of concern. Faulkner's biological monitoring also convinced the court there was no environmental degradation. The Court granted the defendant's motion for summary judgement.

Buckeye Selenium Compliance Plan, Greer Industries, Inc, Cheat Lake, WV
Role: Senior Consultant
Designed and helped client install, maintain, and monitor a V-notch weir with recording pressure transducer. The pressure transducer measures the height of water in the weir, and when compensated against a nearby atmospheric pressure transducer and calibrated against a regularly read staff gauge, returns a log of accurate flow through the weir. The values are used to produce selenium and other parameter loadings.

Eastern Panhandle Pipeline Expansion , Mountaineer Gas, WV Eastern Panhandle
Role: Senior Consultant
Reviewed available mapping and imagery to prepare Phase I Environmental Site Assessment for new 20 mile pipeline to Martinsburg from Berkeley Springs, WV.

Mission Coal Assessment, confidential, two mine complexes in West Virginia, two mine complexes in Alabama
Role: Senior Consultant
A mining company sought information in a confidential bid for mining assets in a bankruptcy case. A team of CEC mining professionals was engaged through counsel to review available records and field reviewed the mine properties (totaling several thousand acres and hundreds of permits) for due diligence and environmental compliance. Ben Faulkner reviewed all records and was responsible for field review of all Alabama properties.

Inventory of Rare Earth Elements from Coal Mine Drainage , WVU Research Corporation - US Department of Energy Grants, Appalachian Coal Region*
2017. Faulkner contacted major coal producers in WV,VA,OH,PA,MD and made arrangements for confidential sampling of acidic mine drainage and precipitates at over 140 treatment facilities. He collected the samples and inventoried the reserves and potential for extracting strategic rare earth elements from the drainage.

Painesville Plant Site , OXY, USA - Glenn Springs Holdings, Inc. , Painesville, OH - shores of Lake Erie*
This legacy site has been reclaimed and has an ongoing program for The Wildlife Habitat Council. Faulkner assisted in design and implementation of activities that resulted in certification by WHC. Faulkner was chosen to present his innovative monitoring work at this and other sites at WHC's annual international meeting in Baltimore in 2019.

Environmental Audits for Real Estate Transactions for Industrial Properties, various, northern and central WV*
Role: Principal Investigator
A consulting firm to which Ben Faulkner sub-contracted was responsible for performing environmental audits for the potential purchaser of hundreds of tracts of land with a history of timbering and coal mining operations. Faulkner led a team that inventoried and characterized over 400 tracts and 10,000 acres in six counties. The process included aerial reconnaissance and videotaping from a helicopter in 1984. Global Positioning Systems (GPS) technology was in its infancy and advance mission planning and post-mission correction was necessary. Faulkner's databases of this and statewide (39 counties) public projects commissioned by WVDEP were selected by WVU faculty for use in early ESRI courses taught at the university.
** Work performed prior to joining CEC*

TRAINING

Ben B. Faulkner

Technical Advisor

HazWOPER Annual General Site Worker Refresher 2022-02-21

PROFESSIONAL AFFILIATIONS

Society of Environmental Toxicology and Chemistry

West Virginia Mine Drainage Task Force

Society for Freshwater Science

West Virginia Coal Association, Inc.

International Mine Water Association

American Society of Mining and Reclamation

Society for Mining, Metallurgy, and Exploration, Inc.

Air & Waste Management Association

American Society of Reclamation Sciences

Metallurgical Coal Producers Association

CHAIRMAN OF THE WEST VIRGINIA MINE DRAINAGE TASK FORCE WWW.WVMDTASKFORCE.COM

RECORD OF EXPERT LEGAL TESTIMONY TO 2021-06 AVAILABLE UPON REQUEST

PROFICIENT IN MEDICAL OFFICE MANAGEMENT

PUBLICATIONS

Faulkner, Ben B., Deal, K.A. “Recovery of North Potato Creek – Copper Basin, TN” at 2015 American Society for Mining and Reclamation Symposium, Lexington, KY.

Faulkner, Ben B., Eger, Paul, Gusek, J. Biochemical Reactor/Anaerobic Wetland Design/Startup Issues at 2015 American Society for Mining and Reclamation Symposium, Lexington, KY

Faulkner, Ben B., Bowers, M. “Impacted Watershed Recovery in the Copper Basin Tennessee” at 2013 Society for Freshwater Science International Meeting, Jacksonville, FL.

Faulkner, Ben B., Bowers, M. “Impacted Watershed Recovery in the Copper Basin Tennessee” at 2013 Society for Environmental Toxicity and Chemistry, Nashville, TN

McDonald, Lewis, and Faulkner, B. Inorganic Selenium Speciation in Mine Drainage Impacted Waters" in International Journal of Environmental Analytical Chemistry 2012.

Meek, Al, Odell, K., and Faulkner, B. “Selenium Treatment –Arch Eastern Birch Mine” presented at the 2012-13 WVMDTaskForce.com Symposia

Faulkner, Ben B. and Miller, F. “Land and Water Restoration in the Copper Basin of TN” presented at the 2010 ASMR Conference in Pittsburgh, PA

Faulkner, Ben B. and Miller, F. “Adaptive Management of an Acidic Superfund Mine Site” presented at Montana Tech Symposium on Mine Planning, Permitting, Operation and Closure, Butte, MT.

Faulkner, Ben B. and Miller, F. "Land and Water Reclamation of the Copper Basin of TN” at USEPA/National Ground Water Assoc. Workshop October, 2008 Denver, CO

Faulkner, Ben B. “Passive Treatment Systems as a Component in Improving Water Quality in the Copper Basin” presented at USEPA’s 2007 BioChemical Workshop in Coeur d’Alene Idaho.

Faulkner, Ben B., Bowers, M. Stokes, C. “Bench-Scale Treatment of a Sulfate-Reducing Bacteria Treatment of Copper Basin, TN Mine Drainage” presented at the 2007 WVSMDTF Symposium

Ben B. Faulkner
Technical Advisor

Faulkner, Ben B. “Reclamation of the Copper Basin, TN” presented at the International Conference on Acid Rock Drainage 2006 in St. Louis, MO.

Faulkner, Ben B., Miller, F. ”The Largest AMD Treatment Plant in the World?” presented at the 2005 WVSMDTF symposium

Faulkner, Ben B. “The Copper Basin Reclamation Project” presented at 2004 ASMR & WVSMDTF International Mtg.

Faulkner, Ben B. “Improvement of Water Quality at and Eastern US Copper Mine by Passive AMD Systems and Land Reclamation” presented at ASMR International Mtg., Lexington, KY

“Improvement of Water Quality at and Eastern US Copper Mine by Passive AMD Systems and Land Reclamation” presented at Virginia Tech/ University of Virginia Mine Drainage Symposium

Faulkner, Ben B. “Improvement of Water Quality at and Eastern US Copper Mine by Passive AMD Systems and Land Reclamation” presented at National Association Of State Land Reclamationists National Meeting, Charleston, WV

Faulkner, Ben B. “Mine Drainage at Active Mines in West Virginia – 2000” presented at the WVSMD Task Force Symposium, Morgantown, WV

Faulkner, Ben B. “Vegetation and Aquatic Ecosystem Enhancement” at USEPA’s 2000 Environmental Impact Statement Workshop, Charleston, WV

Faulkner, Ben B. “Reduction in Acid Loads at the Alton Project” Presented at the 2000 WVAMD Task Force Symposium

Faulkner, Ben, editor "A Handbook of Technologies for Avoidance and Remediation of Acid Mine Drainage” published 1998 by ADTI, NMLRC & OSM.

Faulkner, Ben B. “Acid Mine Drainage Inventory in WV “presented at the WVAMD Task Force Symposium, April, 1997, and at WV Non-Point Source Symposium, October, 1998; also published in Green Lands, Summer, 1998

Faulkner, Ben B. “Acid Mine Drainage in WV” presented at the National Association of Abandoned Mine Lands Programs Annual Conference, August, 1997.

Hedin, R., Skousen, J., Faulkner, B. “Water Quality Changes and Costs of Remining in PA and WV”. Presented at the WVAMD Task Force Symposium April 1997

Faulkner, Ben editor Handbook for Use of Ammonia in Treating Mine Waters published by West Virginia Mining & Reclamation Association. 1990. "Using Ammonia to Treat Mine Waters" Green Lands, winter, 1991. presented to WVMRA Technical Workshop at Annual Symposium, Charleston, WV - January, 1991

Faulkner, Ben B. "Field Trials in AMD Treatment" presented at WV AMD Task Force Symposium, Morgantown, WV - April, 1991

Faulkner, Ben B. "Field Trials in AMD Treatment - An Update" presented at International Mine Drainage Conference at Pittsburgh, PA - April, 1994.

Skousen, Jeffrey, and Faulkner, Ben. "Acid Mine Drainage Treatment with Active & Passive Technologies" in Land Reclamation: Advances in Research & Technology. Am. Soc. of Agriculture Engineers. 1992.

Skousen, Jeffrey, and Faulkner, Ben B."Effects of Land Reclamation and Passive Treatment Systems on Improving Water Quality". 1995. Green Lands Volume 25, Number 4

Skousen, Jeff, Faulkner, B.B. et al. “Overview of AMD Treatment with Chemicals”. 1996. Green Lands Volume 26.

Skousen, J. , Faulkner, B.B. AMD Control & Treatment 1996. (2nd edition) WVU & NMLRC (Chapters 17, 23, & 31).

PRESENTATIONS

Faulkner, Ben B. Anoxic Limestone Drains to Treat AMD" presented at WVMRA Symposium, Charleston, WV - January, 1992

Faulkner, Ben B. "Field Trials in AMD Treatment - An Update" presented as WVMRA Symposium, Morgantown, WV - April, 1993

Faulkner, Ben AMD Passive Treatment System Recommendations” 23rd Annual WVMRA Symposium, 1996

Faulkner, Ben B. "An Environmental Impact Statement of Alternate Water Supply for Princeton, WV" for fulfillment of coursework for Preparing and Evaluating Environmental Impact Statements, WVCOGS.

Ben B. Faulkner

Technical Advisor

Faulkner, Ben B. "Limnology of a North American Dimictic Lake" Senior Independent Study, Concord University Biology Department.

Faulkner, Ben B. Independent Studies "Mortuary Science"; "The Genetics of Polycystic Kidney Disease", “Preservation Techniques of Biological Materials" Concord University Independent Study Presentations.

Faulkner, Ben B. A Primer on Mine Drainage, Aquatic life, and Electrical Conductivity" presented to the National Mine Association WCC meeting 2010-06-10 attended by US Congressmen and staff. http://www.washingtoncoalclub.org/docs/20100610_Faulkner.pdf

"Water Conductivity - An Initial Screening Tool" Two videos were prepared through the National Mining Association featuring Ben Faulkner. Both were available on the NMA website and featured on FacesofCoal.org but may be available at: https://www.youtube.com/watch?v=wwGKFca65l0

Faulkner, Ben B. Surface Coal Mining Incidental to Land Development for the Natural Gas Industry presented at 2019 International SME Conference, Denver, CO. Session: Surface Mining: Coal & Energy: Advancement Through Innovation. 2019.

Target Video to Reform Waters of the United States (WOTUS) Legislation sponsored by client. https://www.youtube.com/watch?v=y4Yn66h0P3M

"How's Your Tech? Hi-Tech, Lo-Cost (Pocket-Tech) Tools" presented at the Wildlife Habitat Council 2019 Conservation Conference in Baltimore, MD. by Ben B. Faulkner and Rick Passmore.

Timothy A. Denicola, PG, CFM

Project Manager / AMD Mitigation

18 YEARS OF EXPERIENCE

EDUCATION

M.S., Geology, West Virginia University, 2013

B.S., Chemistry, Clarion University of Pennsylvania, 2006

Tim Denicola is a licensed geologist and experienced project manager with a multidisciplinary background in geochemistry and hydrogeology. His expertise spans a wide range of environmental and geological services, including mine water remediation, stream and wetland restoration design, and geotechnical analysis of soil and rock. Tim has extensive field experience in soil and water sampling, monitoring well installation, aquifer characterization, gas well plugging, and survey/construction layout. His diverse skill set and strong foundation in geological principles make him a valuable asset in addressing complex challenges associated with AML projects.

PROJECT EXPERIENCE

Francis AMD Remediation, Harrison County, WV

In the mid-1990's a series of passive AMD treatment practices were constructed to remediate hundreds of gallons per minute of contaminated mine water. After 20+ years of operation the system required refurbishment. Mr. Denicola performed calculations to assess heterogeneous iron oxidization rates under fluctuating temperature, pH, and dissolved oxygen conditions. Calculations also estimated volume of precipitated sludge as suspended solids. The detailed calculations allowed Mr. Denicola and the project team to appropriately size a series of alkalinity generating and oxidation inducing treatment practices in series while managing precipitated solids along the treatment path, and provided the client an estimate of treatment performance under varying climatic and site conditions.

Lyons Run AMD Remediation, Westmoreland County, PA

The Lyons Run watershed is severely impaired by acidic, iron and aluminum contaminated mine water. Mr. Denicola completed baseline water quality sampling, remediation design, and developed a mitigation banking prospectus. Mr. Denicola managed site delineations and baseline biological monitoring, high resolution LiDAR topographic UAV flights, geotechnical site assessment, and regulatory components including USACE, PADEP, and local requirements. Mr. Denicola performed calculations for alkalinity generation rates, chemical oxygen demand, heterogeneous iron oxidation rates, precipitated sludge volumes, and best management practice sizing and retention. The project will ultimately utilize a successive alkalinity producing system (SAPS) to neutralize acid, collect precipitated solids, and improve watershed aesthetic and ecological function while limiting long-term operations and maintenance costs.

EXPERTISE

Abandoned Mine Drainage (AMD)

AML Reclamation

Water Quality / Discharge Monitoring

Soil Chemical Sampling

Ecosystem Restoration

Stream and Wetland Design

Mitigation Banking

Monitoring Well Installation

Soil Boring Advancement

Rock Coring Exploration

Aquifer Analysis

Contaminant Tracking

Survey / Construction Layout / CQA

REGISTRATIONS

Professional Geologist

- PA PG005483

CERTIFICATIONS

Certified Floodplain Manager, Association of State Floodplain Managers

Level I Applied Fluvial Geomorphology, Wildland Hydrology

Level II River Morphology and Applications, Wildland Hydrology

Level III River Assessment and Monitoring, Wildland Hydrology

Level IV River Assessment and Monitoring, Wildland Hydrology

Advanced AMDtreat Mine Drainage Cost Calculation Software, U.S. Office of Surface Mining Reclamation and Enforcement (15-Hour)

PEC/Safeland Training, 8-Hour Course, ID# PEC 100784550

Timothy A. Denicola, PG, CFM

Project Manager / AMD Mitigation

2022 AML Contract 8 Project North, Harrison County, WV
Brownton Refuse #2 Reclamation

The Brownton site in Harrison County, West Virginia, was extensively contour mined creating priority 1 & 2 health and safety issues, disrupting natural drainage patterns, and placing volumes of spoil material on the valley walls and valley bottom. Mr. Denicola has made recommendations throughout the design process as it relates to engineered drainage patterns and contaminated refuse handling. Mr. Denicola collected baseline water quality data and reviewed soil geochemical data obtained from the geotechnical investigation to assess properties of acid-base accounting, sulfur forms, and nutrient content for revegetation.

White Valley AMD Assessment and Treatment Design, Westmoreland County, PA

Two mine water discharges near Export, PA, convey a combined 3,000 gallons per minute of severely acidic, iron and aluminum contaminated mine water into a watershed having fishery potential. Mr. Denicola completed a historic water quality review, baseline water quality sampling, chemical loading and treatment calculations, site surveying, and developed a conceptual engineering design utilizing pre-aeration, quicklime slurry system, rapid mix chamber, center flocculating clarifiers, and sludge pumping and disposal. The source water conveyance system utilizes vertical turbine pumps for mine-pool drawdown. The design includes an innovative approach to working within site constraints while ensuring sufficient carbon dioxide off-gassing, reagent mixing, precipitated solids handling, onsite solids disposal, and simplified operations and maintenance. Additionally, greenspace development includes trails, pavilions, and playgrounds centered around fishing ponds replenished by treated mine water effluent.

Beaver Creek at Auman Road Passive AMD Treatment, Preston County, WV

A tributary to a cold-water fishery (CWF) was impacted by acidic, aluminum contaminated water discharging from an abandoned coal surface mine. Mr. Denicola designed two passive mine water treatment systems consisting of flushing limestone beds (FLB), settling ponds, and aerobic polishing wetlands. Each FLB utilized an automatic dosing siphon, large diameter limestone, and large diameter flush plumbing to reduce loss of substrate porosity and increase alkalinity generation and flushing velocities. Settling ponds utilize perforated stand-pipes and rock baffles to achieve particle settling velocities. Aerobic wetlands were designed with thick, native, non-invasive grasses, woody shrubs and wetland trees to facilitate final polishing while increasing ecological habitat. Extensive chemical, hydrologic, and volumetric calculations were utilized to ensure optimal cost-effective performance.

Herods Run Passive AMD Treatment Project, Upshur County, WV*

Herods Run is impacted by acidic, iron contaminated water emanating from an abandoned coal surface mine. Mr. Denicola developed the preliminary and final engineering design drawings for a successive alkalinity producing system (SAPS), and prepared the construction specifications, cost estimates, and bid package. Mr. Denicola prepared permit application packages for the U.S. Army Corps of Engineers (USACE) Regional General for AML permit and WV Department of Natural Resources (WVDNR) Stream Activity permit. Throughout the project Mr. Denicola facilitated open communication between a non-profit watershed association, various landowners, and a private energy company owning easements.

Lehigh River Basin Watershed Assessment*

Mr. Denicola was provided chemical data from approximately two dozen abandoned mine discharges (AMD) in several impaired subwatersheds of the Lehigh River. Utilizing spatial and statistical software, Mr. Denicola prepared an assessment and recommendations report identifying priority AMDs and priority subwatersheds for remediation. Statistical methods utilized univariate statistical data and multivariate data including principal component and hierarchal cluster analysis. Based on geochemical calculations, site-specific treatment options were recommended including associated engineering and construction costs.

Regulated Mining Property AMD Treatment and Refuse Research Study, TN*

An extensively reclaimed, regulated mining property treats acidic groundwater emanating from various locations. Mr. Denicola conducted an assessment of various treatment options ultimately identifying the most cost-effective method of meeting NPDES compliance at several discharge points. Mr. Denicola completed a treatment test cell study to assess techniques for mitigating acid production in mining refuse to research eliminating the need for long-term AMD treatment.

Kanes Creek South Site #3, AMD Remediation, Preston County, WV*

Several acid mine discharges impairing Dills Run, required development of a passive remediation system. Mr. Denicola oversaw the final stages of system design, construction stormwater permitting, and West Virginia Non-Point Source (NPS) 319 and Office of Surface Mining (OSM) Watershed Cooperative Agreement (WCAP) grants management, as well as conducted construction oversight and completion of pre- and post-construction monitoring. The final system ultimately consists of a flushing limestone bed followed by

two settling ponds in series. The system is successfully neutralizing all acidity, introducing residual alkalinity, and is removing all metals to analytical minimum detection limits.

AMD Treatment, Broad Top Township, Bedford County, PA*
Various active and passive AMD treatment systems currently operate within Broad Top Township. Mr. Denicola conducted geochemical calculations that directly translated into several passive system designs, conducted chemical and hydrological sampling as part of an assessment and recommendations study, and conducted the post-construction final inspection AMD treatment systems.

Semi-Active AMD Treatment Conceptual Design, Brubaker, Clearfield County, PA*
Mr. Denicola developed the winning conceptual design for semi-active treatment at the abandoned Dean Clay Mine discharge in the Brubaker Run watershed. The design utilized calculations for acid neutralization and sludge production rates. The design included active treatment BMPs, surface water diversion and high flow bypasses, and a proposal for an on-site sludge disposal assessment requiring a geotechnical study of the nearby mine workings.

AMD Assessments and Recommendations,, Buck Mountain #2 and Lausanne Tunnel, Eastern Pennsylvania*
Several passive AMD treatment systems required an assessment and recommendations report to evaluate treatment efficacy. Mr. Denicola conducted chemical and hydrological sampling and completed an assessment of each location including recommendations and associated costs. Development of the recommendations required calculations of acid and metal loads, alkalinity generation and acid neutralization rates, ferrous iron oxidation rate, sludge volume, and BMP sizing for necessary hydrologic retention time.

Semi-Active AMD Treatment, Sewickley Creek, Brinkerton, Westmoreland County, PA*
The Brinkerton Semi-Active AMD Treatment project was affected by a high volume of alkaline mine water discharge and the existing passive treatment system required refurbishment. Mr. Denicola assisted in redesign of a Maelstrom Oxidizer, pond berm stabilization, incorporation of top flow weirs to allow collection of chemical and hydrological data, and conversion of a smaller acidic mine water collection area into an anoxic limestone drain. Mr. Denicola also performed construction oversight at various stages of project completion.

Severe AMD Characterized by High Acidity, Iron, and Aluminum, Satcher Pre-Treatment Pond (SPTP)*
The SPTP was constructed to handle severe AMD characterized by high acidity, iron, and aluminum. In 2013, the system required refurbishment. Chemical and hydrologic assessment, funding acquisition, design, and construction were completed by Mr. Denicola and the landowner. The resulting system is an improved flushing limestone bed with improved hydrologic capacity, acid neutralization, and metals removal.

Slabcamp Tributary, AMD Remediation, Preston County, WV*
Four severe AMDs are impairing a tributary to Slabcamp Run and a 5.4-acre wetland. Mr. Denicola completed pre-construction monitoring, execution of landowner right-of-entry agreements, acquisition of an environmental consulting firm, communication with the U.S. Army Corps of Engineers (USACE) regarding wetland and waterways permitting, communication with the State Historic Preservation Office (SHPO) to complete a Section 106 review, communication with West Virginia Department of Natural Resources (WVDNR) to complete a National Environmental Policy Act (NEPA) review and composed an Environmental Assessment (EA), communicated with Region VI Planning and Development Council for the necessary consultation letter, and assisted development of a conceptual design.

Ingrand Mine, AMD Remediation, Preston County, WV*
Two severe AMDs impairing Dills Run required development of a passive remediation system. Mr. Denicola oversaw pre-construction monitoring, completion of land purchase through execution of a subdivided land deed, acquisition of an environmental consulting firm, communication with the USACE, SHPO, NEPA, and Region VI, and assisted development of a final design with associated specifications, bid, and contract documents. The passive treatment system utilizes a flushing limestone leach bed, two settling ponds, an anaerobic vertical flow wetland (AVFW), and a polishing wetland and is successfully reducing contaminant loads to Dills Run and Kanes Creek.

Valley Point #12 Refurbishment, Kanes Creek South Site #1 and Valley Highwall #3 Upgrades, Deckers Creek Watershed*
After years of successful acid neutralization and metals load reductions at numerous systems within the Deckers Creek Watershed, system efficacy had reduced at several systems and refurbishments were necessary. Mr. Denicola oversaw extensive system

assessments and coordinated with landowners and the Deckers Creek Restoration team to facilitate improvements. The result was award of funding for two projects, a completed design for one, and a funding request for the final system.

Successive Alkalinity Producing System and Active Lime Doser Assessments, Deckers Creek Watershed*
As a responsibility of project management, Mr. Denicola thoroughly audited all existing systems within the Deckers Creek watershed. The most extensive audits were conducted at a successive alkalinity producing system (SAPS) that utilizes flushing limestone leach beds, settling ponds, and an AVFW. Chemical, hydrologic, and redox potential data were collected, and geochemical software was utilized to evaluate the iron reducing capability of the AVFW, which ultimately proved to be highly successful. The SAPS was receiving AMD with pH=2.6 and high ferric iron and aluminum concentrations and was discharging water of circum-neutral pH with metals below minimum detection limits. The AVFW alone displayed a redox potential of -0.093 V and conversion of all ferric iron into the ferrous form. In addition, the Deckers Creek watershed utilizes two active tipping bucket lime dosers for neutralization of severely degrading AMD. Mr. Denicola thoroughly audited both active systems through a series of geochemical sampling and evaluation techniques. The results of the audits substantiated the necessity of future funding for refurbishment.

ArcGIS Online Mapping, Westmoreland County, PA
In support of client operations, Mr. Denicola acquired publicly available data for a given watershed and developed ArcGIS mapping, ultimately launched on the ArcGIS Online platform. The client can access data via a password protected online account. Mr. Denicola routinely adds both public and proprietary data to the mapping at the client's request, allowing the client to reduce the use of hardcopy mapping that becomes obsolete upon the addition of any new data.

Brushy Fork Mitigation Bank, Stream / Wetland Restoration, Harrison County, WV
The Brushy Fork Mitigation Bank restored approximately 48,000 feet of streams and 16 acres of wetland. Portions of the property were extensively coal mined and streams were constructed into poor quality spoil with the potential for acid generation and iron precipitation. Mr. Denicola managed and completed stream restoration designs and conducted extensive chemical and hydrologic data collection to characterize the construction material and selected various mitigation techniques to prevent negative spoil influences on water quality. A combination of alkaline reagent, organic compost, aerobic wetlands, impermeable liners, and spoil excavation were utilized to ensure acceptable water quality beneficial to establishment of aquatic habitat post-construction.

Snake Run Stream Restoration, Greenbrier County, WV
The Snake Run Stream Restoration project addressed a 1,000-foot stream corridor displaying extensive aggradation and lateral migration across agricultural land. Mr. Denicola completed a geomorphic and topographic survey to collect bankfull, channel, berm, and thalweg data. From empirical data, Mr. Denicola produced a longitudinal profile and cross-sections, calculated appropriate bankfull area, shear stress, and stream power, and designed a restoration corridor including hydraulic structures and floodplain to return Snake Run to proper pattern, profile, and dimension.

Oxbow Mitigation Bank, Stream / Wetland Restoration, Ritchie County, WV
The Oxbow Mitigation Bank restored approximately 26,000 feet and enhanced approximately 48,000 feet of heavily degraded stream corridor. The property has been heavily timbered and traversed with access routes resulting in excess sedimentation, disconnected stream channels, and reduced biological diversity. Off road vehicle traffic and the county right-of-ways utilize the stream corridor resulting in substantial geomorphic degradation. Mr. Denicola managed and completed stream restoration designs, geotechnical rock drilling exploration, oil & gas infrastructure relocations, county right-of-way decommissioning, contractor coordination, and full-time construction quality assurance (CQA) to facilitate successful project completion.

Water Quality Monitoring, Antero Treatment, LLC, Doddridge County, WV
Antero Treatment, LLC, as a requirement of federal, state, and local regulation requires environmental monitoring. Mr. Denicola performed stream and site-specific water quality and hydrologic monitoring in support of company operations. Monitoring included collection of field chemical parameters and laboratory samples for analysis of RCRA and non-RCRA volatile and semi-volatile organic compounds, poly-nuclear aromatic hydrocarbons, phthalate esters, petroleum related hydrocarbons, metals, anions, and radionuclides. Monitoring required analysis of gases including methane and dihydrogen sulfide. Flow data was collected using a USGS Wading Rod with FlowTracker Acoustic Doppler flow meter and the cross-sectional area method.

Timothy A. Denicola, PG, CFM
Project Manager / AMD Mitigation

Soil Quality Monitoring, Antero Resources Corporation, Multi-County, WV
Mr. Denicola routinely performed soil sampling in support of company operations. Sampling adhered to EPA Method 5035A for volatile organic compounds in soil and assessed pre-construction and post-construction soil quality at production facilities.

Technical Assistance Grants Program, Trout Unlimited, PA Statewide*
Mr. Denicola participated as one of several on-call consultants for the Trout Unlimited (T.U.) Technical Assistance Grants (TAG) Program. Each year various entities request assistance from T.U. to complete existing abandoned mine water (AMD) treatment system assessments with recommendations for improvements, rapid AMD characterizations, and rapid watershed snapshots, develop conceptual designs for AMD treatment systems, conduct construction oversight of AMD treatment systems, develop monitoring plans. Mr. Denicola completed all tasks associated with each request totaling approximately six per year.

Kanawha Mitigation Banks (Sapsucker Run and Yeager Fork), Stream / Wetland Restoration, Mason County, WV
The Kanawha Mitigation Banks restored, enhanced, and preserved a combined 61,000 feet of stream and 1.1 acre of wetlands. The properties were heavily timbered and traversed by access routes. Surface disturbances heavily altered hydrology and impacted stream corridor geomorphology, floodplain, vegetation, and ecological function. Mr. Denicola completed geotechnical rock drilling exploration to identify suitable material for stream restoration hydraulic structures, composed site SWPPPs and filed the application paperwork for the NPDES Construction Stormwater Permit, and coordinated county right-of-way decommissioning.

Indian Creek Mitigation Bank, Stream / Wetland Restoration, Ritchie County, WV
The Indian Creek Mitigation Bank restored 12,000 feet of stream and 0.66 acre of wetlands. Mr. Denicola reviewed the USACE Section 404 Permit Application and managed completion of credit projections and associated supporting information to ensure conformance to 33 CFR 332.

Howards Creek Stream Restoration, Greenbrier County, WV
The Howards Creek Stream Restoration addressed a 4,000 foot stream corridor displaying impacts from urban development and channelization. Mr. Denicola oversaw aerial mapping to collect high resolution LIDAR and orthoimagery, and personally completed a geomorphic survey to collect water surface and thalweg data. LIDAR imagery identified bankfull and berm features. Empirical data was utilized to calculate bankfull area, shear stress, and stream power, and to compose a stream restoration plan. The proposed restoration approach achieved greater flood management where standard restoration techniques were restricted by development.

Protection Plan Development, Ecosystem Investment Partners, Multi-County, WV
Mr. Denicola prepared detailed Groundwater Protection Plans (GPP) and Stormwater Pollution Protection Plans (SWPPP) in support of stream and wetland restoration projects requiring extensive earthwork. Plan preparation was a component of successfully obtaining National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permits for various projects in northern West Virginia.

Regulatory Compliance, Antero Treatment, LLC., Doddridge County, WV
Antero Treatment, LLC, operates a water treatment facility that requires onsite storage and handling of industry wastewater and regulated reagents. Mr. Denicola became intimately familiar with site-specific processes and oversaw completion of Aboveground Storage Tank (AST) fit-for-service inspections. Mr. Denicola personally developed the Spill Prevention Response Plan (SPRP) and Spill Prevention Control and Countermeasure (SPCC) Plan in conformance with 47 CSR 63 and 40 CFR 112, respectively. Mr. Denicola prepared spill compliance training documentation and administered training to Antero personnel.

Regulatory Environmental Compliance Audits, Private Coal Client, PA, WV, KY*
Via EPA Consent Decree, a southern West Virginia coal company required periodic environmental compliance audits. Audits consisted of reviewing toxic waste inventories and hazardous materials handling, verifying that proper pond and fill certification protocols were met, and ensuring that NPDES daily monitoring and compliance was met. Mr. Denicola conducted dozens of audits focused specifically on verifying SPRP and SPCC Plan accuracy and ensuring compliance with TSCA, SWDA, SARA, EPCRA, and CERCLA. Additional services included review of NPDES Daily Monitoring Reports (DMR) and verifying compliance with earthen ponds and valley fill engineering inspections.

Well Plugging and OG Infrastructure Modifications, Ritchie County, WV
To facilitate successful stream restoration for a mitigation banking client, various components of traditional oil & gas operations required abandonment or modification. Mr. Denicola pulled historic production records for several conventional wells then proceeded to coordinate with infrastructure owners, subconsultants, and regulatory inspectors. Tasks included preparation of plugging / modification agreements, permit packages, and onsite construction quality assurance. Mr. Denicola acted as site geologist coordinating with contractors and reviewing daily reports to ensure appropriate well bore preparation, plugging materials and intervals, and completion methods. Additionally, thousands of feet of small diameter conveyance pipelines were rerouted and appropriately trenched, backfilled, and as-built surveyed.

Mine Pool Water Quality Study, Richard Mine*
The Richard Mine discharges 400 gallons per minute of water characterized by pH=4.0 and high iron and aluminum concentrations. The discharge emanates from a partially flooded mine pool within a 2,300-acre mining complex. Treatment will require a full-scale active facility. To assess the design requirements, Mr. Denicola oversaw acquisition of an environmental consulting firm for successful installation of a 342-foot-deep monitoring well. To facilitate the project Mr. Denicola executed a notarized landowner entry agreement, obtained and evaluated mine maps, and utilized field pumps and transducers to monitor water level and chemistry of the Richard Mine pool.

Clean Creek Program, Friends of Deckers Creek*
Since 2002, the Friends of Deckers Creek has participated in the Clean Creek Program (CCP) which consists of quarterly chemical, biological, and flow sampling at 13 key locations along the 24-mile length of Deckers Creek. In addition, collected data are compiled into an annual State of the Creek Report for distribution to community members and funding agencies. Mr. Denicola took an active role in performing CCP duties, funding acquisition, and report writing.

Watershed Based Plan and Quality Assurance Protection Plan*
As a responsibility of project management, Mr. Denicola composed a Watershed Based Plan (WBP) and Quality Assurance Protection Plan (QAPP) for approval by the United States Environmental Protection Agency (U.S. EPA). The WBP identifies priority remediation sites to meet compliance with West Virginia Department of Environmental Protection (WVDEP) Total Maximum Daily Loads (TMDL) requirements for the WV 303(d) list of impaired streams. In addition, Mr. Denicola composed a QAPP to ensure that the U.S. EPA-accepted sampling and data handling protocols were being utilized universally across all staff members and sampling events within the watershed.

Coalfields Expressway Habitat Assessment, WV*
Mr. Denicola obtained and interpreted mine maps from four coal beds to assist the ecological team. Dozens of historic mine openings were identified, thereby directing the ecological team to potential Indiana Bat hibernacula.

ATV Trail System Development, VA*
Mr. Denicola assisted in conducting the design and geospatial mapping of a recreational ATV trail system. Trail design followed a specific set of protocols to manage stormwater, thereby reducing erosion and sedimentation impacts and long-term operations and maintenance costs. The protocols required that Mr. Denicola conduct soil studies utilizing the Natural Resources Conservation Service soils database.

Gas Well Abandonment, PA*
A Pennsylvania highway expansion required the plugging and abandonment of a relic gas well. Mr. Denicola acted as the Health and Safety Officer, oversaw all on-site activities, reviewed daily site activities with the contracted driller, and ensured that all required state approvals and paperwork were diligently submitted.

Watershed Based Plan and Quality Assurance Protection Plan, WV*
As a responsibility of project management, Mr. Denicola composed a Watershed Based Plan (WBP) and Quality Assurance Protection Plan (QAPP) for approval by the United States Environmental Protection Agency (U.S. EPA). The WBP identifies priority remediation sites to meet compliance with West Virginia Department of Environmental Protection (WVDEP) Total Maximum Daily Loads (TMDL) requirements for the WV 303(d) list of impaired streams. In addition, Mr. Denicola composed a QAPP to ensure that

the U.S. EPA-accepted sampling and data handling protocols were being utilized universally across all staff members and sampling events within the watershed.

** Work performed prior to joining CEC*

PUBLICATIONS

Updates to Deckers Creek Watershed Based Plan. Friends of Deckers Creek, Monongalia County, West Virginia. November 2014.

Quality Assurance Protection Plan, Deckers Creek Watershed, West Virginia. Friends of Deckers Creek, Monongalia County, West Virginia. November 2013.

Geochemistry of Mine Pool Discharges in the Pittsburgh Coal Basin. West Virginia University Electronic Thesis and Dissertation. August, 2013.

PRESENTATIONS

Westmoreland Conservation District Engineer's Workshop, Latrobe, Pennsylvania; March 2025: Engineering, Partnerships, and Funding for Lyons Run Passive AMD Remediation. Civil & Environmental Consultants, Inc., Bridgeport, WV.

Pennsylvania Abandoned Mine Reclamation Conference, State College, Pennsylvania; October 2024: Navigating Difficult Site Constraints for Passive AMD Remediation. Civil & Environmental Consultants, Inc., Bridgeport, WV.

West Virginia Mine Drainage Task Force Symposium, Morgantown, West Virginia; April 2024: Navigating Difficult Site Constraints to Facilitate Functional Uplift of an Impaired Watershed. Civil & Environmental Consultants, Inc., Bridgeport, WV.

National Mitigation and Ecosystem Banking Conference, Raleigh, North Carolina; July 2021: Post-Construction AMD Mitigation Results for Stream Restoration on Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

Mid-Atlantic Stream Restoration Conference, Baltimore, Maryland; September 2019: Floodway Improvements & Habitat Restoration Post-Disaster, Howards Creek, Greenbrier County, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

EcoStream Stream Ecology & Restoration Conference, Asheville, North Carolina; August 2018: Stream Restoration of Coal Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

West Virginia Mine Drainage Task Force Symposium, Morgantown, West Virginia; March 2018: Stream Restoration of Coal Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

Mid-Atlantic Stream Restoration Conference, Baltimore, Maryland; September 2017: Stream Restoration on Coal Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

In Proceedings, Geological Society of America, Denver, Colorado; October 2013: Geochemistry of Mine Pool Discharges in the Pittsburgh Coal Basin. Paper No. 245-9. Denicola, T. 2013.

Michael L. Schumaker, P.E.
Geotechnical Engineering

32 YEARS OF EXPERIENCE

EDUCATION

B.S., Civil Engineering, University of Pittsburgh, 1993

M.S., Civil Engineering, University of Pittsburgh, 2000

REGISTRATIONS

Professional Engineer

- PA PE-054221-E
- OH 64779
- WV 15964
- NY 91338
- IN 10708838
- IL 62.062031
- IA 21369
- WI 41520
- MI 54882
- OK 26077
- KY 25536
- KS 30466
- AR 22545
- NC 058042
- VA 68254
- TN 131971
- NJ 24GE06237800

CERTIFICATIONS

10-hour Construction Safety, Occupational Safety & Health Administration

Michael Schumaker has more than 32 years of geotechnical and civil engineering experience on a variety of projects. He has extensive experience with site development projects in the area of geotechnical engineering. He has managed more than 200 site development projects to develop geotechnical recommendations. Projects ranged from small projects involving additions to existing facilities to large site developments for new facilities. He has designed, performed, and managed numerous geotechnical investigations to develop recommendations for the design of foundation and earth retention systems, and landslide investigation and repair. The work involved obtaining data, presenting opinions on the soil, bedrock and groundwater conditions, and the development of conclusions and recommendations for foundation, earth retention system, and pavement design. Engineering analyses included bearing capacity, settlement of structures and fills, and slope stability.

Michael is experienced in the design and preparation of construction plans and specifications for earth retention systems including sheet pile walls, reinforced soil slopes, segmental block retaining walls, soil nail walls, and soldier pile retaining walls. He has managed construction monitoring projects involving deep and spread foundation construction, retaining wall construction, slope reconstruction, and fill placement. Mr. Schumaker is experienced with construction cost estimating and management and has worked on CEC-lead design-build geotechnical and environmental projects and several commercial construction projects. He is Certifying Engineer-of-Record for several earth dam inspections and annual certifications. In addition Michael is experienced with mine tailings dams, and is experienced with spoil pile and highwall slope stability. His experience also includes forensic investigations and expert witness testimony.

PROJECT EXPERIENCE

Mining

Tailings Dams, Mine Safety and Health Administration, U.S. Department of Labor, Various Locations

Mr. Schumaker reviewed numerous design plans for tailings dams in seven states, ranging from 20 feet to more than 600 feet in height. Plan reviews routinely involved detailed evaluations and analyses of geotechnical, hydrology, and hydraulic aspects of the design. Specific review areas included slope stability analyses, seepage analyses, flood routing evaluation dam break analysis, and buried pipe strength evaluation. Computer software utilized for evaluations included HEC1, HEC2, HECRAS, DMBRK, SEEPW, PCSTABL, and SHAKE. Field experience includes several dam inspections, investigating a tailings dam failure in California and investigating the conditions of pillars, floor and roof of an underground mine in the vicinity of a proposed impoundment.

Category 1 High Hazard Potential Earthen Dam, Mariana, PA

Over a period of five years, Mr. Schumaker managed and performed the annual inspection of a mine tailings dam approximately 146 feet in height with a storage capacity of 1820 acre-feet. The inspection included reviewing embankment conditions to evaluate

the integrity and stability of the embankments, evaluating seepage conditions, identifying deficient areas of the dams, identifying areas requiring maintenance, and evaluating the emergency spillway. He subsequently prepared the Department of Environmental Protection (DEP) Inspection Checklist Reports and submitted them on time in accordance with DEP submission deadlines. Mr. Schumaker was also responsible for preparing an Emergency Action Plan update for the subject facility in accordance with DEP requirements, including preparing inundation mapping and coordination with local emergency response agencies.

Public

Malletts Creek Regional Detention Basin Improvements Earthwork Construction, Ann Arbor, MI

Mr. Schumaker provided consultation and oversight of earth work activities during earthen dam construction for the Malletts Creek regional detention basin improvements. He field verified the suitability of the embankment keyway subgrade, evaluated the suitability of proposed fill materials, observed fill placement and compaction, reviewed geotechnical laboratory testing results, and reviewed the results of field density testing for compliance with project requirements. In addition to providing consultation relative to earthwork activities, he provided consultation relative to dewatering during earthwork and various aspects of civil construction related to rip-rap and piping.

Municipal Stormwater Management Facilities, Construction Phase Services, Bethel Park, PA

Mr. Schumaker provided consultation during construction, and managed field quality control activities of inspection personnel monitoring during the construction of two earthen embankments constructed to create flood control storage ponds. Construction was complicated by the presence of soft foundation soils, and plastic clay which was difficult to properly compact. He provided recommendations to address soft soil conditions and to facilitate proper fill compaction. The project was completed on schedule and resulted in a significant reduction in flooding to the local community.

Seepage Evaluation and Remedial Design, Wellsville, OH

Mr. Schumaker designed and managed a subsurface investigation program as part of an emergency evaluation of a high-hazard earthen dam. Seepage had been observed entering the approximate 7-foot square twin concrete primary outlet conduits at two primary locations. The Ohio Department of Natural Resources, who owned the dam, was concerned that the seepage condition may have resulted in soil piping and that the condition could result in dam instability. Mr. Schumaker designed and implemented an investigation program that included test borings and horizontal probes behind the conduit walls, and installation of piezometers to monitor ground water levels. The investigation revealed apparent variable fill compaction in the clay core, and the presence of rock that had been incorporated in the fill. The results of the investigation also indicated that soil piping was not occurring. The results of the investigation were utilized to develop preliminary design recommendations relative to a horizontal drain system installed from inside the conduit and concrete repairs eliminating the need for costly grout curtains or other ground improvements typically utilized to address similar problems at other sites.

Municipal

Industrial Waste Water Treatment Plant, Letterkenny Army Depot, PA

Mr. Schumaker is responsible for management and implementation of the subsurface investigation and laboratory testing programs, and geotechnical engineering for an upgrade to an existing waste water treatment plant. The investigation included environmental sample screening to assess disposal requirements for excavated materials. The project involved analysis and design of temporary excavations support systems, as well as the development of foundation design requirements. The geotechnical investigation and design was complicated by the presence of karst geologic conditions and solution prone limestone bedrock. In the first phase of the project he was responsible for drilling coordination, the development of geotechnical design recommendations, and geotechnical report preparation. During the second phase he was responsible for the design of construction plans and technical specifications for excavation support systems. In the final phase he was responsible for reviewing contractor submittals, confirming that field conditions were consistent with the design intent, and contractor compliance with the design plans.

Upground Reservoir, Blanchester, OH

Mr. Schumaker evaluated geologic conditions based on geotechnical test drilling and laboratory results and managed geotechnical aspects of design for water storage reservoir located in an urban area. He designed seepage control measures, evaluated slope stability and foundation settlement, and review construction plans and specifications for compliance with geotechnical components of the design. Design plans and the results of engineering analyses were subsequently reviewed and approved by the state of Ohio.

Michael L. Schumaker, P.E.
Geotechnical Engineering

Transportation

AEP ROW Landslide, EPC Services Company, Ravenswood, WV

Role: Principal Geotechnical Engineer

A landslide occurred along the American Electric Power Company (AEP) electric right-of-way (ROW). The hillside was unstable and a slide scarp propagated into the adjacent West Virginia State Highway 331 (WV 331) resulting in closure of a portion of the state highway. Mr. Schumaker was the principal engineer and geotechnical engineer of record leading the slope stabilization effort. Services included conducting a subsurface investigation and laboratory testing program, slope stability analyses, and design of earthwork stabilization measures. Other services included traffic control plans, site survey, erosion and sedimentation controls, and construction quality assurance services. The repairs were coordinated with the Ohio Department of Transportation (ODOT) and were constructed while keeping one lane of traffic open.

Wilsonburg T Beam Bridge Excavation Support, Bear Contracting, Harrison County, West Virginia

Role: Geotechnical Engineering Consultant

CEC was retained to design the temporary excavation support system to allow construction of two abutments for the Wilsonburg T Beam Bridge located at Harrison County, West Virginia. Mr. Schumaker was the Engineer of Record for the design of a temporary soldier beam and lagging wall system. Geotechnical data associated with the bridge design was utilized to determine the soil pressure in addition to equipment surcharge loading on the structure. The design was based on a maximum retained soil height of 15.25 feet. The design included HP 18X181 soldier beams with timber lagging and an alternate to utilize PZ38 sheet piling. The design was reviewed and approved by the WVDOH, and the soldier beam and lagging approach was constructed.

Old Ramsey Road Wall Replacement, Beaver Excavating Company, Monroeville, PA

Role: Principal Geotechnical Engineer

Beaver was retained by the Municipality of Monroeville to provide design/build services to stabilize and reconstruct a portion of Old Ramsey Road. The roadway at the site was supported by a partially failing mechanically stabilized earth (MSE) retaining wall. The failure of the existing retaining wall resulted in the closure of the roadway. Beaver and CEC determined that the replacement of the existing wall with reinforced soil slope (RSS) would be a feasible approach to stabilize the road. Mr. Schumaker was the engineer of record leading the conceptual and final design of the roadway embankment reconstruction that Beaver used as the basis of the design/build proposal for the project. Preliminary analyses were performed to evaluate the global stability of the proposed conditions at five critical sections of the roadway. A minimum Factor of Safety (FS) of 1.5 was achieved for each section and the results were used to produce a generalized cross section, preliminary details, and a preliminary quantity estimate for the proposed RSS design. Mr. Schumaker then led the final design development, including plans and specifications, and construction quality control services during successful construction of the project.

BEL-CR48-5.11 Landslide Support, Beaver Excavating Company, Belmont County, OH

Role: Principal Geotechnical Engineer

A landslide was identified between Township Road 716 and Belmont County Road 48 near Shadyside, Ohio. Beaver was retained by the Ohio Department of Transportation (ODOT) to repair the landslide. Beaver retained CEC to evaluate the landslide and design a soldier beam and lagging wall and rock drape system to remediate the slide. The wall was up to about 10 feet in height and included W18:86 soldier beams spaced on 4.5-foot centers with precast concrete lagging. The soldier piles were set in 30-inch diameter drilled shafts with intermediate plug piles below grade. A TECCO G65/3 high tensile strength Steel Wire Mesh rock drape was designed to cover the exposed rock face on the slope below the wall. Deliverables included construction plans and specifications, including erosion and sedimentation control plans. The plans were reviewed and approved by ODOT prior to construction.

Deicing Stormwater Treatment Plant, Moon Township, PA

Mr. Schumaker managed the subsurface investigation, laboratory testing, and geotechnical engineering for a stormwater treatment plant and associated facilities. A treatment plant, two pump stations, and transmission piping will be utilized to treat deicing fluid impacted water from airport operations. The impacted water will be collected, pumped for treatment, and subsequently discharged into an existing stream. In addition to addressing structure design, the geotechnical investigation addressed access roads and subsurface conditions along the alignment of transmission piping. The subsurface investigation was complicated by the presence of a large gas line which serves western Pennsylvania and an underground water line. Prior to completing drilling, he coordinated location of the gas and water lines by excavating test pits and surveying the lines in the field under the observation of the appropriate owner of the line. Mr. Schumaker was subsequently responsible for the development of geotechnical design

recommendations, geotechnical report preparation, and review of constructions plans and technical specifications for consistency with the geotechnical design intent.

Proposed Widening of S.R. 8, Echo Real Estate Development, Gibsonia, PA
Mr. Schumaker managed the geotechnical investigation preparation of the Geotechnical Engineering Report (GER) for the proposed widening of State Route 8 in Gibsonia, Pennsylvania. Prior to completing the investigation and report, Mr. Schumaker developed the Problem Statement and Draft Exploration Plan (PSDEP), which presented the proposed geotechnical investigation and laboratory testing program which he designed. Preparation of the PSDEP identified the presence of landslide prone soils and rock in the project area. Subsequent test drilling confirmed the presence of these materials which complicated the design of stable slopes adjacent to the roadway. He led technical staff in evaluating slope stability and the developing innovative design features to ensure that excavated and fill slopes required for the roadway widening would be adequately stable. He also prepared the GER for design purposes which was subsequently reviewed and approved by PennDOT with minimal comments.

Storm Water Storage Basins, Moon Township, PA
Mr. Schumaker provided senior oversight for civil design aspects for two storm water storage basins. The storage basins will be used for deicing fluid impacted water from airport operations which will be treated and discharged downstream of weir walls. Mr. Schumaker's involvement included design responsibility for site grading and earthwork volume estimates, design of the basin liner systems, permanent erosion control measures, and storm water conveyance feature designs, and preparation of construction plans and specifications.

Weir Wall Design, Moon Township, PA
Mr. Schumaker completed the geotechnical engineering and managed the design of two weir walls. This included the design and implementation of the drilling and laboratory testing programs. The weir walls will be utilized to create storage for deicing fluid impacted water from airport operations which will be treated and discharged downstream of the weir walls. In addition to being responsible for the geotechnical investigation and design, he coordinated hydrology and hydraulic engineering, structural engineering, and civil engineering related to the weir wall design as well as permitting agency review. Mr. Schumaker was responsible for preparation of the related plans and technical specifications. He was also responsible for consultation relative to subsurface conditions encountered during construction, and addressing geotechnical issues encountered during construction.

AWARDS

Participated on the design team for the Ping Tom Park North River Edge Development which won the 2011 Friends of the Chicago River Green Ribbon Award .

PROFESSIONAL AFFILIATIONS

Appalachian Basin Gas Processors Association

American Society of Civil Engineers

PRESENTATIONS

"Innovations in Basin and Weir Wall Design" presented at the ASDSO north East Regional Conference June 16, 2009

"Design to Mitigate Landslides" presented at CEC Landslide Mitigation and Design Workshop, Pittsburgh PA, 1/15/2020

“Landslide Mitigation Techniques” presented at the Marcellus shale Coalition HDD Training Seminar, Canonsburg PA, June 20, 2018

Cory M. Krall, P.E.
Design

8 YEARS OF EXPERIENCE

EDUCATION

B.S., Mining Engineering, West Virginia University, 2017

EXPERTISE

Interacting with state and federal mining agencies

Project Management

Project Planning

Forecasting and Budgeting

Pumping System Design

Ventilation System Design

REGISTRATIONS

Professional Engineer
- WV 26294

Public Notary
- WV 360791

CERTIFICATIONS

MSHA Part 48 Aboveground & Underground Mine Safety Training, Mine Safety and Health Administration

MSHA Certified Instructor (Underground), Mine Safety and Health Administration

Underground Coal Miner, WVOMHS&T

Mine Rescue Team Member, WVOMHS&T

MSHA Qualified Impoundment Inspector, Mine Safety and Health Administration

Cory brings over eight years of experience in the mining industry, serving as the lead mining engineer for underground coal mining operations. He specializes in both short- and long-range mine planning, with a strong track record in executing these plans and analyzing performance outcomes across short-term and life-of-mine horizons. He possesses expertise in mine ventilation, combining practical, hands-on experience with advanced theoretical knowledge, including the use of computer modeling software. He possesses in-depth knowledge of mine seal installation, reclamation practices, and water management systems. He has a solid understanding of ground control principles and practices, as well as experience in developing and implementing safety standards and procedures across entire operations.

Cory has played a key role in ensuring environmental compliance with both the U.S. Environmental Protection Agency (EPA) and the West Virginia Department of Environmental Protection (WVDEP). He has contributed to the preparation of numerous reports for submission to the U.S. Securities and Exchange Commission (SEC). In addition, he established and maintained strong, trust-based relationships with the Mine Safety and Health Administration (MSHA) and the West Virginia Office of Miners' Health, Safety and Training (WVOMHS&T), facilitating efficient approval processes for mine ventilation, roof control, and various other operational plans.

Throughout his career in the mining industry, Cory has personally installed or played a key role in the installation of over 80 wet and dry mine seals.

As a mining engineer, he has completed eight comprehensive mine reclamation re-costing studies

PROJECT EXPERIENCE

Main Slope Concrete Repair, West Virginia*

Role: Lead Engineer/Project Manager

Cory led a team of contractors responsible for the demolition and replacement of failed concrete sections beneath the rail in a main mine supply slope. He conducted inspections of the subgrade material beneath the new pours to assess its integrity and suitability for supporting the new concrete. Additionally, he provided guidance on the installation of new concrete, including rebar placement and reinforcement, and performed quality control checks prior to authorizing each area for repour. As a result, a successful repair was achieved and continued failure was prevented.

Main Slope Concrete Quality Inspection, West Virginia*

Role: Lead Engineer/Project Manager

The objective of this project was to inspect concrete pours to identify failure characteristics and determine potential causes of failure. Cory conducted both visual assessments and inspections of concrete core samples, which he personally extracted. Based

on these evaluations, he identified the probable root causes of failure and developed best practices for effective repair and future prevention.

Mining

District 1 Seals, West Virginia*
Role: Lead Engineer/Project Manager
This project involved the installation of 33 mainline mine seals—both wet and dry—to permanently seal off the first district of an active mine. Cory was responsible for developing the initial seal installation plan, securing approvals from federal and state regulatory agencies, managing the project budget and cost tracking, and overseeing the successful installation of the seals.

Panel 9 Pumpable Crib Installation, West Virginia*
Role: Lead Engineer/Project Manager
This project focused on installing floor-to-roof supports to provide the necessary geotechnical stabilization for longwall mining operations. Cory was responsible for procuring all required materials, coordinating contractor schedules with the operational timeline of his former employer, managing all aspects of budgeting and cost tracking, and overseeing quality control throughout the project.

Mine Seal Core Sampling, West Virginia*
Role: Engineer
The objective of this project was to obtain and log core samples from 11 historic mine seals to evaluate their structural integrity and confirm compliance with current minimum standards for acceptable mine seal designs.

Emergency Mine Seal Installation, West Virginia*
Role: Lead Engineer/Mine Rescue Team Member
In response to an active underground mine fire, this project involved the installation of nine emergency mine seals to isolate and protect unaffected sections of the mine. Cory was responsible for certifying the designated locations for emergency seal installation in accordance with regulatory standards, supervising the installation of both wet and dry seals to ensure structural integrity and compliance with emergency protocols, leading a team of contractors as a member of a mine rescue team during a high-risk emergency scenario, coordinating all activities to ensure safety and efficiency. The project successfully isolated the unaffected portion of the mine, preventing further spread of fire and minimizing operational impact and the was completed without injury or incident, demonstrating effective emergency leadership and crisis response.
** Work performed prior to joining CEC*

PROFESSIONAL AFFILIATIONS

Society for Mining, Metallurgy, and Exploration, Inc.

D. Related Project Experience

Civil & Environmental Consultants, Inc.

2022 ABANDONED MINE LANDS CONTRACT 8 PROJECT NORTH

OWNER/CLIENT

WV Department of Environmental Protection Agency

LOCATION

Brownton, WV

CEC SERVICESW

Erosion & Sedimentation Control/NPDES Permitting

Geotechnical Engineering

Site Grading/Earthwork Analysis

Aquatic & Terrestrial Habitat Surveys

Clean Water Act, Section 401/404 Permitting

Ecological Risk Assessment & Land Restoration

Threatened & Endangered Species Surveys/Wildlife Surveys

Water Quality & Sediment Surveys

Wetlands & Waters Delineations

Watershed Planning and Restoration

Horizontal & Vertical Control Surveys

Mine Surveys and Mapping

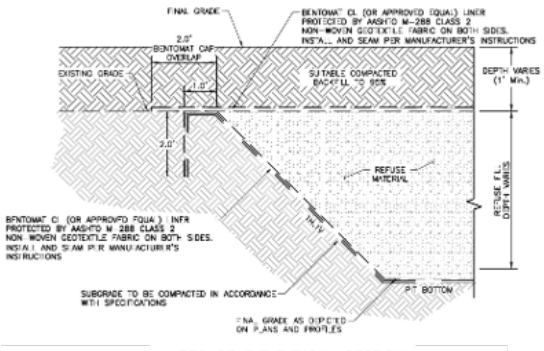
Volumetric Surveys

OWNER OBJECTIVE

The West Virginia Department of Environmental Protection (WVDEP), Office of Abandoned Mine Lands and Reclamation (OAMLR), restores land and water resources from properties mined prior to the Surface Mining Control and Reclamation Act (SMRCA) of 1977. This includes addressing dangerous hazards of mine subsidence, highwalls, open portals, open shafts, relic refuse piles, and mining-impacted water supplies.The Brownton site consists of priority 1 & 2 features including ~5,500 linear feet of unreclaimed highwalls, an ~40,000 cubic yard coal refuse pile, and two partially collapsed mine portals. Priority 3 features include two sections of clogged stream and one acid mine drainage (AMD) discharge. This property was surface and underground mined prior to SMCRA of 1977, leaving it with no liable owner and ultimately being the responsibility of the state. The WVDEP's objective is to reclaim the highwalls, encapsulate or remove large refuse piles, install mine portal seals, install surface drains through limestone channels, and revegetate the site.

CEC APPROACH

Project development included baseline ecological data collection, water quality sampling, surveying, geotechnical investigations and analysis, earthwork grading and analysis, and engineering plan production including development of technical specifications and opinions of cost. CEC had to take into consideration the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Clean Water Act (CWA) for this site. A surface water delineation and approved jurisdictional determination were completed to identify Waters of the U.S. and a Phase 1 habitat assessment and emergence harp trap surveys were conducted for threatened and endangered bats. Water quality sampling was assessed for acidity, alkalinity, and metals. The geotechnical investigation assessed site soils and refuse for physical parameters including composition, compressive & and shear strength, and chemical parameters including acid-base accounting, sulfur forms, and nutrient content for revegetation planning. The engineering approach utilized Civil 3D software to grade features and analyze earthwork volumes. Engineering drawings were produced at the conceptual, preliminary, and final (90%) stages for WVDEP review. The project is ongoing with construction forthcoming.



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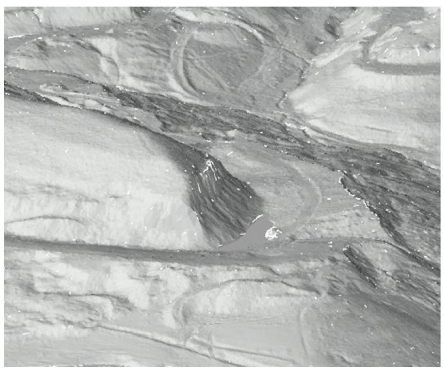
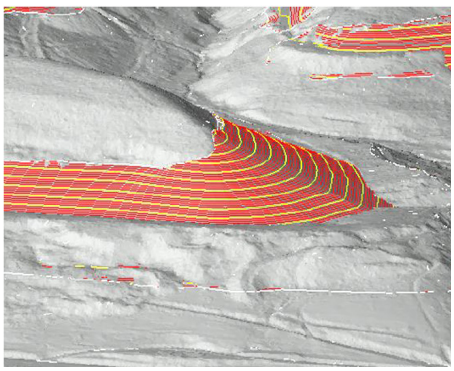
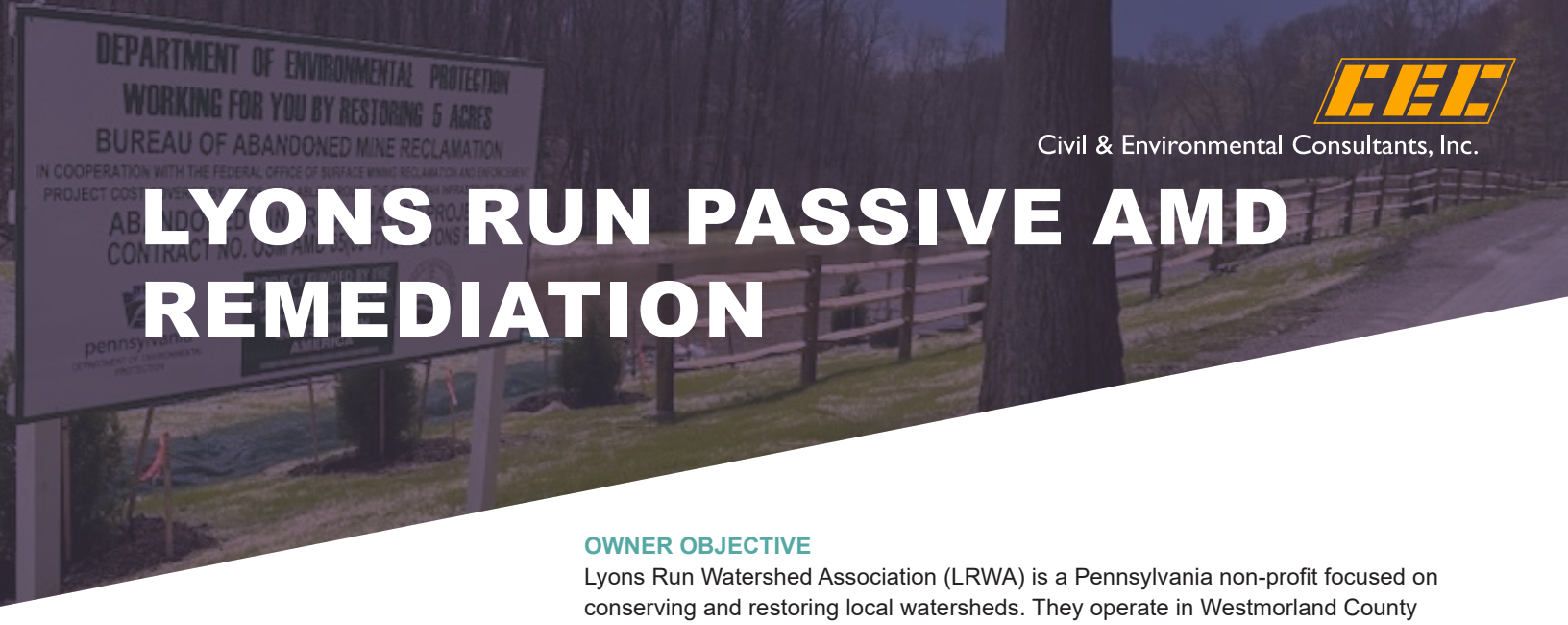






Civil & Environmental Consultants, Inc.

LYONS RUN PASSIVE AMD REMEDIATION

OWNER/CLIENT

Lyons Run Watershed Association

LOCATION

Murrysville, PA

CEC SERVICES

Erosion & Sedimentation Control/NPDES Permitting

Geotechnical Engineering

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Clean Water Act, Section 401/404 Permitting

Ecosystem Restoration

Macroinvertebrate Surveys

Water Quality

Wetland AMD Treatment

Wetlands & Waters Delineations

Erosion & Sediment Control Design

Stormwater BMP Design

TMDL Calculations and Monitoring

Watershed Planning and Restoration

Aerial Photography/Videography

As-built Surveys

Construction Surveys/Staking

Horizontal & Vertical Control Surveys

LiDAR Surveys – Short and Long Range

Review of Mine Mapping

Topographic Surveys

Unmanned Aerial Services

Archaeological Investigations (SHPO 106)

Architectural History Investigations (SHPO 106)

GPS/GIS Services

Construction Quality Assurance (CQA)

OWNER OBJECTIVE

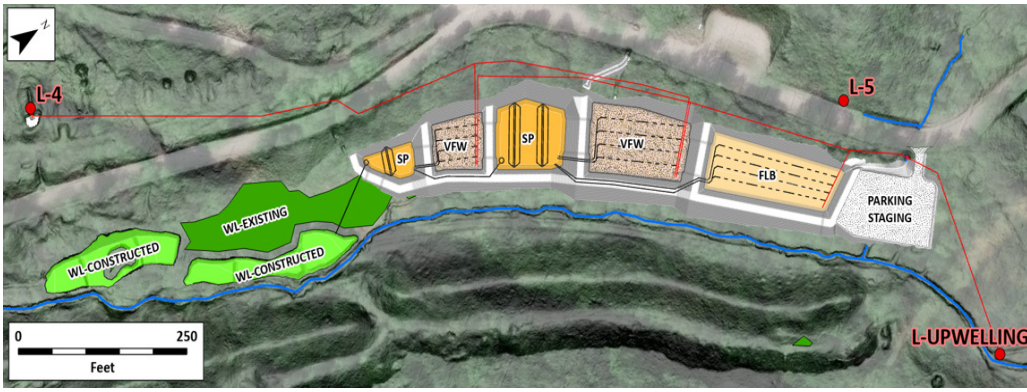
Lyons Run Watershed Association (LRWA) is a Pennsylvania non-profit focused on conserving and restoring local watersheds. They operate in Westmorland County and have acquired and conserved properties along high-quality watersheds. Three abandoned mine drainage (AMD) sources severely impacted the water quality and ecological function of the Lyons Run watershed. The project site and sources of the AMD were coal mined prior to the Surface Mining Control and Reclamation Act (SMCRA) of 1977, leaving a legacy of coal mining-related impairment with no liable owner. LRWA led the effort to design and construct a passive AMD remediation treatment system to reduce acid, iron, and aluminum contaminants in Lyons Run.

CEC APPROACH

CEC prepared an engineering design to divert the three contaminated AMD sources into a successive alkalinity producing system (SAPS) to neutralize acid, collect precipitated solids, and improve watershed aesthetic and ecological function. Various site constraints resulted in a complicated engineering approach. These included minimal vertical relief for a gravity-driven system, delineated streams and functional wetlands, shallow aquifer hydrogeology impaired by AMD, the presence of a modeled 100-yr floodway, seasonal variations in discharge rate and contaminant loading, stormwater culverts diverted into the site, and the presence of additional unconsolidated acid seeps.

CEC completed baseline water quality sampling, ecological delineations, baseline biological monitoring, high resolution LiDAR topographic UAV flights, a geotechnical site investigation, and completed regulatory components including USACE, PADEP, and local requirements. CEC performed calculations for alkalinity generation rates, chemical oxygen demand, heterogeneous iron oxidation rates, precipitated sludge volumes, and best management practice sizing and retention.

Three AMD sources are directed into separate treatment components before recombining into “polishing” wetlands. Mine spoil underwent appropriate handling and alkaline amendment practices. The site was revegetated with native, non-invasive trees, shrubs, and herbaceous cover.



Civil & Environmental Consultants, Inc.

FRANCIS DRAINAGE MAINTENANCE

OWNER/CLIENT

West Virginia Department of Environmental Protection, Abandoned Mine Lands

West Virginia Department of Environmental Protection Agency

LOCATION

Harrison County, WV

CEC SERVICES

Erosion & Sedimentation Control/NPDES Permitting

Site Grading/Earthwork Analysis

Site Infrastructure Maintenance/ Rehabilitation

Wetland AMD Treatment

Wetlands & Waters Delineations

Detailed Design

Hydrogeologic Site Investigations

Stormwater Piping and Culvert Inspections

LiDAR Surveys – Short and Long Range

OWNER OBJECTIVE

This project was on the site of a relic Acid Mine Discharge (AMD) remediation project previously designed and constructed in the 1990's. This passive AMD treatment project was originally constructed to mitigate AMD coming from the old Francis Mine which was previously abandoned, resulting in unstable coal refuse, erodible soils with poor vegetation, and problematic mine drainage from acid-producing materials. The passive treatment facility was coming to the end of its useful service life and required significant maintenance to continue use. Additionally, a change in land ownership resulted in the new property owner expressing a desire to completely remove the large facility and repurpose the land for agricultural purposes. The West Virginia department of Environmental Protection, Abandoned Mine Lands (WVDEP-AML) saw an opportunity to re-design the existing AMD treatment facility using modern day analysis and design techniques to significantly reduce footprint of the passive treatment facility while maintaining a satisfactory level of AMD treatment efficacy.

CEC APPROACH

Civil & Environmental Consultants, Inc. (CEC) was contracted by the WVDEP-AML to evaluate the existing treatment facility and make recommendations for re-design while reducing the overall treatment footprint. CEC performed a forensic evaluation of the historic data provided by the WVDEP-AML to determine the in-situ treatment efficacy of the system to be re-designed. CEC's geochemists also performed field testing to validate the findings from the historical data. Armed with this baseline data, CEC prepared several rounds of conceptual designs informed by the treatment parameters to provide to both the WVDEP-AML and the landowner for consideration. The final design was composed of a series of stepped, long, and narrow treatment cells consisting of oxidation beds, polishing wetlands, and a flushable limestone bed. A Fluid Dynamics siphon encased in a concrete vault was utilized to provide a completely passive and automated flushing limestone bed component to the system. The proposed treatment facility was designed against the side of the landowner's property to maximize the space available for livestock grazing. A construction sequencing plan was prepared that allowed the contractor to divert the constant inflow of AMD around the site while construction on the proposed system was taking place. A demolition plan was developed that allowed that provided detail as to how to decommission the existing treatment system during construction of the new system. A revegetation/ seeding plan was tailored to the landowner's desire to have a meadow to graze livestock. CEC also provided a balanced site in such a manner that the contractor could utilize multiple sources of borrow material depending on the WVDEP-AML's and Landowners desires during construction.

CEC delivered preliminary design plans complete with survey and subsurface investigation under an accelerated timeline of 60 days from receiving Notice to Proceed.

Civil & Environmental Consultants, Inc.

LEMONT EXPANSION FOUNDATION RECOMMENDATIONS AND MINE STABILIZATION

OWNER/CLIENT

Mt. Washington Realty

LOCATION

Pittsburgh, PA

CEC SERVICES

Topographic & Boundary Survey

Subsurface Investigation

Mine Stabilization Plan

Construction Phase Services

OWNER OBJECTIVE

Mt. Washington Realty, the owner of LeMont restaurant located on Grandview Avenue in the Mt. Washington section of the City of Pittsburgh, planned an addition to the restaurant and needed a geotechnical investigation to be performed, as the restaurant is situated on a steep hillside that overlooks the rivers and the City.

CEC APPROACH

CEC was retained by the restaurant owner to perform a geotechnical investigation for the addition to the restaurant. Due to the steep topography, drilling for the addition was challenging. A crane and other specialized equipment was needed to access the location of the addition. The geotechnical investigation also included researching past mining activities in the area.

CEC performed mine map and coal resources data research to investigate the occurrence of deep mining of the Pittsburgh Coal seam below the site. The research confirmed that the coal had been deep mined, and CEC presented recommendations to the owner to reduce the risk of future structural damage to the new addition by grouting the mine. Mine grouting entails drilling 6 to 8 inch-diameter hole to the mine level and pumping a mixture of cement, fly ash and water into the mine to fill the voids and stabilize the mine. The owner elected to undertake a mine stabilization program to reduce the risk of future subsidence, and CEC prepared a mine stabilization plan and specifications for the work, and provided full-time construction monitoring during the project. CEC also performed a site topographic and boundary survey for the project.

Civil & Environmental Consultants, Inc.

CRAFTS CREEK STREAM FLOW RESTORATION PROJECT

OWNER/CLIENT

CNX Resources Corporation

LOCATION

Morris Township, Washington County, PA

CEC SERVICES

Natural Stream Channel Design

Liner Design

Hydrology and Hydraulic Analysis

Erosion and Sediment Control Design

Construction Monitoring

Construction Quality Assurance

OWNER OBJECTIVE

CNX Resources Corporation was looking to restore and maintain flow of Crafts Creek, overlaying the E18 Enlow Fork Mine longwall mining panel, to a stable and ecologically functional stream channel. The Pennsylvania Department of Environmental Protection (PADEP) is requiring flow be restored to the streams' pre-mining condition.

CEC APPROACH

CEC was hired to perform a stream flow restoration project on an approximately 1,000 feet section of Crafts Creek. A stable stream channel was designed utilizing geosynthetics, geotextiles, an alluvial amendment method, and natural stream channel design principles to seal the underlying fractured bedrock and thus help restore and maintain stream flow.

The stream channel grading plan was designed with reference reach data collected along Sawhill Run in East Finley Township, Washington County, Pennsylvania as well as using regional curve equations for stable stream channel characteristics such as drainage area; bankfull depth, width, and cross-sectional area; meander length; radius of curvature; and floodprone area width. The stream bankfull capacity was designed for a 2-year storm event.

The geosynthetic stream liner system utilized a geosynthetic clay liner (GCL) overlain by a Geoweb cellular confinement system to provide a barrier to infiltration into the underlying fractured bedrock. The stream liner system was designed to resist erosion from a 100-yr storm event and was installed in the upstream section of the stream restoration reach. A detailed hydrologic and hydraulic analysis was performed to determine the velocities, shear stress and stream power in order to confirm the natural channel and stream liner design geometry and stability.

The alluvial amendment method used the addition of bentonite to the subsurface alluvium and soils to create a more cohesive and lower permeable substrate soil that can improve stream flow conveyance. This method was used in the downstream section of the stream restoration reach.

An erosion and sediment control design, that minimized the impacts to water quality during construction, was provided in compliance with PADEP Chapter 102 requirements for the project. Construction monitoring and quality assurance was performed to ensure the restoration activities were built in accordance with the construction drawings and specifications. Final planting was completed in 2013.

A detailed stream restoration compliance monitoring program, which included regular field visits for five years to document the progression of the stream back to a naturally functioning and stable stream channel, was performed for the stream restoration reach following construction.

Civil & Environmental Consultants, Inc.

LOWER DEMPSEY STREAM MITIGATION BANK

OWNER/CLIENT

Ecosystem Investment Partners, LLC

Canaan Valley Institute, Inc.

LOCATION

Logan County, WV

CEC SERVICES

Stream & Wetland Delineation

Stream Assessment and Valuation Metric Computation

Mitigation Prospectus, Banking Instrument, Plan, and Permit

Construction Drawings and Specifications

Construction Oversight

Before Restoration

After Restoration

OWNER OBJECTIVE

The Lower Dempsey Stream Mitigation Bank is located in Logan, West Virginia and demonstrates an innovative approach to restoration of abandoned mine lands and silvicultural practices. With over 700 acres of conservation and 8 miles of streams, Ecosystem Investment Partners, LLC (EIP) sponsored this stream mitigation bank to provide mitigation credits for unavoidable impacts in the Upper and Lower Guyandotte, Coal, Twelvepole, Tug, and Upper and Lower New watersheds. This stream mitigation bank was developed by EIP in partnership with Canaan Valley Institute (CVI) and Civil & Environmental Consultants, Inc. (CEC).

The restoration at Lower Dempsey Stream Mitigation Bank includes: restoration of streams across highwall mine benches; mine access roads built in the stream or its floodplain; failing or “hanging” pipe culverts; and severe erosion and down-cutting. Some project challenges included restoration of steeply sloping headwater streams, reclamation of mined landscapes and valleys, the construction of alluvial fans, and surface and subsurface hydrological improvement.

CEC APPROACH

CEC was retained to provide ecological planning, assessment, plan production, and permitting services. CEC performed the stream and wetland delineations and conducted a jurisdictional determination site visit with the Interagency Review Team (IRT). CEC also performed water quality, benthic macroinvertebrate sampling and habitat scoring of streams to determine baseline conditions for credit computations using the WV Stream and Wetland Valuation Metric. CEC produced construction-level design drawings (with support from CVI) for the mitigation plans with its custom stream design application using AutoCAD® Civil 3D® software, which enables rapid design adjustments to stream grading plans. CEC assisted EIP and CVI in preparing the prospectus, MBI, and mitigation plans and with agency negotiations for the Clean Water Act 404 and 401 permits.

The Lower Dempsey Stream Mitigation Bank was completed in 2016 and is exceeding the goals and objectives of the project.

Civil & Environmental Consultants, Inc.

BEAVER CREEK PASSIVE AMD TREATMENT

OWNER/CLIENT

Friends of the Cheat, Inc.

LOCATION

Kingwood, WV

CEC SERVICES

Site Grading/Earthwork Analysis

Clean Water Act, Section 401/404 Permitting

Ecosystem Restoration

Water Quality & Sediment Surveys

Wetland AMD Treatment

Wetlands & Waters Delineations

NPDES Permitting Support

Construction Quality Assurance

Erosion & Sediment Control Design and Inspection

Watershed Planning and Restoration

Horizontal & Vertical Control Surveys

Topographic Surveys

Construction Management

GPS/GIS Services

Existing acid-iron conditions of UNT to Beaver Creek.

OWNER OBJECTIVE

Friends of the Cheat, Inc. (FOC) is a non-profit watershed association with the mission to restore, preserve, and promote the outstanding natural qualities of the Cheat Watershed. FOC has been recognized repeatedly over the years for unrelenting dedication and measurable success to improve the Cheat Watershed. FOC works with community stakeholders and technical experts to understand and revitalize brownfields in the lower Cheat River watershed to spur economic growth, protect public health, and promote environmentally-friendly redevelopment. Since 1995, FOC and its partners have implemented 15 acid mine drainage (AMD) treatment systems on abandoned mine lands in the lower Cheat River watershed.

The Beaver Creek AMD project site resides on pre-Surface Mining Control and Reclamation Act (SMCRA) Abandoned Mine Land (AML) of the upper Appalachian plateau. Pre-SMCRA mining had no reclamation requirements and extraction of high sulfur coal has contaminated a local watershed with high acidity, iron, and aluminum concentrations. The contaminants absolutely inhibit establishment of aquatic ecosystem and associated riparian buffer.

CEC APPROACH

The engineering design utilizes an existing, but ecologically barren delineated waterway under the jurisdiction of the United States Army Corps of Engineers (USACE). The bulk of construction will utilize onsite fill material requiring appropriate geotechnical engineering methods. Treatment system components will utilize bell siphons and plumbing requiring tight tolerances on elevations.

CEC completed topographic surveying and biological assessment of the terrestrial and aquatic species at the site. Water quality and hydrologic data was collected specifically to drive the engineering design. Calculations and bench testing were utilized to assess contaminant loads, acid neutralization rates, metal oxidation rates, appropriate reagent tonnages, and best management practice (BMP) sizing. CEC made substantial contributions to surface stabilization and erosion and sediment (E&S) control design including the use of fill compaction keys and turf reinforcement materials.

CEC balanced a combination of treatment efficacy with BMP sizing to determine the optimal cost-benefit scenario. Reduced contaminant loads will elicit establishment of aquatic habitat and benefit a downstream trout fishery. A diverse planting plan of native grasses, hardwoods, and evergreens will stabilize the site and provide healthy riparian ecosystem. Overall the project will work toward achieving Total Maximum Daily Load (TMDL) thresholds, which is a Clean Water Act Title 319 funding objective.

Header Photo: Existing acid-aluminum AMD seep discharging into pond

Civil & Environmental Consultants, Inc.

RECLAMATION OF FOUR BOND FORFEITURE SITES

OWNER/CLIENT

Stantec, Inc.

LOCATION

Northern West Virginia

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water Remediation Systems

Coal Refuse and Pavement Neutralization

Landowner Negotiations

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

Stantec, Inc. is an international professional services company in the design and consulting industry that has more than 400 locations in North America and 7 locations internationally. Stantec was seeking assistance with reclamation projects at five bond forfeited sites in northern West Virginia. The sites include three RobLee Coal Company mines, one Energy Marking Company mine and one Buffalo Coal Company mine.

CEC APPROACH

Stantec awarded CEC the contract to develop reclamation plans for the five bond forfeited sites. CEC began the project by obtaining rights-of-entry from 12 different landowners as well as having those landowners sign waivers for access roads and ponds constructed by the mine operations. In addition, CEC was tasked with developing and implementing subsurface investigations, obtaining aerial photography with field control surveys, supplementing aerial photography with onsite field surveys, obtaining soil and refuse analyses, and reclamation design.

CEC performed topographic surveying and generated construction plans and specifications for the five project sites prior to construction. Improvements to 2.5 miles of access roads also had to take place before construction could begin.

The projects involved the design of approximately 1,080,000 cubic yards of balanced earthwork, three mine seals, rock toe drains, and approximately 3,500 feet of subsurface drains. During remediation, approximately 23,500 feet of ditches were constructed, 13 sediment control ponds with outlet structures were re-constructed, and approximately 830 feet of piping was installed. CEC also managed the revegetation of approximately 165 acres.

Three of the sites have been built successfully.

Civil & Environmental Consultants, Inc.

SHINNS RUN PORTAL

OWNER/CLIENT

West Virginia Department
of Environmental Protection

LOCATION

Shinnston, WV

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water
Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

The West Virginia Department of Environmental Protection (WVDEP) was seeking assistance with the reclamation design of the Shinns Run Portals Abandoned Mine Lands located near Shinnston in Harrison County, West Virginia. Past deep mining operations have captured stream flows, impacted Harrison County Route 13, and resulted in the formation of fifteen open, partially collapsed, or totally collapsed mine openings. The deep mined Pittsburgh coal seam is located in close proximity to several area homes, within the right-of-way of Harrison County Route 13, and within four vertical feet of Shinns Run Stream.

CEC APPROACH

CEC was awarded the contract to perform engineering services for the reclamation design of the Shinns Run Portals project. CEC performed field surveying tasks to complement aerial mapping supplied by the WVDEP; developed and implemented a subsurface investigation to quantify and qualify impounded mine pools; and performed a detailed preliminary investigation to include public and private records. The preliminary investigation obtained available deep mine maps, interviewed affected landowners, evaluated construction and drill access, and evaluated sources for materials to be used in reclamation of the project.

The project involved submittal and approval of an Army Corps of Engineers permit and a Hydraulic Engineering Center-River Analysis System (HEC-RAS) hydrologic evaluation of Shinns Run to determine potential flood impacts to residents' homes from installation of low water crossings in order to successfully seal all mine openings. CEC developed plans to seal two streambeds now flowing into the abandoned mine works through subsidence features. In addition, CEC led boring and jacking operations to place a pipe beneath Harrison County Route 13 and provide hydraulic relief to an area home. Approximately 900 linear feet of ditches, 1,000 linear feet of subsurface drains, 450 linear feet of stream bank protection, and 75 feet of roadbed protection were designed by CEC.

CEC performed topographic surveying; generated construction mapping; analyzed soil test results to determine soil amendments for vigorous vegetative growth; performed hydraulic and hydrologic studies and designed ditches and pipes; developed preliminary and final design construction plans and specifications; designed mine pool dewatering operations and mine drainage treatment plans; developed an engineer's cost estimate, bid schedule, and calculation brief; attended initial on-site, preliminary design, and final design meetings.

Civil & Environmental Consultants, Inc.

ARLINGTON (GAIN) HIGHWALL

OWNER/CLIENT

West Virginia Department of Environmental Protection

LOCATION

Arlington, West Virginia

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

The West Virginia Department of Environmental Protection (WVDEP), Office of Abandoned Mine Lands oversees and facilitates the resolving of public safety issues as mine fires & subsidence, hazardous highwalls, mining-impacted water supplies, open shafts and portals, and other dangers resulting from mining before 1977. Such practices were established by the Surface Mining and Control Act and the creation of the Office of AML&R in 1981. The Office of Surface Mining provides oversight to the Office of AML&R.

The WVDEP, Office of Abandoned Mine Lands requested proposals to provide design services to eliminate falling/entrapment hazard from a previous reclamation operation.

CEC APPROACH

CEC performed a field visit to identify the problem area and make recommendations for elimination of the hazard. CEC provided GPS field survey tasks to map the problem area.

The project involved 570 linear feet of sediment control; 210 feet of ditches; 260 feet of pipes; 130 linear feet of subsurface drains; one manhole; one drop inlet; one headwall; one acre of Revegetation; topographic surveying to generate project mapping; hydraulic studies and design for ditches and pipes; sediment control design; revegetation plan; preliminary and final design; construction plans and specifications; engineers cost estimate, bid schedule, and calculation brief; initial on-site, preliminary design, pre-bid meeting; monthly reports and invoicing.

The project was completed in June 2015.

Civil & Environmental Consultants, Inc.

McALPIN PORTALS

OWNER/CLIENT

West Virginia Department of Environmental Protection

LOCATION

Bridgeport, WV

CEC SERVICES

Geotechnical Engineering

Site Grading/Earthwork Analysis

Slope Stability/Retaining Structure Design

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Soil/Groundwater Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

Landslide Remediation

OWNER OBJECTIVE

The McAlpin Portals Abandoned Mine Lands, located near Bridgeport in Harrison County, West Virginia, consisted of approximately 3,400 linear feet of high wall ranging from 30 to 50 feet in height, and ten collapsed mine entries, five of which were discharging acid mine drainage. The uncontrolled mine drainage runs over the hill causing further slope instability and threatening five homes located downhill.

CEC APPROACH

CEC was awarded a contract by the West Virginia Department of Environmental Protection (WVDEP) to perform engineering services for the reclamation design of the abandoned mine lands. CEC designed and implemented a drilling program to define slip limits and testing of spoil properties for slope stability. CEC also supplemented WVDEP mapping with field surveys of important project features such as seep, slip, coal refuse boundaries, and collapsed portal locations.

CEC provided Retaining Wall/Earth Moving Design Alternatives for four slips; reclamation design with 42,000 cubic yards of excavation; 9,200 linear feet of erosion and sediment control; 5,325 linear feet of ditches; 247 linear feet of pipes; 1,317 linear feet of subsurface drains; one manhole; a Gabion Basket Retaining Wall; subsidence hole mitigation; stream bank protection; five mine seals; 23 acres of revegetation; topographic surveying to supplement existing mapping; soil physical properties testing for slope stability; hydraulic studies and design for ditches and pipes; sediment control design; revegetation plan; preliminary and final design; construction plans and specifications; dewatering and AMD Treatment Plan.

Civil & Environmental Consultants, Inc.

HODGESVILLE (WRIGHT) MINE BLOW-OUT

OWNER/CLIENT

West Virginia Department of Environmental Protection

LOCATION

Hodgesville, WV

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

The West Virginia Department of Environmental Protection (WVDEP), Office of Abandoned Mine Lands oversees and facilitates the resolving of public safety issues as mine fires & subsidence, hazardous highwalls, mining-impacted water supplies, open shafts and portals, and other dangers resulting from mining before 1977. Such practices were established by the Surface Mining and Control Act and the creation of the Office of AML&R in 1981. The Office of Surface Mining provides oversight to the Office of AML&R.

The WVDEP, Office of Abandoned Mine Lands requested proposals to provide design services to mitigate problems associated with an unexpected mine blow-out. This project was deemed an emergency project with a very short time frame for document submittal and awarding of the construction contract. The problem area was located approximately 300 feet behind a residence. On or about March 17, 2015 a mine blowout sent uncontrolled high flows of mine water down an existing ditchline. The uncontrolled flow sent mud, debris, and sediment down the ditchline plugging an existing drop inlet and pipe beneath US Route 20 and submerging US Route 20 beneath 10 inches of water for a period of time causing the road to be closed to traffic. After the initial surge, a 25-foot diameter pool approximately three feet deep developed directly adjacent to US Route 20 with the overflow directed down the east road ditchline. The West Virginia Department of Highways had removed debris from atop the drop inlet and re-established flow though the road pipe. The outlet end of the road pipe is submerged with mud and debris with water conveyed by the road pipe welling-up out of the ground and sheet flowing into nearby ditches.

CEC APPROACH

CEC's reclamation design included 12,500 cubic yards of excavation; two wet mine seals; 1,900 linear feet of sediment control; 531 linear feet of ditches; 116 feet of pipes; 355 linear feet of subsurface drains; one manhole; four acres of revegetation; topographic surveying to develop project mapping; soil testing; hydraulic studies and design for ditches and pipes; sediment control design; revegetation plan; preliminary and final design; construction plans and specifications; dewatering and AMD Treatment Plan; engineers cost estimate, bid schedule, and calculation brief; initial on-site, preliminary design, pre-bid meeting; monthly reports and invoicing.

The project was completed in November 2015.

Civil & Environmental Consultants, Inc.

ARKWRIGHT SLURRY IMPOUNDMENT

OWNER/CLIENT

CONSOL Energy, LLC/CNX Land Resources (Owner)

Mon-View LLC. (Client)

LOCATION

Monongalia County, WV

CEC SERVICES

Cone Penetrometer Testing

Geotechnical Investigation

Settlement Evaluation

Flood Routing

Site Grading Analysis

Closure Plan

Revegetation

Construction Support

OWNER OBJECTIVE

After the closure of the Arkwright mining complex near Morgantown, West Virginia, CONSOL Energy, LLC (CONSOL) opted to develop the site for commercial use. CONSOL contracted CEC to generate a closure plan for an inactive fine coal refuse (FCR) slurry impoundment. FCR is material contained within a slurry generated by the coal preparation process that settles and consolidates over time.

CEC APPROACH

CEC performed a geotechnical investigation and analysis, and provided a closure plan for the inactive FCR slurry impoundment. Piezo-Cone Penetrometer Testing (CPTU) was performed in the impoundment to assess the stability and compressibility of the FCR materials, and piezometers were installed within the impoundment and embankment.

CEC's investigation and analysis of the CPTU data determined that the impoundment and FCR was well-drained and that the FCR materials would compress up to 3.5 feet under the backfill placed during the closure of the impoundment. Consequently, no specialized treatments (such as grouting or wick drains) were needed to stabilize the FCR materials prior to development. Some areas, depending on the postdevelopment use, received fill surcharges to induce settlements prior to development. Settlement monitoring data was collected and analyzed in these areas prior to surcharge removal and final site development activities.

Closure of the impoundment entailed a complete breach of the embankment, and excavation and placement of approximately 1,300,000 cubic yards of fill. At completion, the site provided approximately 40 acres of level development area within the former mine waste disposal facility, of which approximately 30 acres were purchased by Wal-Mart Stores, Inc. for the construction of a new Wal-Mart Supercenter and Sam's Club.

Civil & Environmental Consultants, Inc.

BEECH HOLLOW POWER PROJECT
COAL REFUSE MINING AND RECLAMATION DESIGN AND PERMITTING

OWNER/CLIENT

Champion Processing, Inc.

LOCATION

Robinson Township, Pennsylvania

CEC SERVICES

Geotechnical and Civil Engineering

Coal Refuse Reclamation and Ash Disposal Permitting

Geologic and Hydrogeologic Characterization

OWNER OBJECTIVE

Champion Processing, Inc. required a geotechnical and civil engineering analysis for adding a co-generation power plant facilty to their 600-acre coal refuse disposal facility to reclaim coal refuse for fuel and disposal of ash back on the Champion coal refuse disposal area.

CEC APPROACH

CEC performed detailed geotechnical and civil engineering analyses for a 300 mW co-generation power plant facility, which included coordinating, performing and managing all aspects of the investigation, subsurface exploration, laboratory testing, development of soil and rock design parameters, foundation and construction design recommendations, slope stability analyses, retaining wall design, and road design.

Concurrently, CEC performed the coal refuse disposal permit modification for the existing 600-acre Champion Processing, Inc. (Champion) coal refuse disposal facility. CEC services included the design and permitting of the coal refuse reclamation and ash disposal operations, preparation of all permit application forms, acquisition of all necessary geologic and hydrogeologic data required for the application, developing coal refuse and ash strength properties and performing interim and long-term slope stability analyses, erosion & sedimentation and storm water management facility design, and coordination of the permit submittal and review process with the Pennsylvania Department of Environmental Protection.

Civil & Environmental Consultants, Inc.

MARRIOTT HOTEL MINE GROUTING

OWNER/CLIENT

Marriott International, Inc.

LOCATION

Morgantown, WV

CEC SERVICES

ADA Accessibility Analysis

Erosion & Sedimentation Control/NPDES Permitting

Landscape Architecture/Land Planning

Predevelopment Site Investigations

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Sustainability Planning/Design

Utility Design

NPDES Permitting Support

Low Impact Development Design

Stormwater BMP Design and Inspections

OWNER OBJECTIVE

Marriott International, Inc. is a public, worldwide hospitality corporation with more than 6,500 properties. Marriott was looking to construct a new hotel at the University Town Center in Morgantown, West Virginia. However, since underground coal mining was previously performed beneath the site, Marriott wanted to ensure the site was stable for construction of the new building.

CEC APPROACH

To decrease the risk of mine subsidence, Marriott decided to grout the mine present beneath the site. CEC was selected to provide a mine grouting plan, mine grouting stabilization specifications, and construction quality control services for the grouting operations. CEC's mine grouting plan showed the drilling and grouting locations, and specifications included requirements for the materials, procedures, and testing.

CEC also provided on-site daily inspection of the grouting and testing of the materials used. A summary letter was provided, after the grouting was complete, stating that the project was performed in general accordance with CEC's plans and specifications.

This work was completed in 2015.

E. Certificates of Authorization

CERTIFICATE OF *Authorization*

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

The West Virginia State Board of Registration for Professional Engineers having verified the person in responsible charge is registered in West Virginia as a professional engineer for the noted firm, hereby certifies

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
C02231-00

Engineer in Responsible Charge: STEVEN A. CAIN - WV PE 015264

has complied with section §30-13-17 of the West Virginia Code governing the issuance of a Certificate of Authorization. The Board hereby notifies you of its certification with issuance of this Certification of Authorization for the period of:

January 1, 2024 - December 31, 2025

providing for the practice of engineering services in the State of West Virginia.

IF YOU ARE REQUIRED TO REGISTER WITH THE SECRETARY OF STATE'S OFFICE, PLEASE SUBMIT THIS CERTIFICATE WITH YOUR APPLICATION.

IN TESTIMONY WHEREOF, THE WEST VIRGINIA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS HAS ISSUED THIS COA UNDER ITS SEAL, AND SIGNED BY THE PRESIDENT OF SAID BOARD.

Scott E. Thomas Jr.

BOARD PRESIDENT

WEST VIRGINIA BOARD OF PROFESSIONAL SURVEYORS

Certificate of Authorization

Civil & Environmental Consultants, Inc.
Bridgeport, WV

CERTIFICATE OF AUTHORIZATION # 25-5847

This certificate is issued by the West Virginia Board of Professional Surveyors in accordance with W.Va. Code §30-13A-20
The person or organization identified on this certificate is licensed to conduct professional surveying and mapping services in the State of West Virginia for the period

January 1, 2025 through December 31, 2025

This certificate is not transferable and must be displayed at the office location for which issued.

In witness whereof, I have put my hand, this 31 day of March 25

2025

Sefton R. Stewart, P.S., Chairman
Lantz G. Rankin, P.S., Member

James T. Rayburn, P.S., Secretary
Gary Facemyer, P.E, P.S., Member

Douglas C. McElwee, Esq. Public Member

F. Miscellaneous Forms

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

(Printed Name and Title) Joseph Robinson

(Address) 120 Genesis Boulevard

(Phone Number) / (Fax Number) 304-933-3119 / 304-933-3327

(email address) jrobinson@cecinc.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through *wv*OASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Civil & Environmental Consultants, Inc.

(Company)

Steven A. Cain

(Signature of Authorized Representative)

Steve Cain - Vice President West Virginia Operations Lead August 20 2025

(Printed Name and Title of Authorized Representative) (Date)

304-933-3119 / 304-933-3327

(Phone Number) (Fax Number)

scain@cecinc.com

(Email Address)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DEP2600000001

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

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

Addendum Numbers Received:
(Check the box next to each addendum received)

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

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

Civil & Environmental Consultants, Inc.
Company


Authorized Signature

August 20, 2025
Date

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

OMB # 1029-0119
Expiration Date:
01/31/2028

ABANDONED MINE LANDS (AML) CONTRACTOR INFORMATION FORM

You must complete this form for your AML contracting officer to request an eligibility evaluation from the Office of Surface Mining Reclamation and Enforcement (OSMRE) to determine if you are eligible to receive an AML contract. This requirement can be found under OSMRE's regulations at 30 CFR 874.16. **NOTE:** This form must be signed and **dated within 30 days** of submission to be considered for a current bid.

Part A: General Information

Business Name:	Civil & Environmental Consultants, Inc.
Tax ID #:	25-1599565
Address:	120 Genesis Boulevard
City, State, & Zip:	Bridgeport, WV 26330
Phone Number:	304-933-3119
Email Address:	scain@cecinc.com

Part B: Obtain an Organizational Family Tree (OFT) from the Applicant Violator System (AVS)

If you plan to certify the existing AVS information or submit updates under Part C, you must include an OFT. Instructions for downloading an OFT from the AVS can be found at: https://www.osmre.gov/sites/default/files/2022-02/OMB%201029-0119%20instructions.pdf. If you require assistance you may contact the AVS Office by phone at: 800-643-9748, or by email at: avshelp@osmre.gov.

Part C: Certifying and updating information in the AVS

Select one of the options, follow the instructions for the selected option, sign, and date below.

I, Steve Cain , have express authority to certify that:
(Print Name)

- [x] 1. Our business is listed in the AVS. The information is accurate, complete, and up to date. (If you select this option, you must attach an Entity OFT from the AVS to this form). Do not complete Part D.
- [ ] 2. Our business is in the AVS. The information needs to be updated. (If you select this option, you must attach an Entity OFT from the AVS to this form). Complete Part D to provide the missing or corrected information.
- [ ] 3. Our business is not listed in the AVS. The information needs to be added. Complete Part D to provide the information.

August 20, 2025	Steven A. Cain	Vice President
Date	Signature	Title

Civil & Environmental
Consultants, Inc.

120 Genesis Boulevard | Bridgeport, WV 26330 | www.cecinc.com