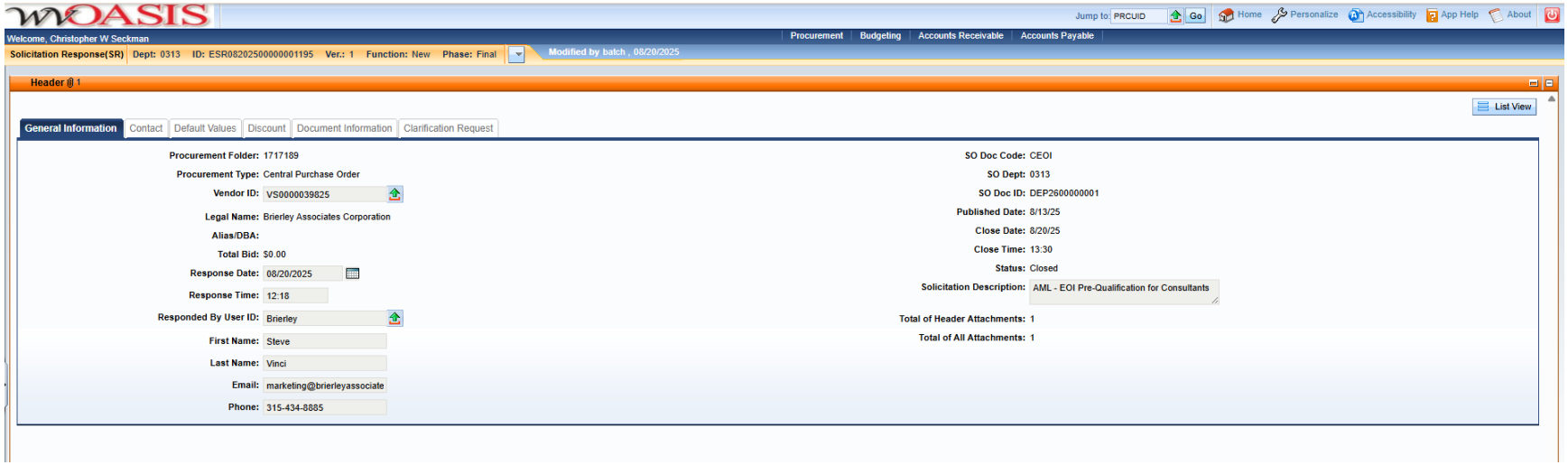
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency 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
Jump to PRCUID Go
Home Personalize Accessibility App Help About
Welcome, Christopher W Seckman
Procurement Budgeting Accounts Receivable Accounts Payable
Solicitation Response(SR) Dept: 0313 ID: ESR08202500000001195 Ver.: 1 Function: New Phase: Final
Modified by batch , 08/20/2025
Header @ 1
List View
General Information
Contact
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Document Information
Clarification Request
Procurement Folder: 1717189
Procurement Type: Central Purchase Order
Vendor ID: VS0000039825
Legal Name: Brierley Associates Corporation
Alias/DBA:
Total Bid: $0.00
Response Date: 08/20/2025
Response Time: 12:18
Responded By User ID: Brierley
First Name: Steve
Last Name: Vinci
Email: marketing@brierleyassociate
Phone: 315-434-8885
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 ESR08202500000001195	1

VENDOR

VS0000039825
Brierley Associates Corporation

Solicitation Number: CEOI 0313 DEP2600000001

Total Bid: 0 **Response Date:** 2025-08-20 **Response Time:** 12:18:16

Comments: Brierley offers a discount of 2% if paid electronically within 20 days.

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

August 20, 2025

Joseph (Josh) E Hager III
State of West Virginia
Department of Environmental Protection
Division of Land Restoration
Office of Abandoned Mine Lands and Reclamation
joseph.e.hageriii@wv.gov

Re: EOI Prequalification for Design Firms

File: 125297-970

Dear Mr. Hager,

Abandoned mine lands pose serious, variable challenges and hazards to states like West Virginia including subsidence, slope stability, highwalls, portals, mine fires, clogged streams, water quality issues, erosion concerns, and Acid Mine Drainage, among many others. You will see from the attached qualifications that the Brierley Associates Team, with our project partners Applied GeoLogic, Triad Engineering, and EnviroScience, is experienced and capable of providing the realty, planning, permitting, A/E design, and construction observation tasks listed in this Expression of Interest.

The Brierley Team's focus on delivering quality services, working in concert with your office and important stakeholders such as property owners, will bring valuable support to West Viriginia's AML program. Our team members understand that successful delivery of services is hard work and is founded on honest, effective communication and our collective knowledge of investigating and mitigating issues on Abandoned Mine Lands. Through our cumulative decades of AML experience, we have developed cost effective means and methods to address the variety of hazards and issues that can plague AML sites through our numerous projects for Abandoned Mine Lands offices in other states.

We hope to have the opportunity to demonstrate our capabilities. If you have any questions regarding Brierley Associates' response to this Expression of Interest or the qualifications of our team, please contact me at 414-477-0634 or by email at jzimmermann@brierleyassociates.com.

Best Regards
BRIERLEY ASSOCIATES CORPORATION

Joshua Zimmermann, PE
Associate

Table of Contents

Section 1 – Company Background

About Brierley Associates

Brierley Associates' (Brierley) abandoned mine mitigation design and consulting services are founded on a keen understanding of our clients' needs, surface and subsurface conditions, site-specific constraints, and risks that can plague abandoned mine land sites. Through our rigorous past AML design work, we have developed multiple tools and internal processes to take projects from cradle to grave for realty, planning, permitting, A/E design, and construction management related tasks. These processes include in-house ArcGIS Online tools (for tracking rights of entry and conversations with certain property owners, historic geological information, construction management tasks, and more), which help us to develop an understanding of the complexities associated with each AML site, and design evidence-based, site specific, and constructable solutions for a variety of geotechnical and environmental hazards. These investigations have also employed the use of remote sensing technologies (including thermal, LiDAR, and orthomosiac imaging), and high accuracy survey tools, as well as the use of geophysical surveys, multiple types of investigative geotechnical drilling practices, soil/rock laboratory testing, groundwater analytical testing, special inspections, material testing techniques, and construction management to provide comprehensive services for abandoned mine clients.

Over the past decade, Brierley has overseen 30+ mine reclamation projects across the country, totaling over $24 million in design and construction management fees and over $100 million in construction costs. The size of Brierley's mine reclamation projects over the years has varied and includes sites ranging from 0.25 - 350 acres with per-project construction costs ranging from $300,000 to over $30 million. **Two projects planned, designed, and with construction oversight performed by Brierley Associates have won Abandoned Mine Land awards from OSMRE in the past five years, indicating a consistent record of the excellent care and practice we undertake with all our projects.**

About Triad Engineering Inc.

Triad Engineering Inc. (Triad) is a multi-disciplinary, employee-owned firm of engineers, surveyors and scientists who provide geotechnical and civil engineering, environmental services, drilling, surveying and construction testing and inspection services. Since 1975, Triad has grown from a small office in West Virginia to nine offices across five states. Triad can provide practical solutions to meet your projects needs in the field of geotechnical engineering, civil engineering, field investigations, environmental investigation laboratory testing, and surveying.

About EnviroScience, Inc.

EnviroScience, Inc. (EnviroScience) has focused on providing efficient, cost-conscious, and time-sensitive solutions to environmental challenges. Since 1989, EnviroScience has provided expert technical services to help their clients meet their environmental design and regulatory requirements. Their clients include federal, state, and municipal governments, state departments of transportation (DOTs), the railroad industry, utilities, mining and manufacturing, engineering firms, and private individuals.

The diverse backgrounds of their biologists, environmental engineers, scientists, and divers enable them to provide comprehensive in-house services and an integrated approach to solving environmental challenges—saving clients time, reducing costs, and ensuring high-quality results.

EnviroScience was created to solve complex problems by empowering great people. This concept still holds true today as their scientists explore the latest environmental legislation and regulations and incorporate the most up-to-date technology to gather and report data.

About Applied Geologic

Applied GeoLogic, LLC (GeoLogic) is a small business enterprise geotechnical engineering firm founded in 2013 in Evergreen, Colorado specializing in mine fires and subsidence issues. Mr. David Hallman is the manager and sole proprietor of Applied GeoLogic. Mr. Hallman is a Geological Engineer with 40 years of experience specializing in active, inactive and abandoned mining projects throughout the United States and internationally. He is a registered Professional Engineer in the States of Alaska, Colorado, Idaho, New Mexico, South Dakota, Utah, and Wyoming, and a Professional Geologist in the State of Wyoming.

Mr. David Hallman has performed mine subsidence-related engineering work for the Department of Interior Abandoned Mine Land Program as administered by the Office of Surface Mining, Reclamation and Enforcement (OSMRE) since 2003, and coal mine fires since 2009, with contracts and task orders ranging in value from several thousand to millions of dollars. Dave has developed, directed and interpreted extensive AML related inventories, engineering risk assessments, mitigation, abatement and forensic geotechnical investigations in Arizona, Colorado, Montana, New Mexico, North Dakota, Utah, Wyoming and British Columbia for both hard rock and soft rock mines. Mr. Hallman has conducted chemical, compaction, and high-mobility grouting, and foamed sand injection as a means to control subsidence and served as an instructor expert at the 2019 Colorado School of Mines Grouting and Ground Improvement short course presenting a technical session on backfill grouting for abandoned mine lands.

Mr. Hallman has provided his specialized expertise to Brierley associates on our Kenilworth and Wattis Mine Fire Abatement projects.

Section 2 – Qualifications and Experience

Relevant Project Experience

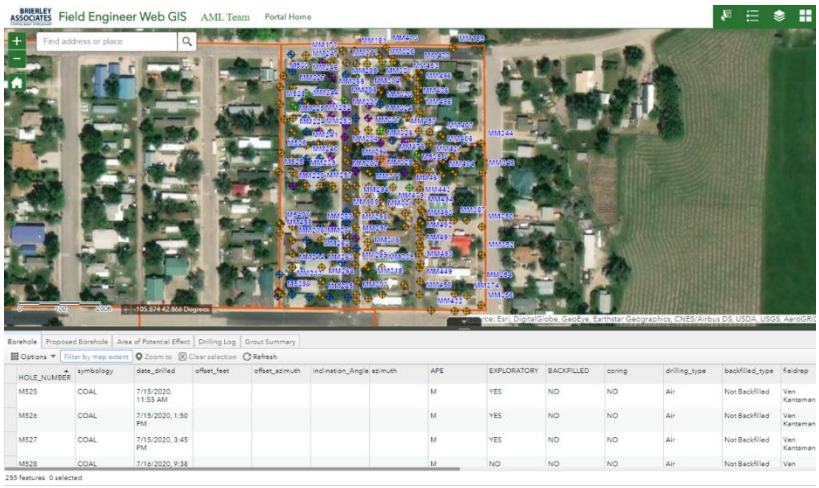
Brierley has extensive design experience (including design calculations, project plans/drawings, creation of project specifications, cost estimating, etc.) with the following project types and hazards which are frequently present on AML sites:

Project Types

- Landslide, debris flow, and rockfall identification
- Slope stability analysis and stabilization
- Highwall analysis and mitigation
- Subsidence hazard assessments, risk evaluation, repair, and mitigation
- Subsurface investigations and geologic mapping
- Embankment analysis stabilization
- Drainage controls and systems design
- Geomorphic reclamation
- Mine portal and vertical opening reclamation
- Mine fire investigation and mitigation
- Temporary and permanent access route design
- Stormwater, erosion, and sediment controls
- Earthwork and grading
- Water system evaluation and design

In addition to design, Brierley has provided construction oversight for numerous abandoned mine related projects, including daily inspection reports during all phases of construction, support during bidding and construction (including responding to contractor RFIs, contractor questions, and change orders), engineering oversight and support, review and approval of as-builts, final engineering certification reports, Construction Summary Reports, and Reports of Investigation. Brierley also has on staff several former project managers from the other State AML organizations who have vast experience through the entire lifespan of AML projects from planning, permitting, and preparations, all the way through construction, final project execution and completion. This includes realty related services such as obtaining exploratory and construction related consents from property owners (for the State, Consultants, and Contractors), documenting conversations with landowners, conducting town halls and informational session for the impacted communities, and verifying ownership and property limits, as well as permitting and planning related tasks needed for investigation and construction such as for NPDES permits, Army Corps permits, Highway permits, and other permitting and planning items.

As part of our established processes, Brierley Associates' GIS Team has also been developing and improving custom mapping and tracking solutions for our AML mitigation programs, resulting in the only AML-specific solution currently available on ESRI Marketplace. The platform offers database design, application configuration, data collection, and final reporting capabilities to expedite much of the interpretation and integration of geospatial data associated with AML projects. Brierley has utilized these GIS solutions for AML programs for mobile data collection (including the logging of AML hazards), drone imagery processing (from our aerial LiDAR, thermal, and orthomosaic scanning capabilities), and web applications for project management, tracking, and data quality control. This data is directly incorporated into web-based dashboards that are designed to keep project managers and clients informed of daily progress on a variety of project types, including project spending, field work and construction items completed, historic data such as mine maps, sinkholes, or other historic data, establishing project limits and boundaries for



Brierley's GIS data collection capabilities aid in the collection and interpretation of geospatial data for AML projects.

permitting and related purposes, tracking property consent and landowner communications for mitigation status, and numerous other related parameters. The near real-time tracking provided to clients through the dashboard has provided past clients better fiscal insight and the ability to make more expedient budgetary decisions, providing clients additional flexibility to apply realized savings address additional areas of risk on the project, conduct supplemental work, and increase program efficiencies prior to receiving invoices as part of a construction management process. Dave Hallman of Applied Geologic has often worked under the auspices of Brierley within the established process as a subject matter expert, particularly in the realm of mine fire mitigation, to successfully complete project objectives.

Triad has provided drilling, geotechnical, and surveying related services to multiple WVDEP AML projects across the state for various sites. This includes the 2023 Southern Region #3 contract which consisted of 14 AML projects across Fayette and Greenbrier Counties for which they performed various geotechnical drilling, lab testing, surveying/mapping, and design related services for subsidence, landslide, portal closure, drainage, and highwall mitigation projects. Over their 50 years history, they also have additional engineering, permitting, surveying, and construction observation experience in the realms of hydraulics and hydraulic design/evaluation for various clients, as well as hazardous waste disposal, water quality evaluations, revegetation, wetland delineation, water studies, stream mitigation, environmental site assessments, and equipment/structural removal experience for multiple clients across the region.

EnviroScience expertise includes but is not limited to aquatic surveys (including macroinvertebrate surveys and biological assessments); ecological restoration; ecological services (including impact assessments, invasive species control, and water quality monitoring); engineering and compliance services; endangered mussel surveys; laboratory and analysis; stormwater management; sustainability services; threatened and endangered species; and wetlands and streams (including delineation and mitigation). Further, EnviroScience is one of the few biological firms in the country that is a general member of the Association of Diving Contractors International (ADCI) and offers full-service commercial diving services. EnviroScience maintains an extensive inventory of state-of-the-art technology and equipment to meet the needs of projects of any size, including an inventory of sampling and diving vessels, electrofishing gear, water quality meters, work trailers, GPSs, depth temperature and flow survey equipment, HAZMAT ID equipment, wildlife sampling equipment, extensive diving and underwater construction equipment, and more to complete the NEPA, bat studies, water quality sampling, threatened and endangered species analysis, and other related work requested within the EOI .

Section 3 – Project Management and Team Organization

We engage an interdisciplinary, adaptive approach to our abandoned mine projects to scale our efforts to the appropriate level of support needed through innovative methods of investigation, mitigation, and public outreach. Brierley's approach leads to the successful offering of top-level mitigation approaches while maintaining excellent public relations and minimizing public impacts. Brierley's phased sequential planning ensures a focused, site-specific scope of work. This methodology has resulted in projects being completed ahead of schedule and under budget, allowing our AML clients to use those funds to help additional at-risk areas. We are confident that we can utilize these cost-saving measures to provide similar results for the Office of Abandoned Mine Land and Reclamation in West Virginia.

Examples of this process include detailed planning to ensure all applicable information can be collected at once, using the collected information to develop a focused, multi-faceted investigation approach, incorporating applicable remote sensing techniques, geophysics, and subsurface/surface sampling to ultimately assess risk levels, and developing/executing practical designs.

Brierley has experience in coordinating multi-disciplinary teams with subconsultants from varied backgrounds across geographically diverse areas.

Brierley will utilize these adaptive and innovative approaches in consultation with our partners on this project: **Triad, EnviroScience, and Applied Geologic**. These companies have years of experience between them in the realms of surveying, permitting, planning, coal refuse and spoil reclamation, stream/channel restoration, hydraulics and drainage, water and environmental reclamation, and other related areas of expertise that will be critical in addressing the wide range of potential hazards that may be encountered during the scope of your project and provide the "full service" A/E planning, realty, design, and construction oversites services requested in the EOI. Brierley has experience in coordinating multi-disciplinary teams with subconsultants from varied backgrounds across geographically diverse areas.

For example, in our Abandoned Mine Land work in Wyoming, Brierley oversaw the investigation, design, and implementation of a mitigation strategy to reduce the subsidence risk under a local elementary school and adjacent track and field facilities. In consultation with the school district, the mitigation was permitted to occur on the provision that school grounds were reclaimed to a point where the facilities could be usable for fall sports activities. This required Brierley to form a team with over a dozen subconsultants with backgrounds in civil engineering, surveying, structural engineering, landscape design, revegetation, drainage, and other specialties to not only perform the mitigation of the underground coal mine under the school and adjacent track & field facilities, but also completely redesign and rebuild the school grounds within a 6-month period.

Brierley designed and coordinated construction on an accelerated timetable, including; mitigation of the subsidence risk of the mine; topographic surveying of the entire school campus; demolition and reconstruction of the track & field (including revegetation); design/installation of new utilities; grading calculations and designs for 8,000 cubic yards of site earthwork; implementation of site stormwater, erosion, and sediment control measures, Stormwater Pollution Prevention Plans (SWPPP) provisions; and numerous other aspects. Our subconsultants came from areas hundreds of miles apart to perform this work while being coordinated through Brierley's field and office staff in Laramie, Wyoming and Denver, Colorado. This was all coordinated in a remote area with poor roadway access and frequent inclement weather, with the nearest population center greater than 10,000 residents located over 70 miles away. Project progress was communicated in real-time to all stakeholders, project managers, and AML managers via a custom developed GIS portal dashboard that incorporated data uploaded data from our field engineers' Field Maps application. Through our technical expertise and consistent coordination with all applicable parties, the risk to the school was mitigated and the surface was reclaimed, allowing fall school activities to resume on schedule. Our efforts

Our Hanna Elementary School Subsidence Mitigation Project received the Western States and Tribes award from OSMRE in 2022.

in the planning, design, and execution of this project directly resulted in the project winning the Western States and Tribes award from OSMRE at the 2022 NAAMLP conference.

Our team will use our diverse set of skills in a similar approach to provide cost effective, expeditious, and advanced solutions for the variety of issues that can result from abandoned mine land sites. Our integrated Brierley, Triad, EnviroScience, and Applied Geologic team is set up to be scalable to meet the needs for each assigned work order, with smaller projects utilizing leaner teams while still engaging the expertise of the key personnel of the companies at large. For larger projects, the team will use staff from multiple locations and disciplines as needed, all coordinated through Brierley's Liaison Engineer, Joshua Zimmermann, PE (Project Manager), employing relevant key personnel, each with extensive and multi-disciplinary expertise and proven ability to coordinate abandoned mine land projects.

Project Management, Coordination, and Communication

We believe that clear and concise communication is critical for project coordination and success. Efficient coordination during the life of an assigned work order begins with Joshua Zimmermann, Brierley's Project Manager. Upon receiving a request for a quote from AML, Joshua will identify and coordinate with key personnel from each company to develop a team based on project scope, geographic proximity to the job site, anticipated required expertise, staff resources, and other pertinent factors. He will collaborate with the interdisciplinary technical staff assigned to the task of creating a quote for the requested work and, upon approval of a work order, oversee the project through Brierley's QA/QC process. Brierley will set up a kick-off meeting with AML soon after the work order is defined and approved. We anticipate this meeting will occur within a week of the request from AML. However, in emergency situations, a meeting might be needed much sooner or even the same day. In those circumstances, Joshua will make sure the appropriate people are available.

The initial meeting will establish project goals, record keeping, and other project-specific requirements such as:

- Understanding of technical requirements so the right members of the Brierley Team can be assembled,
- Clarifying project objectives (realty, planning, permitting, design, etc.) and timelines,
- Developing a formal communication plan for the project team and AML staff,
- Establishing technical memoranda, design documents, project specifications, and other deliverables
- A well-developed document controls and management system (ProjectWise or similar),
- Confirming the timing of additional meetings and workshops, as necessary.

After the initial meeting, Joshua will prepare and submit a detailed set of meeting minutes that will be distributed for review and comment.

Brierley's versatile capabilities enable us to identify the optimal solutions for the project's required objectives. During the project's evolution, Brierley will monitor project scope, costs, and progress. If new site conditions are encountered that may affect our scope of work, Joshua will communicate that information to the State's Project Manager and together we can assess if adjustments to the work scope and budget are needed.

A GIS web portal can also be developed to easily access historic site information (such as underground mine maps), high resolution imagery, property boundaries and access permissions, and project progress tracking dashboard tools for usage by Project Management and AML staff. Brierley is also capable of collecting multiple types of remote sensing data utilizing unmanned aerial vehicles (UAV's) for various purposes, including orthomosaic imagery (for digital elevation models, terrain mapping, and mass grading calculations), thermal imagery (for groundwater movement and mine fire tracking), and LiDAR imagery (for ground movement monitoring and subsidence monitoring)

and incorporating this data into the web GIS portals for continuous project updates and for the creation of plan sets as needed.

Once a notice to proceed is received from the State, Joshua and the relevant key personnel will activate our local and national team members as needed. Due to the wide geographic area that may be included in this solicitation, having a large pool of available staff in multiple locations will help to reduce travel costs and improve response times. For this EOI, work will be primarily run through Brierley's Laramie, WY, with support from our local Ohio offices, and various subconsultants coming as needed from their strategic offices located across West Virgina and the Appalachian region at large.

Our consent process is captured in our GIS consent management tool, which we created to show property boundaries based on county and state records, owner contact information, and consent status.

For initial consent and realty services, Brierley team members have extensive experience in communicating and obtaining consents directly from property owners and care deeply about forming connections and partnering within the communities in which we operate. In Wyoming, Joshua Zimmermann has personally obtained consents from over 100 property owners throughout the region and has served as the State's primary point of contact during field operations, keeping property owners informed of project updates and addressing their concerns. His commitment to support the local communities we work in extends beyond the normal scope of work; he has personally responded to calls at midnight on a weekend from concerned property owners regarding potential damages to their properties from unmitigated mine workings. He will bring this same level of dedication to our efforts in West Virginia, and he will ensure all our staff and team members hold themselves to the same high standard in addressing abandoned mine-related problems on public and private lands. Furthermore, our consent process is captured in our GIS consent management tool, which we created to show property boundaries based on county and state records, owner contact information, and consent status (declined, consented for mitigation, mitigated etc.) such that all parties are aware of the consent status and work being performed in various areas. Once initial consent from the property owners is achieved, the subsequent investigation, design, permitting activities, etc. will be conducted and tracked through regular status updates provided to the State, and through a GIS web portal. Subsequent meetings will be planned (both within the team and with the State) at regular intervals to enable frequent communication of project progress between all parties (as well as through project GIS dashboards), provide project updates, and to quickly identify and resolve any issues that may occur through all stages of the project.

Additional planning and permitting staff and resources will be incorporated into the various subsequent phases of the project as investigations and design tasks are developed and project limits defined.

While each team member will have primary area(s) of focus, the companies included on this EOI all possess diverse technical knowledge and interrelated skill sets that will allow us to more effectively communicate and coordinate across disciplines and aid in the development of plan sets, specifications, and other project requirements. Geotechnical related tasks (abandoned surface and deep mine reclamation, portal/shaft closures, mine/refuse fire abatement, subsidence investigation and mitigation, and geotechnical stability analysis) will be primarily led by Brierley staff, with expert consultation from Applied Geologic and with local support from Triad personnel as needed for drilling, lab testing, and other related tasks. Brierley will also primarily perform non-survey related realty tasks (such as rights of entry), NPDES, and Army Corps related permitting, and other general civil related tasks such as drainage control systems, permanent or temporary access construction, stormwater, and erosion and sediment control plans. Hydraulics and hydraulic design/evaluation, as well as hazardous waste disposal, water quality evaluations, revegetation, wetland delineation, water studies, stream mitigation, environmental site assessments, and equipment/structural removal experience will be under the primary direction of Triad, as well as surveying related tasks related to realty adjacent services and state/county permits. EnviroScience will primarily be responsible for

stream restoration, bat studies, threatened and endangered species surveys, water quality sampling, and other related planning tasks.

All team members have experience in developing plans, cost estimates, and submittals at multiple stages for bidding on behalf of local, state, and federal organizations. This experience will aid in communication among team members and expedite the planning and design process for the required realty, planning, permitting, engineering design, construction oversight, and other required tasks as requested by AML.

Team Capacity to Perform Work

The staffing needs for each potential project will be identified and solidified at the beginning of each working order to ensure the required staff are available to meet the intended deadlines. A majority of Brierley's current mine reclamation work is expected to be completed by late 2025/early 2026 and will not require the full utilization of all the staff included in this proposal. Our current estimate for staff commitment levels for 2025 is around 60% for Brierley staff listed in this document. The commitment and availability of the staff of our subconsultants is similar, with each company person able to commit sufficient time to this solicitation to fulfill the project goals as currently described. Additionally, all team members contain some overlapping knowledge bases, personnel from multiple companies can be pulled in as needed to support other organizations primary areas of focus to meet overlapping, tight, or expedited deadlines. Each company location also has multiple staff with a variety of skillsets (geotechnical engineering, revegetation, erosion and sediment control design, etc.) that can be used to support the efforts of the key and primary staff included in this proposal as needed. Through these multiple offices, we will have professionals within proximity to the various possible locations of mine sites within the state to expedite response times, provide more cost-effective services, and ensure the greatest possible availability of personnel, all under the direction of the key project personnel as outlined in our approach to accomplishing the project's objectives.

Quality Assurance/Quality Control

All produced plans, drawings, specifications, and other related documents will be reviewed through our internal QA/QC procedure prior to being sent to the State. The Quality Assurance/Quality Control Plan, summarized below, will be modified as appropriate to suit the size, risk, and complexity of each work order after our team meets with the AML at the start of the project. The project kick-off meeting is the first step to foster early, open discussions concerning expectations, identification of performance targets, and development of site-specific strategies to achieve those targets. As the project progresses, collected information concerning environmental site conditions, ground characteristics, and other data will be communicated to the State. Assessment of that information may result in subsequent meetings/conference calls to re-visit and modify the originally established performance targets and strategies. Ultimately, our objective is to deliver meaningful analysis, assessment, practical recommendations, and constructable solutions that the State can readily employ to efficiently mitigate impacts within abandoned mine sites.

The intent of this Plan is to ensure that work performed by every level of the Brierley Team is based on consistent, correct information and methodologies that are reviewed by experienced and qualified professionals before delivery to the State. The scope of this Plan includes understanding and communication of evaluation and documentation requirements; internal review of draft work; providing review opportunities for AML of all deliverables; and final internal review of all finalized documents and deliverables. The Quality Assurance/Quality Control Management Plan for the solicitation is founded on the following:

- Quality will be advocated from the top down and from the bottom up.
- Quality will be achieved by adequate planning, scoping, communications and coordination, supervision and technical direction.
- By providing adequate time in project schedules for thorough reviews; by the use of appropriately skilled personnel; and by individuals performing their work functions carefully.

- Quality will be achieved by individuals working carefully, thoughtfully and with knowledge of the overall assignment specific objectives.

Brierley will take a *multiple line of review* approach to QA/QC. Simply put, selected reviewers are technically knowledgeable, deliverables must pass Brierley's internal QA/QC review, and conflicts between technical disciplines will be identified and resolved before final reports, drawings and documents are submitted.

Three levels of quality control review are planned for deliverables:

Level 1 is a Discipline Check/Peer Review in which team professionals in each respective discipline check project deliverables and documents used to produce deliverables, such as calculations, for accuracy and to provide a concept peer review. Work products such as calculations, specifications, and drawings will be fully checked for accuracy and completeness by a professional engineer who is at a peer level or above and who was not responsible for the design. Additionally, the final deliverables will be peer reviewed to ensure that they clearly present the intended concepts. A Level 1 review will be conducted on reports and work products prior to submission to AML.

Level 2 quality review is a Management Review by designated specialists, professional engineers and/or the deputy project manager. The designated specialists will review work products for their areas of work to confirm completion of the Level 1 review and that work products are consistent with the project requirements. This review is not a check of the documents for accuracy but instead is an interdisciplinary check by the personnel/or designated specialists to confirm that designs have been properly coordinated across the team disciplines.

Level 3 is a final QA/QC review by our project manager or senior engineer who will perform a final review all the work performed by the other members of the project team before being signed and approved by the project manager.

The Level 3 QA/QC Review shall not occur unless the Level 1 Discipline Checks/Peer Reviews have already been completed by the project team. Depending on the complexity of the submittal, a Level 3 QA/QC review may occur simultaneously with the Level 2 review. Otherwise, Level 3 will occur after Level 2. The Level 3 review will generally involve an overall concept and coordination review. Informational deliverables will undergo a Level 1 review, minor deliverables a Level 2 review following a Level 1 review, and major deliverables a Level 3 review following Level 1 and Level 2 reviews, respectively. This is to ensure that all major deliverables follow the design direction and oversite recommendations from Brierley's project manager before being delivered to the State.

Section 4
Relevant Project Experience

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

1

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Kenilworth Mine Fire Abatement, Kenilworth, UT	**2024**	**2025**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
UT DNR -Abandoned Mine Lands Division	**Steve Fluke**	**801-538-5259**

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

In August 2024, residents of Kenilworth, Utah, raised concerns about increased fire activity at the abandoned Kenilworth coal mine, which had been burning underground for over a century. A site visit confirmed that a newly formed sinkhole was allowing hazardous combustion gases to escape, worsening the fire and posing air quality risks to the community.

The Abandoned Mine Reclamation Program (AMRP) was subsequently authorized for an emergency procurement of engineering and construction services for the Kenilworth Mine Fire Emergency Abatement Project due to significant public hazards, including lethal exhaust, potential fire's expansion leading to deeper underground migration, and the potential for wildfire ignition.

Brierley Associates, along with Applied Geologic and construction partners, was hired to assess and mitigate the fire under an emergency timeline of 2.5 months. Due to the mine's remote and inaccessible location, all personnel and materials had to be transported by helicopter.

Investigations revealed that the fire involved at least two coal seams, with air being drawn into the mine from up to three miles away through old ventilation tunnels. Gas sampling showed lethal concentrations of carbon monoxide (22,002 ppm) and carbon dioxide (188,192 ppm)—far exceeding safety thresholds.

To contain the fire, fire-resistant polyurea-silicate foam was injected into mine openings, sealing 14 intake and exhaust features and cutting off airflow to smother the flames. This method significantly reduced emissions and improved air quality for the community.

The project was completed 37% under budget, costing $661,347.85, with 3,000 gallons of foam resin used at a cost of $190 per cubic yard. While full extinguishment of the fire is unlikely, the intervention successfully minimized its impact and mitigated immediate risks. A video detailing the project was produced by Utah AMRP: Kenilworth Coal Fire Mitigation – Utah Abandoned Mine Reclamation Program

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT:

	(1) Firm Name	(2) Firm Location *(City and State)*	(3) Role
a.	Brierley Associates, Corp	Denver, CO	Engineer and Geologic Consultant
b.	Applied Geologic, LLC	Evergreen, CO	Senior Engineering Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

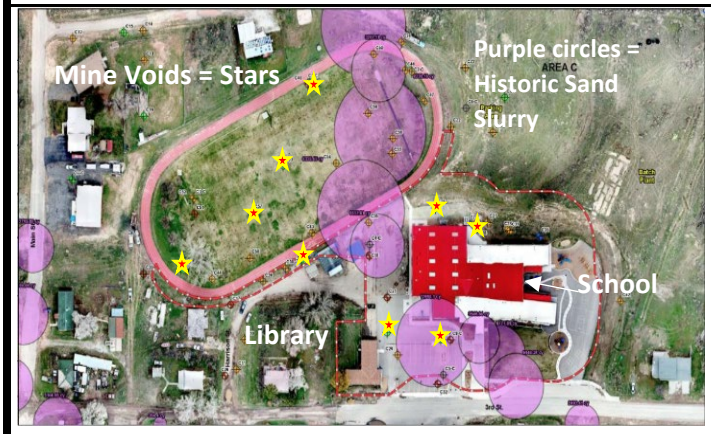
2

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Hanna Elementary School and Football Field/Track Subsidence Mitigation, Hanna, WY AML Project 17.6B-Brierley, Hanna No. 1 CO#1 and 17.6C-Brierley, Hanna-3	**2022**	**2022**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Wyoming Department of Environmental Quality, Abandoned Mine Land Division	**Dave Pendleton**	**(307) 335-6945**

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



In 2019, Brierley Associates conducted a drilling and geophysical investigation in the Spring and Summer of 2019 after responding to reports of "subsidence like" features at the Hanna Elementary School football field in Hanna, WY. The investigation concluded that the majority of injected sand slurry, during historical mine mitigation in the late 1980s had been eroded via groundwater and the slurry was no longer providing adequate support to prevent mine related subsidence. In 2020, AML authorized a voidfill mitigation project to be conducted by Brierley under an existing contract, 17.6B-Brierley Hanna No. 1 and Nebraska Mines via Change Order #1 (CO#1). Between May 5-August 7, 2020, a total of 187 boreholes were drilled (50,735 linear feet) on the Hanna Elementary School property. A total of 15,849 cubic yards of grout were emplaced under and around the school as well as under the parking lot, playground, and library building (on the west side of the parking lot). At the conclusion of the Hanna No. 1, CO#1 project, it was determined that, based on the voids discovered under and around the football field and track; that mitigation would also be necessary there.

In 2021, Brierley Associates conducted drilling and grouting mitigation via AML Project 17.6C-Brierley, Hanna-3. The Hanna-3 project's scope targeted subsidence mitigation under the track and field at the Hanna Elementary School, which included demolition and restoration of the project area (the old track and field). Construction was performed at the Hanna-3 site from April 26, 2021 through October 12, 2021. 30 boreholes and 56,409 linear feet were drilled under this contract. A total grout volume of 25,990 cubic yards was injected as void-fill and backfill grout. The grout was pumped from the batch plant through slickline extending from the batch plant to the point of injection. The Hanna-3 project included two change orders and two field orders prior to completion with a total budget of $9,195,452.26. Change Order #1 added $1.2 million for rehabilitation and reclamation of the Hanna Elementary School Track and Football Field; this included engineering of track and field design provided by AVI, vegetation removal, surface grading, sod installation and track replacement. Change Order #2 added $3.5 million for costs with track and field rehabilitation and confirmation drilling and grouting under the school, grouting under 212 Main Street property, and subsidence mitigation of 5 acres west and north of the football field. Regrading of the football field was necessary due to a preexisting 6-foot elevation difference from the east and west side of the field. This project involved the coordination by Brierley of 20 subcontractors. The project involved the communication of grout among boreholes which was addressed by monitoring. **The Project received the OSMRE 2022 Western Region Reclamation Award.**

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT:

	(1) Firm Name	(2) Firm Location *(City and State)*	(3) Role
a.	**Brierley Associates**	**Laramie, WY**	**Engineering & Construction Management**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: **3**

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Henderson County - US 60 Bridge replacement over Green River, Spottsville Mine Mitigation, Spottsville, KY	**2020**	**2020**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Kentucky Transportation Cabinet	**Dago Mosquera**	**(913)205-7326**

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

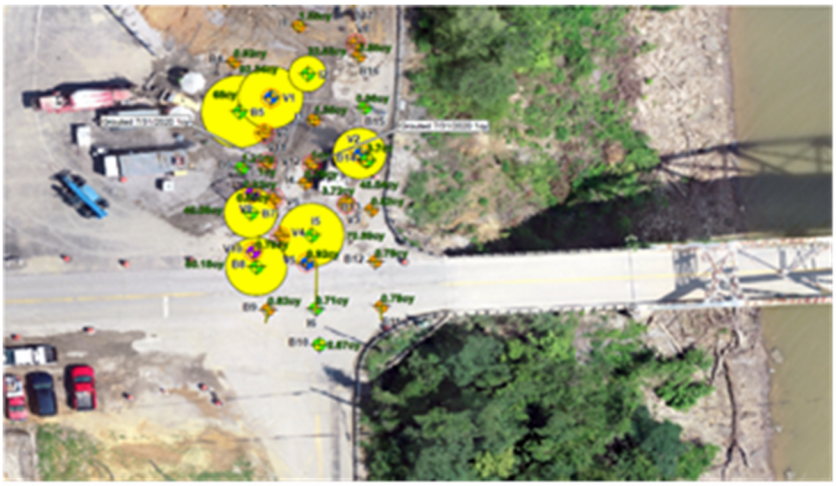


Figure 1: Aerial image of Mitigation Work Overlaid with GIS Data

This project was intended to replace the existing US 60 bridge crossing the Green River near Spottsville, Kentucky. During the original geotechnical exploration for the project, abandoned mine workings/voids were encountered. The mine workings were located under proposed abutment #1 of the new bridge.

In the original geotechnical report, it was proposed to mitigate the abandoned mine workings by drilling a series of primary grout holes on a 10-ft grid pattern. Secondary grout holes would then be drilled and centered between all primary holes. The dimensions of the area to be treated were 50-ft x 140-ft and would have required drilling 160 boreholes. The intent of the original grouting proposal was to form a series of grout columns at the bottom of each of the primary and secondary grout holes using a very stiff 2-inch slump mix.

Brierley developed an alternative mitigation approach considering that the mine had been abandoned for more than 75 years and there was a significant degree of distress in the roof and floor, as evidenced by significant rubble encountered within the mine interval. Based upon the subsurface information, Brierley recommended the use of high mobility mix with 11-inch slump in lieu of the stiff mix that was originally proposed.

The high mobility mix allowed for mitigating the target area under the future bridge pier by drilling 36 injection holes instead of the 160 injection holes that were originally planned. The original grouting plan called for 15,840 linear feet of drilling and 314 cubic yards; but with the revised grouting plan proposed by Brierley only 2,272 linear feet were drilled, yet a larger volume of grout (446 cubic yards) was injected under the footprint of the bridge pier. The revised plan reduced the construction time by at least 75%. KYTC performed verification drilling by drilling seven (7) boreholes and the program confirmed that all mine voids appeared to be filled with no voids encountered in all verification holes.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT:

a.	(1) Firm Name	(2) Firm Location *(City and State)*	(3) Role
	Brierley Associates	**Denver, CO**	**Consulting Engineer**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

4

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
AML 17.6C- CR297 Sinkhole Mitigation, Hanna, Wyoming	**2023**	**2023**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Wyoming Department of Environmental Quality, Abandoned Mine Land Division	**Dave Pendleton**	**(307) 335-6945**

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

In the summer of 2022, as part of the Hanna-2 Change Order Project, a subsidence event developed at the shoulder of county road 297 under the contractors heavy equipment, requiring an immediate response. The subsidence feature was over excavated and low strength grout plug was designed and constructed to bridge over compromised area. The subsidence event triggered a recommendation to close the county road to the public until the roadway could be fully mitigated.

In the spring of 2023, two additional subsidence features surfaced within the project area immediately preceding the beginning of construction. The sinkholes were located within the roadway and shoulder of CR297, creating public safety hazards. The sinkholes measured 8-feet in diameter by 35 feet in depth and 8-feet in diameter by 2-feet in depth.

The sinkholes were incorporated into the AML CR297 project and mitigation of their hazards was prioritized. Brierley Associates imaged the interior of the sinkholes with a downhole camera and investigated the surrounding subsurface with boreholes. Brierley determined to mitigate the existing sinkholes via grout injection from the bottom of the respective subsidence features to ensure any existing voids in the rubblized material were infilled to prevent future settlement in the road surface. Grout was injected through the boreholes drilled around the perimeter of the sinkholes from the bottom-up using a tremie. Both sinkholes were successfully mitigated using a total of 2,538 cubic yards of high mobility grout. This quantity represented a much larger volume of infilling than represented by surficial exposure, showcasing the importance of infilling subsidence features from below to avoid future settlement.

Once mitigation activities were completed, an over-excavation program was conducted to provide AML a conditional risk assessment for future settlement regarding the shallow subsidence feature. The areas were over excavated to a depth of 12 feet below grade and recompacted to county specifications standards. The over-excavation yielded optimal results with grout infilling found throughout the overburden rock and rubblized material.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT:

	(1) Firm Name	(2) Firm Location *(City and State)*	(3) Role
a.	**Brierley Associates**	**Laramie, WY**	**Engineering and Construction Management**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

5

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
St. Louis and O'Fallon No. 2 Acid Mine Drainage Project Fairview Heights, IL	**In Progress**	**In Progress**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Illinois Department of Natural Resources	**Blake Harris**	**217-782-7454**

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

The St. Louis and O'Fallon No. 2 Mine was an underground mine located in the suburban town of Fairview Heights, Illinois, southeast of St. Louis, Missouri. Since it ceased operation in 1945, the residual surficial piles of gob were consolidated into a singular pile near a current popular local park. Eventually, acid mine drainage (AMD) began to precipitate out of the pile at multiple locations, polluting the local creek and tributary system. The seep has an average flowrate of roughly 12 GPM, with effluent median pH of 2.58 and high levels of iron, manganese, and aluminum.

To address the AMD produced at the site, the Owner requested the design of a passive treatment system consisting of two (2) anaerobic bioreactors, two (2) oxidation ponds, and a polishing wetland. The goal of the treatment system is to reduce sulfates and raise the pH in the anaerobic bioreactors, oxidize dissolved metals allowing them to precipitate and settle out in the oxidation ponds, and polish the water and uptake remaining metals in a wetland.

Brierley is providing project management and design services for the engineering of the passive treatment system. This has included evaluating and incorporating lessons learned from the State of Illinois singular prior AMD treatment system, which has suffered from several operational issues since its initial construction in the 2000's. This has included design solutions to ensure that the size of the bioreactor units can appropriately account for dry and wet weather flows, instituting redundant systems so that treatment can occur when certain components are taken offline for maintenance or repairs, and ensuring appropriate equipment access to all portions of the reactor. This also includes the planning, design, and oversite of a geotechnical field investigation to determine the extent of gob material in the project area, evaluating geotechnical, environmental, and hydrogeologic characteristics for the bioreactor basin, pond, and wetland design/placement, creating recommendations for the placement and design of site hydraulic structures and systems, and access route design. The sizing of various project elements was determined using a combination of hydraulic modeling and usage of OSMRE latest AMDTreat software.

The design of this system is ongoing and has required close coordination with the City of Fairview Heights, park staff, and IDNR personnel, as well as numerous subconsultants for surveying, access trail creation, and other components for the engineering design of the treatment system.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT:

	(1) Firm Name	(2) Firm Location *(City and State)*	(3) Role
a.	**Brierley Associates Corporation**	**Cottage Grove, MN**	**Prime Consultant**

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

6

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Pollywog Embankments, Mauck Pond Embankment, and Missionfield Highwall	**2024-2025**	**2025-2026**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
IL DNR -Abandoned Mine Lands Division	**Lance Range**	**217-782-0357**

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

Figure 1: Typical oblique section of project site slope failures.

Brierley Associates, under contract with the Illinois Department of Natural Resources (IDNR) Abandoned Mine Land (AML) Reclamation Division, led a comprehensive assessment and design-level alternatives analysis for multiple hazardous legacy mine features within the Pollywog Site site near Danville, Illinois. The targeted hazards include the Pollywog Embankments (IL-1203), Mauk Pond Embankment (IL-0807), and Missionfield Highwall (IL-1476). These areas, characterized by steep slopes, active erosion, and deteriorating embankments adjacent to water bodies, roadways, and residential properties, and collapsing underground mine workings, posing substantial public safety risks. Preliminary engineering concepts were developed to inform IDNR and stakeholders of feasible mitigation options and guide progression to detailed design phases.

The investigative program included a phased approach: Phase I consisted of a desktop study and mapping effort using historic mine data, aerial imagery, and site reconnaissance. Phase II involved extensive fieldwork, including 31 geotechnical borings, 5 test pits, 44 hand augers, groundwater monitoring, and lab testing of soil and rock. These efforts were complemented by LiDAR and bathymetric surveys to model terrain, evaluate erosion, and assess hydrologic conditions and infrastructure across each hazard area. The findings revealed multiple active and latent slope failures, minimal protective infrastructure along public access points, and legacy mining-induced terrain deformations that amplify the instability risk.

Figure 2: Extreme erosion leading to highwall instability affecting public association.

Specific hazard areas were evaluated for slope geometry, proximity to infrastructure, erosion progression, and stakeholder concerns. At the Pollywog Embankments, steep roadway shoulders adjacent to deep water-filled pits lacked barriers, increasing the potential for vehicular accidents. At Mauk Pond, scouring of the mine spoil embankment threatens to breach the divide between the pond and the Salt Fork River. The Missionfield Highwall presents the most extensive hazard, with more than 8,000 linear feet of exposed escarpment prone to translational and rotational failures that could undermine 37 residential properties and critical access infrastructure. All sites are in remote areas, requiring design considerations for potential permanent and temporary access routes.

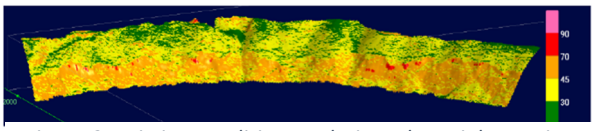


Figure 3: Existing condition analysis and spatial mapping indicating critical grades across profile.

Preferred conceptual alternatives were identified based on constructability, cost, aesthetics, and effectiveness. These include embankment extensions, vegetated slope regrading, armoring slopes slope reinforcement, and engineered barriers to limit access. Stakeholder engagement informed alternative selection, including township preferences for minimizing long-term maintenance burdens. The design team developed a centralized ArcGIS Viewer to support ongoing coordination, data visualization, and design planning. These efforts establish a strong technical and community-informed foundation for advancing the Pollywog Project into the 30%, 75%, and 100% design phases with targeted abatement strategies for each critical hazard.

- Total Cost of Project to Date: $750,000
- Total Investigation Area: ~115 Acres

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT:

	(1) Firm Name	(2) Firm Location *(City and State)*	(3) Role
a.	Brierley Associates, Corp	Chicago, IL	Engineer and Geologic Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

7

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Hideaway Hills, Reroute Feasibility Study; Gypsum Mine Modeling	**2024, 2025**	**NA**

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Northdale Sanitary District	**Cottrell K. Hayes**	**605-877-5208**

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

The Phase I Literature Review prepared for the Northdale Sanitary District evaluates the feasibility of rerouting a sanitary sewer force main in the Hideaway Hills Subdivision, Black Hawk, South Dakota. The existing force main is threatened by historic underground gypsum mining, which has caused ground instability, sinkholes, and infrastructure damage, most notably the 2020 sinkhole along Daisy Drive (Figure 1). The report consolidates and interprets 22 prior studies, including over 1,000 pages of geotechnical, geophysical, and environmental investigations, to provide a clear understanding of subsurface risks and constraints that may affect reroute options.

Figure 1: 2020 subsidence event impacting critical infrastructure

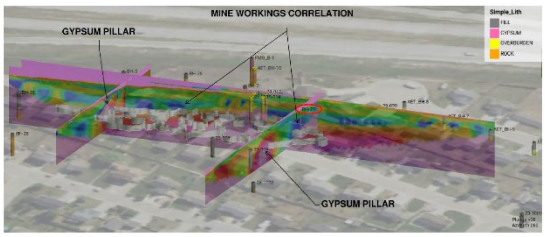


Figure 2: Combined geophysical and mine map modeling of impacted infrastructure

A regional and site-specific geologic review confirms that the Spearfish Formation, which contains the mined gypsum seam, underlies much of the subdivision. The highly soluble nature of gypsum, coupled with variable groundwater conditions, has led to voids, partial mine flooding, and areas of significant fill material. Investigations show that many boreholes encountered mine workings, wooden supports, and disturbed ground with high gypsum content, confirming the potential for ongoing dissolution and subsidence. These conditions directly impact the viability and safety of new utility alignments (Figure 2).

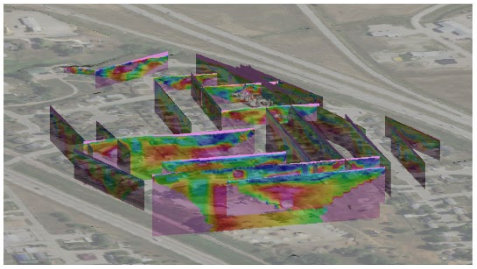


Figure 3: Geophysical data model incorporating mine impacted subsurface infrastructure

Using borehole and geophysical data, Brierley Associates developed a geologic model in Leapfrog Works to integrate available subsurface information into a 3D framework (Figure 2 & 3). This model identifies the distribution of fill, overburden, gypsum, and rock, allowing comparisons of stratigraphy and correlation with mine workings. The modeling confirms that historically mined zones extend farther than documented, increasing the importance of avoiding disturbed areas. While geophysical methods offered some correlation with mapped voids, inconsistencies and missing borehole logs limit confidence in certain interpretations, reinforcing the need for additional investigation.

Figure 4: Proposed underground utility reroute alternatives

Based on this evaluation, four reroute alternatives were considered: three cut-and-cover options and one trenchless horizontal directional drilling option. Alignments along Daisy Drive and Blue Bell Drive may be feasible with further geotechnical evaluation, while alignments adjacent to Highway 79 and the railroad easement appear more favorable for avoiding undermined ground. Reroutes along Interstate 90 were not recommended due to mine extension risks. The report recommended additional drilling, groundwater monitoring, and LiDAR surveys to refine alignment feasibility and manage long-term risk, ensuring that the sanitary sewer force main is relocated to a stable corridor outside of active subsidence zones.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT:

	(1) Firm Name	(2) Firm Location *(City and State)*	(3) Role
a.	Brierley Associates, Corp	Sheridan, WY	Engineer and Geologic Consultant

WINONA EAST HIGHWALL AND DRAINAGE

WINONA, WEST VIRGINIA

Overview

This project consisted of the highwall remediation, mine portal closure, streambank protection, and drainage control improvements to an abandoned mine site near Winona in Fayette County, West Virginia. The site sits directly above the Town of Winona and had sixteen (16) mine portals requiring closure – fifteen (15) collapsed and draining portals and one (1) partially collapsed portals. The site also included seven (7) highwalls consisting of more than 8,500 linear feet of exposed soil and crumbling rock. Near vertical walls ranging from 40 to 60 feet in height with several areas of drainage at the base of the walls contained numerous rockslides. Three (3) hazardous bodies of water sat at the base of the highwalls, ranging in depth from 2 to 4 feet. A subsidence hole approximately 20' x 20' and 20 feet in depth opened at the base of one highwall. Multiple refuse piles were found. One refuse pile measured approximately 0.25 acres and consisted of blocks of coal and smaller eroding particles that were eroding into a nearby stream. A second refuse pile was partially vegetated but still contained dangerously steep slopes. The objectives of the project were to significantly reduce physical safety hazards, restore hydrological function, and improve the ecological integrity of the site.

Services

Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included eight (8) borings, installation of eight (8) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:

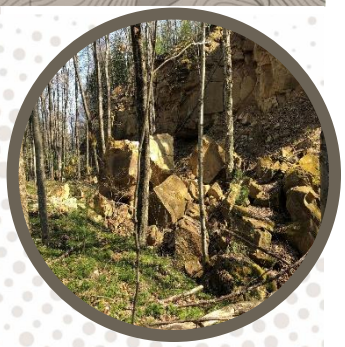
- AML

TRIAD SERVICES:

- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

TRIAD ENGINEERING, INC.

CLIFFTOP STRIP COMPLEX
WINONA, WEST VIRGINIA



Overview

This site consisted of a 3,800 linear foot highwall, composed largely of sheer rock faces with visible rock falls and cracks. A segment of this highwall lies parallel and adjacent to a heavily traveled county road, posing a significant safety concern, three open mine portals requiring closure and several thousand linear feet of stream channel, portions of which are impacted by coal refuse piles, leading to severe clogging and impaired hydrology. The proposed scope of work included Highwall Remediation, Mine Portal Closure, Stream Restoration, Drainage Control and Revegetation.

Services

Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included 14 borings, installation of 3 standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:
- AML

TRIAD SERVICES:
- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

CLIFFTOP DRAINAGE PROJECT

CLIFFTOP, WEST VIRGINIA

Overview

This project will significantly reduce physical safety hazards, restore hydrological function, and improve the ecological integrity of the site. The site consisted of fourteen mine portals requiring closure – one open portal and thirteen collapsed portals with drainage entries. The proposed scope of work included Mine Portal Closure, Removal of Refuse pile, stream restoration, drainage control and revegetation.

Services

Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included 2 borings, installation of 2 standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:

- AML

TRIAD SERVICES:

- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

Crosier Road Portals

Rainelle, West Virginia

Overview

This project consisted of the highwall remediation, mine portal closure, and drainage control improvements to an abandoned mine site near Rainelle in Greenbrier County, West Virginia. The site had sixteen (16) mine portals requiring closure – seven (7) open portals and nine (9) collapsed portals with drainage entries. The portals were located along a county road and above an active railroad. The site also included four (4) highwalls consisting of approximately 4,250 linear feet of exposed sandstone and earth with several areas of impounding water at the base of the walls. The vertical walls contain numerous rockslides and the heavy vegetation along the top of the walls males it difficult to locate the edge of the walls. The impounding water created four (4) hazardous water bodies ranging in depth from 1 to 5 feet in dept, three (3) along the base of the highwalls and an isolated one across from an open mine portal. A refuse pile was located on a slope above an active railroad and presented a dangerous situation for both a fire hazard and a possible slide.

Services

Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included five (5) borings, installation of five (5) standpipe piezometers, and a geotechnical report

Client:
Atlas Environmental (WV Department of Environmental Protection)

Project Type:

- AML

Triad Services:

- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

New loop

LOOKOUT (MOORE) SUBSIDENCE

CLIFFTOP, WEST VIRGINIA

Overview

This project consisted of mine portal closure, and drainage control improvements to an abandoned mine site near Clifftop in Fayette County, West Virginia. The site had two (2) mine portals requiring closure – one (1) partially collapsed and one (1) collapsed portals with drainage entries. The portals were located within 100’ of a heavily used county road. A portion of the original mineworks ran under the road; only approximately10’ of coverage existed between the workings and the roadway. The mine drainage contained high iron concentrations. The objectives of the project were to significantly reduce physical safety hazards, restore hydrological function, and improve the ecological integrity of the site.

Services

Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included two (2) borings, installation of two (2) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:

- AML

TRIAD SERVICES:

- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

New loop

TRIAD ENGINEERING, INC.

ROYAL COAL #5 LOADOUT
FAYETTEVILLE, WEST VIRGINIA

Overview

This project consisted of the highwall remediation, mine portal closure, stream restoration, and drainage control improvements to an abandoned mine site near Rainelle in Greenbrier County, West Virginia. The site had sixteen (16) mine portals requiring closure – seven (7) open portals and nine (9) collapsed portals with drainage entries. The portals were located along a county road and above an active railroad. The site also included four (4) highwalls consisting of approximately 4,250 linear feet of exposed sandstone and earth with several areas of impounding water at the base of the walls. The vertical walls contain numerous rockslides and the heavy vegetation along the top of the walls males it difficult to locate the edge of the walls. The impounding water created four (4) hazardous water bodies ranging in depth from 1 to 5 feet in dept, three (3) along the base of the highwalls and an isolated one across from an open mine portal. A refuse pile was located on a slope above an active railroad and presented a dangerous situation for both a fire hazard and a possible slide. The objectives of the project were to significantly reduce physical safety hazards, restore hydrological function, and improve the ecological integrity of the site.

Services

Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included two (2) borings, installation of two (2) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:
- AML

TRIAD SERVICES:
- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

TRIAD ENGINEERING, INC.

FLOYD CREEK HIGHWALLS AND DRAINAGE

CLIFFTOP, WEST VIRGINIA

Overview

This project consisted of highwall remediation, mine portal closure, stream restoration, and drainage control improvements to an abandoned mine site near Clifftop in Fayette County, West Virginia. This site is located within the eastern portion of Babcock State Park and posed serious safety hazards for Park staff and visitors. The site had fourteen (14) mine portals requiring closure – ten (10) collapsed and draining portals and/auger holes, and four (4) partially collapsed portals. Water from some of the portals had created four (4) hazardous water bodies along the base of the highwalls. There were nine (9) highwalls consisting of approximately 2,900 linear feet of exposed unstable rock and soil. The vertical walls, ranging in height from 40 to 70 feet, contain numerous rockslides and heavy vegetation along the top of the walls making it difficult to locate the edge of the walls. Several slump/subsidence holes existed along the main park road and hiking trails, one was approximately 16' x 10' and 8 feet in depth. The objectives of the project were to significantly reduce physical safety hazards, restore hydrological function, and improve the ecological integrity of the site.

Services

Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included three (3) borings, installation of three (3) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:
- AML

TRIAD SERVICES:
- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

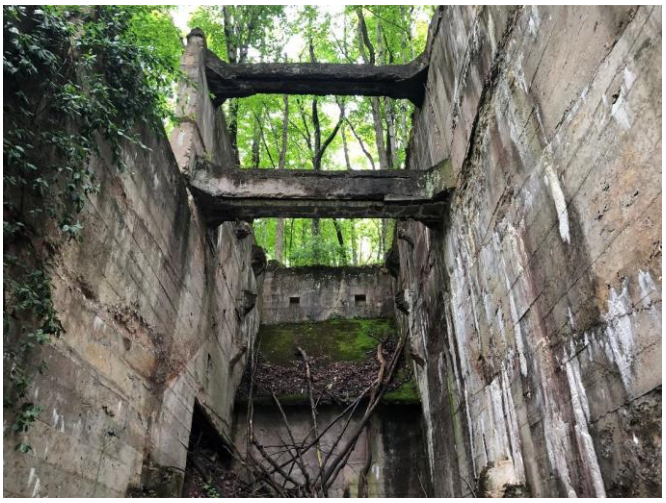
TRIAD ENGINEERING, INC.

WINONA COMPLEX
WINONA, WEST VIRGINIA

Overview

This project consisted of the highwall remediation, mine portal closure, stream restoration, drainage control improvements, and dismantling, removal and proper disposal of existing mining structures and materials at an abandoned mine site in Fayette County, West Virginia. The mine features were scattered around and in the Town of Winona. The area is a popular outdoor recreational area for ATV and hiking trails, hunting, and mushroom harvesting. The site had six (6) mine portals requiring closure – one (1) collapsed with a subsidence area, and five (5) open portals. The open portals were within a highwall; one contained an immediate vertical drop of more than 25 feet. The site also included ten (10) highwalls ranging from 30 – 50' in height with near vertical walls. The approximate 4,500 linear feet of highwalls consisted of rock and soil with numerous rockslides. Scattered structural remains included concrete and stone foundations, brick walls, concrete piers and tipple remnants, as well as general mining "junk" (i.e. steel beams, metal, etc.). The site also included several areas of clogged stream from coal refuse, resulting in impaired hydrology. The objectives of the project were to significantly reduce physical safety hazards, restore hydrological function, and improve the ecological integrity of the site.

Services



Services provided by Triad Engineering included Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included twenty-two (22) borings, installation of five (5) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:
- AML

TRIAD SERVICES:
- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

BUFFALO CREEK COMPLEX
THAYER, WEST VIRGINIA

Overview

This project consisted of the dismantling, removal and proper disposal of existing mining structures and materials, the removal and/or regrading of refuse pile to eliminate fire hazards and/or erosion, and the installation of drainage control improvements to an abandoned mine site near Thayer in Fayette County, West Virginia. The site consisted of scattered structural remains of a mine, including coal silos, concrete piers, and tipple remnants, as well as general mining "junk" (i.e. steel beams, metal, etc.). The natural drainage from the site followed an old mining tramway channel causing severe erosion. The structures and the refuse pile were located on a slope above an active railroad and a trout stream and presented a dangerous situation for a possible slide. The objectives of the project were to significantly reduce physical safety hazards, restore hydrological function, and improve the ecological integrity of the site.

Services

Services provided by Triad Engineering included topographical survey in support of project design. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.

CLIENT:
Atlas Environmental (WV Department of Environmental Protection)

PROJECT TYPE:
- AML

TRIAD SERVICES:
- Drilling
- Geotechnical Exploration
- Piezometer Installation
- Topographical Survey
- CAD Drawings

WVDOH U.S. ROUTE 33 SCOTT MILLER HILL BYPASS EA SUPPORT

Roane County, West Virginia

Characterized water resources within the survey corridor.

EnviroScience, Inc. (ES) performed Environmental Assessment (EA) support services for the proposed U.S. Route 33 Scott Miller Hill Bypass project during spring through fall of 2018. The natural resource inventory and assessment services were conducted as part of the reevaluation of the project's NEPA documentation for the West Virginia Department of Transportation – Division of Highways (WVDOH), on behalf of Burgess & Niple, Inc. (B&N). ES performed a delineation / characterization of wetlands, streams, and other jurisdictional waters within the right-of-way along the approximately 4.60-mile project corridor (on new location). In addition to the wetland and stream assessment work, ES conducted a mist net survey to determine the presence or absence of the Indiana and northern long-eared bats as well as a mussel survey within two reaches of the Left Fork of Reedy Creek.

Forty-four wetlands and 90 streams were assessed along the proposed project corridor. Streams in the project area were assessed using USEPA's Rapid Bio-Assessment Protocols for habitat and benthic macroinvertebrates, where applicable. ES used the Hydrogeomorphic Functional Stream Assessment (HGM) to assess streams for three functions, including stream hydrology, stream biogeochemical cycling, and stream habitat. Using data collected and mitigation strategies proposed by WVDOH and B&N, the West Virginia Stream and Wetland Valuation Metric (SWVM) forms will be completed by ES. Despite the large size of the project and difficult weather, ES met the proposed schedule benchmarks without the use of subcontractors.

Client
Burgess and Niple, Inc.

West Virginia Division of Highways

Key Services Provided
- Wetland Delineation
- Streams and Waterway Characterizations
- WVSCI & HGM Assessments
- Bat Surveys
- Mussel Surveys
- Macroinvertebrates
- HGM: Hydrogeomorphic Functional Stream Assessments
- SWVM Forms
- GIS / Mapping

Contact
Richard Fitch, AICP
Burgess & Niple, Inc.
(614) 459-7272

Project Duration
May 2018 – Present (90% Complete)

ES Key Staff
Chuck Kessler
Jamie Willaman
Elise Bartelme
Nicole Jordan
Rhonda Mendel
Greg Zimmerman

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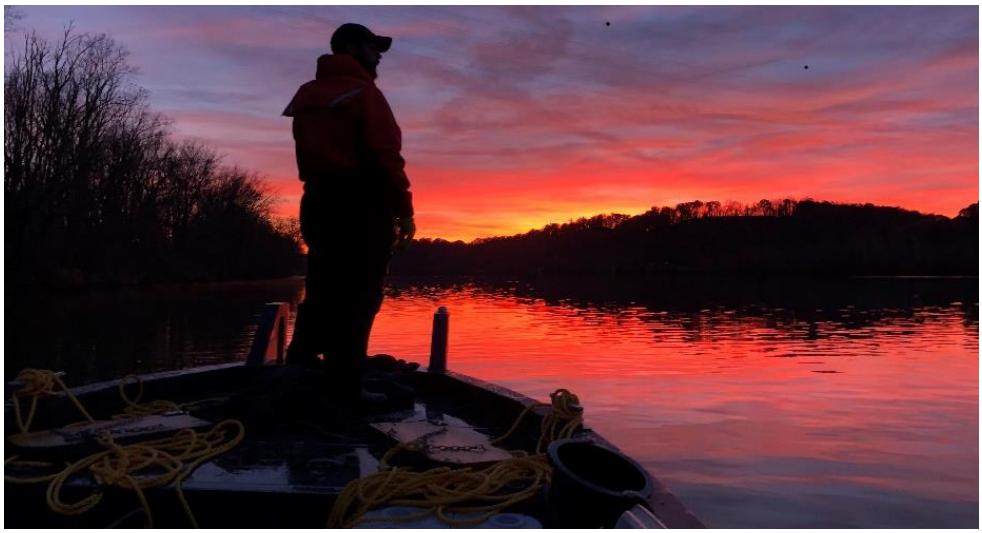
AEP RACINE HYDROELECTRIC PROJECT

Racine, Ohio



EnviroScience Biologist Kevin Reed prepares to deploy a trawl net on the Ohio River.

AEP Generation Resources, Inc. (AEPGR), a unit of American Electric Power (AEP), is the Licensee and owner of the Racine Hydroelectric, located on the Ohio River, near the Town of Racine in Meigs County, Ohio. The project is located at the U.S. Army Corps of Engineers' (USACE) Racine Locks and Dam. The project is in the process of Federal Energy Regularity Commission (FERC) relicensing, which requires the following studies: water quality, recreation use, freshwater mussels, and fisheries.

The goals of each of these studies are as follows. The water quality study aims to gather baseline water quality data to determine compliance with state water quality standards. The examination of recreational usage analyzes the adequacy of existing public access and recreation facilities to meet current and future needs. The directive of the freshwater mussel survey is to evaluate the mussel community downstream of the dam. Finally, the fisheries survey aims to compare and assess fisheries communities upstream and downstream of the dam.

Throughout the various studies performed to date, EnviroScience has demonstrated the organizational capabilities to accomplish this large-scale, multifaceted project. Additionally, such projects require diversification, and the company has exhibited a varied skill-set capable of performing a multitude of environmental studies.

Client
HDR / AEP

ES Project No. 12070

Key Services Provided
- Water Quality
  - Sonde deployment & monitoring
  - Weekly sampling
  - Flow study
- Freshwater Mussels
  - Commercial diving
- Fisheries
  - Electrofishing
  - Trawling
  - Eel Ramp Intallation / monitoring
- Recreation Monitoring

Contact
Robert Quiggle

Project Duration
2019-present

ES Project Cost
$618,000

ES Key Staff
Greg Zimmerman
Dave Czayka
Joe Papineau
Patrick Evankovich
Kevin Reed

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IMPACT ASSESSMENT, DELINEATION, AND FRESHWATER MUSSEL SURVEY ON ELK FORK AT THE MARGERY PAD

Tyler County, West Virginia

Client
Antero Resources Corporation

ES Project No. 14023

Key Services Provided
- Impact Assessment
- Delineation
- Mussel Survey
- Agency Coordination

ES Contact
Laura Sayre
(330) 688-0111

Project Duration
2020

Project Cost
$8,000

Key Staff
Laura Sayre
Emmalisa Kennedy
Sarah Veselka
Brian Carlson

Elk Fork at the Project Location in Tyler County, WV

Antero Resources Corporation contracted EnviroScience, Inc. to perform an impact assessment, including a delineation and freshwater mussel survey to document potential impacts to the Elk Fork at the Margery Pad located in Tyler County, WV. The assessment included documenting the extent of impacts not previously proposed and determining disturbance limits. A delineation of aquatic resources, including streams and wetlands, was performed within the disturbance limit and a 150-foot buffer.

EnviroScience also conducted a qualitative freshwater mussel survey on Elk Fork at the project location to determine the impact of the incidental fill on potential resident freshwater mussels. An EnviroScience certified malacologist efficiently coordinated the mussel survey plan, fieldwork, and report with Antero and the West Virginia Department of Natural Resources (WVDNR) following current West Virginia state protocols. Based on the qualitative mussel survey results, it was determined that the project's incidental fill did not impact native freshwater mussel populations in Elk Fork at the project location.

After completing the field surveys, EnviroScience coordinated with the U.S. Army Corps of Engineers, WVDNR, and the WVDNR Office of Land and Stream to verify that no permitting would be required for the minor unanticipated impacts. A permit application for work within the designated 100-year floodplain was submitted to and approved by the Tyler County, WV floodplain administrator.

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STORMWATER MANAGEMENT IMPROVEMENTS: BASIN RETROFIT & CONVEYANCE SYSTEM UPGRADES

Princeton, West Virginia

Key Services Provided

- Stormwater Management Design
- Stormwater Basin Retrofit
- Stormwater Conveyance System Design
- Stream Evaluation
- Construction Management & Administration

Project Duration
2020 – 2022

Project Design and Management Cost
$56,000.00

ES Key Staff
Sheila Rayman, P.E
Dominic Nardis
Julie Bigham
Angelina Hotz, P.E.

Existing Outfall

New Outfall

Stormwater Reconnected to Historic Stream

An industrial facility in Princeton WV. is located adjacent to a dam that is regulated by WVDEP's Dam Safety division. Decades ago, an aesthetic pond was constructed on the site with a spillway that directed stormwater discharge to a ditch between the facility and the dam. To support Dam Safety by addressing their concern at the dam, EnviroScience, and the facility owner developed an improvement plan that would alleviate overflow from the pond and limit stormwater discharge toward the dam.

EnviroScience, Inc. completed a wetland delineation and determined there would be no impacts to environmentally sensitive areas resulting from the proposed improvements.

Members of EnviroScience's Restoration team assessed the area and determined that a stream had been diverted to create the pond. This project reconnected the stream by discharging the offsite runoff back to the original stream. This improvement restored the biological and habitat benefits to the stream and aided in the reduction of outflow from the pond by decreasing the inflow. EnviroScience engineers were then able to retrofit the pond to serve as a stormwater management facility to provide flow control and improve water quality.

A new main stormwater outfall was designed with a rock channel dissipater to reduce discharge velocity and limit sediment from entering the dam watershed.

EnviroScience's Construction Administration and Management team worked closely with WVDEP's Dam Safety division, WV Conservation Agency, local NCRS division, and WV DOH. Developing these relationships enhanced the success of this project and strengthened client and regulatory relations.

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SUMMIT STREET DAM REMOVAL AND RIVER RESTORATION

Warren, Ohio

Summit Street Dam before (left) and after (right) removal.

The Summit Street Dam removal project is one of several dam removal projects completed along the Mahoning River in Mahoning and Trumbull Counties that the EnviroScience, Inc., RiverReach Construction, and GPD Group team completed to attain its Warmwater Habitat Aquatic Life Use designation. The team completed the dam removal along with design-build bank stabilization and river restoration.

Prior to dam removal, the team dredged and removed 3,005 cubic yards of sediment that had accumulated upstream of the dam. To ensure bank stability during dewatering, the dam was removed in phases by cutting progressive “V” notches into the structure, gradually allowing water to flow through the dam and lowering the dam pool stage. This process also involved the removal of over 310 cubic yards of concrete dam infrastructure.

The team stabilized and restored approximately 800 linear feet of the river to reduce erosion and sedimentation and improve in-river habitat for fish and macroinvertebrates. A predictive IBI and QHEI were completed as part of the project to determine feasible performance uplift of the biological communities post-construction. The actual construction included riffle enhancements and the installation of bendway weirs, rock trench keys, rock toes, woody debris and boulder habitats, and railroad pier protection. The project also included a freshwater mussel reconnaissance and subsequent translocation of mussel species by EnviroScience malacology staff to a suitable location to avoid mortality during construction.

Completion of the Warren Street Dam removal project provides an additional 9.53 miles of free-flowing waters of the Mahoning River between the Republic Steel Dam and Leavittsburg Dam for the first time in over a century. Riffle-pool morphology has been restored, and this project sets the stage for improvement of biological communities and water quality within this stretch of the Mahoning River. This project was funded by the Ohio EPA’s Water Resource Restoration Sponsor Program (WRRSP).

Client
City of Warren

ES Project No. 17181

Key Services Provided
- Dam Removal
- Design-build River Restoration
- Bank Stabilization
- Habitat Improvement
- Permitting and Agency Coordination
- Sediment Survey and Removal
- Mussel Reconnaissance & Translocation
- Predictive Biological Analysis

Contact
Paul Makosky, P.E.
(330) 841-2562

Project Duration
September 2022-2024

Project Cost
$796,359

Key Staff
EnviroScience
Julie Bingham, CERP
Angelina Hotz, P.E.
Trevor Chambers
Jeff Niehaus
Peter Quent
Tom Prewitt, CERP

RiverReach Construction
Shannon Carneal
Patrick Rohr
Greg Guello
Cole Guello

GPD Group
Matthew Lascola
Ivan Valentic
Joe Lanni
Jesse Rufener

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BULLDOG SOLAR

Warrenton, Georgia

Client
Blue Ridge Power

Key Services Provided
- ES&PC Plan Inspection & Reporting
- Oversight – Restoration & SCM Install
- Wetland & Stream Inspection
- Vegetation Assessment
- NPDES Turbidity Sampling, Analysis, & Reporting

Contact
Chuck Cranford
(828) 708-0228

Project Duration
July 2023 – Present

Key Staff
- Ryan Romanson
- Jimmy Sargiovanni
- Harry Jones

ES scientist inspecting SCMs at the photovoltaic power station.

ES scientist collecting a water sample to analyze for turbidity.

EnviroScience, Inc. assists Blue Ridge Power with stormwater compliance at their 1,300-acre Bulldog Solar site in Warrenton, GA. EnviroScience became the lead firm on the project during the restoration phase of construction following the installation of the site's photovoltaic power station and electrical substation. EnviroScience's priority is to identify areas of concern, including on-site erosion, defective sediment control, and sedimentation beyond the construction limits of disturbance. EnviroScience focuses on providing appropriate, cost-effective recommendations for Blue Ridge Power to achieve sufficient vegetative stabilization to comply with permit requirements.

EnviroScience's goal is to ensure that on-site sediment control measures (SCMs) are managed to function properly, provide quality erosion and sediment control reviews and inspection reports, and coordinate with the site construction manager to achieve sufficient stabilization on-site until a Notice of Termination request is submitted. The site's Erosion, Sedimentation and Pollution Control (ES&PC) Plan details SCMs necessary to complete the construction project in compliance with its NPDES permit and all other local, state, and federal agency requirements. EnviroScience scientists lead and organize weekly/monthly rain inspections and provide on-site guidance for construction personnel to achieve stabilization and erosion control.

Within 24-hours of a qualifying rain event (>0.5"), EnviroScience conducts outfall sampling at the Bulldog Solar site in accordance with the methodology and test procedures established by the EPA. The surface water samples are analyzed, and the results are presented to the client as a comprehensive report, along with recommended measures to remain in compliance with their permit.

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BAT MIST-NET, HIBERNACULA AND PRT SURVEYS

King Coal Highway - Section 2, Mercer County, WV

Client
WV Dept. Of Highways

ES Project No. 18169

Key Services Provided
- Mist-Netting Survey
- Potential Roost Tree Survey
- Potential Hibernacula Survey

Project Duration
2024

Project Cost
$135,000

Key Staff
Christina Voorhees
Greg Zimmerman
Luke Fultz

Potential roost tree, Mercer County, WV.

EnviroScience, Inc. conducted an Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and tricolored bat (*Perimyotis subflavus*) potential hibernacula survey, primary potential roost tree (PRTs) evaluation, and mist-net survey for Michael Baker International and the West Virginia Division of Highways (WVDOH) within the proposed King Coal Highway Project – Section 2 (Littlesburg, WV to Montcalm, WV). Surveys were conducted based on EnviroScience's professional judgment and interpretation of the technical criteria outlined in the USFWS documents.

EnviroScience conducted 28 net nights of bat mist-net survey. Two species of bats were captured and documented: eastern red bat (*Lasiurus borealis*) and big brown bat (*Eptesicus fuscus*). No Indiana bats, northern long-eared bats, or tricolored bats were captured during the survey; therefore, it is unlikely that these species are present within the project area during the maternity season. No other state-listed bats were captured during the mist net survey. Although several rock features were observed throughout the project area, none exhibited characteristics of potential hibernaculum that require further investigation.

During field assessments, suitable summer bat habitat was observed throughout the proposed project area for all three target species. Seven PRTs were identified as exhibiting primary characteristics of potentially suitable roosting habitat.

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MONONGAHELA RIVER WATER QUALITY AND CENTRALIZED MINE DISCHARGE TREATMENT PROJECT

Pennsylvania and West Virginia

Client
U.S. Environmental Protection Agency

ES Project No. 15235

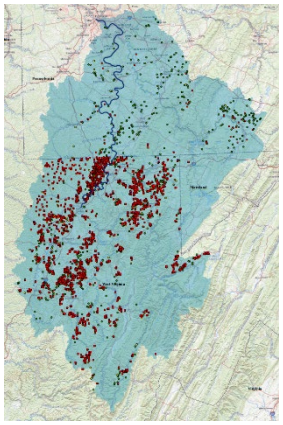
Key Services Provided
- Waste Treatment Systems
- Public/Environmental Health
- Environmental Investigations
- Environmental Remediation
- Waste Characterization

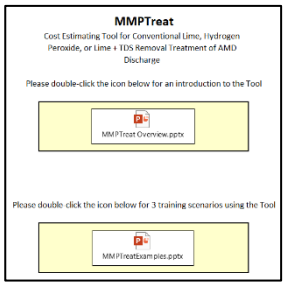
Project Duration
2021-2023

Project Cost
$171,286

ES Key Staff
Eric Romaniszyn
Greg Zimmerman

Gladden AMD Treatment Facility (Photo credit: PADEP)





Credit: Linkan Engineering)

The US Environmental Protection Agency contracted EnviroScience, Inc. to develop a decision support tool for guiding the development of centralized water treatment systems that remediate acid mine drainage (AMD). The EPA aims to reduce total dissolved solids (TDS) and metals loading in the Monongahela River basin of southwest Pennsylvania and north-central West Virginia. EnviroScience teamed with Linkan Engineering, Inc. to complete this project.

Acid mine water draining from underground coal mines and runoff from refuse piles is negatively impacting water quality, and the EPA is developing a long-term management strategy that includes streamlining AMD treatment facilities such that it reduces a facility's dependency on the economic performance of mine operators. This project was part of that strategy, which developed a decision support tool for estimating costs and treatment effectiveness of conceptual treatment facilities, called the Monongahela Mine Pool Treatment tool (MMPTreat).

MMPTreat is a Microsoft® Excel®-based model that provides a Class 5 Cost Estimate corresponding to AACE Recommended Practice No. 18R-97, Engineering, Procurement, and Construction for the Process Industries (AACE International, 2005). The model evaluates water quality improvements from changes in flow and/or TDS concentrations, and estimates capital and operating costs for conventional and advanced treatment systems. This early cost estimation helps determine the feasibility of treatment facility upgrades or new construction.

The MMPTreat tool is appropriate for early stages of project and budgetary development. It is meant for regulators, decision-makers and others who likely have little experience with AMD treatment facilities but make decisions on their further development as potential projects.

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Section 5
Personnel Qualifications

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
David G. Hibbard, P.G.	Senior Advisor	11	9

15. FIRM NAME AND LOCATION *(City and State)*

Brierley Associates, Denver, CO

16. EDUCATION *(Degree and Specialization)*

MS, Geographic Information Sciences, University of Denver*

BS, Applied Geoscience, Metro State University of Denver (2014)

17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*

Professional Geologist (WY #4136), (UT #13894216-2250)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Dave Hibbard has served as Geohazards Sector Leader since 2019, bringing over a decade of field and analytical experience in geologic hazard assessment, mine risk evaluation, subsidence mitigation design, and rock mechanics. He leads teams that assess and reduce geotechnical risks across diverse industries, applying expertise in geomechanical characterization, geotechnical sampling, slope and highwall stability, GIS applications, and construction management for multi-million-dollar projects. His work spans underground mine mitigation, trenchless tunneling, earthwork, dams, erosion control, road and bridge inspections, foundation soil evaluations, oil and gas exploration, and geotechnical drilling and laboratory testing. He is also recognized for his specialized experience in remote sensing, hydrogeologic analysis, and coal mine fire investigations. Mr. Hibbard's broad background in both civil and geologic projects allows him to deliver innovative, practical, and strategic solutions in geotechnical engineering and hazard management. **Project manager on two OSMRE award-winning projects and led teams on several high-profile, widely recognized projects within the past three years.**

Publications: Hibbard, D., Gamal, M. (November, 2019): *Mitigation in artesian conditions; Abandoned coal mine unique challages;* Mining Engineering Magazine

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)

Wattis No. 2 Mine Fire - Abandoned Mine Reclamation Program; Historic Coal Mine Fire Investigation and Abatement; UT Oil, Gas, and Mining Division, Utah Department of Natural Resources

(2) YEAR COMPLETED: **2024** – **2025**

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

Role: Project Manager, Senior Geologist, Construction Manager; The Wattis No. 1 underground coal mine fire spans approximately 85 acres within the Manti-La Sal National Forest, characterized by NNE-trending ridges, steep with elevations between 8,500 and 9,000 feet. Access requires rugged cross-country hiking along a ridge for three-quarters of a mile. Vegetation consists mainly of grass and low sage, with sparse tree coverage due to the 2012 Seeley wildfire, which likely ignited the mine fire at multiple portals. Surface venting with temperatures up to 400°F occurs through localized fissures spread across 1,400 feet.

Mr. Hibbard serves as the project manager, project logistics, field reconnaissance and mapping, characterization, and evaluation of extinguishment methods and costs. His work integrates a range of technologies, including thermal imaging and temperature monitoring using handheld infrared and thermocouples, air intake mapping using smoke sources, vent gas analysis with portable analyzers and lab gas chromatography, UAV-based infrared and orthomosaic imagery, and Interferometric Synthetic Aperture Radar (InSAR) satellite imagery processing.

These datasets are compiled into a 3D Geologic Modeling Application, ArcGIS database, incorporating historic mine maps, digital terrain models, and surface mapping data for comprehensive site characterization and risk assessment. The findings guide geotechnical drilling locations and abatement screening, supporting cost estimation and mitigation planning.

b.

(1) TITLE AND LOCATION *(City and State)*

Kenilworth Mine Fire - Abandoned Mine Reclamation Program; Historic Coal Mine Fire Investigation and Abatement; UT Oil, Gas, and Mining Division, Utah Department of Natural Resources

(2) YEAR COMPLETED: **2024** – **2024**

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

Role: Project Manager, Senior Geologist, Construction Manager:

Mr. Hibbard served as the project manager and lead field investigator for the emergency investigation and mitigation of the underground mine fire at the historic Kenilworth mine complex, following a sudden increase in fire activity due to a subsidence event. Located on a high relief cliff ledge above the town of Kenilworth, the site was inaccessible by ground, requiring all work to be conducted via helicopter support, eliminating the use of heavy equipment. Due to hazardous conditions, specialized training for closed-circuit breathing apparatus (CCBA) was required.

As an OSMRE Emergency Response project, the fire was addressed swiftly, with investigation to completion achieved in just 71 days despite complex logistics. The total project cost was $661,347.80, 37% under budget.

c.

1) TITLE AND LOCATION *(City and State)*

Illinois Department Of Natural Resources, Office of Mines and Minerals, Abandoned Mined Lands Reclamation Division – Central Illinois Contract

(2) YEAR COMPLETED: **2024** – **2025**

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

Role: Project Advisor, Quality Assurance; Brierley Associates is the prime consultant for the Illinois Department of Natural Resources, Office of Mines and Minerals, Abandoned Mined Lands Reclamation Division – Central Illinois Contract. With a five-year, $8.3 million budget, Brierley is responsible for investigating, evaluating, and designing abatement solutions for historic abandoned coal mines across central Illinois.

The firm's scope includes addressing dangerous highwalls, failed river embankments linked to historic mining, subsidence from an old fluorspar mine causing road damage, road safety improvements near unstable embankments, and acid mine drainage from historic coal slack piles.

Brierley collaborates with Kaskaskia Engineering Group, LLC and Hanson Professional Services Inc., providing bid-ready construction documents to support reclamation efforts and enhance public safety.

d.

(1) TITLE AND LOCATION *(City and State)*: **Abandoned Mine Lands; Historic Mine Assessment and Mitigation, WY Abandoned Mine Land Division, Wyoming Department of Environmental Quality (17.6B, 17.6C)**

(2) YEAR COMPLETED: **2017** – **2023**

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

Role: Project Manager, Geologist, Construction Manager; Technical direction of a multi-disciplinary teams investigating and evaluating subsidence risk over extensive historic underground room and pillar coal mines within in Carbon and Converse County. This work included comprehensive geotechnical investigation, GIS analysis, deformation studies, subsidence mitigation and design, hydrogeologic assessment, historic mine mapping, remote sensing and geospatial analysis (INSAR, drone photogrammetry, and LIDAR), ground surveying, geophysical analysis, geotechnical sampling, public outreach, technical specification production, and construction management.

e.

(1) TITLE AND LOCATION *(City and State)*: **Goldfield Mine, Goldfield, NV (Phase 1 & 2)**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES **2018** – CONSTRUCTION (*If applicable*) **2023**

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

Role: Project Manager, Engineering Geologist: Technical direction and oversite of a multi-disciplinary team tasked to investigate and evaluate subsidence and highwall hazard risk over an extensive historic underground stope mine with significate signs of subsidence. This work included comprehensive geotechnical investigation, geophysical and geospatial analysis, remote sensing, mine map modeling, structural support delineation, and proposed plans for mitigation solutions in an active highly altered hardrock mine with over 25 mine intervals to depth of 1,000'bgs.

f.

(1) TITLE AND LOCATION *(City and State)*: **Farthing Rock Quarry, (Phase 1, 2, 3, 4, 5, 6, 7)**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES **2022** – CONSTRUCTION (*If applicable*) **2025**

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

Role: Project Manager, Engineering Geologist: Provided management and guidance for geologic site characterization on hardrock mine development and open pit design. Project consists of extensive geologic mapping, drilling sample collection, geophysical assessment, remote sensing, spatial analysis, laboratory testing, mine permitting, modeling, and open pit highwall design.

g.

(1) TITLE AND LOCATION *(City and State)*: **Globeville Tunnel; City of Denver, Denver, CO**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES **2017** – CONSTRUCTION (*If applicable*) **2017**

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

Role: Field Engineering Geologist, Construction Manager, Quality Assurance: Provided extensive QA/QC inspection oversite on multi-million-dollar project for a 96-Inch diameter stormwater tunnel expanding beneath I-70 and RTD rail lines. Work included; permeation grouting, instrumentation monitoring, QA/QC oversite, material oversite, and construction management. Mr. Hibbard served as the onsite engineer/geologist, providing support to the principle designer and contractor project management.

h.

(1) TITLE AND LOCATION *(City and State)*: **Geological Survey; City of Manitou Springs, CO**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES **2017** – CONSTRUCTION (*If applicable*) **2017**

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

Role: Field Geologist, Construction Manager: Conducted geological site survey to provide a constructability and rippability assessment for historic water main replacement. Work included; geotechnical sampling, In-situ test pit analysis, literature review, and construction management. Mr. Hibbard served as the resident field geologist assisting the City of Manitou and Public Works.

i.

(1) TITLE AND LOCATION *(City and State)*: **Banner Lakes Dam; Hudson, CO**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES **2017** – CONSTRUCTION (*If applicable*) **2017**

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

Role: Field Geologist, Construction Manager: Working with the Colorado Parks and Wildlife, Mr. Hibbard provided services to assess and explore several compromised earth embankment dams associated with wide scale 'pipping'. Project involved geologic exploration working with the Colorado Department of Wildlife and geotechnical assessment of dam cores and slope structure. Subsurface geotechnical sampling, water sampling analysis, and lab testing was performed, in addition to a very thorough literature review.

j.

(1) TITLE AND LOCATION *(City and State)*: **Daniel Sands Quarry and Dam; Colorado Springs, CO**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES **2017** – CONSTRUCTION (*If applicable*) **2017**

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

Role: Field Geotechnical Engineer/Geologist, Construction Manager: Performed construction oversite, material and soil inspection, hydrogeologic assessments, and soil lab analysis for the Auraria Campus Expansion project. Detailed soil and subgrade sampling were required due to environmental contamination and on-site conditions. Inspection work included; reinforced steel, storm sewer, retaining walls, and storm water inspection.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person)

12. NAME	13. ROLE IN THIS CONTRACT	7 YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Joshua Zimmermann, P.E., G.I.T	Engineer of Record	11	10

15. FIRM NAME AND LOCATION *(City and State)*

Brierley Associates, Cottage Grove, MN

16. EDUCATION *(Degree and Specialization)*

BS, Geological Engineering, University of Wisconsin- Madison (2015)

BS, Geology and Geophysics, University of Wisconsin- Madison (2015)

17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*

Professional Engineer WV (#25975), AL, CO, IA, IL, IN, KS, MN, ND, NM, NV, OH, VA, WY

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Mr. Zimmermann's experience as a construction material technician served as the launching point into his experience with geotechnical investigations/design, soil & rock mechanics, geophysical observations, special inspections, field investigations, tunnel rehabilitation/repair, grouting, ground improvement and construction monitoring/management. His effective communication skills are essential to creating strong client relationships and ensure project completion. He has also lead efforts in public outreach on behalf of Wyoming AML to ensure clear and constant communication with owners in regard to mitigation efforts on their property, including managing and obtaining consent for mitigation on public and private property.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Abandoned Mine Lands; 17.6B Historic Mine Assessment and Mitigation, WY**

(4) YEAR COMPLETED — PROFESSIONAL SERVICES: **2016-2020** | CONSTRUCTION (*If applicable*): **2016-2020**

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

Role: Project Engineer and Construction Manager; Project Engineer as part of a multi-disciplinary team investigating and evaluating subsidence risk over extensive historic underground subbituminous and bituminous room and pillar coal mines across Wyoming. This work included comprehensive geotechnical and geologic investigation, GIS analytics and reporting, field deformation and geomorphic studies, subsidence mitigation and design, hydraulic/hydrogeologic assessment and analysis, water conveyance, sub-surface mine mapping utilizing remote sensing techniques (INSAR, LIDAR, photogrammetry, multispectral imagery), geospatial analysis, ground surveying, geophysical analysis, geotechnical sampling/testing, public outreach, technical specification production, and construction management.

b.

(1) TITLE AND LOCATION *(City and State)*: **Abandoned Mine Lands; 17.6C Historic Mine Assessment and Mitigation, WY**

(1) YEAR COMPLETED — PROFESSIONAL SERVICES: **Ongoing** | CONSTRUCTION (*If applicable*): **Ongoing**

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

Role: Project Engineer and Construction Manager; A continuation of work performed under the 17.6B for Wyoming's AML division in a renewed contract. This project includes performing geotechnical investigation, design, hydrogeologic analysis, subsidence mitigation as construction manager for one of the largest subsidence mitigation projects in Wyoming AML history for a site impacted by artificially induced artesian conditions from an abandoned, subbituminous coal mine in Glenrock, WY. This was the first project of its kind constructed in North America. Joshua was also the Construction Manager for mine subsidence mitigation work at the Dana No. 1 Mine outside of Hanna, WY, where careful monitoring was required to mitigate abandoned coal mine workings under a Union Pacific at depths less than 30-ft from the ground

c.

(1) TITLE AND LOCATION *(City and State)*: **Preliminary Subsidence Hazard Report, Goldfield, NV**

(1) YEAR COMPLETED — PROFESSIONAL SERVICES: **2023** | CONSTRUCTION (*If applicable*): **N/A**

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

Role: Project Engineer and Field Geologist; Performed investigative and analytical work to determine the subsidence risk to surface infrastructure and construction activities overlying an abandoned gold mine in Goldfield, Nevada. The client, who is trying to reactivate the site into an open pit mine, was concerned about the development of recently formed sinkholes resulting from historic underground stope mining. Joshua served as a project engineer, evaluating historic mine records and geotechnical data to develop a preliminary subsidence risk profile to relating to potential surface activities that were being performed across the 100+ acre site. This included geotechnical and geo-structural analysis, risk categorization, and site hazard analysis for sinkhole and subsidence development. He also served as a field geologist, logging nearly 1,000 feet of rock core as part of a 24-hour geotechnical coring operation drilling to obtain updated geotechnical data to obtain higher quality geologic data, establish the current status of the mine workings and overlying bedrock against rubbleization, and ensure the accuracy of an underground model of the mine workings. He also designed the geotechnical laboratory program, helping to designate over 100 samples for testing in labs across the county to create a more accurate sinkhole risk profile.

d.

(1) TITLE AND LOCATION *(City and State)*
Preliminary Subsidence Hazard Report, Goldfield, NV

(1) YEAR COMPLETED
PROFESSIONAL SERVICES: **2023**
CONSTRUCTION (*If applicable*): **N/A**

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

Role: Project Engineer and Field Geologist; Performed investigative and analytical work to determine the subsidence risk to surface infrastructure and construction activities overlying an abandoned gold mine in Goldfield, Nevada. The client, who is trying to reactivate the site into an open pit mine, was concerned about the development of recently formed sinkholes resulting from historic underground stope mining. Joshua served as a project engineer, evaluating historic mine records and geotechnical data to develop a preliminary subsidence risk profile to relating to potential surface activities that were being performed across the 100+ acre site. This included geotechnical and geo-structural analysis, risk categorization, and site hazard analysis for sinkhole and subsidence development. He also served as a field geologist, logging nearly 1,000 feet of rock core as part of a 24-hour geotechnical coring operation drilling to obtain updated geotechnical data to obtain higher quality geologic data, establish the current status of the mine workings and overlying bedrock against rubbleization, and ensure the accuracy of an underground model of the mine workings. He also designed the geotechnical laboratory program, helping to designate over 100 samples for testing in labs across the county to create a more accurate sinkhole risk profile and develop potential hazard mitigation strategies during future development of the mine.

e.

(1) TITLE AND LOCATION *(City and State)*
St. Louis and O'Fallon No. 2 Acid Mine Drainage Project
Fairview Heights, IL

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **Ongoing**
CONSTRUCTION (*If applicable*): **N/A**

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

Role: Project Manager: Providing project management and design services for the engineering of the passive treatment system consisting of two (2) anaerobic bioreactors, two (2) oxidation ponds, and a polishing wetland. This has included evaluating and incorporating lessons learned from the State of Illinois singular prior AMD treatment system, which has suffered from several operational issues since its initial construction in the 2000's.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Melissa Bautz, PG	Deputy Project Manager	30	3

15. FIRM NAME AND LOCATION *(City and State)*

Brierley Associates, Laramie, WY

16. EDUCATION *(Degree and Specialization)*

MS, Geology (Structure,Tectonics), University of Missouri – Columbia (1999)

BS, Geology (Hydrology), California State Polytechnic University-Pomona (1995)

17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*

Professional Geologist, Wyoming (#3690)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Melissa is a professional geologist with an emphasis on project oversight and field work in surface mine reclamation, underground mine voidfill drilling and grouting programs, Office of Surface Mining Reclamation and Enforcement (OSMRE) prioritization and project approvals, and stakeholder interfacing. Melissa has 15 years of experience with mine permitting and enforcement (for uranium, sand/gravel, coal, gold, bentonite, zeolite mines) with the Wyoming Department of Environmental Quality's (WDEQ's) Land Quality Division as well as 7 years of project management experience with WDEQ's Abandoned Mine Lands (AML) Division. While she worked at Wyoming DEQ, Melissa earned "Employee of the Year" three times. At AML Melissa addressed mine subsidence risk and mitigation across the State of Wyoming; total combined project amounts were $150 million. She has overseen numerous drilling exploration projects for identifying mine subsidence hazards and she is adept at managing the mitigation of infrastructure affected by or at risk for subsidence. Melissa also has experience backfilling open pits of all sizes (0.1 acre to 60 acres), mitigation of subsidence hazards via excavation of underground mine workings, mine site records evaluation, reclamation of mine shafts with bulkheads, project clearances and eligibility determinations, property access consents, oversight of radiological hazards handling, investigation and construction summary reports, engineering estimates, SWPPPs, field implementation of AML's WAVES revegetation standards, AML's mine subsidence insurance program, voidfill grout mixes (alternative pozzolans, foam sand), and localized and regional groundwater/drainage studies. She has written numerous technical specifications for AML projects.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Project 17.6C-Brierley, Glenrock-8 and Hanna-4 (Glenrock and Hanna, Wyoming)**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2022**; CONSTRUCTION *(If applicable)*: **2022**

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

Description: Hanna-4: Drilling and grouting of mine voids mitigated subsidence risk for 14.7 acres of residential properties associated with the subjacent Hanna No. 4 Mine. A total of 38,716 LF were drilled, and 28,841 CY of grout was injected into the mined interval. Total cost: $7,713,878.15. Glenrock-8: Mitigated subsidence risk for 1.6 acres of residential properties associated with the subjacent Glenrock No. 1 and 2 Mine. A total of 55,123 LF were drilled, and 9,646 CY of grout was injected into mined interval. Total cost: $5M.

Role: Project Geologist: Interface with the project stakeholders in weekly project meetings, provided management support for field crew via obtaining consents, writing field orders and change orders, meeting with client. Weekly updates to client (AML) conducted via conference calls and online GIS portal interface. Review of budget with client. Called in utility locates when necessary. Construction summary report writing.

b.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Project 17.6C-Brierley, Hanna No. 5 Mine Investigation (Hanna, Wyoming)**

(1) YEAR COMPLETED — PROFESSIONAL SERVICES: **2022**; CONSTRUCTION *(If applicable)*: **2022**

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

Description: Drilling into suspected mine voids adjacent to and under the Union Pacific Railroad (UPPR) railroad grade 6 miles west of Hanna. 7,441 LF drilled. 8 voids found in 58 drill holes. None indicated mine workings extended under the railroad tracks. Total Cost: $299,953.52.

Role: Construction Manager: Coordinated field staff to conduct 4 week drilling program. Coordinated with AML (Client) to obtain UPRR consent, enabling the investigation to be completed prior to the onset of winter conditions. Provided construction management and quality control: mitigation drilling plans, ground and construction surveys, project documentation, surveying of drilling targets, stakeholder outreach.

c.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Project 17.6C-Brierley, Jade Drive Hydrogeologic Investigation**

(1) YEAR COMPLETED — PROFESSIONAL SERVICES: **2022**; CONSTRUCTION *(If applicable)*: **2022**

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

Description: A hydrogeologic study of a Hanna neighborhood with excessive springs and seeps was conducted from March – September 2022. Conducted water line isolation tests, acoustic leak detection tests, groundwater monitoring, geochemical analysis of the groundwater to ascertain any contribution from the municipal water system. No correlation was observed between voidfill grouting in downtown Hanna and water levels in the Jade Drive neighborhood. Conclusion: seeps and springs were unrelated to the mine workings. Approx Cost: $200,000.

Role: Project Geologist: High-profile project, with residents and Hanna town employees. Worked with the AML project manager to ensure the intense scrutiny of this investigation didn't escalate. Obtained property owner consents, interface with community members via Senior Center, Town Hall Meetings, one-on-one interactions, and distribution of fliers throughout the town. Real-time "Sensemetrics" groundwater monitoring.

d.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Project 17.6C-Brierley, Glenrock-7 Artesian Mitigation Project (Glenrock, Wyoming)**

(1) YEAR COMPLETED — PROFESSIONAL SERVICES: **2021** — CONSTRUCTION (*If applicable*): **2021**

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

Description: Drilling and grouting activities performed to mitigate subsidence risk to 20.03 acres of residential properties associated with subjacent Glenrock 1 & 2 Mines. Mitigation area in artesian conditions.132,125 LF drilled, 26,904.3 CY of grout injected. Cost: $11,973,923.16.

Role: Client (AML Project Manager): Authorization of LIDAR mapping of all properties in the neighborhood as well as constant communication with the Consultant (Brierley) and real-time monitoring of ground water levels were paramount to this project's success. Stakeholder interface in the form of mine subsidence insurance claims required extra management on this project. Biweekly onsite visits with Brierley.

e.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Project 17.6C-BRS 3F – West Blairtown & W 2nd Street Drilling and Grouting**

(1) YEAR COMPLETED — PROFESSIONAL SERVICES: **2021** — CONSTRUCTION (*If applicable*): **2021**

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

Description: Rock Springs community (Blairtown) and Lewis Mobile Home Park Drilling & grouting, congested neighborhood & trailer park, shallow water table with water in open mine workings. Total Project Cost: $4.7 million. 28,620 linear feet were drilled, and 13,972.8 cubic yards of grout.

Role: Client (AML Project Manager): Melissa visited the site a minimum frequency of every 2 weeks. The site's challenges included congested neighborhoods, children play in the streets, water in mine voids displaced by grouting, concerns from mobile home park manager about project's duration and effects on asphalt. Coordination with mine subsidence insurance program paramount to the success of project.

f.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Project 17.6C-Brierley, Hanna-3 Drilling & Grouting Project (Hanna, Wyoming)**

(1) YEAR COMPLETED — PROFESSIONAL SERVICES: **2021** — CONSTRUCTION (*If applicable*): **2021**

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

Description: Mitigation via voidfill grouting under Town of Hanna football field and track. Mitigated subsidence risk to 9.02 acres of school and residential properties overlying the Hanna No. 4 Mine. 56,409 LF were drilled, 25,990 CY of grout injected. Total cost: $8,531,421.22.

Role: Client (AML Project Manager): Coordination of 10 subcontractors. Frequent interface with media and stakeholders. **Project won OSMRE's Western Region Reclamation award at 2022 NAAMLP.** Daily communication between Melissa and Brierley paramount to success.

g.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Project 17.6B-BRS-3D Rock Springs No. 7 & 9 Mine Pipeline Drilling and Grouting Project**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2020** — CONSTRUCTION (*If applicable*): **2020**

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

Description: Drilling & Grouting of mine voids djacent to and under active oil pipeline. Mine Fire under pipeline as well. 44,000 LF drilling, 33,000 cy voidfill grout. Grouting done via angle borings, no-occupancy barrier 15' on either side of pipeline. Total Project Cost ~$8 million

Role: Client (AML Project Manager): Worked closely with consultant to ensure consent and communication w/pipeline company. Frequent site visits. Challenges with enabling contractor to cross pipeline to work on each side was addressed via Field Order for gravel crossings.

h.

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Program Project 17.32 – Statewide Construction Contract program.**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2014-2019** — CONSTRUCTION (*If applicable*): **2014-2019**

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

Role: AML Project Manager: Managed Wyoming AML's program for small (</= $300,000) mine hazard mitigation construction projects. Involved tracking and management of >70 contractors. Program required equitable distribution of work to all contractors. Coordination and matching of equipment required for each project to an available contractor was an integral part of this project. Up to 81 Task Orders issued annually while Melissa ran the 17.32 project. Many strong liaisons with contractors resulted from Melissa's management of project.

i

(1) TITLE AND LOCATION *(City and State)*: **Wyoming Abandoned Mine Lands Program Project 16G-Day Loma**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2014-2019** — CONSTRUCTION (*If applicable*): **2014-2019**

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

Role: AML Project Manager: Managed reclamation of open pit uranium mines via earth backfill. Location: Gas Hills Wy, >700 acres, 7,000 feet of high wall reduced, special handling of radioactive materials, acid-base Potential evaluation of soils for coversoil (growth medium). Tens of millions of cubic yards of pit backfill and final surface cover material (growth medium). Geomorphic reclamation for surface drainage designs, 10-60 acre pit lakes backfilled, water discharge permitting, Total Project Cost: $20M.

j.

(1) TITLE AND LOCATION *(City and State)*: **3rd Party Study: Geomorphic reclamation and landscape heterogeneity**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2016-2019** — CONSTRUCTION (*If applicable*): **2016-2019**

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

Role: AML Project Manager: Managed 3rd party study on efficacy of geomorphic reclamation for Abandoned Mine Lands in WY. Melissa wrote the scope and managed 2-year study, funded by AML Federal Grant #S16A720028 under CFDA #15.252. Work conducted by University of Wyoming graduate students. The study evaluated two former surface mines (one coal and one uranium) and addressed the efficacy of geomorphic reclamation compared with traditional reclamation; geomorphic stability, vegetation, wildlife habitat, and economics.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Joel E. James, P.E.	Project Engineer	18	6

15. FIRM NAME AND LOCATION *(City and State)*

Brierley Associates, Laramie, WY

16. EDUCATION *(Degree and Specialization)*

BS, Civil Engineering, University of Wyoming, 2016

17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*

Professional Engineer, WY (#18769) AL, CO, IL, KY, MT, NM, NV, UT, WY,

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Joel James has been part of Brierley's WY AML project team since 2019. He is a Professional Engineer, with a focus in Geotechnical Engineering that specializes in mine mitigation, construction management, foundation design, tunnel design, slope stabilization and hydraulic engineering. Joel has over eighteen years of combined experience as a project manager, superintendent, civil engineer, estimator, CAD/BIM manager, surveyor, and operator. His constructability experience relies on more than seven years in the field as a contractor managing, supervising, and constructing projects that consisted of pipelines, structural concrete, roadways, and water treatment facilities prior to receiving a B.S. in Civil Engineering. Joel has the experience to assess and characterize a multitude of different geohazards, providing an engineering and construction-based approach in developing a solution to meet clients' needs and expectations. Joel has a vast array of experience and a strong work ethic, making him capable of fulfilling a wide range of roles for almost any project. **Publications:** Joel James, Madison Brunk, James Carroll, "An Innovative Approach with Granite Block – Mud Mountain Dam 9-Foot Tunnel Rearmoring Project", Proceedings of the 2018 North American Tunneling conference, Washington, D.C.; June 2018

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*

Abandoned Mine Lands Subsidence Investigation, Inventory, Risk Assessment and Mitigation Contracts 17.6B & 17.6C

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
2019	2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Role: Construction Manager/EOR Brierley Associates serves as a prime consultant for the Wyoming Department of Environmental Quality - Abandoned Mine Lands Project 17.6B & 17.6C, which involves prioritizing and mitigating hazards associated with abandoned mine workings. Brierley's areas of focus include southeast Wyoming, and specifically the areas around Hanna and Glenrock Wyoming. Brierley is responsible for the investigation of inactive abandoned mine sites, which affect high priority infrastructure. Investigation techniques used include geotechnical logging, surface geophysics, downhole geophysics, aerial mapping, and remote sensing. In addition, Brierley's tasks include: inventory developed and planned infrastructure, mine subsidence or hazardous features, and other relevant mine features and incorporate inventory items into a GIS (Geographic Information System) database in coordination with the other contractors on this project. Brierley is also providing construction management and oversight services during investigation and remediation efforts. Mr. James is currently serving as the Engineer of Record on two abandoned mine mitigation projects in Hanna and Glenrock, WY. Since joining Brierley in 2019, Mr. James has served as the construction manager/site lead for over $55 million in mitigation projects (Hanna No. 1 Mine, Hanna Elementary School, Hanna-1, Hanna-2, Hanna-3, & Hanna-4) managing a team of up to 10 engineers and geologists in the field. In 2020 and 2021, Mr. James served as the Construction Manager on three separate projects, Hanna Elementary School, Hanna-3 Mine Mitigation Project, which has **recently earned National recognition and has received a regional award by OSMRE (Office of Surface Mining Reclamation and Enforcement).**

b.

(1) TITLE AND LOCATION *(City and State)*

Harbour Island Force Main Replacement Subaqueous Microtunnel, Tampa FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
2022	2023

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

Role: Design Engineer Representive This Progressive Design-Build project for the City of Tampa involves relocation of the existing force main between the Howard F Curren AWTP and Franklin Street in downtown Tampa. Microtunneling through mixed ground conditions including limestone and weak unconsolidated soils were used to install 3200 linear feet of 72" steel casing pipe for the portion of the alignment beneath the Ybor Turning Basin between the Port of Tampa and Cotanchobee Park. The carrier pipe consists of 54" Hobas pipe. As the trenchless specialist on the Design-Build team, Brierley reviewed the design criteria package, evaluated microtunneling contractor bids and participated in the interviews of shortlisted subcontractors, prepared risk registers, and reviewed design/specification submittals. As of April 2023, construction of the microtunnel has been completed and installation of the Hobas pipe is underway. Joel served as an on-site Geotechnical Engineer providing supervison during the construction works. Total Contract Value: $40 Million

c.

(1) TITLE AND LOCATION *(City and State)*
St. Louis and O'Fallon No. 2 Acid Mine Drainage Project
Fairview Heights, IL

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **Ongoing**
CONSTRUCTION (*If applicable*): **2019**

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

Role: Project Geologist: Providing project management and design services for the engineering of the passive treatment system consisting of two (2) anaerobic bioreactors, two (2) oxidation ponds, and a polishing wetland. This has included evaluating and incorporating lessons learned from the State of Illinois singular prior AMD treatment system, which has suffered from several operational issues since its initial construction in the 2000's.

d.

(1) TITLE AND LOCATION *(City and State)*
Mud Mountain Dam 9-Foot Tunnel Rearmouring, Emunclaw WA

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2019**
CONSTRUCTION (*If applicable*): **2019**

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

Role: Design Engineer The Mud Mountain Dam (MMD) Tunnel Rearmoring project was a design-build project near Seattle, Washington. The invert of the MMD sediment bypass tunnel was damaged by the sediment flows through the tunnel that came from Mount Rainer. The United States Army Corps of Engineers (USACE) chose an alternative design proposed by the design team to rearmor the invert of the tunnel with granite blocks instead of the initial designed steel armoring. The value engineering change increased the design life from 15 years to 40 years. Mr. James served as onsite Engineer working directly with the contractor from preliminary design through construction closeout. Additional responsibilities were acting as the CAD/BIM Manager, performing LiDAR analysis and underground surveying, providing engineering support for the Project Manager in design modifications, construction documentation, and site inspections. Total Contract Value: $9.9 Million

e.

(1) TITLE AND LOCATION *(City and State)*
St. Louis and O'Fallon No. 2 Acid Mine Drainage Project
Fairview Heights, IL

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **Ongoing**
CONSTRUCTION (*If applicable*): **2019**

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

Role: Project Engineer: Providing project management and design services for the engineering of the passive treatment system consisting of two (2) anaerobic bioreactors, two (2) oxidation ponds, and a polishing wetland. This has included evaluating and incorporating lessons learned from the State of Illinois singular prior AMD treatment system, which has suffered from several operational issues since its initial construction in the 2000's.

f.

(1) TITLE AND LOCATION *(City and State)*
Atikonan Fairweather Dam, Ontario, Canada

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2018**
CONSTRUCTION (*If applicable*): **2018**

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

Role: Staff Engineer Mr. James served as a sub-consultant to the contractor to provide design analysis and construction support for the installation of a 102-in steel outflow pipe through the Fairweather Dam for the Ministry of Natural Resources. Project consisted of designing a microtunnel that was capable of excavating through a non-homogenous material that was composed of clay layers and glacial till with large size boulders. Mr. James served as a staff engineer completing the design analysis and completing calculations for pipe jacking, pipe stresses, thrust block to jack MTB from and composition of the design report.

g.

(1) TITLE AND LOCATION (City and State)
Division 20 Turnback, Los Angeles, CA

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2017**
CONSTRUCTION (If applicable): **Ongoing**

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

Role Staff Engineer Working as a sub-consultant for TY Lin, tasks consisted of providing the ventilation modeling and ventilation design for the LA Metro Division 20 Turnback project. This project included the redesign and rehabilitation of an existing subway maintenance tunnel for future use as a passenger rail tunnel. The scope of work included design of the ventilation system, ensuring conformance with NFPA requirements for underground passenger rail systems, modeling of the tunnel, and verification that the designed ventilation system is adequate for maintenance, passenger transport, and emergency situations for both the as-built geometry and the proposed widened geometry. Mr. James served as a staff engineer that supported the project team in the development of the preliminary and final design for fire life safety and ventilation system. Mr. James additionally acted as the CAD/BIM manager for the development of the project.

h.

(1) TITLE AND LOCATION (City and State)
California High Speed Rail, Bakersfield, CA

(2) YEAR COMPLETED
PROFESSIONAL SERVICES: **2016**
CONSTRUCTION (If applicable): **NA**

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

Role: Staff Engineer The Bakersfield to Palmdale section of the California High Speed Rail project consists of 98 miles of high-speed rail line, and approximately 10 miles of tunnels through the Tehachapi Mountain range. The project scope of work consisted as providing sub-consultant services for TY Lin that provided of all aspects of tunnel design through the Tehachapi Mountains, including initial ground support, final lining, ventilation, fire life safety systems, cross passage design, and portal infrastructure to support high speed train operations. Mr. James served as a staff engineer supporting the project team for development of the preliminary design for the 11 tunnels through the Tehachapi Mountains.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Ike Isaacson, PE, PG, GE, CEG	Senior Engineer	27	8

15. FIRM NAME AND LOCATION *(City and State)*

Brierley Associates Corporation – Aurora, IL

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION(STATE AND DISCIPLINE)
M.Eng., Civil Engineering - Geotechnics, MIT M.S., Geological Engineering, University of Missouri-Rolla B.S., Geological Engineering, University of Missouri-Rolla	Professional Engineer – IL, IN, CA, KY, MI, MN, MT, NY, OH, PA, SC, WI, WY Professional Geologist – CA, FL IL, KY, TX, WI Geotechnical Engineer – CA Engineering Geologist – CA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Isaacson leads Brierley Associates' Subsidence Mitigation sector and is a diversely experienced, Engineering Geologist, Geotechnical Engineer, and Project Manager specializing in geologic exploration, geotechnical instrumentation, constructability analysis, design, construction, and construction management. He has been responsible for: planning and execution of numerous land and off-shore geotechnical investigations, geologic interpretation and profiling, preparation of geotechnical data and baseline reports, assessment of impacts to existing and planned structures, and designing, implementation, and monitoring of geotechnical instrumentation as well as interpretation of acquired data. His broad knowledge, diverse skill sets, and keen multi-disciplinary perspective provide him with a well-rounded, pragmatic approach that is essential to successful design. Publications Include: *Slurry on the Rocks*: Trials and Tribulations of ESA Frozen STBM Safe Havens-2014 North American Tunneling Conference Proceedings, pp. 1143-1149, Frank Perrone, Jon Isaacson, Brett Robinson, Greg Zeigler, and David Smith; *21st Century Approach to Geologic Field Reconnaissance for Geotechnical or Tunnel Projects*-2011 Rapid Excavation and Tunneling Conference Proceedings, pp. 485-497, Rory P.A. Ball, Jon Isaacson, and Trenton Cohen; *Elm Road Generating Station Water Intake Tunnel System* - 2007 Rapid Excavation and Tunneling Conference Proceedings, pp. 889-900, Jon Isaacson, Brendan Reilly, and Paul McDermott; *How Our Investigation Strategy Influences Our Interpretations*-Association of Engineering Geologists, 42nd Annual Program with Abstracts Dr. Paul M. Santi and Jon B. Isaacson.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
Kenilworth Mine Fire - Abandoned Mine Reclamation Program; Historic Coal Mine Fire Investigation and Abatement; UT Oil, Gas, and Mining Division, Utah Department of Natural Resources	**2024**	**2024**

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

Role: Project Engineer, Engineering Geologist, Logistics Project: Principal and Engineering Geologist in our multi-disciplinary team investigating and evaluating subsidence risk over extensive historic underground mine fire. Ike's role in this project included developing, implementing, and enforcing a rigorous Health and Safety Plan (HASP) as well as providing an advisory role for the Brierley staff working on the project and construction management for the project. This project involved the integration of detailed, high-stakes tasks among 5 companies and/or government agencies directly related to the abatement of the mine fire. Ike was among the 7 individuals in the safety-related chain of command for this project. The mine fire abatement method implemented on this project was a polyurethane foam (PUF) plug delivered via helicopter into a steep cliff north of the town of Kenilworth, Utah

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
Illinois Department Of Natural Resources, Office of Mines and Minerals, Abandoned Mined Lands Reclamation Division – Central Illinois Contract	**2024**	**Ongoing**

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

Role: Project Design Manager, Senior Geologist This project includes the mitigation of historic coal mine workings and involves five separate projects located near the town of Danville, IL and include: Pollywog, Kickapoo, Eureka, Harmattan, and O'Fallon. Each project consists of various combinations of desk study, geologic field reconnaissance, geotechnical investigations, in-situ and laboratory testing, slope stability assessment, remediation design, and construction document preparation. Ike's work on the project included geologic field reconnaissance and geotechnical investigations, as well as serving as the project principal. The project is part of the Abandoned Mile Lands (AML) program.

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
Dugway Storage Tunnel-Cleveland, OH	**2014**	**Scheduled:2019**

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

Role: Lead Geotechnical Engineer in charge of planning, managing, and supervision of the field drilling program, log preparation, and production of the geotechnical data report. Also worked as senior tunnel engineer in the development of primary support systems as well as geotechnical instrumentation and compilation of the project geotechnical data reports, memoranda, and geologic profiles.

Professional Fees: $12.6 Million Construction Cost: $153.4 Million

d.

(1) TITLE AND LOCATION *(City and State)*
Euclid Creek Tunnel-Cleveland, OH

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
2014	**2017**

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

Role: Senior Tunnel Engineer working on this combined sewer relief tunnel. Project components include a 19,000-ft long, mined with a 27-ft TBM and lined with steel fiber reinforced precast concrete segments with a 24.5-ft ID and several drop shafts. Reviewed contractor submittals pertaining to: blasting, starter and tail tunnel roadheader excavation and support, drop shaft and near surface shaft contractor support of excavation design, annular and contact grouting plans, and tunnel boring machine and equipment. Also involved with evaluation of starter and tail tunnel initial support performance. *Professional Fees: $13.7 Million Construction Cost: 194.4 Million*

e.

(1) TITLE AND LOCATION *(City and State)*
Ohio Canal Interceptor Tunnel-Akron, OH

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
2013	**2019**

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

Role: Geotechnical Design Team Member – A consent decree driven CSO tunnel project for 6,150-ft of 27-ft diameter deep soil/rock tunnel beneath urbanized downtown Akron, Ohio. Involved in preliminary shaft design for the tunnel based on geologic conditions. Work included evaluation of available geotechnical borings, geologic, and hydrogeologic information, proposal of appropriate initial soil and rock support systems for shafts in the system, identification of constructability issues associated with the shafts and geologic materials, compiling a preliminary shaft design technical memorandum, and identification of design and construction risks for the project.
Professional Fees:$150 Thousand Construction Cost: $184.1 Million

f.

(1) TITLE AND LOCATION *(City and State)*
Des Plaines River CSO Tunnel-Joliet, IL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
2016	**2016**

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

Role: Resident Engineer and QA/QC – The Des Plaines River CSO Tunnel project involved the constrction of an 865-ft long, 112-in diameter TBM tunnel beneath the Des Plaines River just south of the I-80 bridge in Joliet, IL. The tunnel was constructed in dolomite and conveys storm and wastewater from new screening, regulator, and junction structures and a drop shaft to a new wet weather pump station through twin 24-in dry weather siphons and a 60-in CSO overflow within the tunnel. The project also included the construction of the West Side Interceptor, 900 LF of 72-inch sanitary sewer installed in rock using open-cut methods beneath Route 6 and I-80. Resident engineering roles included ensuring contract compliance, providing technical advice and guidance, reviewing technical submittals and pay requests, tracking quantities, schedule review, project reporting, inter-contract coordination, working directly with the Owner and Engineer, and coordination of on-site meetings with the Contractor. *Professional Fees:$1.6 Million Construction Cost: $21.3 Million*

g.

(1) TITLE AND LOCATION *(City and State)*
CQ031 Queens Bored Tunnels, East Side Access-New York, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
2016	**2016**

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

Role: Senior Tunnel Engineer – Role as lead tunnel engineer on the Construction Management team for the CQ031 contract to construct four Slurry TBM tunnels beneath the busiest train interlocking in North America at Sunnyside Yard in Queens, New York. The combined four bores of 22-ft ID segmentally lined tunnels totaled over 10,000 LF and required close coordination between the Designer, Contractor, and various Stakeholder agencies such as Long Island Railroad and Amtrak. Multiple launch and reception structures and safe havens were constructed as part of the project, which was also heavily instrumented. Role included charge of all technical tunnel aspects, contractor coordination, and oversight of concurrent tunneling operations of two slurry tunnel boring machines erecting pre-cast segmental linings. The project included rock, mixed-face, and soft ground mining, compressed air interventions, and safe havens comprised of modified ground utilizing ground freezing, jet grouting, and secant pile techniques. The project utilized cast launch blocks within the shaft and heavy geotechnical and TBM instrumentation. Oversight of multiple project phases including TBM assembly, launch, multiple tunnel drives, operations beneath mainline and yard, TBM refurbishment though cutterhead interventions, and project modifications. **Mr. Isaacson received a personal commendation from the MTA Contract Manager for contribution and performance on the project.** *Construction Cost: $717 Million*

h.

(1) TITLE AND LOCATION *(City and State)*
Elm Road Generating Station Water Intake Tunnel-Oak Creek, WI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (*If applicable*)
2008	**2008**

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

Role: Engineer for Contractor - The project involved the construction of a 2-mile long, 27-ft diameter off-shore water tunnel beneath Lake Michigan to serve as an intake for single-pass cooling water for the new Elm Road coal fire power plant being constructed. Role was with the contractor on the tunnel design-build team to Bechtel for WE Power and included day-to-day management of tunnel construction operations and coordination of subcontractor work, geologic mapping, primary and supplemental support evaluation, tunnel concrete liner logistics, quality control testing, inspection, rebar detailing, and documentation for our contracted work - project and delivery scheduling, field coordination, client/contractor negotiations, supervision of supplemental geotechnical field explorations, and geotechnical lead roles for on-site soil and rock borings during construction. *Professional Fees: $2.0 Million Construction Cost: $105 Million*

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Edward Epp, P.G.	**Senior Support and Quality Control**	**20**	**0.5**

15. FIRM NAME AND LOCATION *(City and State)*

Brierley Associates (Fairlawn, Ohio)

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
B.S. Albion College (Geology); M.S. Syracuse University (Geology)	**P.G. Indiana #2723**

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

Certified Professional Geologist – American Institute of Professional Geologists #11930

HAZWOPER 40-Hour – Occupational Safety and Health Administration

N. Bugosh, E. Epp, Evaluating sediment production from native and fluvial geomorphic reclamation watersheds at La Plata Mine. Catena 174 (2019) 383-398.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Pollywog Abandoned Coal Mine Geohazard Assessment (Danville, IL)**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2025**; CONSTRUCTION *(If applicable)*: **In Design**

☐ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Description: Comprehensive assessment and design-level alternatives analysis for multiple hazardous legacy mine features at the Pollywog AML site near Danville, Illinois. The targeted hazards include the Pollywog Embankments (IL-1203), Mauk Pond Embankment (IL-0807), and Missionfield Highwall (IL-1476). These areas, characterized by steep slopes, active erosion, and deteriorating embankments adjacent to water bodies and residential properties pose substantial public safety risks.

Role: Project Professional: Identify design alternatives and evaluate for constructability, cost, aesthetics, and effectiveness.

b.

(1) TITLE AND LOCATION *(City and State)*: **Middle Mountain Phase 1 Conceptual Design (Corbin, B.C., Canada)**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2023**; CONSTRUCTION *(If applicable)*: **N/A**

☐ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Description: Project team produced a Phase I Conceptual Design aimed toward making a self-sustaining, functional landform based on fluvial geomorphic principles for the Corbin Middle Mountain process waste pile, Corbin, B.C., Canada. The conceptual design was based on geologic reports, geologic maps, satellite imagery, the project permit, and the evaluation of over 25 alternative geomorphic design layouts having approximately 290 iterations. The conceptual design represented the best alternative for a geomorphic-based design that incorporated the specified site reclamation criteria.

Role: Project designer: Design geomorphic watersheds and evaluate model parameters for functionality.

c.

(1) TITLE AND LOCATION *(City and State)*: **Cofer Prospect Reclamation – Orphaned Land Projects #OLP-09-01 and OLP-10-01 (Mineral, VA)**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2009**; CONSTRUCTION *(If applicable)*: **2010**

☐ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Description: The Cofer Prospect was developed to stope mine a volcanogenic massive sulfide ore body containing economic grades of copper, lead, and zinc near Mineral, Virginia in the 1960s. During exploration, a 1,600-foot decline was driven to 160 foot and 300-foot levels. Water infiltration and poor roof stability forced the closure of the project. At closure, the unreclaimed site contained over 4 acres of AMD generating spoil, and an ~1.5-acre impoundment containing water with pH averaging between 1.8 and 3.2. Virginia DMME utilized Commonwealth Orphaned Land Funds to address environmental and safety hazards at the site. Outcomes included construction of a 450-foot diversion channel, closure of hazardous openings, construction of anoxic limestone treatment cells, encapsulation of 4 ac. of AMD-generating waste rock and tailings, and revegetation with native vegetation.

Role: VA DMME: Engineering design, contract management, and field QA/QC oversight.

d.

(1) TITLE AND LOCATION *(City and State)*: **Worthy Mine Reclamation Orphaned Land Project #OLP-08-02 (Saltville, VA)**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: **2007**; CONSTRUCTION *(If applicable)*: **2008**

☐ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Description: The Worthy Mine was a combined surface and underground limestone mine, that supplied high-calcium limestone to the Mathieson Alkali plant in Saltville, VA from 1902 until it was abandoned 1968. In 2007 the property owner contacted Virginia DMME to determine whether closure of the open shafts at the site (up to 360 feet deep) would qualify for Orphaned Land program funds. DMME utilized published Colorado Inactive Mine Reclamation Program specifications to design reinforced concrete caps for the three open shafts at the site, and construction concluded in late-spring of 2008.

Role: VA DMME: Engineering design, contract management, and field QA/QC oversight.

TRIAD ENGINEERING, INC.

JAMES "BO" CRINITI, PE

SENIOR ENGINEER

HIGHLIGHTS OF EXPERIENCE

Mr. Criniti is currently a Senior Engineer and is responsible for civil and surveying projects. He has participated in the design and management of numerous projects. These projects have included retail/commercial site preparation, airports, parking lots, buildings, retaining walls, foundations, sanitary structures, as well as boundary and topographic and photogrammetric surveys. Duties have included hydrologic and hydraulic analysis and design, erosion and sediment control plans, storm water management, field surveying, preparation of construction and as-built drawings, project specifications and preparation of various permit applications. Mr. Criniti also performs construction management, construction inspection, quality control testing, shop drawing review, project management, contract administration, and report preparation. He performs engineering calculations, studies, plans, reports and data analysis. Mr. Criniti assists in coordinating construction projects including conducting pre-bid, pre-construction and progress meetings, schedule review and pay request review and approval. He also assists in conducting interim and final inspections of construction projects to determine compliance with applicable laws, regulations, and specifications.

RELEVANT PROJECT EXPERIENCE

Crawley Creek Road – County Route 3 Slide, Logan County, WV
Mr. Criniti worked on the Triad team that provided full civil engineering services including wall and roadway design for this landslide repair project on Crawley Creek/County Route 3, Logan County, West Virginia that caused the road to be reduced to one travel lane with alternating traffic. The services Triad provided consisted of surveying, drilling oversight, design, site grading, drainage and road repair. The design consisted of a retaining structure acceptable to WVDOH standards. Construction documents provided by Triad included existing conditions, site grading and drainage, erosion and sediment control, pertinent details, wall layout, wall profile and design calculations.

US 52 – Maher Slide, Mingo County, WV
This project consisted of the repair of a landslide on US 52 near the town of Maher that caused the road to be reduced to one travel lane with alternating traffic. The work consisted of surveying, drilling oversight, and the design, site grading, drainage and road repair. Mr. Criniti was on the Triad team that provided full civil engineering services including roadway design for this project, which consisted of a retaining structure acceptable to WVDOH standards. Construction documents included existing conditions, site grading and drainage, erosion and sediment control, pertinent details, wall layout, wall profile and design calculations.

US 52 – Stonecoal Slide, Wayne County, WV
Mr. Criniti was on the Triad team that provided full civil engineering services including wall and roadway design for this landslide repair project on US 52 near the town of Stonecoal, Wayne County, West Virginia, that caused the road to be reduced to one travel lane with alternating traffic. The services Triad provided consisted of surveying, drilling oversight, design, site grading, drainage and road repair. The design consisted of a retaining structure acceptable to WVDOH standards. Construction documents provided by Triad included existing conditions, site grading and drainage, erosion and sediment control, pertinent details, wall layout, wall profile and design calculations.

EDUCATION

West Virginia University, WV, BS, Civil Engineering

PROFESSIONAL EXPERIENCE

17 Years

REGISTRATIONS & LICENSES

- Professional Engineer, WV

SKILLS

- Civil Engineering
- Hydrologic and Hydraulic Analysis and Design
- Erosion and Sediment Control Plans
- Stormwater Management
- Permitting

WV 37 – Twelve Pole Creek Slide, Wayne County, WV
This project consisted of the repair of a landslide on US 52 near the town of Wayne that caused the road to be reduced to one travel lane with alternating traffic. The work consisted of surveying, drilling oversight, and the design, site grading, drainage and road repair. Mr. Criniti was on the Triad team that provided full civil engineering services including roadway design for this project, which consisted of a retaining structure acceptable to WVDOH standards. Construction documents included existing conditions, site grading and drainage, erosion and sediment control, pertinent details, wall layout, wall profile and design calculations.

WV BRIM Engineering Services, Various locations, WV
As a Senior Engineer, Mr. Criniti conducted surface and subsurface investgations related to mining activities which included reviewing provided documentation, conducting site visits, and preparing a report of the observations. Mr. Criniti has been providing this service for WV BRIM for more than ten years

Belle West Reynolds Avenue Sewer and Storm Sewer Improvements, Belle, WV
The Town of Belle experiences excessive inflow/infiltration during wet weather events in the West Reynolds area of Town. Mr. Criniti, as Senior Engineer, worked with the team to prepare plans, specifications, bid/contract documents, and for construction management for this sewer and storm sewer replacement proejct. Triad also providing surveying, permitting, funding assistance and construction observation services.

Brenntag Mid-South New Sanitary Sewer and Potable Water Connections, Nitro, WV
Triad provided civil design services for the replacement of the aging Brenntag Md-South septic tank system with a connection to the public sewer. In addition, Triad provided civil design services to reroute the Brenntag Mid-South water system from an area on their property that contains toxic waste material. As Senior Engineer, Mr. Crinit worked with a team to prepare plans, specifications, and bid/contract documents, and to provide construction management.

Service Wire Management & Distribution Center Expansion, Culloden, WV
This project consisted of the expansion of the exiting Service Wire Culloden facility. As a Senior Engineer, Mr. Criniti oversaw the Triad team that provided site and storm water design, survey/mapping, and permitting. In addition, Mr. Criniti was responsible for answering contractors' questions during construction, as well as oversaw the Triad field staff providing construction quality control and layout.

Poplar Fork Multifamily Development, Scott Depot, WV
The owner wanted to develop a property into a multifamily development including stormwater, parking, and other site amenities. Mr. Criniti, as a senior engineer, oversaw the Triad team that provided site design, boundary and topographic surveying, permitting assistance, and construction layout. The design included hydrologic calculations for a stormwater detention system.

AEP South Bend (Indiana – Michigan Power), South Bend, IN
As a Senior Engineer, Mr. Criniti provided engineering services for this substation project for AEP. Triad performed civil/site design services including demolition, site layout, grading and drainage design as well as temporary erosion and sediment control. This project also included hydrologic design for a stormwater detention system. Triad provided required documents and submittals for permitting from appropriate agencies.

David W. Hooper, PE

Principal Engineer

Highlights of Experience

Mr. David Hooper brings more than 30 years of geotechnical engineering and project management experience to Triad Engineering, Inc., where he leads engineering project operations in North Central West Virginia and Western Pennsylvania, along with Energy projects for all of Triad's Regional operations. Mr. Hooper's specialties include geotechnical engineering assessments and design for transportation, public works, energy, and other public and private projects, project and client management, and personnel leadership to ensure contractual, schedule, and budgetary requirements are maintained. In addition, he supports multiple regions for project scheduling, staff mentoring, quality assurance, management of projects, and staff personnel to ensure contractual, schedule, and budgetary requirements. His recent experience includes geotechnical engineering and construction observation and material testing projects for operations in West Virginia, Pennsylvania, and Eastern Ohio. He has experience with WVDOH, PennDOT, Pennsylvania Turnpike Commission, MSHA, WVDEP, WV Conservation Districts, and various local government agencies and counties.

Relevant Project Experience

WVDEP AML S3 Contract, Fayette and Greenbrier Counties, WV
As Principal Engineer, Mr. Hooper oversaw the geotechnical services for the fourteen sites, including access road upgrades, channel improvements, wet and dry mine seals for portals, bat gates, splash-pads, highwalls, mine subsidence features, etc. Attended scoping meetings, coordinated with landowners, including the National Park Service, and prepared geotechnical scope of work and contracts.

Mountain Valley Pipeline Compressor Stations, Wetzel, Braxton, and Greenbrier Counties, WV
As Project Manager, Mr. Hooper provided geotechnical exploration for three compressor stations and various meter and regulator stations for the pipeline project. Site challenges include steep slopes with colluvial soils, existing landslides, and difficult access. Mr. Hooper provided earthwork and foundation recommendations for the project sites.

CNX Resources, Well Pad Projects (various locations), Monroe and Noble Counties, OH
As Project Manager, Mr. Hooper spearheaded geotechnical exploration to provide site construction earthwork recommendations for various pads. Recommendations included fill, cut slope design, and surface treatment recommendations. The scope of work included initial site assessment, overseeing subsurface exploration and laboratory testing operations, performing slope stability analysis, and preparing recommendations.

CNX Resources, Impoundment Project, Noble County, OH
As Project Manager, provided preliminary explorations to aid in site selection for an 11-million-gallon impoundment. For selected sites, Mr. Hooper performed subsurface exploration and laboratory testing. Mr. Hooper also prepared a geotechnical report for site work on an impoundment with large excavations and fills for a site with difficult topography and subsurface conditions. Work also included oversight of construction observation, including installation of drainage, toe key excavation, and fill placement.

Education

B.S., State University of New York at Buffalo
Civil Engineering

Professional Experience

36 Years

Registrations & Licenses

Professional Engineer

- MD 22G91
- NY 75021
- OH PE61912
- PA PE-04544E
- WV 013515

Skills

- Civil Engineering
- Project Management
- Geotechnical Evaluations
- Energy Sector
- Slope Stability
- Soils Classification
- Construction Materials Engineering & Testing

Summerson Slide Repair, Clinton County, PA
As Project Manager, Mr. Hooper conducted geotechnical exploration, engineering analysis, and development of three alternatives with cost estimates for the 100’ long roadway slip. Mr. Hooper also prepared a summary report for presentation to the township.

Willow Point Slope Remediation, Wheeling, WV
As Project Manager, Mr. Hooper was responsible for the remediation design of the slope failure, which occurred above the Wheeling Creek and extended over 400 feet in elevation. Mr. Hooper worked with the contractor to develop recommendations that could be feasibly implemented. Also, responsible for oversight during construction.

U.S. Department of Veterans Affairs, Grafton National Cemetery, Grafton, WV
As Geotechnical Project Manager, Mr. Hooper was responsible for the study of several areas within the cemetery that had developed slope issues. Mr. Hooper provided geotechnical exploration, monitoring, and recommendations for repair for the area to be addressed.

Green Hill Pipeline Slide, Marshall County, WV
As Project Manager, Mr. Hooper was responsible for slide assessment, subsurface exploration, and the development of alternative recommendations for the repair of a slide that exposed a portion of the natural gas pipeline. Mr. Hooper developed remediation plans for the selected option. Mr. Hooper also oversaw the implementation of mass excavation remediation, which involved drainage and moisture conditioning to allow the reuse of the excavated material.

Pennsylvania Turnpike Commission, Slope Remediation, Scranton, PA
As Project Engineer, Mr. Hooper was responsible for the stabilization of a soil slope for an embankment on the NE extension of the Pennsylvania Turnpike. Mr. Hooper’s responsibilities included performing site reconnaissance, stability analyses of existing slopes and viable remedial alternatives, engineering cost analysis, and reporting.

PennDOT, I-279 Slope Evaluation, Pittsburgh, PA
As Project Engineer, Mr. Hooper designed repairs for several small landslides along this expressway. Mr. Hooper’s responsibilities included planning and monitoring of subsurface exploration and laboratory testing programs, performing geotechnical analysis, and report preparation. Remedial designs developed by Mr. Hooper included the use of rock buttresses, lightweight fill, and regrading.

Portsmouth Levee Seepage Remediation, Portsmouth, OH
Project manager for all testing and inspection for the construction of a secant pile wall to serve as the seepage barrier for the levee for the Army Corps of Engineers. Responsible charge for Professional Engineers and Geologists serving as seepage barrier inspectors. Responsible for field and laboratory material testing of concrete, grout, and soil, including unconfined compressive strength and permeability of the grout. In addition, responsible for verification borings, optical televiewer, and field permeability testing. Primary coordination with the data management team to coordinate uploading all inspection reports and test results into the project data system to produce up-to-date ARCGIS project data.

Paradise Lake Dam, Monongalia County, WV
Principal Engineer for inspection of this earth and rockfill structure and associated appurtenances. Oversaw the coordination with WVDEP to work to bring the structure back into compliance with dam safety requirements. Work includes the evaluation and proposed repairs to the principal outlet works.

Mahanoy and Waste House Dams, Mahanoy City, PA
As Geotechnical Project Engineer, Mr. Hooper provided design for the rehabilitation of four earth dams. He directed the subsurface exploration, performed analysis, and design required to satisfy Army Corps of Engineers requirements for upstream and downstream stability. As part of the work, the compatibility of synthetic drainage material, aggregate drainage material, and natural soils was determined to address the existing embankment and foundation seepage conditions. Mr. Hooper was responsible for the preparation of contract drawings and technical specifications for the construction of the geotechnical aspect of the project.

JOHN HAYNES, PE

GEOTECHNICAL & DRILLING SERVICES MANAGER

HIGHLIGHTS OF EXPERIENCE

Mr. Haynes serves as the Senior Drilling Manager for Triad's drilling operations when he manages all drilling and sampling activities conducted by the firm's regional offices. Mr. Haynes previously served as a Project Geotechnical Engineer. Mr. Haynes' duties include design and implementation of the subsurface investigations, assignment of laboratory testing, approval of design drawings, development of technical specifications, and preparation of drilling and geotechnical engineering cost proposals and reports.

RELEVANT PROJECT EXPERIENCE

Clifftop Strip Complex, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 14 borings and the installation of 3 standpipe piezometers.

Clifftop Drainage Projects, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 2 borings and the installation of 2 standpipe piezometers.

Crosier Road Portals, Greenbrier County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 5 borings and the installation of 5 standpipe piezometers.

Lookout (Moore) Subsidence, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 1 boring and the installation of 1 standpipe piezometer.

Fayette Station Slide & Drainage, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 1 boring and the installation of 1 standpipe piezometer.

Keeney Creek Mines, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 5 borings and the installation of 5 standpipe piezometers.

EDUCATION

West Virginia Institute of Technology
BS, Mechanical Engineering
BS Civil Engineering

PROFESSIONAL EXPERIENCE

34 Years

REGISTRATIONS & LICENSES

- Professional Engineer, West Virginia #016856
- Professional Engineer, Maryland, #50585 Professional Engineer, North Carolina, #058393
- Professional Engineer, Kentucky #39910
- Professional Engineer, Ohio #E-89127
- Professional Engineer, Indiana #12300894
- Professional Engineering, Tennessee #130597

SKILLS

- Managing Multiple Drill Crews
- Design of Subsurface Explorations
- Approval of Design Drawings
- Proposals
- Drilling Inspection
- Geotechnical Analysis and reporting
- Geotechnical Engineering and Drill Cost Estimating and Bid Preparation

Nuttallburg South Bench, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included (7) borings and the installation of seven (7) standpipe piezometers.

Royal Coal #5 Loadout, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 2 borings and the installation of 2 standpipe piezometers.

Floyd Creek Highwalls and Drainage, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 3 borings and the installation of 3 standpipe piezometers.

County Route 82 Portals, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 4 borings and the installation of 2 standpipe piezometers.

Buffalo Creek Complex, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration.

Winona East Highwall and Drainage, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration include 22 borings and the installation of 5 standpipe piezometers.

Winona East Highwall and Drainage, Fayette County, WV
As the drilling manager, Mr. Haynes was responsible for overseeing the drilling team for the subsurface exploration. The subsurface exploration included 8 borings and the installation of 8 standpipe piezometers.

U.S. Route 58 Vesta Design Build Project, Patrick County, VA
This project consisted of 367 test borings for a total footage of nearly 12,000 linear feet. Triad utilized 4 drill rigs to complete this project in approximately 4 months. Also included in the scope of work was boring inspection, bore hole logging, infiltration testing, in-place vane sheer testing. Triad utilized the constant head Aardvarck Permeameter for the infiltration testing. Samples were brought to the lab, and an extensive amount of laboratory testing was performed. Mr. Haynes supervised all aspects of the project from start to finish.

Statewide Geotechnical Drilling IDIQ, Various Locations, WV
This project consisted of an as-needed, on-call 1 to 2 year contract for providing geotechnical drilling to the West Virginia Division of Highways. Triad has maintained this contract since 1998 and Mr. Haynes has managed the contract since 2012. Recent projects have included water borings (off shore drilling) for the I-64 Nitro, St. Albans, Bridge and borings for several bridge replacements in various locations in Berkeley and Hampshire Counties, WV.

Coalfields Expressway, Sophia, WV
As a Project Geotechnical Engineer on this project, Mr. Haynes initially developed a boring layout based on the project cross-sections provided by the client. He also worked with field inspectors during the subsurface investigation to design cut and fill slopes, perform settlement calculations for embankment fills, estimate shrink/swell factors for excavated materials, and tabulate probable sources of select embankment. After the original subsurface investigation and geotechnical report was completed, WVDOT decided to extend the project 800 ft. in an attempt to balance borrow and waste. Mr. Haynes then developed a recall boring list in order to continue the project.

TRIAD ENGINEERING, INC.

JEREMY STAWOVY
SENIOR ENGINEER

HIGHLIGHTS OF EXPERIENCE

Over thirteen years of experience in civil and site development projects, emphasizing geotechnical engineering and construction. Responsibilities have included geotechnical evaluations, including management of subsurface explorations, construction monitoring, settlement analysis, slope stability modeling, seepage analysis, foundation analysis, landslide repairs, well pads, horizontal directional drill construction, roadway improvements/repairs, and commercial/residential construction. Mr. Stawovy has extensive experience working for various public and private sector clients ranging from small-scale construction to large government projects.

RELEVANT PROJECT EXPERIENCE

Lake Lynn Complex, Monongalia County, WV
WVDEP AML. Geotechnical Project Manager for the design of three sites, including 15 mine portals, three highwalls totaling approximately 1400 lineal feet, and mine subsidence features. Project design included regrading refuse piles to stabilize the highwalls, drainage control structures with passive limestone treatment, wet/dry mine seals, bat gates, and aggregate plugs. Performed a subsurface exploration, prepared construction drawings, technical specifications, bid documents, cost estimate, and calculation package. Prepared and submitted WVDEP stormwater and West WVDOH entrance permits.

Sardis Landslide, Harrison County, WV
WVDEP AML. Geotechnical Project Manager for the design of two sites that included existing wet seals and other acid mine AMD that created a landslide that was encroaching on the WVDOH road, along with AMD impacting a landowner's home. Project design included HDD installation of wet seals, landslide stabilization, curtain drain design, and other drainage control structures. Performed a subsurface exploration, assisted in preparation of construction drawings, technical specifications, bid documents, cost estimate, and calculation package. Prepared and submitted WVDOH entrance permit.

WVDEP AML S3 Contract, Fayette and Greenbrier Counties, WV
Geotechnical Project Manager for the design of fourteen sites, including access road upgrades, channel improvements, wet and dry mine seals for portals, bat gates, splash-pads, highwalls, mine subsidence features, etc. Attended scoping meetings, coordinated with landowners, including the National Park Service, and prepared geotechnical scope of work and contracts.

Frostburg Freeze, Allegany County, MD
Maryland Department of the Environment Bureau of Mines. Geotechnical Project Manager for an investigation into subsidence of a small existing business that was experiencing subsidence from previous mining activities. Managed the geotechnical investigation and preparation of a report with recommendations, along with details for the subsidence repair.

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

M.S., Civil Engineering (with emphasis on Geotechnical studies), West Virginia University

PROFESSIONAL EXPERIENCE
13 Years Experience

REGISTRATIONS & LICENSES
- WV EIT-9068

SKILLS
- Project Management
- Geotechnical Engineering
- Subsurface Exploration
- Slope Stability
- Seepage Analysis
- Retaining Wall Design
- Foundation Design
- Laboratory Testing

PUBLICATIONS
"Study On Mine Tailings Classification Effected by Co-Disposal of Drilling Wastes with Geochemical Cations" (Mining, Metallurgy & Exploration Journal, July 5, 2022)

Mill Run Doser, Allegany County, MD
Maryland Department of the Environment Bureau of Mines. Geotechnical Project Manager. Geotechnical investigation for an existing large seepage collection and lime doser that was performing poorly. Installation of a piezometer to monitor the water level in the mine. Assisted in structural evaluation of the doser structure and recommendations for replacement of the doser along with upgraded drainage structures.

Miners and Merchants Bank, Tucker County, WV
Geotechnical Project Manager of an investigation for a bank rebuild that was previously deep mine grout stabilized. The investigation included checking the condition of the mine overburden and designing a grout stabilization plan for the expansion. Responsibilities included managing the geotechnical investigation and preparation of the geotechnical report with recommendations. Assisted in the management of quality control during construction.

Islamic Community of Morgantown, Monongalia County, WV
Geotechnical Project Manager for an investigation that led to a recommendation of a grout stabilization of a deep mine for a school and a mosque. The project was investigated in two phases. The first phase included conventional drilling with rock coring that encountered open mine voids. The second phase was with an air rotary and a downhole camera. Recommended a grout stabilization plan and worked with a local contractor to prepare a cost estimate.

LLOYD KIRK, PS, CFS

SURVEY PRACTICE LEADER

West Institute of Technology, WV
AS, Mining

HIGHLIGHTS OF EXPERIENCE

Mr. Kirk is currently the Survey Manager for the Scott Depot office of TRIAD. In this capacity, he is responsible for the supervision of the survey crews, overseeing the field work through drafting to the finished product delivered to the client, meeting with clients, and performing field work on large and complex projects. Mr. Kirk is experienced in construction layout, boundary and road work surveying, photogrammetric and topographic surveying. He has supervised and/or performed survey work on various types of work including surface mine surveying for coal mine facilities, site surveys and construction layout for landfill facilities, site surveys and right of way plans for WVDOH and NCDOT highway projects, and site surveys and construction layout for site development projects. Mr. Kirk has been involved in survey projects in several states including West Virginia, Kentucky, Ohio, Virginia, South Carolina and North Carolina.

In his capacity, he is responsible for schedules, project budgets, and the overall coordination of all survey projects. He works with all levels of engineering staff, the overall project team, and the project owner to produce a quality work product which satisfies all project requirements.

RELEVANT PROJECT EXPERIENCE

Clifftop Strip Complex, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Clifftop Drainage Projects, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Crosier Road Portals, Greenbrier County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Lookout (Moore) Subsidence, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

PROFESSIONAL EXPERIENCE
23 Years

REGISTRATIONS & LICENSES
- Licensed Professional Surveyor-WV #2247 & NC #L-3941
- N.S.P.S. Certified Flood Plain Surveyor-NC #139
- OSHA 10

SKILLS
- Construction Layout
- Boundary Subdivision
- Right of Way Plans
- Photogrammetric Control
- Mine Surveying
- Topographic Location

PROFESSIONAL AFFILIATIONS
- WV Society of Professional Surveyors
- NC Society of Professional Surveyors
- National Society of Professional Surveyors

Fayette Station Slide & Drainage, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Keeney Creek Mines, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Nuttallburg South Bench, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Royal Coal #5 Loadout, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Buffalo Creek Complex, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Floyd Creek Highwalls and Drainage, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

County Route 82 Portals, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Winona East Highwall and Drainage, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Winona Complex, Fayette County, WV
As Survey Practice Leader, Lloyd Kirk was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site

Winter Portals AML Surveying, Winter, WV
Triad provided construction surveying support services to Wiseman Excavating for this WV Department of Environmental Protection Abandoned Mine Lands project near Winter, WV. Mr. Kirk was the lead surveyor and project manager for the project and provided horizontal positioning, alignment staking, grade staking, and related professional surveying services to include pre- and post-construction topo location surveys in support of construction.

Douglas A. Bell, P.S., P.L.S.

Survey Practice Leader

Highlights of Experience

Mr. Bell is the Survey Practice Leader for Triad's Morgantown office. In this capacity, he is responsible for the supervision of the survey crews, overseeing the field work through drafting to the finished product delivered to the client, meeting with clients, and performing field work on large and complex projects. Mr. Bell is experienced in construction layout, boundary and road work surveying, photogrammetric and topographic surveying. He has supervised and/or performed survey work on various types of projects, including surface and underground mine surveying for coal mine facilities, construction layout for residential and commercial projects, boundary surveys for residential, commercial, and public entities. In his capacity, he is responsible for schedules, project budgets, and the overall coordination of all survey projects. He works with all levels of engineering staff, the overall project team, and the project owner to produce a quality work product which satisfies all project requirements.

Relevant Project Experience

PFAS Temporary Monitoring Well Location Surveys – WV National Guard Installations
Performed high-accuracy control and location surveys for temporary groundwater monitoring wells at multiple military facilities. Deliverables included certified coordinates for environmental compliance reporting.

Suncrest Village Building Monitoring – Suncrest Village POA, Monongalia County, WV
Installed and surveyed 24 monitoring targets in each of 13 townhouse buildings, tied to WV State Plane coordinates for baseline movement monitoring.

Consol Energy – Mine Operations Support, Greene/Washington Counties, PA
Provided ongoing surface surveys for mining operations, including location of gas wells, boreholes, shafts, and other infrastructure tied to underground mine mapping. Utilized mine coordinate systems and conducted layout for critical surface-to-subsurface alignment.

Preston County Parks and Recreation, Preston County, WV
Surveyed existing rail bed, collected elevation profiles, and marked property boundaries along the rail-trail corridor. Provided as-built mapping for development and improvement planning.

Residential Subdivision – Tarr Group, Upshur County, WV
Completed ALTA/NSPS Land Title Survey and topographic mapping for subdivision design. Set monuments, and laid out waterlines, electric, and drainage systems.

Dorinzi Lakehouse, Monongalia County, WV
Performed boundary and topographic surveys on lakefront property, including historical boundary research based on 1920s–1930s pool elevations.

Education

Glenville State College, WV
AS, Forestry and Land Surveying Technology

Professional Experience

8 Years

Registrations & Licenses

- Licensed Professional Surveyor - WV #2379
- Registered Professional Land Surveyor – PA #SU075564

Skills

- Construction Layout
- Boundary Subdivision
- Right of Way Plans
- Photogrammetric Control
- Mine Surveying
- Topographic Location
- GPS/GNSS Surveys

Professional Affiliations

- WV Society of Professional Surveyors
- PA Society of Professional Land Surveyors
- National Society of Professional Surveyors

Mountain View Dental, Monongalia County, WV
Performed boundary, topographic, and utility surveys for a major addition/remodel. Included detailed mapping of landscaping, parking, and structural features.

Bass Pro Shops Addition, Monongalia County, WV
Conducted boundary and as-built surveys, established control, and researched interstate right-of-way for major addition.

Ultimate Shine Car Wash (Mileground & University Town Center) – Monongalia County, WV
Completed ALTA/NSPS Land Title Surveys and gathered extensive existing conditions data for two commercial sites. This data was in turn used for commercial design.

Town of Reedsville – Town Hall Expansion, Preston County, WV
Provided boundary surveying services and topography for use in the design of an expansion of the existing Town Hall.

Habitat for Humanity – Boundary and Topographic Survey, Marion/Monongalia Counties, WV
Provided boundary, topographic, and utility surveys with construction layout services for three residential sites to support the design of affordable multi-unit housing and to develop site plans.

PennDOT Projects, Somerset/Butler/Allegheny Counties, PA, 01-25-0085
Performed construction layout services

OTHER RECENT PROJECTS

- Chaplin 2 5 Cell Survey Services, Monongalia County, WV (0087)
- Morgantown Rapid Response Stakeout, Monongalia County, WV (0090)
- 6S3 Shaft Surveying, Greene County, PA (0094)
- Walnut St. Streetscape, Monongalia County, WV (0095)
- WV DOH Property Acquisition – Cheat Lake, Monongalia County, WV (0096)
- Chelsea Building Products Acquisition, Westmoreland County, PA (0101)
- Holland Avenue Sidewalk & Sewer Layout, Monongalia County, WV (0117)
- Salt Shed As-Built – Star City, Monongalia County, WV (0138)
- Chick-Fil-A Drive-Thru Improvement Survey, Monongalia County, WV (0144)
- Castle Shannon PRT, Allegheny County, PA (0145)
- Bailey Mine Pond 14, Greene County, PA (0156)
- 2025 Quarterly Survey Services, Barbour County, WV (0158)
- Big Sandy Boundary Survey, Preston County, WV (0164)
- Panel 9 Dewatering & D2-D5 Bleeder Survey, Barbour County, WV (0181)
- Enlow Fork 2S2 Shaft Surveying, Greene County, PA (0183)
- Mon Health Harrison, Harrison County, WV (0185)
- Frostburg University Turf Field Layout, Allegany County, MD (0192)
- First Energy Tower Monitoring Survey, Barbour County, PA (0223)
- Kingsford Beryl Quarterly Volume Surveys, Mineral County, WV (0227)
- Rystan Point ALTA Update, Monongalia County, WV (0236)
- Monroe County Technical Center Upgrades, Monroe County, WV (0241)
- The Learning Experience (Moon), Alleghany County, PA (0245)
- Sawmill Site Layout Services, Upshur County, WV (0249)
- Full Hollow Fill Survey Layout, Taylor County, WV (0282)
- The Crossings ALTA Update, Monongalia County, WV (0299)
- WV Land Trust Boundary Survey, Hardy County, WV (0347)
- South Plant Stormwater Treatment Layout, Monongalia County, WV (0357)

Tyler Spiewak

Survey Supervisor

Highlights of Experience

Mr. Spiewak is a Survey Crew Chief for the Scott Depot office of Triad. In this capacity, he is responsible for field coordination of construction projects, quality assurance of survey practices in the field, collection and drafting of survey data, project and client coordination, revision of construction plans, and drafting completed field work. He works with all levels of engineering, construction staff and project owners. Mr. Spiewak is experienced in construction layout, boundary; both metes and bounds and PLSS (public land survey system), road work surveying, photogrammetric control and topographic surveying. He has supervised and/or performed survey work on various types of projects to include military construction projects with NATO partner nations, hydrographic impact surveys at iron ore mines, state sponsored large scale solar farms, site surveys and construction layout for hospitals and airports, construction layout for MNDOT highway projects, and site surveys and construction layout for land development projects. Mr. Spiewak has been involved in projects in several states including West Virginia, Ohio, Kentucky, Georgia, Tennessee, California, Minnesota, Wisconsin, Illinois and Indiana.

Relevant Project Experience

Clifftop Strip Complex, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Clifftop Drainage Projects, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Croiser Road Portals, Greenbrier County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Lookout (Moore) Subsidence, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Education

Bowling Green State University, OH
B.S., Science

Professional Experience

6 Years

Skills

- Construction Layout
- Boundary and Subdivision Right of Way Plans
- Photogrammetric Control
- Topographic Location

Fayette Station Slide & Drainage, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Keeney Creek Mines, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Nuttallburg South Bench, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Royal Coal #5 Loadout, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Buffalo Creek Complex, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Floyd Creek Highwalls and Drainage, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Country Route 82 Portals, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Winona East Highwall and Drainage, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

Winona Complex, Fayette County, WV
As Survey Supervisor, Tyler Spiewak was on the surveying team that conducted field and office surveying operations to collect and compile data to provide base mapping of the proposed project site. The base mapping included location of topographic and planimetric features, including natural and manmade features of the AML site.

JOHN B. HOPE

FIELD SERVICES MANAGER

HIGHLIGHTS OF EXPERIENCE

Mr. Hope is currently the Field Services Manager for the Scott Depot office of Triad. In this capacity he oversees the field staff, by handling calls from technicians on technical matters, staffing and scheduling and serving as the branch Radiation Safety Officer. Mr. Hope also keeps all records of inspections and calibrations. He assigns new jobs and lab work and writes Quality Control (QC) plans. Mr. Hope's duties include the completion and/or review and submission of required field reports for clients and owners.

RELEVANT PROJECT EXPERIENCE

Meigs Mine Ponds, Meigs County, OH
As field services manager, Mr. Hope's duties included overseeing construction observation and materials testing of this project which included inspection and lap teting on clap cap to verify testing requirements.

Coalfields Expressway QAM, Wyoming County, WV
This project consisted of the quality assurance management of a portion of WV Rt. 10 from the Mullens to County Rt. 12/1 in Wyoming County, WV. Mr. Hope provided overall project oversight and management for this project.

Marshall University Football Stadium, Huntington, WV
Duties included the Testing and Sampling of site concrete. Testing of utility line backfill for compaction. The testing of structural steel and light foundation connections for proper bolt torque.

Route 10 Overpass Overlay, Chapmanville, West Virginia
Duties included the sampling and testing of the latex modified concrete for the overlay. Including the making of chloride perm samples.

Sixth Street Bridge, Huntington, WV
Duties included Testing and Sampling of all West Virginia Department of Highways (WVDOH) classes of concrete. The monitoring thickness and testing of both fills and backfills for compaction. The sampling and testing of the river water for clarity during construction. Maintaining Quality Control Charts.

Multiple Slip Repairs, Various, WV
These projects consist of the repairs of slips in various locations throughout WV consisting of drilled pile and concrete lagging retaining walls. Mr. Hope provided overall project oversight and management as well as QC testing and inspection on these projects.

Kanawha Boulevard Bike Path, Charleston, WV
This project consisted of the addition of a bike path and new ADA sidewalks and Ramps. Mr. Hope provided overall project oversight and management as well as QC testing and inspection on these projects.

I-64 Widening Cross Lanes to Dunbar, WV

EDUCATION

West Virginia State College, WV

PROFESSIONAL EXPERIENCE

35 Years

REGISTRATIONS & LICENSES

- WVDOH Certified Tech Training Classes: Compaction, Aggregate, Portland Cement and Bituminous Concrete
- Troxler 8 Hour Nuke Safety and Operation
- Troxler Radiation Safety Officer Training
- 40 OSHA Training
- MSHA Impoundment Inspector Training ACI Training and Classes
- USACOE-Contractor QC Training
- WVDOT/DOH Compaction Inspector
- WVDOT/DOH Portland Cement Inspector
- WVDOT/DOH Bituminous Inspector
- ACI-Grade I Field & Lab Tech

This project consisted of the widening of I-64 to accommodate 3 lanes on each side. Mr. Hope provided overall project oversight and management as well as QC testing and inspection on these projects.

I-64 Widening Mud River to 29th Street, Barboursville WV
This project consisted of the widening of I-64 to accommodate 3 lanes on each side. Mr. Hope provided overall project oversight and management as well as QC testing and inspection on these projects.

Shadle Bridge, Pt. Pleasant, WV
This project consisted of the construction of a bridge replacement in Mason County, WV. Mr. Hope provided overall project oversight and management as well as QC testing and inspection on these projects.

Moisture Intrusion Project-WV State Capitol Complex Dome, Charleston, WV
This project consists the replacement of the inside materials of the Dome due to moisture intrusion. Mr. Hope provided overall management and oversight of this high-profile WV project.

Marshall University Pharmacy School and Student Housing Project, Huntington, WV
This project consisted of the new construction of a Pharmacy School and Student Housing for Marshall University. This project was performed under the P3 delivery method. Mr. Hope provided overall quality control project management and hands on testing for this project.

Hawks Nest Hydro Dam Improvements, Fayette County, WV
This project consists of the installation of rock anchors to improve the overall stability of the dam structure. Mr. Hope provided overall project management and hands on QC testing for this project.

Georgia Pacific Plant, Mount Hope, West Virginia
Duties included Testing and Sampling of all concrete. Testing and monitoring lift thickness of tills. Collection of new proctor samples when material changes occurred. Utilization of an onsite lab to cure and break the test cylinders at proper intervals. Reporting of all information.

King's Daughter Medical Center Addition, Ashland, Kentucky
Duties included the Testing and Inspection of auger cast pile foundation instillation. Testing and Sampling of site concrete.

RCB Locks and Dam, Apple Grove, West Virginia
Duties included site concrete Testing and Sampling. The testing of fill placement by sandcone method. Collection and determination of usability of site fill materials. Utilized onsite lab for gradation/sieve analysis.

Endocrine Disruptor Study, Potomac, Ohio, Monongahela and Kanawha Rivers
Duties included the Sampling and Collection of raw river water to be tested by EPA and WV DEP for Endocrine Disruptors. The labeling and shipping of the samples to the testing labs. Photographic locations for the report and document river levels and clarity.

Commerce Park and West Pea Ridge Bridges, Huntington, West Virginia
Duties included the sampling and testing of all classes of WVDOH concrete. Testing and monitoring of lift thicknesses of fills and backfills. The collection of aggregate samples.

Wood County Airport Runway Repairs, Parkersburg, West Virginia
Duties included Testing, Sampling and Inspection of soils, aggregates, and concrete. Reporting results to owner, RPR, and contractor. Verifying materials were to site plans.

HEATHER METZ, LRS

ENVIRONMENTAL SERVICES MANAGER & SENIOR ENVIRONMENTAL SCIENTIST

HIGHLIGHTS OF EXPERIENCE

Ms. Metz is currently the Environmental Services Manager and Senior Environmental Scientist at the Scott Depot office of Triad. Ms. Metz is responsible for the personnel management of the Environmental Services Group as well as the technical quality and management control of all Environmental projects in the southwest region. Additionally, Ms. Metz is a Licensed Remediation Specialist (LRS) and performs a variety of tasks for sites in the Uniform Environmental Covenant Act/Leaking Underground Storage Tank (UECA/LUST) and West Virginia Voluntary Remediation Programs (VRP). Ms. Metz also provides grant management and environmental support for EPA Brownfield Grantees.

RELEVANT PROJECT EXPERIENCE

Artistic Cleaners, Huntington, WV
As Senior Scientist and LRS, responsible for the assessment and remediation of the former Artistic Cleaners site under the WV VRP. Tasks included characterization, oversight of UST removal, human health risk assessment and remedy evaluation and implementation.

Flint Pigments-Tract A, Huntington, WV
As Senior Scientist and LRS, responsible for the characterization and remediation of the former pigment manufacturing facility under the WV VRP. Additionally, characterized and remediated polychlorinated biphenyls (PCB) under the direction of the Toxic Substances and Control Act (TSCA).

Cabinet Supply, Inc., Huntington, WV
As Senior Scientist and LRS, responsible for performing characterization and remediation activities at the former industrial facility under the WV VRP. Tasks included report preparation, data evaluation and product recovery.

City of Huntington, Huntington, WV
As Project Manager, implemented the City of Huntington Hazardous Brownfields Assessment Grant program (2008). Tasks include completing an inventory of candidate sites, preparing site assessment work plans, acting as liaison between City and USEPA, conducting Phase I ESAs, conducting Phase II ESAs, preparing reports, reporting status to City and USEPA, monitoring budgets, managing field activities, and managing community outreach efforts.

Fayette County Commission, Fayetteville, WV
As Project Manager, implemented the County-Wide Hazardous Brownfields Assessment Grant program. Performed oversight for Phase I ESAs and asbestos inspections at 50 properties located throughout the County. Negotiated right of access agreements, monitored budgets and managed field activities.

EDUCATION

Marshall University, WV
BS, Environmental Science, 2001

PROFESSIONAL EXPERIENCE

24 Years

REGISTRATIONS & LICENSES

- Licensed Remediation Specialist, No. 269, WV
- Monitoring Well Driller Certification No. WV00400, WV
- OSHA HAZWOPER 40 Hour Training/8 Hour Update (Current)
- OSHA 8 Hour Supervisor Certification

SKILLS

- Due Diligence
- USEPA SEMS Sites
- Hazard Ranking System (HRS)
- Environmental Assessments
- VRP

Huntington East Practice Field, Huntington, WV
As a Senior Scientist and LRS, responsible for performing characterization and remediation activities at the former rail yard property under the WV VRP. Additionally, performed grant management support for the EPA Cleanup Grant recipient.

Kanawha Manufacturing, Charleston, WV
As Senior Scientist and LRS, responsible for performing characterization and remediation activities at 100+ year manufacturing facility under the WV VRP. Tasks included VRP Application and Agreement preparation, Sampling and Analysis Work Plan (SAWP) generation, monitoring well installation and multi-media sampling.

McGinnis Investment Corp, Huntington, WV
As Senior Scientist and LRS, responsible for performing characterization and remediation activities at the former industrial facility under the WV VRP. Contaminant characterization and remedial efforts have also included polychlorinated biphenyls (PCB) as ruled under the Toxic Substances Control Act (TSCA).

Rahall Transportation Property, Huntington, WV
As Project Manager and Environmental Scientist, performed various site characterization and remediation tasks utilizing WVDEP Brownfield grant funding. The site was historically operated as a railroad right of way maintenance facility and was the location of a 22,000-gallon coal tar light oil spill. Responsibilities included regulatory file reviews, sampling and analysis plan preparation, multi-media sampling, excavation oversight, and report preparation.

Region 2 Planning and Development Council, Various Locations, WV
As Senior Scientist and Program Manager, implemented the Hazardous Brownfields Coalition Assessment Grant program. Performed oversight for Phase I ESAs and asbestos inspections, QAPP preparation, SAWP preparation, Phase II ESAs remedial planning and VRP services at various Sites located within the project area. In addition, provided ACRES and financial management reporting assistance, monitored budgets and managed field activities.

Wayne County Economic Development Authority, Various Locations, WV
As Senior Scientist and Program Manager, implemented the County-Wide Hazardous Brownfields Assessment Grant program. Performed oversight for Phase I ESAs and asbestos inspections, QAPP preparation, SAWP preparation, Phase II ESAs and remedial planning at various Sites located throughout the County. Assisted with right of entry negotiations, monitored budgets and managed field activities.

West Virginia Brownfields Assistance Center, Huntington, WV
As Program Manager, implemented the WVDEP Statewide Petroleum Brownfields Assessment Grant program. Tasks include acting as liaison between the Brownfields Assistance Center, WVDEP and the USEPA, conducting Phase I ESAs, preparing site assessment work plans, conducting Phase II ESAs, preparing reports, monitoring budgets, and managing field activities.

West Virginia Department of Environmental Protection, Various Locations, WV
As Senior Scientist and Program Manager, responsible for performing various assessment tasks at USEPA Superfund sites throughout West Virginia. Tasks have included performing Preliminary Assessments, Site Inspections, Combined Preliminary Assessment/Site Inspections, Expanded Site Inspection, and Site Inspection Reassessments under CERCLA. Specific tasks have included performing regulatory file reviews, site reconnaissance's, Hazard Ranking System (HRS) site scoring using USEPA software, USEPA Contract Laboratory Program (CLP) data management using USEPA software, providing electronic laboratory data deliverables for the WVDEP in EQuIS® data management format, Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) generation, field sampling, and report preparation. These tanks have been performed at over 50 Superfund sites throughout West Virginia.

MICHAEL A. LIPTAK, PH.D.

Senior Ecologist

Dr. Liptak is a member of the ecological survey team specializing in wetlands ecology, wetland restoration, and mitigation wetland design. Dr. Liptak earned his Ph.D. at Ohio State University under the noted wetland ecologist Dr. William Mitsch and completed his graduate research on the created wetlands at the Olentangy River Wetland Research Park in Columbus. He has 30 years of experience in wetlands research and consulting and is a Certified Senior Ecologist (Ecological Society of America). His primary responsibilities at EnviroScience Inc. include wetland mitigation planning, wetland assessments and delineations, technical report preparation, and permitting.

Dr. Liptak has experience in preparing mitigation plans for many different projects, including wetland creation, restoration, and enhancement, and preparing upland restoration and prairie planting plans. Dr. Liptak has extensive experience with terrestrial, aquatic, and wetland surveys for transportation projects of all sizes. He is a pre-qualified consultant certified to complete aquatic and terrestrial ecological surveys, wetland delineations, waterways permitting, and wetland mitigation design for Ohio Department of Transportation (ODOT) projects. He is a member of the Society of Wetlands Scientists and the Ecological Society of America, and regularly gives seminars on wetland issues and regulations within Ohio.

EDUCATION

Ph.D., Environmental Science Graduate Program, The Ohio State University, 2000

B.S. Biology, The University of Toledo, 1995

CERTIFICATIONS

U.S. Army Corps of Engineers Wetland Delineator Certification Training

Health and Safety for Hazardous Waste Operations Course CFR 1910.120 (HAZWOPER)

8h HAZWOPER Refresher Course

Biocriteria and QHEI

Identification of Grasses, Rushes and Sedges

Forested Wetland Restoration Course, Wetlands Training Institute

Planning Hydrology for Constructed Wetlands Course

Fundamentals of Traffic Noise Short Course

FHWA Traffic Noise Model 1.0b and 1.1 course

PENNDOT Publication No. 24 – Project Level Highway Traffic Noise Handbook Training

FHWA Fundamentals and Abatement of Highway Traffic Noise

Certified Senior Ecologist (Ecological Society of America)

PROJECT EXPERIENCE

Euclid Creek/Dugway Storage Tunnel Project. 2010-present.

Since 2010, Dr. Liptak and EnviroScience, Inc. have been working with NEORSD to complete several phases of the Euclid Creek and Dugway Storage Tunnel Dewatering System Project (ECT/DST) in Cleveland and Bratenahl, Ohio. Wetland mitigation was required at two sites (onsite ECT/DST, offsite Bratenahl) due to impacts to wetlands associated with the ECT/DST project. Dr. Liptak was the lead wetland scientist designing the onsite and offsite mitigation wetlands. Onsite wetland mitigation construction commenced at the ECT/DST site and the Bratenahl site in January and February 2012, respectively. A total of 0.69 acres of wetland was created between the two sites which also included two vernal pool habitats for salamanders, a key goal for the restoration.

In 2018-2019, over 3 ac of forested wetlands were restored onsite following Dr. Liptak's mitigation design and under his construction oversight. Salamanders from the undisturbed forested wetlands rapidly colonized the new vernal pools, and populations have increased steadily in the restored wetlands.

Dr. Liptak has been a technical expert on wetland issues for the U.S. Department of Justice.

YEARS OF EXPERIENCE

EnviroScience, Inc.: 21

ASC Group, Inc.: 4

Ohio Dominican College: 3

RELEVANT EXPERIENCE

Rare Plant Surveys (including Running Buffalo Clover)

Wetland Restoration Planning

Wetland Assessments & Delineations

Technical Report Preparation

Permitting & Mitigation

Prairie Planting Plans

Terrestrial, Aquatic & Wetland Surveys

PROFESSIONAL AFFILIATIONS

Ecological Society of America, 01/2002 – present

Society of Wetland Scientists, 1997-present

Shepherd's Corner Advisory Board, 2002-2005

Ohio Stormwater Association (OSWA)

Tinker's Creek Watershed Partners (TCWP) Board of Directors, 2012-2022

NASA Armstrong Test Facility/Lewis Field Ecological Surveys ($273,000) 2022-2023. To facilitate NASA Glenn Research Center's compliance with the Endangered Species Act and NASA policies, EnviroScience, Inc. and Leidos, Inc. completed surveys of multiple taxa groups and prepared a rare and protected species management plan for the following facilities: the 309-ac Lewis Field, in Cleveland, and the 6,400 ac Neil A. Armstrong Test Facility in Sandusky, Ohio. In 2022, EnviroScience biologists performed surveys of birds, bats, reptiles/amphibians, fish, rare plants, butterflies, and moths at both facilities and completed technical reports for each taxa group. EnviroScience also recommended site management strategies to maintain and improve habitat for protected species and important communities. Surveys results and recommendations were compiled into a multi-volume technical report for NASA's use in future management of natural areas on both properties. Dr. Liptak was the project manager, provided technical review of taxa survey reports, and was the lead author of the management plan volume of the multi-volume report.

National Wetland Condition Assessment (NWCA): Logistics and Training Task Order, $254,000 and Plant Voucher Identification Task Order, $285,000. 2021.

Dr. Liptak was the EnviroScience project manager for these large USEPA task orders. The Logistics and Training Task Order included: editing of the Field and Lab Operation Manuals; executing regional training; overseeing over 60 field crews across the nation; designing nationwide shipping plans; assembling kits for training and field crews; conducting field Assistance Visits; and monitoring each crew's sampling. The Plant Voucher Identification Task Order included identifying over 5,800 unknown and quality control plant vouchers collected from wetlands across the United States.

Systematic Rare Plant Survey of the Cuyahoga Valley National Park ($164,000) 2021-2022

EnviroScience completed a systematic rare plant survey in the Cuyahoga Valley National Park for the National Park Service (NPS) to address the critical need for a current park-wide rare plant inventory to inform the park's planning process. This systematic transect-based survey was designed to provide current rare plant data and supplement outdated surveys. Ten-meter-wide belt transect surveys were conducted throughout all portions of the park, with additional meander surveys in high priority and previously unsurveyed areas. Data were collected on population characteristics and health as well as measures of disturbance at each location. Submeter-accurate data will allow NPS staff to locate these record locations easily in future surveys. A total of 98 species and 675 rare plant locations were identified and inventoried during the survey. These data were presented in a technical report including maps and GIS data, which will allow these data to be used more easily by NPS staff in the future. Dr. Liptak was the project manager and lead author of the report and provided technical review on individual species accounts.

Great Lakes Basin Evaluation of Compensation Sites ($140,000). 2017

Dr. Liptak was the ES project manager and one of two lead botanists for this USEPA project, which was designed to assess the ecological function of mitigation wetlands in the Great Lakes Basin. A total of 60 sites were evaluated using the protocols from the USEPA's 2016 National Wetland Condition Assessment (NWCA), which is one assessment in a series of statistically valid National Aquatic Resource Surveys (NARS) conducted by the EPA to provide the public with a comprehensive assessment of the condition of the Nation's waters. Dr. Liptak completed a comprehensive botanical survey on 30 of these mitigation sites using the NWCA protocols. Data from the 2017 survey were compared with a 2012 survey to comprehensively evaluate the ecological success of compensatory mitigation of the sites within the Lake Erie Basin in Ohio and to begin to develop effective ecological guidelines for designing sustainable mitigation sites, increasing the likelihood of future success.

CHRISTINA VOORHEES, PhD, CWB®

Director of Natural Resource Services/Senior Scientist

Christina Voorhees, Ph.D., is a senior-level Certified Wildlife Biologist® and serves as EnviroScience's Director of Natural Resource Services. She is based in Pennsylvania and has over 20 years of experience coordinating projects with threatened and endangered species concerns, assisting clients with state and federal agency consultation, and providing business development support. Christina has extensive experience managing complex projects and is skilled in successfully negotiating the environmental review process in a manner that is conscious of permitting and development schedules. She is an effective networker and uses this skill as a business development strategy to build and maintain client relationships. Christina's prior field expertise includes a variety of species groups including bats, birds, lepidoptera, and ungulates. Christina is active in The Wildlife Society and currently serves as president of the Pennsylvania Chapter.

EDUCATION

Ph.D. Recreation, Park, and Tourism Management, Penn State University, 2007

M.S. Forest Resources, Penn State University, 2002

B.S. Wildlife Science, Virginia Tech, 2000

A.S. Wildlife Technology, Penn State- DuBois Campus, 1997

CERTIFICATIONS

Certified Wildlife Biologist ®

YEARS OF EXPERIENCE

EnviroScience, Inc.: 3

Environmental Consulting: 18

PA DCNR: 5

University Research: 5

RELEVANT EXPERIENCE

Threatened and Endangered Species Planning

USFWS Section 7 Consultation

Pennsylvania Natural Diversity Inventory Environmental Review Consultation

Technical Report Preparation

Business Administration

Human Dimensions of Natural Resources

Avian Surveys

Public Involvement

SELECTED PROJECT EXPERIENCE

King Coal Highway Corridor Project, WV: Overall project manager for habitat assessments, presence/absence surveys, and biological assessments to address impacts to bats, rare plants, and mussels associated with the West Virginia Division of Highways (WVDOH) King Coal Highway Corridor Project. Responsible for client coordination, agency consultation, budget tracking, and management of field staff across the entire project term.

Long Bridge Solar Renewable Energy Project, PA: Coordinated agency consultation and negotiation for potential impacts to northern harriers at a proposed 500-acre renewable energy site. Project included a Habitat Suitability Assessment (HSA) and mitigation plan that was developed in conjunction with the client and regulatory agencies.

Confidential Federal Avian Project: Project manager for large-scale avian project at EPA Area of Concern to document avian foraging behavior. Developed study plan, analyzed data, and produced comprehensive report.

Confidential Natural Gas Complex Project, PA: Project manager for habitat assessments and threatened and endangered species surveys for the development of approximately 45,000 acres of natural gas infrastructure. Responsible for environmental review and subsequent consultation with state and federal agencies on potentially impacted species and resources including Indiana bats, Allegheny woodrats, timber rattlesnakes, wetlands, and rare plants.

GREG ZIMMERMAN

Project Manager / Vice President / Endangered Mussel & Fisheries Biologist (Federal Permit # TE130900-7)

As Vice President at EnviroScience, Inc. Mr. Zimmerman oversees and manages the operations of the company including endangered species consultations, transportation projects, and underwater construction / inspection projects. Mr. Zimmerman has 30 years of experience in the fields of aquatic survey and freshwater mussel and fish identification and consulting. He has been approved by the USFWS as a mussel and fish contractor in various regions since 1997 including WV, OH, PA, KY, IN, and NY. Mr. Zimmerman has worked extensively with over 90 species of freshwater mussels, including 12 federally-listed and numerous state-listed species. He has also designed and managed some of the largest ESA and biological monitoring survey projects completed to date in North America. Additionally, he has completed 25 Biological Assessments (BA) for transportation-related projects where endangered mussels or bats were an issue, and he has assisted numerous other clients with projects where environmental impacts were anticipated to support NEPA compliance.

EDUCATION

M.L.S. Biology and GIS, Kent State University, 2004

B.A. Environmental Biology, Hiram College, 1996

CERTIFICATIONS

Approved USFWS / State Mussel / Fish Contractor in WV and >16 States

FHWA NEPA 40hr certificate

Association of Diving Contractors International, Commercial Air Diver

Kirby Morgan Helmet and Mask Operator / User Training

40h HAZWOPER / eRailSafe

CPR / AED / First Aid / Oxygen Administration

YEARS OF EXPERIENCE

EnviroScience, Inc.: 29

Hiram College Instructor: 2

RELEVANT EXPERIENCE

20 years WV / WVDOH Project Management Experience

Summit Co. OH Soil & Water Board

Natural/Cultural Resources

Endangered Mussels/Fishes/Bats

Biological Assessments

Water Quality Monitoring

GIS of Biological Systems (MLA)

SELECTED PROJECT EXPERIENCE

WVDOH Statewide Natural Resource Services (2009 - 2020) Statewide, WV: Project Manager for multiple awards of the WVDOH statewide agreements between 2009 and 2020 focused on Natural Resources Services; primarily mussel, fish and bat-related project conflicts and NEPA support documentation. Greg worked closely with the WVDOH Environmental Staff to maintain scheduled progress on all elements of the Work. Projects have included over 25 bridge replacements including Berlin I-Beam Br., Shiloh Br., Bridgeport Br., Otter Slide Br., Old Hi Carpenter Br. Wellsburg Br., Lemaster Br., Eclipse Bottom Br., Avondale Br., and others. In addition, Mr. Zimmerman conducted dive training and environmental training for WVDOH staff. During the course of these projects, Mr. Zimmerman worked in the best interest of West Virginia through responsiveness and efficiency, while ensuring the projects were completed to the resource agency specifications.

Endangered Freshwater Mussel Salvage and Relocation for PennDOT Hunter Station Bridge Replacement (2015-2021) Tionesta, PA: PM for one of the largest endangered species salvage and reintroduction of adult aquatic animals ever completed. Greg worked closely with the Federal Highway Administration, PennDOT and dive teams to coordinate and perform endangered mussel salvage, relocation, construction monitoring and post construction restoration for the Hunter Station Bridge Replacement Project. This project entailed the salvage and

Mr. Zimmerman coordinated the needs of T&E fish, mussels, water quality and construction to develop the Pratt-Hansford, WV BA.

RELEVANT EXPERIENCE (CONT'D):

T&E Species Surveys, Permitting and Agency Coordination for a variety of DOTs, Oil & Gas, Drinking Water, and Corridor Projects

PennDOT / ODOT Bridge Replacements, Stream and Wetland Mitigation, T&E Mitigation and Programmatic Agreements

USACE Diving Projects for Nav. Dredging, T&E Species, and Flood Control

Underwater Maintenance / Inspection Projects

FERC Studies for Hydropower

GIS Studies for Fish Passage and Habitat Modeling

Expert Witness for Water Rights and Endangered Species Issues

Manager of One of the Largest T&E Mussel Mitigation Projects on Record, involving 7 States and 20 Agencies: 130,000 mussels

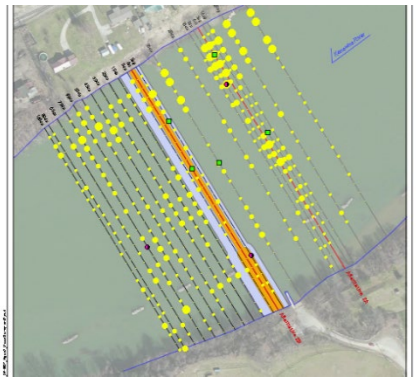
relocation of **130,000** mussels **(>94,000 endangered species**) to 9 different watersheds in 7 states, including the Walhonding River near Warsaw, Ohio. The project required extensive coordination and scheduling with 25 separate agencies and partners. A number of critical issues were managed including scheduling, conservation priorities, budget, matching funds, quarantine, transport methods, quality assurance, salvage efficiency, subcontractor management, tag-recapture methods, and monitoring. The project resulted in an estimate >92% of T&E species being relocated from the direct impact area with >85% survivorship. ES assisted PennDOT with the monitoring of these populations over seven years.

Lower Monongahela River Mussel Surveys (2016) Washington County, PA: PM for extensive mussel surveys and population estimates for USACE Pittsburgh District. These efforts were conducted as part of maintenance dredging efforts for commercial barge traffic on the river. The surveys were across two locations: a 2-mile stretch of the Lower Monongahela River upstream of the site and a downstream survey area of five 100m transects along the river. This Phase 1 survey followed the WVDNR Mussel Survey Protocol, assuming a Group 3 stream type. None of the 54 live mussels detected, representing seven species, were threatened or endangered species, and no further action or mussel relocation was required.

Emsworth, Montgomery and Allegheny Lock and Dam 2 Hydroelectric Projects Mussel Surveys (2021-2022) Pittsburgh, PA: PM for mussel survey, agency coordination and Section 401 Permit support for three hydroelectric projects on USACE structures on the Ohio and Allegheny Rivers near Pittsburgh, PA. ES developed agency-approved survey plans and conducted large-scale mussel surveys and provided guidance for post-construction monitoring, preparing deliverables to aid in Section 401 permitting requirements and final Environmental Assessments for each site. Over 1,600 mussels were collected and Greg coordinat3ed multiple mussel crews simultaneously to meet project schedules.

ODOT VAR-STW Ecological Resources Surveys (PID 95904) Statewide, OH: PM for this statewide agreement focused on threatened and endangered species; primarily mussel and bat-related project conflicts. Greg has worked closely with the ODOT Office of Environmental Services to maintain scheduled progress on all elements of the Work. Projects have included LAW-SR 7-5.50, SCI-823-0.00, LAK-535-0.39, GUE-541-7.46, LUC-475-3.08, LAW-217-5.85 and D12 BH FY2015. These projects have all been successfully completed.

ODOT SCI-823-0.00 (PID 19415) Portsmouth Bypass BA, OH / KY: Project Manager and co-author of this Biological Assessment (BA) under the ODOT VAR-STW contract to present the effects of this large bypass project to the USFWS for endangered bats. Work included a review of wetland and stream features throughout the proposed corridor. Greg coordinated closely with ODOT and the



Mr. Zimmerman managed the Pratt-Hansford emergency waterline biological surveys and BA. A BO was issued in record time allowing 1,500 residents to obtain safe drinking water.

consultant team to ensure the project deadlines were met and the document complied with the guidelines of the Endangered Species Act (ESA). The BA was reviewed by USFWS with minimal comments and a biological opinion was issued by USFWS, authorizing the project

Kinzua Dam FERC Relicensing: Fisheries, Hellbender and Mussel Studies, 2012. Mr. Zimmerman managed and implemented ecological and physical water quality components of a large FERC dam relicensing project on the Allegheny River and Allegheny Reservoir. The project included direct field studies and analysis of 8 miles of the river and 2 miles of reservoir, including fish electofishing and habitat analysis, water quality, mussel diving surveys, and Eastern Hellbender assessments associated with the dam reservoir storage operations.

Pratt-Hansford Emergency Waterline Replacement, Hansford, WV, Project Manager / BA Preparer, 2013 – 2017. Beginning in the fall of 2013, Mr. Zimmerman coordinated intensively to meet the project needs of constructing a critical waterline. This emergency project was necessary to ensure the health of over 1,500 residents due to an unsafe water condition, however 4 endangered species were known from the project area. By surveying multiple alignments to determine the best practical alternative, Mr. Zimmerman developed an approved BA and BO in less than one month. Once the BO was issued, ES immediately began translocating mussels from the project area at Mr. Zimmerman's direction, which was over 5,000 sq. m. Construction was completed, and a successful environmental commitment monitoring program ended in 2017.

USACE Huntington District, Big Chimney (Elk Valley PSD) Emergency Stream Bank Protection Mussel Surveys / BA. EnviroScience completed a biological assessment (BA) and state coordination document to evaluate the potential effects of the Elk Valley PSD Section 14 Streambank Protection Project on federally listed and proposed species and designated and proposed critical habitat in accordance with the Endangered Species Act. The emergency project was needed to prevent impacts to human health, disruption to a public utility, protect federally listed species, and protect designated critical habitat and human health. This included 16 listed / proposed species including mussels, bats and fish and was the first ever BA for the Diamond Darter and its designated critical habitat. The project area was in the vicinity of 16 listed or proposed federal species and 3 designated critical habitats. The project was further complicated in that the USACE could not provide a detailed design for the project before receiving NEPA environmental clearance, which required a USFWS Biological Opinion and WVDNR clearance. Mr. Zimmerman coordinated the BA including HEC-RAS analysis, Diamond Darter habitat analysis, and mussel salvage plan. The BA was approved by USFWS ahead of schedule and the agency issues a biological opinion in 2024.

LUKE FULTZ

Ecologist / Bat Project Manager

As Bat Project Manager at EnviroScience, Inc. Mr. Fultz oversees and manages the operations of the bat program including bat project management and Endangered Species Act (ESA) endangered bat consultations. Mr. Fultz has 7 years of experience in the fields of bat surveys and identification, various avian surveys, and environmental consulting. He has held a WV scientific collection permit for bats since 2020, a Virginia scientific collection permit since 2024, and USFWS Federal recovery permit for Indiana bat, northern long-eared bat, and gray bat since 2024. Mr. Fultz has worked extensively with 16 species of bats, including 3 federally-listed and numerous state-listed species. He also has extensive experience managing projects ranging from large to small including: transportation, private land development, natural resource extraction, biological monitoring, and rare, threatened, and endangered species surveys in North America, and he has assisted numerous other clients with projects where impacts to avian and bat populations were anticipated.

EDUCATION

Bachelor of Science in Wildlife Ecology and Conservation, Juniata College, 2019

PERMITS

- West Virginia Scientific Collection
- Viginia Scientific Collection
- USFWS Federal Recovery – Indiana bat, northern long-eared bat, and gray bat

CERTIFICATIONS

OSHA 10-Hour

YEARS OF EXPERIENCE

EnviroScience, Inc.: >1 year

Apogee, Inc.: 6 years

RELEVANT EXPERIENCE

T&E Species Surveys

Endangered Bats

Avian Surveys

Biological Assessments

Natural/Cultural Resources

Water Quality Monitoring

SELECTED PROJECT EXPERIENCE

Undisclosed Mining Industries Clients – WV & KY: Project Manager for multiple project surveys focused on threatened and endangered species; primarily avian and bat-related project conflicts. Luke has worked closely with the client and federal and state regulating agencies to maintain scheduled progress on all elements of the work and that deliverables complied with the guidelines of the ESA. Luke managed crews and conducted field surveys involving habitat assessments, point count surveys, presence/absence surveys, and was responsible for aiding in completion of technical and regulatory reporting. These projects have been successfully completed.

Undisclosed Land Development Clients – OH, WV, VA, SC, KY: Project Manager for multiple project surveys focused on threatened and endangered species; primarily avian and bat-related project conflicts. Luke has worked closely with the client and federal and state regulating agencies to maintain scheduled progress on all elements of the work and that deliverables complied with the guidelines of the ESA. Luke managed crews and conducted field surveys involving habitat assessments, point count surveys, presence/absence surveys, and was responsible for aiding in completion of technical and regulatory reporting. These projects have been successfully completed.

EDUCATION

B.S. Civil Engineering, University of Akron, 1995

CERTIFICATIONS

Professional Engineer, State of Ohio, P.E. No. 68368

Professional Engineer, State of Michigan No. 6201067606

Professional Engineer, State of Tennessee No. 122535

Professional Engineer, Commonwealth of Virginia

No. 402060576

Professional Engineer, State of West Virginia No. 23577

Professional Engineer, Commonwealth of Pennsylvania

PE089846

FHWA – NHI Safety Inspection of In-service Bridges

CPESC No. 13073

YEARS OF EXPERIENCE

EnviroScience, Inc.: 8

City of Stow: 3.5

MS Consultants, Inc.: 3.5

GBC Design, Inc.: 10

Cooper & Associates, LLP: 4

RELEVANT EXPERIENCE

Interpreting Stormwater Regulations – NPDES Permits, MS4, and Municipal Codes

Developing Stormwater Management Plans

Green Infrastructure

Retention/Detention Facilities

SWPPP & SPCC Plan Preparation and Implementation

Pipe Infrastructure

Coordination with Government and State Agencies.

Regulatory/Permit Compliance for Industrial WTP and WWTP

Utility and Infrastructure Design

SHEILA RAYMAN, P.E.

Director of Compliance Services/Senior Engineer

Ms. Sheila Rayman, P.E., is the Director of EnviroScience, Inc.'s Compliance Services Practice Area where she helps clients reach and maintain compliance with environmental regulation through design and implementation of stormwater management facilities, NPDES Permit management and implementation, infrastructure improvements, Stormwater Pollution Prevention Plans, and Spill Prevention, Control, and Countermeasure Plans. Sheila has spent over 29 years as a municipal and consultant engineer, project manager, and compliance and stormwater specialist. Her experience provides the background necessary to manage and develop the Compliance Services Practice Area, composed of engineers, geologists, scientists, and inspectors, in Ohio and all regional offices.

SELECTED PROJECT EXPERIENCE

Environmental and Engineering Consultant for Cleveland Hopkins International Airport, City of Cleveland, Ohio, 2019-Current. Project Manager Ms. Rayman assists the Environmental Compliance team at the Airport to remain in compliance with the facility's OEPA NPDES Permit to discharge stormwater. Since working with the Airport, she has provided support for multiple NPDES Permit renewals, prepared and updated SPCC Plans and SWPPPs. As the lead engineer, Ms. Rayman provides assessments of the stormwater management facilities within the 1,900-acre airport property and advises the Team on maintaining permit compliance, including the evaluation and design of water quality treatment systems.

Englewood Drive Stormwater Improvements, Silver Lake, Ohio, 2019-2020. Client & Project Manager EnviroScience was retained to incorporate stormwater management features into a mile-long roadway improvement. The existing site topography and surrounding drainage patterns were considered as Ms. Rayman directed the team that designed bioretention areas, grass swales and curb cuts, and underground storage to relieve the overtasked storm sewer system and provide water quality. Services included roadway improvement design, and construction administration and management services.

McKinley Creek Regional Stormwater Facility, Lake County, Painesville Township, OH. 2019-2022. Project Manager, Principal Engineer In response to the Township's need for stormwater management to address rapid urbanization, a 15-acre easement area was used to establish a regional stormwater facility adjacent to the unnamed tributary of McKinley Creek. The improvements incorporated green infrastructure methods to reduce the volume of runoff through infiltration; construction of an extended detention marsh stormwater to reduce pollutant levels in surface water; increasing the tree canopy with site-wide native plantings, repurposing the irrigation ponds as stormwater quantity control basins; and restoring the stream bank of McKinley Creek Tributary.

JIMMY SARGIOVANNI II

Regional Operations of Environmental Inspection/Project Manager

Jimmy Sargiovanni is regional operations manager for the Environmental Stormwater Inspection Group within Compliance Services at EnviroScience, where his responsibilities consist of managing projects and professionals for environmental inspections following SWPPP guidelines and proper management of stormwater during construction and post construction. He is a Certified Erosion, Sediment, and Storm Water Inspector (CESSWI) and holds an Inspection and Maintenance Certification for Storm Water Control Measures in Ohio.

EDUCATION

B.S., Conservation, Kent State University, 2010

CERTIFICATIONS

Certified Erosion, Sediment and Storm Water Inspector (CESSWI)

Inspection and Maintenance Certification for Storm Water Control Measures in Ohio

EPA Stormwater Management during Construction Course

American Red Cross Adult and Child First Aid/CPR/AED

YEARS OF EXPERIENCE

EnviroScience, Inc.: 13
The Nature Conservancy: 1.5

RELEVANT EXPERIENCE

Storm Water Management

Storm Water Pollution Prevention Plan (SWPPP) Review & Inspections

Erosion & Sediment Control Plans & Inspections

Invasive Species Management

Water Quality Sampling & Discharge Monitoring

Sediment Sampling

Waste Characterization & Sampling

GPS

Stream and Wetland Restoration

Tree ID, Tree Planting, Tree Care

SELECTED PROJECT EXPERIENCE

Inspection & Reporting of Stormwater Facilities, 2019-Present.

- Helps property owners, HOAs, and cities/municipalities gather their yearly reporting of post construction stormwater BMPs to maintain compliance with their SWPPPs and long-term maintenance plans.
- Provides clients with yearly reports of the quarterly maintenance and bringing to light any potential issues or degradation of structures by providing action items to maintain compliance.

Utility Pipeline Replacement Projects, OH, 2012-Present.

- Environmental Inspector for projects throughout Ohio.
- Project responsibilities include the following: assisting construction personnel with the development and implementation of BMPs in environmentally sensitive areas throughout Ohio; documenting and reporting SWPPP compliance to satisfy the Ohio EPA's General Construction Permit (OHC000006) and County Soil and Water Conservation District requirements; documenting and ensuring projects comply with regulations mandated by agencies of the Ohio Power Siting Board, US Fish and Wildlife Service, US Army Corps of Engineers, Ohio Historic Preservation Office, and Ohio Division of National Resources; and developing weekly reports detailing the project status, including any observed compliance issues and corrective actions while ensuring oversight of stream and wetland crossings and HDD frac-out assessment and cleanup.

Blue Ridge Power Solar – Solar Site Projects, NC, SC, GA & TX, 2022-Present.

- Environmental Inspector and project lead for projects in NC, SC, GA, TX.
- These large acreage sites (typically 40-1,700 acre sites) contain specific SWPPPs focusing on erosion and sediment controls (E/SCDs) and details the BMPs necessary to complete the project in compliance with their NPDES permit and other federal, state, and local agency requirements.
- Provide weekly/rain inspections and on-site guidance of construction personnel to achieve site stormwater and environmental compliance.
- EnviroScience ensures BMPs in the SWPPP are functional onsite, providing erosion and sediment control reviews and inspection forms, and coordinating with site project leads or managers through progress reports, emails, and phone calls.

EDUCATION

M.S. Biology, University of Akron, 2015

B.A. Biology, Hiram College, 1998 (Graduated Cum Laude)

CERTIFICATIONS

Certified Ecological Restoration Practitioner (CERP)

Rosgen Applied Fluvial Geomorphology Levels I, II, III & IV

OEPA Qualified Data Collector QHEI Level 3

OEPA Qualified Data Collector Fish Evaluation Level 3

Ohio EPA's Primary Headwater Habitat Assessment (PHWH)

Ohio EPA's ORAM Version 5.0

YEARS OF EXPERIENCE (27)

EnviroScience, Inc.: 25

ISLS Instructor: 12

Oxbow River & Stream Restoration: 2

RELEVANT EXPERIENCE

Dam Removal / Restoration

Stream Restoration / Relocation

Stream Bank/Slope Stabilization

Riparian Enhancement / Stabilization

Morphological Assessment

Erosion Monitoring & Assessment

Hydraulic Modeling

JULIE BINGHAM, CERP

Director of Restoration Services / Restoration Biologist

Ms. Julie Bingham is the Restoration Practice Area Director at EnviroScience, where she uses her 27 years of experience to manage a multidisciplinary team of staff, develop, manage, and oversee work throughout EnviroScience's operating areas. She has also been regularly involved with education and instructional lectures regarding restoration and morphology for Igniting Learning Streams and Cleveland Metroparks volunteer learning initiatives. Her background in biology, morphological assessment, restoration, design, and implementation experience makes her a unique leader.

Julie has completed Rosgen Applied Fluvial Morphology through Level IV and is certified by OEPA as a Level 3 Qualified Data Collector for fish sampling and QHEI. She is intimately involved with each stage of restoration projects, including the actual construction implementation, where her experience in heavy equipment operation and oversight makes the restoration design a reality. Julie's ability to apply Clean Water Act goals and biocriteria data to restoration projects allows her to analyze existing conditions and develop predictive habitat and biological performance criteria for restoration designs.

SELECTED PROJECT EXPERIENCE

Julie has been involved with over 180+ restoration design projects and over 160+ construction projects.

Cuyahoga River Bank Stabilization, 2023-2025

This design-build riverbank stabilization project was completed across nine different sites of the Cuyahoga River within Cuyahoga Valley National Park. The eroding riverbank was encroaching on portions of the historic Ohio & Erie Canal Towpath Trail and Cuyahoga Valley Scenic Railroad, threatening the integrity and safety of their use. Over 5000 LF were stabilized during this project.

Brightwood Lake Dam Removal and Kellogg Creek Stream Restoration, 2021-2024

This Ohio and US EPA-funded dam removal and stream restoration project (2,710 LF) was completed to stabilize the streambed, improve water quality and habitat, and to allow fish passage. Wetland and floodplain habitats were restored via native planting, drone seeding, and invasive vegetation management.

Duck Creek Stream and Wetland Restoration, 2022-2023

This H2Ohio-funded design-build stream (2,055 LF) and wetland (10.5 acres) restoration project was completed to improve Lake Erie's water quality by processing nutrients and removing sediment from Duck Creek. Existing wetlands were restored, and additional wetlands were created along with the reconnection of the stream to the floodplain.

Julie has 27 years of experience in stream and wetland restoration.

INSTRUCTION & SEMINARS GIVEN:

Cleveland Metroparks Watershed Volunteer Program- Developed and Implemented two Introductory Morphology Courses as part of Training for Volunteer Program.

Igniting Streams of Learning (ISLS) Instructor — Course to approximately 60 high school students, delivered annually from 2007-2018.

Meeting Water Quality Standards with Stream Restoration Projects, The River Institute, Instructor.

Stream Ecosystem Restoration Training Series (SERTS), The River Institute, Instructor.

Restoration Ecology. University of Akron, Adjunct Professor.

Julie managed the restoration of over 7,000 ft of the Aurora Branch of the Chagrin River at a former golf course in Ohio to reattach the river to its historic floodplain. The site is now a public park in the City of Aurora.

Riverwood Golf Course Stream/River and Wetland Restoration, 2022-2023
This Project was undertaken to restore the former Riverwood Golf Course to natural habitat and re-connect the Cuyahoga River to its full floodplain. This included removal legacy berms, daylighting captured streams, disrupting tile drainage to create wetlands, and improving the riparian area with native plantings. In addition to the river, four separate tributaries were restored totaling 3,830 LF. To further aid in wetland hydrology and for floodplain re-connection to the Cuyahoga River, approximately 3,250 LF of berm was removed from the streambanks. In addition, five riffle enhancements were completed within the river to improve habitat.

Spring Brook Restoration, Chardon OH, 2021-2022
Spring Brook is home to the largest population of State Endangered Native Ohio Brook Trout. Habitat degradation from surrounding development was threatening the declining population. Julie managed the restoration design and approach and the EnviroScience team for the project, adapting the restoration plan to changing conditions in the field. She also performed construction oversight for the duration of the project. The trout population is recovering post-restoration.

Chagrin River Bank Stabilization at Jackson Field, 2020-2021
Over 900 feet of stabilization on a meander bend for ~$300K using cost effective approaches to re-set the meander geometry to a previous alignment and regain approximately 100-ft of lost streambank. Bendway weirs, large woody debris, and mining the inside point bar and cast material as the basis for the new streambank were vital to the success of this project. Riffle-pool complexes and substantial fish habitat was also restored to this high-quality river system.

Little Cuyahoga River OCIT Stream Restoration, 2020-2021
Re-design build project completing restoration in the vicinity of the OCIT Tunnel project. Project goals included fish passage, bank stabilization, and floodplain restoration of ~1,200 LF.

Ekert Ditch Restoration, 2019-2020.
A stream restoration to stabilize streambanks through grading and decreasing bank height, revegetation of streambanks and riparian corridor, riffle and pool restoration, grade control structures, and installation of woody habitat treatments to reduce erosion, control flows and grade, and improve water quality in a direct tributary to Akron's water supply.

Mill Creek at Mill Creek Blvd, 2019-2020
Restoration included a combination of a raise-grade and floodplain expansion to address the severe erosion and reconnect the floodplain. Grade control, habitat improvement and creation (riffle/pool sequences), streambank stabilization, and re-establishing a hydrologic connectivity between Mill Creek and adjacent wetlands.

Valley View Cuyahoga River Restoration, 2018-2020
Two phase project restoring a former golf course for Summit Metroparks. NOAA-funded project that saw a dramatic increase in floodplain storage, extensive in-stream fish habitat on over a mile of the Cuyahoga, ~3000 LF of headwater tributary restoration, wetland restoration, and 50 acres of tree plantings.

DAVID S HALLMAN, PE, PG

Principal Geological Engineer
Manager

Applied GeoLogic, LLC
30204 Bromley Court
Evergreen, Colorado 80439
303-919-3601

EDUCATION

BS, Geological Engineering, Colorado School of Mines, 1983

CONTINUING EDUCATION

MSHA Part 48 Underground Mine Safety and Health Training, 1981
Earthquake Hazard Reduction in the Central U.S., USGS, and Central U.S. Earthquake Consortium, 1990
Cold Regions Engineering, University of Washington, 1990
40-hr OSHA HAZWOPER, 1990
OSHA Confined Space Entry, 2003

REGISTRATIONS/CERTIFICATIONS

Professional Engineer: Alaska (CE-8086, 1990), Colorado (#26076, 1989), Idaho (#8350, 1996), Missouri (E-26685, inactive), New Mexico (#28947, 2023) South Dakota (#14903, 2020), Texas (#90421, inactive), Utah (#14188939-2202, 2024) and Wyoming (PE-9495, 2002)

Professional Geologist: Wyoming (PG-3536, 2004)

EXPERIENCE SUMMARY

Mr. Hallman is a Geological Engineer with 42 years of experience specializing in mining and civil engineering projects throughout the United States and internationally. Mr. Hallman is a registered Professional Engineer in the States of Alaska, Colorado, Idaho, New Mexico, South Dakota, Utah and Wyoming, and a Professional Geologist in the State of Wyoming. His technical expertise includes hard and soft rock mine subsidence risk assessment and abatement, mine fire investigation and extinguishment, static and dynamic stability of embankments and natural slopes, landslide evaluation, rock slope stability, open pit design, tailings and water dam design and construction, design and construction of heap leach and landfill facilities, and seismic hazard studies.

Mr. Hallman was an instructor expert at the 2019 Colorado School of Mines Grouting and Ground Improvement short course presenting a technical session on backfill grouting for abandoned mine lands.

PROJECT EXPERIENCE

Geologic Hazards (pit stability, landslides, rock slides, mine subsidence and mine fires)

- ***Wattis Coal Mine Fire, Carbon County, Utah.*** Senior technical expert responsible for investigation and characterization of the underground mine fire in the historic Wattis No. 1 coal mine, screening and evaluation of potential extinguishment methods and costs. (2024, on-going)

- ***Kenilworth Coal Mine Fire, Carbon County, Utah.*** Senior technical expert responsible for emergency investigation and characterization of the underground mine fire at the historic Kenilworth mine complex in response to a sudden and drastic increase in fire activity following a subsidence event. Developed and implemented a novel approach to plug and seal intake and exhaust vents with fire-resistant polyurea-silicate foam to reduce fire activity and exhaust gas emissions. Required MSHA training in the use of closed-circuit breathing apparatus (CCBA) due to hazardous gas emissions and possibility of IDLH conditions. (2024)

- ***South Waste Rock Dump Stability, Hidden Valley mine, Papua New Guinea***. Provided third party technical review for waste dump stability at the Hidden Valley Mine located approximately 210 km north of

Port Moresby, in the Morobe province of Papua New Guinea. The mine site is situated at high elevation within steep, mountainous terrain and receives high amounts of annual rainfall. The South Waste Rock Dump has been constructed as a permanent rockfill landform located within the Apu Creek Valley, at the eastern crest of the Hidden Valley Kaveroi open pit. Stability of the waste rock is affected by the underlying pit wall stability and extremely high seismic loading. The final closure SWRD landform is designed to be approximately 150 m in height and contain 9.6 million m^3 of waste rock and at an overall slope angle of 26 degrees. (2023, on-going)

- ***Coal Seam Fires, Powder River Basin, Wyoming and Montana.*** Providing technical input to a non-profit organization seeking to fund extinguishment efforts on coal seam and coal mine fires in order to reduce greenhouse gas emissions. (2022-2023)

- ***Subsidence Mitigation, Foamed Sand Backfilling, Mission Trails Regional Park, San Diego County, California.*** Provided technical direction for decommissioning two 6-ft diameter buried pipelines to prevent long term collapse and surface subsidence. The pipelines were decommissioned by backfilling using foam transported sand. The foam transported sand was implemented as a lower cost environmentally friendly alternative to traditional flowable fill or CLSM containing cement and fly ash in this environmentally sensitive area. Each pipeline was approximately 1-mile in length and went up and down steep hills. (2022)

- ***Hydraulic Adit Seals, Cross and Caribou Mine, Nederland, Colorado.*** Responsible for feasibility evaluation for hydraulic adit closure seals for the Cross and Caribou mines to withstand head pressures of more than 300 ft. (2021)

- ***Mine Subsidence Mitigation, Foamed Sand Demonstration Project, Noonan, North Dakota***. Provided technical expertise and direction for implementing a pilot study to demonstrate the efficacy of backfilling abandoned room and pillar coal mine workings using foam transported sand as a lower cost alternative to traditional void fill grouting. Conditions at the site included weak overburden prone to collapse and partially flooded mine workings. Subsequent verification drilling showed that a high degree of backfilling was achieved even in flooded conditions, rubble from collapsed overburden, and at a fraction of the cost of grouting. The work was awarded the National Small Project of the Year for 2021 by the National Association of Abandoned Mine Land Programs (NAAMLP). (2020)

- ***Subsidence Mitigation, Çöpler Mine Explosives Magazine and Access Tunnel, Eastern Turkey.*** Responsible for assessing long-term stability of blasting magazine tunnel and storage area openings as large as 4.3m tall x 7.3m wide beneath a proposed heap leach facility expansion; developed a bulkhead design and backfill approach to preclude the possibility of subsidence impacts to the leach pad due to a tunnel collapse. (2020)

- ***Ground Stabilization, Idaho Tunnel, Caribou Mine, Nederland, Colorado.*** Contracted by the mine owner to design and permit rehabilitation efforts for the collapsed Idaho Tunnel adit as part of on-going efforts to restart the historic Caribou mine. Loose soil encountering during attempts to enlarge the tunnel portal resulted in a collapse that propagated to the surface and daylighted a short distance downslope of a county road. Responsible for providing geotechnical recommendations for mitigating the collapse and stabilizing the slope, including approximately 65 cubic yards of open void, and appropriate methods for resuming advance of the tunnel enlargement operations in weak ground. *A special light weight p*ervious cellular grout was used to backfill the open void and stabilize the slope (2019 - 2021)

- ***Subsidence Prevention, Coal Fired Generating Station, Stanton, North Dakota.*** Provided technical direction to a contractor decommissioning a closed coal fired generating a station which included infilling large underground cooling water intake and outfall structures to prevent long term subsidence hazards. This included two large concrete-lined tunnels and six vertical shafts with a total volume of approximately 4,800 cubic yards. The plan provided for infilling these structures with 'flowable fill' or CLSM (Controlled Low Strength Material). As an engineering alternative, local pit run sand was approved for use and deposited in the structures as backfill using foam as the transport medium. Although the contractor had never used the approach previously, Mr. Hallman's help allowed him to complete the infilling for less than half the cost of flowable fill, resulting in a cost savings of nearly $500,000, (2019)

- ***Mine Subsidence Risk Assessment and Abatement, AML Project 17.6B, Glenrock, Wyoming.*** Responsible for technical direction and coordination for multi-disciplinary technical teams evaluating and mitigating subsidence risk over historic underground room and pillar coal mines within the Town of Glenrock as part of a multi-year state-wide ID/IQ contract for subsidence mitigation with the Wyoming Department of Environmental Quality, Abandoned Mine Land Division. Investigation of a sinkhole subsidence event and the associated subsidence risk related to previously undocumented mine workings at shallow depth beneath several critical roadways, including the I-25 Business Route through the town of Glenrock. Implemented emergency grouting using an innovative high-mobility grouting approach to infill extremely shallow mine openings located beneath these critical roadways. Designed and implemented a pilot study to demonstrate the efficacy of a novel foamed sand backfilling process. Subsequent verification drilling showed that a high degree of backfilling was achieved at a fraction of the cost of grouting. Presented technical overview of the work in public meetings and professional conferences. (2016 to 2018)

- ***Mine Subsidence Assessment, Kemess Project, British Columbia, Canada.*** Provided 3rd party technical review of potential surface subsidence impacts due to the proposed large-scale block caving mining operations at the Kemess underground project located in north-central British Columbia for the Aboriginal communities of Takla Lake, Kwadacha, and Tse Keh Dene to address First Nation and other community concerns. (2015)

- ***Mine Subsidence Risk Assessment and Monitoring, Rossland, British Columbia.*** Provided senior technical review of geotechnical monitoring data for on-going ground movement of historic mining features to evaluate crown pillar and shaft cover stability related to numerous old shafts, stopes, open adits, and associated surface subsidence in the Rossland Mining District which constitute a long-term residual geotechnical hazard to the public and surface infrastructure throughout the Town of Rossland. (2015)

- ***Mine Subsidence Risk Assessment, Sage Valley Estates, AML Project 60, Gillette, Wyoming.*** Responsible for visual damage inspections, review of existing information and data, and the potential subsidence hazards related to historic coal mining beneath the Sage Valley Estates subdivision in Gillette, Wyoming. Historic mining beneath the area is known to have included as many as 19 individual mine openings which were used locally to provide sources for domestic coal, but which are undocumented and have not been located. Investigations for the presence of the historic workings included Multi-channel Analysis of Surface Waves (MASW) geophysical methods and core drilling. Monitoring of the area for subsidence includes an advanced form of InSAR satellite imagery data processing. Presented a technical overview of the potential subsidence risk in public meetings. (2014 - 2015)

- ***Coal Mine Fire Abatement Design and Construction Management PKA-1414, Garfield, Boulder and Rio Blanco Counties, Colorado.*** Responsible for project and technical management to characterize the conditions at six underground coal mine fire sites, develop mitigation measure designs, prepare technical specifications and bid packages, and provide construction management for abatement activities. Characterization studies included air intake and exhaust vent mapping, subsidence feature mapping, infrared photography, drilling, downhole thermocouple installation, exhaust vent gas sampling, smoke tracer ventilation studies, and the use of ArcGIS and Mine Visualization Software for data base management and 3D modeling. Mitigation activities included mass excavation followed by quenching, and drilling and grout injection. (2014 - 2015)

- ***Pogo Mine Underground Closure Study, Delta Junction, Alaska.*** Professional Engineer responsible for final plans and cost estimates for construction of hydraulic adit seals at pressure heads of up to 477 ft. for closure of three main haulage portals at a large underground gold mine. (2014)

- ***Coal Mine Subsidence Hazard Evaluation, AML Project 17.6A, Reliance, Wyoming***. Principal Engineer responsible for project management, coordination and geotechnical evaluation of subsidence risk to a major pipeline corridor over extensive historic underground room and pillar coal mines on multiple coal seams. The pipeline corridor includes a critical 36-inch diameter high-pressure cooling water supply pipeline for the Jim Bridger Power Plant, 22-inch diameter high-pressure natural gas pipeline, 10-inch diameter refined petroleum products line, and a fiber optic line. Directed turn-key

geotechnical investigations that combined core drilling and laboratory testing with advanced geophysical imaging and processing techniques to detect mine voids for characterization of the subsurface conditions. Used ArcGIS data management system to process and assimilate investigation data, historic mine maps, digital terrain surveys, geophysical data, etc. and provide a spatial data analysis tool for risk assessment along the pipeline corridor. Presented a technical overview of potential subsidence risks to the Jim Bridger plant operator. Providing on-going monitoring of the area for subsidence using an advanced form of InSAR satellite imagery data processing (2010 - 2015)

- ***Mine Subsidence Risk Evaluation, AML Project 17.6A, Rock Springs, Wyoming***. Responsible for project management, technical direction and coordination for multi-disciplinary technical teams evaluating and mitigating subsidence risk over extensive historic underground room and pillar coal mines by grouting in developed and undeveloped areas within the City of Rock Springs as part of a multi-year state-wide ID/IQ contract for subsidence mitigation with the Wyoming Department of Environmental Quality, Abandoned Mine Land Division. Directed turn-key geotechnical investigations that combined core drilling and laboratory testing with state-of-the-art geophysical imaging and processing techniques to detect mine voids for detailed geomechanical characterization of the subsurface conditions. Required extensive use of GIS systems to process and assimilate large volumes of existing data, monitoring of active ground movements and participation in public information meetings. Identified failure modes and processes associated with gradual pillar deterioration and delayed collapse that was previously unrecognized. An advanced form of InSAR satellite imagery data processing was implemented in 2010 to monitor the city and surrounding area for subsidence.

  Presented various aspects the work on this project in technical sessions at the National Association of Abandoned Mine Land Programs annual meetings in 2008, 2010, 2011, and 2013. Also presented a technical overview of potential subsidence risks to affected homeowners and other stakeholders in numerous public meetings. Provided litigation support. (2007 - 2015).

- ***Mine Subsidence Risk Assessment, Red Lodge, Montana.*** Principal Geologic Engineer responsible for review of existing information and data related to historic coal mining beneath the town of Red Lodge, Montana. Historic room and pillar coal mining beneath the area included as many as 9 individual coal seams up to 14 feet thick, and with a combined mined seam thickness of as much as 47 feet beneath some locations. The existing data and information was used to assess the potential for surface subsidence related to reports of ground movements at several residences, and develop a phased investigation to perform a more thorough subsidence risk assessment for the remainder of the town and airport. Presented a technical overview of potential subsidence risks in public meetings (2012 - 2013)

- ***Mine Subsidence and Geohazard Evaluation, Leyden, Colorado.*** Responsible for geotechnical evaluation of subsidence risk related to historic coal mines on multiple coal seams beneath a proposed residential development. The mine had been previously used for underground natural gas storage by the Public Service Company of Colorado and is currently being used for water storage by the city of Arvada. Used ArcGIS data management system to process and assimilate existing borehole data, historic mine maps, digital terrain surveys, aerial images, property boundaries, proposed development plans, etc. and provide data analysis for risk assessments. Evaluated rock fall and landslide hazard potential with respect to development plans. (2012)

- ***Mine Subsidence Hazard Evaluations and Mitigation Assessment, Grant Street Extension, AML Project 60, Rock Springs, Wyoming.*** Principal Geologic Engineer responsible for review of existing information and data related to historic coal mining beneath the newly constructed Grant Street Extension in Rock Springs to evaluate the subsidence hazard. The roadway construction included a very large fill section and bridge abutments which were underlain by room and pillar mining on as many as three coal seams six to nine feet thick. Used existing borehole data and GIS to project historic mine maps in order to determine the position and depth of the workings beneath the roadway for the risk assessment. (2011)

- ***Mine Subsidence Mitigation Value Engineering, Nelsonville, Ohio***. Principal Engineer responsible for value engineering to identify alternative means and methods to reduce the cost of traditional grout injection for subsidence mitigation efforts associated with historic underground room and pillar coal mines underlying 8.5 miles of 4-lane roadway. The work was conducted for the Ohio Department of

Transportation in conjunction with the $200 million Highway 33 Nelsonville Bypass project funded as part of the economic stimulus plan. (2009)

- ***Coal Mine Fire Investigation, IHI No. 3 Coal Mine PKA-942, Rifle Colorado.*** Principal Engineer responsible for project management and investigations to characterize a mine fire burning in a historic underground coal mine. Contracted by the Colorado Department of Natural Resources, Division of Reclamation, Mines and Safety as part of a project team to characterize the coal mine workings and determine the relationships that exist between the areas of subsidence, the burning coal seam, and the previously placed grout. Integrated infrared thermal imagery, smoke tracer and intake mapping studies, drill hole data, geophysical surveys, air photos and topography in a three-dimensional model to evaluate geometric relationships between air intake and exhaust zones, previous grout injection, and the active burning front on multiple coal seams. (2009)

- ***Colorado School of Mines, Subsidence Abatement Project PKA-831, Golden, Colorado***. Principal Engineer responsible for geotechnical investigations for a demonstration project on the use of geophysical imaging techniques for mine subsidence evaluations for the Colorado Department of Natural Resources, Division of Reclamation, Mines and Safety. Conducted targeted drilling investigations to evaluate geophysical anomalies and locate remaining underground voids which indicate potential for subsidence in the identified “High” subsidence zones at the Colorado School of Mines. Subsidence hazards include both historic coal mines and clay pits in near-vertical strata which were mined as deep open cuts or underground in similar fashion to stopes developed in vein deposits. The poorly-backfilled and un-backfilled sections of the mines results in chronic on-going subsidence damage to streets, athletic fields, and parking lots along the western side of campus. (2008)

- ***Open Pit Slope Design, Las Brisas, Venezuela***. Responsible for project management, coordination and senior geotechnical review for pit slope design at the proposed Brisas Del Cuyuni gold mine in Venezuela. The proposed mine pit is roughly 2.4 kilometers long, 1.4 kilometers wide and 570 meters deep, extending nearly 400 meters below sea level, with more than 100 meters of saprolite in the upper portions of the pit wall; shallow groundwater conditions; and a dipping ore body which posed technical challenges. A state-of-the-art acoustic televiewer system was coupled with oriented core drilling and data from more than 200,000 meters of exploration core holes to provide suitable geomechanical input data for analysis and overcome these challenges. Provided expert witness testimony on behalf of the mining company in a World Bank International Centre for Settlement of Investment Disputes ("ICSID") hearing (2005 to 2007, and 2013).

- ***Mine Subsidence and Pit Wall Stability Evaluations, Sunrise Mine, AML Project 10-III-II, Guernsey, Wyoming.*** Responsible for evaluation of subsidence potential and reclamation measures of underground workings and large subsidence features associated with block caving practices at the historic Sunrise iron mine. Assessed the potential for a landslide-induced wave associated with possible large-scale wall failure in an open pit filled with water to overtop containment. Installed slope monitoring system to provide warning of movements that could be indicative of impending pit wall failure(s) to evacuate potential downstream inundation zones. Developed reclamation plans. (2003 to 2005)

- ***Embankment Failure, Henderson, Colorado***. Responsible for back-analysis and design of remedial measures for failure of the embankment for a wash fines containment pond at a gravel quarry operation. Failure of the embankment was attributed to overestimation of the shear strength in fill materials in analyses prepared by the previous designer and time-dependent degradation and strength loss in shale bedrock coupled with high groundwater levels in the embankment. Temporary remedial measures included design and installation of dewatering wells and horizontal drains to alleviate groundwater pressures acting on the slope. Long-term remedial design included cost-benefit analyses for comparison of various alternatives. Final design provides for partial relief of excess pore water pressures under rapid drawdown conditions to ensure adequate stability. Slide mass reactivated during construction required close monitoring and control of excavation versus fill placement to avoid further mass slope failure. (2001 to 2004)

PUBLICATIONS

Hallman, D. 2024; "A Review of Coal Mine Fire Extinguishment Methods" Emergency Management Science and Technology Vol, 4, No. e005, 15 p. doi:10.48130/emst-0024-0004

Hallman, D., 2022; "Foamed Backfilling for Combatting Mine Fires". Environmental Geotechnics Volume 9 Issue 5, August 2022, pp. 310-317 https://doi.org/10.1680/jenge.19.00079

Ma, L., Spearing, A.J.S. (Sam), Wang, G., and **Hallman, D.** (2022) "The Potential of Foamed Backfilling in Underground Mines." 9th International Conference on Energy, Resources, Environment and Sustainable Development (ERESD 2022) hosted by the China University of Mining and Technology, Xuzhou, China, May 25-28, 2022. Awarded "Best Paper" by the conference organizers.

Sutmoller, N., Palladino, P. and **Hallman, D.**, 2020; "Using Foam as a Transportation Medium for Backfilling Underground Voids" Geo-Institute of ASCE, GeoCongress 2020, February 25-28, Minneapolis, MN. Published online: February 21, 2020

Hallman, D., 2018; "Foamed Sand Backfilling for Subsidence Mitigation at Glenrock, Wyoming." Proceedings of the Rocky Mountain Geo-Conference 2018, Golden, Colorado, November 2, Strickland, J.A., Wiltshire, R.L., and Malama, J.C. (eds), American Society of Civil Engineers, Geotechnical Practice Publication No. 12, pp. 151 - 167

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Hallman, D., 2013; "Statistical Analysis of Rubble Height Development over Historic Room and Pillar Coal Mines at Rock Springs, Wyoming." Proceedings of the 35th annual National Association of Abandoned Mine Land Programs Conference, September 22-25, Daniels, WV.

Cook, D.I., **Hallman, D.**, Newman, D., Heasley, K.A., Conover, D., 2013; "An Iterative Multi-Program Approach to Subsidence Calibration and Modeling Using LaModel and SDPS." Proceedings of the 35th annual National Association of Abandoned Mine Land Programs Conference, September 22-25, Daniels, WV.

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Hallman, D., 2009;" Rock Bursts or Earthquakes? A Tale of Two Sources." In: Dam Safety 2009, Association of State Dam Safety Officials Dam Safety Annual Meeting proceedings, Hollywood, Florida, Sept 27 – Oct 1, 2009.

Hanna, K., Pfeiffer, J., Hodges, S., **Hallman, D**., Nuttall, J.,2008; "Engineering Geophysics – Mine Subsidence Study." Proceedings of the 2008 Highway Geophysics - NDE Conference, Charlotte, North Carolina, December 1-4, 2008.

Kohlman, A., and **Hallman, D.**, 2008; "Garfield County Regional Airport Runway Upgrade Project." in *Geo-Velopment, The Role of Geological and Geotechnical Engineering in New and Redevelopment Projects*, ASCE Geotechnical Practice Publication No. 5, pp. 192-203.

Castillo J, **Hallman D**, Byrne P, Parra D. 2006. "Non-linear dynamic analysis of heap leach pad under high phreatic levels". In: 4th International FLAC Symposium; proceedings; 2006 May 29-31; Madrid, Spain.

Section 6
AML Consultant Qualifications Questionnaire and Required Documents

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) David Hibbard, Senior Associate

(Address) 750 W Hampden Ave, Suite 10, Englewood, Colorado 80110

(Phone Number) / (Fax Number) 303-915-9269 / 303-703-1404

(email address) dhibbard@brierleyassociates.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.

Brierley Associates Corporation
(Company)

(Signature of Authorized Representative)

David Hibbard, Associate
(Printed Name and Title of Authorized Representative) (Date)

303-915-9269 / 303-703-1404
(Phone Number) (Fax Number)

dhibbard@brierleyassociates.com
(Email Address)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

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.

Brierley Associates Corporation
Company

Authorized Signature

August 20, 2025
Date

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

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT QUALIFICATION QUESTIONNAIRE **Attachment "A"**

PROJECT NAME	DATE (DAY, MONTH, YEAR)	FEIN
AML - EOI Pre-Qualification for Consultants	August 18, 2025	46-4148969

1. FIRM NAME	2. HOME OFFICE BUSINESS ADDRESS	3. FORMER FIRM NAME
Brierley Associates Corporation	750 W Hampden Ave, Suite 101 Englewood, Colorado 80110	Brierley Associates, LLC and Brierley Associates, Inc.(California Entity

4. HOME OFFICE TELEPHONE	5. ESTABLISHED (YEAR)	6. TYPE OWNERSHIP	6a. WV REGISTERED DBE (Disadvantaged Business Enterprise)
303-915-9269	1999	Corporation	NO

7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE
8617 W. Point Douglas Rd S. STE 240, Cottage Grove, MN 55016 / 414-477-0634 / Joshua Zimmermann, PE / 5 (15 companywide)

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM	8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
See attached AVS sheet	See attached AVS sheet

9. PERSONNEL BY DISCIPLINE

9 ADMINISTRATIVE	— ECOLOGISTS	— LANDSCAPE ARCHITECTS	**15 STRUCTURAL ENGINEERS**
— ARCHITECTS	— ECONOMISTS	— MECHANICAL ENGINEERS	— SURVEYORS
— **BIOLOGIST**	— ELECTRICAL ENGINEERS	— MINING ENGINEERS	— TRAFFIC ENGINEERS
5 CADD OPERATORS	— ENVIRONMENTALISTS	— PHOTOGRAMMETRISTS	2 GIS Specialists
— CHEMICAL ENGINEERS	— ESTIMATORS	— PLANNERS: URBAN/REGIONAL	
11 CIVIL ENGINEERS	**12 GEOLOGISTS**	— SANITARY ENGINEERS	
— CONSTRUCTION INSPECTORS	— HISTORIANS	**16 SOILS ENGINEERS**	
— DESIGNERS	— HYDROLOGISTS	— SPECIFICATION WRITERS	70 TOTAL PERSONNELL
— DRAFTSMEN			

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 2
***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 Triad Engineering 10541 Teays Valley Road Scott Depot, WV 25560	SPECIALTY: Geotechnical and civil engineering, environmental services, drilling, surveying and construction testing and inspection services	WORKED WITH BEFORE ______Yes X No
NAME AND ADDRESS Applied Geologic 30204 Bromley Court Evergreen, CO 80439	SPECIALTY: Mine fire investigation and mitigation, subsidence and geotechnical investigations, subsidence mitigation analysis	WORKED WITH BEFORE X Yes No
NAME AND ADDRESS: EnviroScience, Inc. 5070 Stow Road Stow, OH 44224	SPECIALTY: Environmental testing, permitting, ecological restoration, steam and wetland restoration, laboratory analysis, ecological services including fish, mussel, and bat surveys	WORKED WITH BEFORE ______Yes X 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. A. Is your firm's personnel experienced in Abandoned Mine Lands Remediation/Mine Reclamation Engineering?

YES Description and Number of Projects: Over the past decade, Brierley has overseen over 30 mine reclamation projects across the country in both engineering and construction observation roles. In total this represents over $24 million in design and construction management services and over $100 million in construction costs. The size of Brierley's mine reclamation projects over the years has varied, with sites ranging between 0.25 – 350 acres, with project construction costs ranging from $300,000 to $12 million. Hazards addressed have included subsidence issues, portals/mine openings, slope stability, water quality issues, and more.

B. Is your firm experienced in Soil Analysis?

YES Description and Number of Projects: Brierley staff members are experienced in evaluating the geotechnical and geochemical properties of soil and rock pertaining to abandoned mine sites. This includes evaluating characteristics of soils impacted by surface and subsurface mining activities, documenting the sulphate and other containment levels of soils/water, and designing/overseeing laboratory evaluation programs on soils. Brierley has performed detailed soil analysis on multiple AML project sites and at hundreds of other sites for other types of construction projects throughout the country.

C. Is your firm experienced in hydrology and hydraulics?

YES Description and Number of Projects: Brierley has designed the only mine mitigation project in North America to directly address impacts from artesian conditions resulting from abandoned underground workings. This required an extensive hydraulic investigation to determine the extent of the artesian conditions and frequent monitoring of groundwater pressure conditions during construction. Brierley has also performed numerous hydro-geological studies on several other abandoned mine sites to establish pre and post construction baselines, and to evaluate impacts from abandoned surface and underground mining operations.

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

YES Description and Number of Projects: Brierley possesses several drones capable of high resolution orthomosaic photogrammetry and video (including overhead and oblique shots) to create digital elevation, contour maps and terrain models, as well as a thermal camera for thermal images, a drone mounted Yellowscan LiDAR Mapper for 2d and 3d model creation in a multitude of file formats (including LAS files) and Hovermap LiDAR unit which can be used either in a handheld or drone-mounted configuration. The drone mounted equipment works in combination with our D-RTK 2 High precision GNSS mobile station to provide centimeter scale accuracy for all information that is collected in the field.

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: Brierley has designed dozens of waterline projects across the country ranging from small diameter waterlines installed via trenchless methods to 20+ foot diameter water and stormwater tunnels. For AML projects, we have designed conveyance systems to handle local site groundwater flows and surface discharge for multiple different project sites in various conditions.

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

YES Description and Number of Projects: Brierley is currently managing our first project for the design of a passive treatment AMD bioreactor system near St. Louis, MO as part of a contract with the State of Illinois. This site has an active seep of between 10 to 16 GPM (with high levels of iron) with a pH of ~2.5 that is polluting a nearby stream. Brierley oversaw the geotechnical investigation of this site to determine the limits of gob present throughout the area and to aid in the design of a dual bioreactor passive treatment facility with redundant oxidation ponds, wetlands, weirs, and ancillary facilities.

G. Is your firm experienced in construction oversight?

YES Description and Number of Projects: Brierley has performed construction oversite work on nearly every AML project we have ever performed (30+ projects). This includes logging and overseeing field investigation campaigns for soil, rock, and water samples/information, managing communication with property owners, daily field reports and quantity checks with contractors, writing investigation and construction summary reports, special inspections, review and approval as-builts, construction material testing, engineering certification of work, and nearly all other aspects of construction oversite. Brierley has also conducted similar work for hundreds of other complex projects (waterlines, slope stability, etc.) across the country.

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:
David G. Hibbard, PG Senior Advisor	9	9	4

Brief Explanation of Responsibilities
Mr. Hibbard is our Geohazard Sector Lead. He will serve as Brierley's senior advisor on this project, helping to coordinate resources and staff, assisting the Project Manager in Level 2 final QA/QC reviews, and providing technical advisement for various stages and aspects of the project.

EDUCATION (Degree, Year, Specialization)
MS, Geographic Information Sciences, University of Denver
BS, Applied Geoscience, Metro State University of Denver

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Geological Society of America (GSA) American Institute of Professional Geologists (AIPG)	Professional Geologist, WY, UT

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:
Joshua Zimmermann, PE, GIT Project Manager	10	10	11

Brief Explanation of Responsibilities
Mr. Zimmermann will serve as Brierley's project manager for this project. He will serve as the primary point of contact between the project team and the state, and coordinate Brierley's resources, and our subconsultants, as needed to complete the project objectives, particularly in the realm of realty, engineering, and construction observation services . He will also serve as the engineer of record for all work performed on the project, participating in all Level 3 QA/QC reviews.

EDUCATION (Degree, Year, Specialization)
BS, Geological Engineering, 2015, University of Wisconsin- Madison
BS, Geology and Geophysics, 2015, University of Wisconsin- Madison

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers (ASCE)	Professional Engineer, Since 2023, West Virgina Professional Engineer: AL, CO, IA, IL, IN, MN, OH, KS, VA, WY, NM, NV, ND Geologist in Training: MN

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:
Melissa Bautz, PG Deputy Project Manager	15	22	30

Brief Explanation of Responsibilities
She will serve as the Deputy Project Manager for this project, assisting in performing Level 2 QA/QC reviews for field and office work performed by other staff for this project. She will also supervise all permitting and planning tasks (both internally at Brierley and through coordination with the resources of our subconsultants) based on her past AML experience at a state level, which will aid in ensuring that projects are performed in compliance standard policies.

EDUCATION (Degree, Year, Specialization)
MS, Geology (Structure, Tectonics), University of Missouri – Columbia
BS, Geology (Hydrology), California State Polytechnic University-Pomona

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
	Professional Geologist, Wyoming (#3690)

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:
Joel James, PE Project Engineer	6	6	18

Brief Explanation of Responsibilities
Mr. James will serve as a member of Brierley's field and office support staff for the project, acting as one of our field representatives when needed, as well as for field documentation and report writing, drafting design documentation and other related needs for engineering and construction observation related tasks. He will assist in Level 1 QA/QC checks, particular when related to the realms of geotechnical engineering, geology, hydraulics, drafting, or construction observation services.

EDUCATION (Degree, Year, Specialization)
BS, Civil Engineering, 2018, University of Wyoming

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
	Professional Engineer, Since 2024, West Virgina

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:
Ike Isaacson, PE, PG, GE, CEG Senior Engineer	6	6	29

Brief Explanation of Responsibilities

Mr. Isaacson Brierley Associates' is the Director of Geologic Science and is diversely experienced, Engineering Geologist, Geotechnical Engineer, and Program Manager specializing in geologic exploration, geotechnical instrumentation, constructability analysis, design, construction, and construction management. He has been responsible for: planning and execution of numerous land and off-shore geotechnical investigations, geologic interpretation and profiling, preparation of geotechnical data and baseline reports, assessment of impacts to existing and planned structures, and designing, implementation, and monitoring of geotechnical instrumentation as well as interpretation of acquired data. He will act as a senior engineer, assisting with Level 3 QA/QC reviews.

EDUCATION (Degree, Year, Specialization)

M.Eng., Civil Engineering – Geotechnics, MIT
M.S., Geological Engineering, University of Missouri-Rolla
B.S., Geological Engineering, University of Missouri-Rolla

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers (ASCE) Society of Mining Engineers (SME) Underground Construction Association (UCA) American Engineering Geologists (AEG)	Professional Engineer – IL, IN, CA, KY, MI, MN, MT, NY, OH, PA, SC, WI, WY Professional Geologist – CA, FL IL, KY, TX, WI Geotechnical Engineer – CA Engineering Geologist – CA

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:
Edward Epp, PG, CPG Senior Support and Quality Control	6	25	0.5

Brief Explanation of Responsibilities

Mr. Epp will be responsible, based off his environmental and groundwater investigation and analytical background, for assisting with permitting, environmental, and water quality related tasks. He will assist with Level 1 QA/QC checks, field, and design work within his realm of expertise.

EDUCATION (Degree, Year, Specialization)

B.S. Albion College (Geology)
M.S. Syracuse University (Geology)

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Institute of Professional Geologists (AIPG)	Certified Professional Geologist – American Institute of Professional Geologists #11930 HAZWOPER 40-Hour – Occupational Safety and Health Administration

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

Software: Leapfrog; ESRI ArcGIS Pro (ArcGIS Online) and Other ESRI Products; GINT; Midas, Civil3D, CADD, Slope/W, Dips, Plaxis,

Unwedge, S/Wedge, Bluebeam, Mathcad, Carlson Mining Natural Regrade, GeoFluv

Equipment: Trimble Geo 7X, Trimble DA2, Trimble R12, Astro Max Blue Drone (Blue List), UAS Matrice M300 Drone, Digital laser Level,

Hovermap HVM100

LiDAR Unit, Yellowscan Mapper+ LiDAR Unit; Zenmuse Flir XT2 Thermal Camera, R-CAM 1300 Downhole Camera,

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
Missionfield Highwall Project, Highwall/Geotechnical Stability Analysis and Mitigation, Oakdale, IL	Illinois Department of Natural Resources, Office of Mines and Minerals, Abandoned Mine Lands Reclamation Division: One Natural Resources Way Springfield, IL 62702	Highwall/Geotechnical Stability Analysis and Mitigation	N/A	99%
Hideaway Hills, Reroute Feasibility Study, Subsidence Investigation/Evaluation and water system replacement, Black Hawk, SD	Northdale Sanitary Districts: 4924 Saratoga Dr, Black Hawk, SD 57718	Subsidence Investigation/Evaluation and Water System Replacement	N/A	90%
Eureka Fluorspar Mine, Subsidence Investigation and Mitigation, Rosiclare, IL	Illinois Department of Natural Resources, Office of Mines and Minerals, Abandoned Mine Lands Reclamation Division: One Natural Resources Way Springfield, IL 62702	Subsidence Investigation and Mitigation	$1,200,000	50%
Harmattan Embankments, Embankment Stabilization, Slope Stability Analysis, Hydraulic Systems Analysis and Replacement, Road Safety, Danville, IL	Illinois Department of Natural Resources, Office of Mines and Minerals, Abandoned Mine Lands Reclamation Division: One Natural Resources Way Springfield, IL 62702	Embankment Stabilization, Slope Stability Analysis, Hydraulic Systems Analysis and Replacement, Road Safety	$4,500,000	20%
Wattis Mine Fire, Subsidence Investigation, Mine Fire Investigation, Kenilworth, UT	Utah Division of Oil, Gas, and Mining, Abandoned Mine Reclamation Program: 1594 West North Temple, Suite 1210, PO Box 145801 Salt Lake City, UT, 84114	Wattis Mine Fire, Subsidence Investigation, Mine Fire Investigation	Cost Estimate Under Development	50%
Pollywog Embankment Project, Embankment Stabilization, Slope Stability Analysis, Hydraulic Systems Analysis and Replacement, Road Safety, Oakwood, IL	Illinois Department of Natural Resources, Office of Mines and Minerals, Abandoned Mine Lands Reclamation Division: One Natural Resources Way Springfield, IL 62702	Embankment Stabilization, Slope Stability Analysis, Hydraulic Systems Analysis and Replacement, Road Safety	$1,250,000	30%

St. Louis & O′Fallon No. 2 Mine AMD Project, Acid Mine Drainage, Water Treatment, Hydraulic Systems, Passive Treatment, Stream Restoration, Fairview Heights, IL	Illinois Department of Natural Resources, Office of Mines and Minerals, Abandoned Mine Lands Reclamation Division: One Natural Resources Way Springfield, IL 62702	Geotechnical Investigation, Hydraulic Systems	$1,577,000	30%
Kickapoo (Peck′s Point) Embankment Analysis, Embankment Stabilization, Slope Stability Analysis, Hydraulic Systems Analysis, Erosion Control, Oakwood, IL	Illinois Department of Natural Resources, Office of Mines and Minerals, Abandoned Mine Lands Reclamation Division: One Natural Resources Way Springfield, IL 62702	Embankment Analysis, Embankment Stabilization, Slope Stability Analysis, Hydraulic Systems Analysis, Erosion Control	Cost Estimate Under Development	10%
TOTAL NUMBER OF PROJECTS: 8			TOTAL ESTIMATED CONSTRUCTION COSTS: $8,527,000	

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

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
We are not currently acting as a subconsultant on any active AML-related projects					

17. 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)
Glerock-6 Drilling and Grouting Project, Subsidence Mitigation, Glenrock, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$7,930,949	2020	Yes
Mine Subsidence Mitigation, US 60 Bridge Replacement, Subsidence Mitigation, Spottsville, KY	Kentucky Transportation Cabinet: 200 Mero Street; Frankfort, Kentucky 40622	$1,000,000	2020	Yes
Carbon County Exploratory Drilling Project, Geotechnical Stability and Investigation, Slope Stability, Subsidence Investigation, Carbon County, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$2,355,434	2020	Yes
Hanna-1 Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$8,564,241	2020	Yes
Glenrock-7 Artesian Mitigation Project, Subsidence Mitigation, Geotechnical Stability, Water Quality Treatment, Glenrock, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$11,973,923	2021	Yes
Hanna Elementary School and Football Field/Track Subsidence Mitigation, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$4,919,646	2022	Yes
Hanna-4 Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$8,340,264	2022	Yes
Hanna-4B Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$5,942,239	2023	Yes

Glenrock-8 Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$4,988,569	2023	Yes
Goldfield Remining Project, Subsidence Mitigation, Geotechnical Stability, Portal Closure, Remining, Hydraulic Evaluation, Goldfield, NV	Confidential	$300,000	2023	No
CR 297 Subsidence Mitigation Project to Reopen Important Emergency Access Road (Award Winner) Carbon County, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$6,612,821	2023	Yes
Kenilworth Mine Fire Abatement, Mine Fire Investigation and Abatement, (Award Winner) Kenilworth, UT	Utah Division of Oil, Gas, and Mining, Abandoned Mine Reclamation Program: 1594 West North Temple, Suite 1210, PO Box 145801 Salt Lake City, UT, 84114	$661,000	2025	Yes

18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS CONSTRUCTION OVERSIGHT ON PROJECTS				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Glerock-6 Drilling and Grouting Project, Subsidence Mitigation, Glenrock, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$7,930,949	2020	Yes
Mine Subsidence Mitigation, US 60 Bridge Replacement, Subsidence Mitigation, Spottsville, KY	Kentucky Transportation Cabinet: 200 Mero Street; Frankfort, Kentucky 40622	$1,000,000	2020	Yes
Carbon County Exploratory Drilling Project, Geotechnical Stability and Investigation, Slope Stability, Subsidence Investigation, Carbon County, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$2,355,434	2020	Yes
Hanna-1 Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$8,564,241	2020	Yes
Glenrock-7 Artesian Mitigation Project, Subsidence Mitigation, Geotechnical Stability, Water Quality Treatment, Glenrock, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$11,973,923	2021	Yes
Hanna Elementary School and Football Field/Track Subsidence Mitigation, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$4,919,646	2022	Yes
Hanna-4 Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$8,340,264	2022	Yes
Hanna-4B Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$5,942,239	2023	Yes

Glenrock-8 Drilling and Grouting Project, Subsidence Mitigation, Geotechnical Stability, Hanna, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$4,988,569	2023	Yes
Goldfield Remining Project, Subsidence Mitigation, Geotechnical Stability, Portal Closure, Remining, Hydraulic Evaluation, Goldfield, NV	Confidential	$300,000	2023	No
CR 297 Subsidence Mitigation Project to Reopen Important Emergency Access Road (Award Winner) Carbon County, WY	Wyoming Department of Environmental Quality, Abandoned Mine Lands Division: 510 Meadowview Drive Lander, Wyoming 82520	$6,612,821	2023	Yes
Kenilworth Mine Fire Abatement, Mine Fire Investigation and Abatement, (Award Winner) Kenilworth, UT	Utah Division of Oil, Gas, and Mining, Abandoned Mine Reclamation Program: 1594 West North Temple, Suite 1210, PO Box 145801 Salt Lake City, UT, 84114	$661,000	2025	Yes

19. 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
We are not currently acting as a subconsultant on any active AML-related projects					

20. 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. Brierley's AML Team members collectively have decades of experience in addressing the wide variety of hazards and skillsets needed to address AML sites. Our staff are strategically located in the region and across the country, with vast experience as engineering consultants, former AML contractors, and former state owners (Wyoming Department of Environmental Quality, Virgina Department of Energy, etc.). Brierley will use the vast and varied experience of these dedicated geologists, engineers, and GIS professionals to scale the design team needed to provide the services required within this EOI in an expeditious and efficient manner from our offices across the region and country.

21. The foregoing is a statement of facts.

Signature:  Title: Senior Associate Date: August 20,2025

Printed Name: David Hibbard

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/Nitigation/ Replacement	Construction Inspection/Management	Water Treatment	Active/Passive Water Treatment Systems	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	Joshua Zimmermann	Joel James	Edward Epp	Dave Hibbard	Ike Isaacson	Melissa Bautz
Glenrock-6 Drilling and Grouting Project	C			X					X		X		X					X	P	P		M		M
Glenrock-7 Artesian Mitigation Project	C			X		X			X		X		X					X	P/M	P		M	M	M
Glenrock-8 Drilling and Grouting Project	C			X					X		X		X					X	P	P		M		P
Henderson County, US 60 Bridge Replacement over Green River	C	4		X					X		X		X					X				P/M		
Kenilworth Mine Fire Abatement	C	4		X				X	X		X		X					X		P		P/M	P	P
Hanna Elementary School and Football Field/Track Subsidence Mitigation/Hanna-3	C	4		X					X				X						P	M		P/M	P	M
CR 297 Subsidence Mitigation Project to Reopen Important Emergency Access Road	C	4		X					X				X						P/M	M		M	P	M
Hanna-4 Drilling and Grouting Project	C			X					X				X						P	M		M	P	P
Pollywog Embankments Project	C	4	X			X			X				X						M	P	P	P		P
Missionfield Highwall Project	C	4	X	X	X	X			X				X						M	P	P	P	P	P
St. Louis and O'Fallon No. 2 Mine AMD Project	C	4	X			X							X	X	X		X		M		P	P		
Eureka Fluorspar Mine	C			X					X				X	X					M		P	P		
Hideaway Hills, Reroute Feasibility Study	C	4		X		X						X						X	P	M		P		P
Kickapoo (Peck's Point) Embankments	C		X			X							X				X		M	P	P	P		P
Harmattan Embankments Project	C		X			X							X						M	P	P	P		P
Goldfield Remining Project	C		X	X	X	X	X		X		X	X	X					X	P/M	P		M		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 "B"

Office of Surface Mining Reclamation and Enforcement
Instructions for Completing the AML Contractor Form OMB #1029-0119

Purpose: The Office of Surface Mining Reclamation and Enforcement Applicant/Violator System (AVS) office is required to conduct eligibility checks for businesses performing abandoned mine land (AML) reclamation work to ensure those businesses are not associated with any coal mining violations in accordance with the Surface Mining Control and Reclamation Act (SMCRA). This form is used to update the AVS database which maintains relationship information between individuals and their associated businesses. If you have any questions, please contact the AVS Office at 800-643-9748.

Part A: General Information: Part A should be completed by the AML Contractor. You can find an electronic fillable form on our website (https://www.osmre.gov/programs/regulating-coal-mines/avs).

Part B: Obtain an Organizational Family Tree (OFT): Part B should be completed by the AML Contractor. An Organizational Family Tree (OFT) indicates the relationships between individuals and their associated business.

You can obtain an OFT two ways:

1. Call the AVS Office at 800-643-9748 to request your company's OFT.
2. Go to the AVS website (https://avss.osmre.gov). Click "Access AVS", and then "Login as Guest". Place your cursor on the "Entity" Module and click. Type your business name (or entity number) in search box and press enter. Select your company and then click on the "Relationship" tab to display your Entity OFT information. Print the Entity OFT from AVS. Review the OFT, if you need to make updates complete Part D. Attach the OFT to your AML Contractor Form.

If you are a new company or this is your first AML bid: Your business is most likely **not** in the AVS. If your company does not appear in the AVS database, move on to Part C, check Box 3, and complete Part D of this form.

If your company has worked on previous AML projects or in the coal mining industry: Your business is most likely in the AVS, but may need to be updated. Obtain and review your OFT and then complete Part C.

Part C: Certifying and updating information in the Applicant/Violator System (AVS). Part C should be completed by the AML Contractor. Please check the box that best describes your situation, sign and date.
Note: Signature date must be recent (within 30 days) to be considered.

Part D: OFT Information. Part D should be completed by the AML Contractor **only** if you want to make updates to what information is in the AVS, or if your company **does not** have any information in the AVS. Include **all** fields, including the relevant begin and/or end dates for individuals, including middle name or initial for individuals if possible.

Answers to Part D FAQs:

Which employees should be included in Part D?
Any current or separated employee of significance should be listed. Refer to the list provided at the top of Part D. For those owning less than 10% reporting the ownership is optional. Include those employees who direct, manage, or control the project. If, for example, a Professional Engineer has the power to determine how the project is conducted you should include him/her on Part D.

What address and phone number should I use?
Use the address and phone number where the person receives business correspondence.

What are the begin and end dates for?
Begin dates indicate when a person started in that position in your company. If an individual still works at the company you can simply fill in the begin date and leave the end date blank or write "N/A". **End dates** are used for indicating that someone no longer works in that capacity or is no longer employed at the company. **If an employee has held more than one position** or title, note the begin dates/end dates for each position.

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

ABANDONEDMINELANDS (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: Brierley Associates Corporation
Tax ID #: 464148969
Address: 750 W Hampden Ave, Suite 10
City, State, & Zip: Englewood, Colorado 80110
Phone Number: 303-915-9269
Email Address: dhibbard@brierleyassociates.com

Please note our corporate office address has changed.

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, David G. Hibbard, have express authority to certify that:
(Print Name)

☐ 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.

8/20/25		Senior Associate
Date	Signature	Title

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

Part D: OFT Information

Contractor's Business Name: Brierley Associates Corporation

If the current Entity OFT information for your business is incomplete in the AVS, or if there is no information in the AVS for your business, you must provide all of the following information as it applies to your business. Please include additional copies of this page if the space below is not sufficient to capture all information.

- Every officer (President, Vice President, Secretary, Treasurer, etc.);
- All Directors, Partners, and Members;
- All persons performing a function similar to a Director;
- Every person or business that owns 10% or more of the voting stock in your business;
- Any other person(s) who has the ability to determine the manner in which the AML reclamation project is being conducted.
- **Please list an end date for any person who is no longer with your business.**

Please see attached shareholders list with percentage of ownership and addresses included

Name: _____
Address: _____
City, State, Zip: _____
Begin Date: _____
End Date: _____
% Ownership: _____
Position/Title: _____
Phone Number: _____

Name: _____
Address: _____
City, State, Zip: _____
Begin Date: _____
End Date: _____
% Ownership: _____
Position/Title: _____
Phone Number: _____

Name: _____
Address: _____
City, State, Zip: _____
Begin Date: _____
End Date: _____
% Ownership: _____
Position/Title: _____
Phone Number: _____

Name: _____
Address: _____
City, State, Zip: _____
Begin Date: _____
End Date: _____
% Ownership: _____
Position/Title: _____
Phone Number: _____

PAPERWORK REDUCTION STATEMENT

The Paperwork Reduction Act of 1995 (44 U.S.C 3501) requires us to inform you that: Federal Agencies may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current valid OMB control number. This information is necessary for all successful bidders prior to the distribution of AML funds, and is required to obtain a benefit.

Public reporting burden for this form is estimated to range from 15 minutes to one hour, with an average of 30 minutes per response, including time for reviewing instructions, gather and maintaining data, and completing and reviewing the form. You may direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Office of Surface Mining Reclamation and Enforcement, 1849 C Street, NW, Room 4559, Washington, DC 20240.

Parent Entity	Relationship	Description	Related Entity	Address	% Ownership	Begin Date	End Date
(256365) Brierley Associates Corporation	Shareholder	Associate	(266989) Zach Anderson	6323 Fly Road, Suite 4, Syracuse, NY 13057	1.67%	1/23/2017	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266997) Russell Berends	750 W Hampden Ave, Suite 10, Englewood, Colorado 80110	1.11%	6/17/2019	
(256365) Brierley Associates Corporation	Shareholder	Associate	(267708) Kurt Breitenbucher	8617 West Point Douglas Road South, Suite 240, Cottage Grove, MN 55016	0.56%	2/20/2017	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266999) Kris Burnham	6323 Fly Road, Suite 4, Syracuse, NY 13057	1.11%	5/31/2011	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266987) Amshu Chappa	920 Country Club Drive, Suite 2A, Moraga, CA 94556	3.89%	7/5/2016	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266998) Anna Crockford	750 W Hampden Ave, Suite 10, Englewood, Colorado 80110	1.00%	3/10/2019	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266994) Kyle Friedman	750 W Hampden Ave, Suite 10, Englewood, Colorado 80110	1.33%	1/2/2018	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266986) Sean Harvey	4840 W. 151st Terrace, Leawood, KS 66224	2.23%	6/15/2009	
(256365) Brierley Associates Corporation	Shareholder	Geohazard Sector Leader	(266988) Dave Hibbard	750 W Hampden Ave, Suite 10, Englewood, Colorado 80110	1.67%	12/19/2016	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266982) Seth Hoffman	314 N. Lake Street, Suite 5, Aurora, IL 60506	3.60%	5/30/2017	
(256365) Brierley Associates Corporation	Shareholder	Director of Geological Services/Tunnel Sector I	(266979) Ike Isaacson	2500 West Fairy Chasm Road, Milwaukee, WI 53217	6.12%	1/30/2017	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266993) Joel James	1482 Commerce Drive, Unit A, Laramie, WY 82070	1.11%	6/17/2019	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266980) Jeremiah Jezerski	6323 Fly Road, Suite 4, Syracuse, NY 13057	5.78%	11/17/2008	
(256365) Brierley Associates Corporation	Shareholder	Associate	(267707) Alan Brent Lindelof	PO Box 1410, Weaverville NC 28787	0.56%	5/31/2022	
(256365) Brierley Associates Corporation	Shareholder	President	(256370) Eric S Lindquist	920 Country Club Drive, Suite 2A, Moraga, CA 94556	13.11%	1/1/2011	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266984) Russ Lutch	10524 E Grand River, Suite 100B, Brighton, MI 48116	3.34%	5/26/2015	
(256365) Brierley Associates Corporation	Shareholder	Construction Engineering Sector Leader	(266975) Charles Luxford	15808 Ranch Road 620 North, Suite 210, Austin, TX 78717	8.34%	5/26/2015	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266990) Danny Maine	104 Walmsley Court, Cary, NC 27519	1.67%	8/7/2017	
(256365) Brierley Associates Corporation	Shareholder	IT Director	(267000) Doug Mayne	6323 Fly Road, Suite 4, Syracuse, NY 13057	0.33%	1/24/2011	
(256365) Brierley Associates Corporation	Shareholder	Chief Executive Officer	(256366) Arthur J McGinn	6323 Fly Road, Suite 4, Syracuse, NY 13057	13.11%	9/5/2000	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266978) Eric Michal	920 Country Club Drive, Suite 2A, Moraga, CA 94556	7.11%	1/1/2011	
(256365) Brierley Associates Corporation	Shareholder	Minneapolis Office Leader	(266983) Tom Pullen	8617 West Point Douglas Road South, Suite 240, Cottage Grove, MN 55016	2.78%	2/8/2010	
(256365) Brierley Associates Corporation	Shareholder	Chief Operations Officer	(266985) Dave Sackett	100 S. Ashley Drive, Suite 600, Tampa, FL 33602	1.14%	12/13/2016	
(256365) Brierley Associates Corporation	Shareholder	Trenchless Sector Leader	(266976) Nick Strater	167 South River Road, #8, Bedford, NH 03110	7.11%	10/5/2009	
(256365) Brierley Associates Corporation	Shareholder	CFO, Treasurer	(266992) Vickie Watkins	100 S. Ashley Drive, Suite 600, Tampa, FL 33602	1.45%	5/7/2007	
(256365) Brierley Associates Corporation	Shareholder	Senior Associate	(266977) Bill Zietlow	750 W Hampden Ave, Suite 10, Englewood, Colorado 80110	7.11%	1/15/2007	
(256365) Brierley Associates Corporation	Shareholder	Associate	(266996) Josh Zimmermann	8617 West Point Douglas Road South, Suite 240, Cottage Grove, MN 55016	1.11%	6/1/2015	
	Shareholder	Staff Professional I	Taylor Summerfeld	1482 Commerce Drive, Unit A, Laramie, WY 82070	0.56%	7/8/2019	
(256365) Brierley Associates Corporation	Shareholder		(256367) Steven C Kuehr		--	1/1/2010	10/18/2019
(256365) Brierley Associates Corporation	Shareholder		(256368) Gregory P Sherry		--	7/19/1999	2/28/2020
(256365) Brierley Associates Corporation	Shareholder		(263785) Mohamed Gamal		--	8/11/2008	10/29/2021
(256365) Brierley Associates Corporation	Shareholder		(256369) Alan L Howard		--	1/1/2001	6/11/2022
(256365) Brierley Associates Corporation	Shareholder		(263786) Nancy Nuttbrock		--	1/1/2015	11/22/2023
(256365) Brierley Associates Corporation	Shareholder	Associate	(266995) Neal Wedding		--	7/17/2017	7/15/2024
(256365) Brierley Associates Corporation	Shareholder	Associate	(266981) Kevin Mandeville		--	2/27/2012	9/27/2024

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT QUALIFICATION QUESTIONNIARE ATTACHMENT "A"

PROJECT NAME	DATE (DAY, MONTH, YEAR)	FEIN
AML-EOI Prequalification for Consultants	**14, August, 2025**	**55-0592364**

1. FIRM NAME	2. HOME OFFICE BUSINESS ADDRESS	3. FORMER FIRM NAME (IF APPLICABLE)
Triad Engineering, Inc.	**10541 Teays Valley Road Scott Depot, WV 25560**	**NA**

4. HOME OFFICE TELEPHONE	5. ESTABLISHED (YEAR)	6. TYPE OF OWNERSHIP	6a. WV REGISTERED DBE (DISADVANTAGED BUSINESS ENTERPRISE)
304-755-0721	**1975**	[ ] Individual [X] Corporation [ ] Partnership [ ] Joint-Venture	Yes [ ] No [X]

7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. (name particular type) PERSONNEL IN EACH OFFICE

10541 Teays Valley Road
Scott Depot, WV 25560
304-755-0721

T. Anders Bush/CAO & Acting SW Regional Manager

56	**Scott Depot, WV**
37	**Morgantown, WV**
41	**Hagerstown, MD**
34	**Winchester, VA**
13	**Satellite Offices**

(Portsmouth, OH, New Stanton, PA, Mechanicsburg, PA, Frederick, MD, Sterling, VA)

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM	8A. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
Brad Reynolds, PE, CEO 301-797-6400	**T. Anders Bush, CAO/VP 304-755-0721**

9. KEY PERSONNEL (Check mark key personnel below that you have on staff and will work on project)

[X]	ADMINISTRATION	[X]	ECOLOGISTS	[X]	LANDSCAPE ARCHITECTS	[X]	MECHNICAL E STRUCTURUAL ENGINEERS
[X]	ARCHITECTS	[ ]	ECONOMISTS	[X]	MECHNICAL ENGINEERS	[X]	SURVEYORS
[ ]	BILOLOGOSITS	[X]	ELECTRICAL ENGINEERS	[X]	MINING ENGINEERS	[ ]	TRAFFIC ENGINEERS
[X]	CADD OPERATORS	[X]	ENVIRONMENTALISTS	[ ]	PHOGRAMMETRISTS	[ ]	OTHER
[ ]	CHEMICAL ENGINEERS	[X]	ESTIMATORS	[X]	PLANNERS: URBAN/REGIONAL		
[X]	CIVL ENGINEERS	[X]	GEOLOGISTS	[ ]	SANITARY ENGINEERS	200	TOTAL PERSONNEL
[X]	CONSTRUCTION INSPECTORS	[X]	HISTORIANS	[X]	SOILS ENGINEERS		
[X]	DESIGNERS	[ ]	HYDROLOGISTS	[ ]	SPECIFICATION WRTIERS		
[X]	DRAFTSMEN	[X]	LABORER				

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERINGS IN PRIMARY OFFICE: 13

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

10a. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? Yes [ ] No [X]

NA

11. OUTSIDE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "AML CONSULTANT QUALIFICATION QUESTIIONNAIRE".

NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE?
NA		☐ 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
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE?
		☐ YES ☐ NO

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

[X] **YES** Description and Number of Projects:

Yes, Triad is experienced in Abandoned Mine Lands Remedation/Mine Reclamation Engineering. Triad has provided drilling, geotechnical, and surveying services for several different WVDEP AML projects. Those projects include the 2023 S3 Constract which consolidated 14 projects in Fayette and Greenbrier County. More detail about these projects is included in Section 16.

Triad has also worked with the WVDEP by providing drilling services under an open ended contract in Northern and Southern counties. The purpose of these geotechnical investations were to assist in the reclamation of construction projects. Services provided for these projects in various counties included soil borings, soil borings with standard penetration tests/split spooon sampling, Shelby tube sampling, rock borings, rock core borings, installation of casing, installation of piezometers, and conducting various other tests. Tests included Atterberg limits testing, sieve analysis, hydrometer analysis, unconfined compression, in-place density, standard Proctor compaction, temperature probe readings, float sink analysis, and various content analysis. Reports on the data collected from the field and laboatory activities were also provided.

12b. Is your firm experienced in Soil Analysis?

[X] **YES** Description and Number of Projects:

Triad was originally formed in 1975 as a geotechnical engineering firm, and our expertise in this discipline is superior. The combined education and professional experience of our staff provides our clients with cost-effective and practical solutions for the most difficult soil, rock and groundwater problems. Our clients include industrial and mining companies, governmental agencies, contractors, architects, engineers, developers, owners and commercial organizations. Geotechnical projects have included investigations for hospitals, churches, hotels, schools, shopping centers, communication towers, wind turbines, water and petroleum product storage tanks, coal and mineral processing facilities, landslides, bridges and highways, parks and recreation facilities, river docks and impoundments of all types.

Triad had over 70 projects in the year of 2024 that included soil analysis. Examples for some of those projects are included in Sections 15-19.

[ ] **NO**

12c. Is your firm experienced in hydrology and hydraulics?

[X] **YES** Description and Number of Projects:

Yes, Triad is experienced in hydrology and hydraulics. Triad has a team of professional personnel which provides civil engineering design services in a variety of markets including land planning, site development of residential subdivisions, commercial development, education (K-secondary), healthcare facilities, water/wastewater, landfills, reservoirs, and many other facets of land development. We can combine many other inhouse services, from surveying to construction inspection and testing, to provide a complete project from start to finish. Our goal is to design a cost-effective project that incorporates good engineering science, meets the local, state and federal regulations while exceeding our clients' expectations.

Triad provides drainage studies, flood plain analysis, stream restoration, reservoir rehabiliation/construction, LEED site design and consulting and certificiation processsing, and water conservation design. Triad has projects referencing this experience in Sections 15 & 19.

[ ] **NO**

12d. Does yout firm produce its own Aerial Photogprahy and Develop Contour Mapping?

[X] **YES** Description and Number of Projects:

Triad subcontracts for aerial photography. We have an established working relationship with an experienced company who provides the aerial photography. Triad also does develop contour mapping.

Triad's surveying professionals utilize an array of state-of-the-art geospatial technologies and software engines to process field data in an efficient manner that results in a high quality deliverable for our clients. All our survey work documents are completed and certified in accordance with applicable local, state and national standards. We frequently work with and for architects, other engineers, owners, developers, general contractors and other industry professionals.

We provide transportation corridor mapping, design level base mapping and topographic and planimetric survey mapping.

[ ] **NO**

12e. Is your firm experienced in domestic waterline design? (Include any experience your firm has in evaluation of aquifer degradation as a result of mining.)

[X] **YES** Description and Number of Projects:

Yes, Triad has experience designing domestic waterline systems in WV.

Triad provides planning, design and construction administration for potable water systems ranging in size from relatively small line extensions to county-wide utility programs. Our dedicated staff of professional engineers and designers provide personal attention and put our client's interests first. They are knowledgeable in all federal and state regulations related to potable water systems, and their experience and expertise in working with funding agencies is unmatched.

Our staff members have designed numerous water distribution systems and water treatment plants for a wide variety of clients. We offer assistance and guidance in resolving problems while delivering high quality and innovative solutions through sustainable design. We can provide a turn-key project or serve in a limited role depending on the client's needs. Our background includes design of new facilities of varying magnitude, as well as system expansion and cost-effective rehabilitation of existing systems. We can provide operation and maintenance assistance as well as troubleshooting systems.

Consistent sources and quantities of potable water are crucial for the health of the population. You can depend on Triad's assistance in the development of a reliable potable water system to meet the needs of your community and its businesses.

[ ] **NO**

12f. Is your firm expereinced in Acid Mine Drainage Evaluation and Abatement Design?

[ ] **YES** Description and Number of Projects:

[X] **NO**

12g. Is your firm experienced in construction oversight?

[X] **YES** Description and Number of Projects:

Triad is experienced in construction oversight. Quality Assurance/Quality Control (QA/QC) construction monitoring services have been core specialties since Triad was founded in 1975. We maintain a staff of experienced construction inspectors and technicians who are certified by ACI, WVDOH, VDOT, MARTCP and numerous other local, state and/or nationally recognized organizations. Our growth has been the result of staff dedication, client satisfaction and significant repeat business from clients, many of whom have been with us for 25+ years. Triad will provide efficient, cost-effective services focused on safety and the construction quality your project deserves. Constuction observation and quality control testing has remained one of the main services lines that Triad has provided in our 50 years of service. More informaton is provided for these specific projects in Section 18.

[ ] **NO**

13a. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Hooper, Dave, W., Principle Engineer, PE**
Years & Type of Experience:	**36**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	
Brief Explanation of Responsibilities	
Mr. David Hooper brings more than 30 years of geotechnical engineering and project management experience to Triad Engineering, Inc., where he leads engineering project operations in North Central West Virginia and Western Pennsylvania, along with Energy projects for all of Triad's Regional operations. Mr. Hooper's specialties include geotechnical engineering assessments and design for transportation, public works, energy, and other public and private projects, project and client management, and personnel leadership to ensure contractual, schedule, and budgetary requirements are maintained. In addition, he supports multiple regions for project scheduling, staff mentoring, quality assurance, management of projects, and staff personnel to ensure contractual, schedule, and budgetary requirements. His recent experience includes geotechnical engineering and construction observation and material testing projects for operations in West Virginia, Pennsylvania, and Eastern Ohio. He has experience with WVDOH, PennDOT, Pennsylvania Turnpike Commission, MSHA, WVDEP, WV Conservation Districts, and various local government agencies and counties.	
EDUCATION (Degree, Year, Specialization)	
B.S., Civil Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State) **American Society of Civil Engineers**	
PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)	
PE: MD, NY, OH, PA, WV	
13b. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Haynes, John J., Geotechnical & Drilling Practice Leader, PE**
Years & Type of Experience:	**35**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	
Brief Explanation of Responsibilities	
Mr. Haynes serves as the Senior Drilling Manager for Triad's drilling operations where he manages all drilling and sampling activities conducted by the firm's regional offices. Mr. Haynes previously served as a Project Geotechnical Engineer. Mr. Haynes' duties include design and implementation of the subsurface investigations, assignment of laboratory testing, approval of design drawings, development of technical specifications, and preparation of drilling and geotechnical engineering cost proposals and reports.	
EDUCATION (Degree, Year, Specialization)	
B.S., Civil Engineering & BS, Mechanical Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)	
PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)	
PE: WV, MD, IN, TN, KY, OH, NC	

13c. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Stawovy, Jeremi J., Project Engineer**
Years & Type of Experience:	**17**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	
Brief Explanation of Responsibilities	
Over thirteen years of experience in civil and site development projects, emphasizing geotechnical engineering and construction. Responsibilities have included geotechnical evaluations, including management of subsurface explorations, construction monitoring, settlement analysis, slope stability modeling, seepage analysis, foundation analysis, landslide repairs, well pads, horizontal directional drill construction, roadway improvements/repairs, and commercial/residential construction. Mr. Stawovy has extensive experience working for various public and private sector clients ranging from small-scale construction to large government projects.	
EDUCATION (Degree, Year, Specialization)	
B.S., Civil Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)	
PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)	

13d. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Kirk, Loyd, PS, CFS, Survey Practice Leader**
Years & Type of Experience:	**23**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	
Brief Explanation of Responsibilities	
Mr. Kirk is currently the Survey Practice Leader for the Scott Depot office of Triad. In this capacity, he is responsible for the supervision of the survey crews, overseeing the field work through drafting to the finished product delivered to the client, meeting with clients, and performing field work on large and complex projects. Mr. Kirk is experienced in construction layout, boundary and road work surveying, photogrammetric and topographic surveying. He has supervised and/or performed survey work on various types of work including surface mine surveying for coal mine facilities, site surveys and construction layout for landfill facilities, site surveys and right of way plans for WVDOH and NCDOT highway projects, and site surveys and construction layout for site development projects. Mr. Kirk has been involved in survey projects in several states including West Virginia, Kentucky, Ohio, Virginia, South Carolina and North Carolina. In his capacity, he is responsible for schedules, project budgets, and the overall coordination of all survey projects. He works with all levels of engineering staff, the overall project team, and the project owner to produce a quality work product which satisfies all project requirements.	
EDUCATION (Degree, Year, Specialization)	
A.S., Mining	
MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)	
West Virginia Society of Proessional Surveyors, NC Society of Professional Surveyors, & National Society of Proessional Surveyors	
PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)	
PS: WV & NC; CFS: NC; OSHA 10	

13e. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Spiewak, Tyler, Survey Supervisor**
Years & Type of Experience:	**6**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	

Brief Explanation of Responsibilities

Mr. Spiewak is a Survey Supervisor for the Scott Depot office of Triad. In this capacity, he is responsible for field coordination of construction projects, quality assurance of survey practices in the field, collection and drafting of survey data, project and client coordination, revision of construction plans, and drafting completed field work. He works with all levels of engineering, construction staff and project owners. Mr. Spiewak is experienced in construction layout, boundary; both metes and bounds and PLSS (public land survey system), road work surveying, photogrammetric control and topographic surveying. He has supervised and/or performed survey work on various types of projects to include military construction projects with NATO partner nations, hydrographic impact surveys at iron ore mines, state sponsored large scale solar farms, site surveys and construction layout for hospitals and airports, construction layout for MNDOT highway projects, and site surveys and construction layout for land development projects. Mr. Spiewak has been involved in projects in several states including West Virginia, Ohio, Kentucky, Georgia, Tennessee, California, Minnesota, Wisconsin, Illinois and Indiana.

EDUCATION (Degree, Year, Specialization)

B.S., 2023, Science

MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)

PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)

13f. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Bell, Douglas, A., Survey Practice Leader**
Years & Type of Experience:	**8**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	

Brief Explanation of Responsibilities

Mr. Bell is the Survey Practice Leader for Triad's Morgantown office. In this capacity, he is responsible for the supervision of the survey crews, overseeing the field work through drafting to the finished product delivered to the client, meeting with clients, and performing field work on large and complex projects. Mr. Bell is experienced in construction layout, boundary and road work surveying, photogrammetric and topographic surveying. He has supervised and/or performed survey work on various types of projects, including surface and underground mine surveying for coal mine facilities, construction layout for residential and commercial projects, boundary surveys for residential, commercial, and public entities. In his capacity, he is responsible for schedules, project budgets, and the overall coordination of all survey projects. He works with all levels of engineering staff, the overall project team, and the project owner to produce a quality work product which satisfies all project requirements.

EDUCATION (Degree, Year, Specialization)

A.S., Forestry and Land Surveying Technology

MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)

WV Society of Professional Surveyors, PA Society of Professional Surveyors & National Society of Professional Surveyors

PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)

PS: WV PLS: PA

13g. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Criniti, James, "Bo", Civil Design Engineer, PE**
Years & Type of Experience:	**17**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	
Brief Explanation of Responsibilities	
Mr. Criniti is currently a Senior Engineer and is responsible for civil and surveying projects. He has participated in the design and management of numerous projects. These projects have included retail/commercial site preparation, airports, parking lots, buildings, retaining walls, foundations, sanitary structures, as well as boundary and topographic and photogrammetric surveys. Duties have included hydrologic and hydraulic analysis and design, erosion and sediment control plans, storm water management, field surveying, preparation of construction and as-built drawings, project specifications and preparation of various permit applications. Mr. Criniti also performs construction management, construction inspection, quality control testing, shop drawing review, project management, contract administration, and report preparation. He performs engineering calculations, studies, plans, reports and data analysis. Mr. Criniti assists in coordinating construction projects including conducting pre-bid, pre-construction and progress meetings, schedule review and pay request review and approval. He also assists in conducting interim and final inspections of construction projects to determine compliance with applicable laws, regulations, and specifications.	
EDUCATION (Degree, Year, Specialization)	
B.S., Civil Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)	
PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)	
PE: WV	
13h. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Hope, John, B., Field Services Manager**
Years & Type of Experience:	**35**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	
Brief Explanation of Responsibilities	
Mr. Hope is currently the Field Services Manager for the Scott Depot office of Triad. In this capacity he oversees the field staff, by handling calls from technicians on technical matters, staffing and scheduling and serving as the branch Radiation Safety Officer. Mr. Hope also keeps all records of inspections and calibrations. He assigns new jobs and lab work and writes Quality Control (QC) plans. Mr. Hope's duties include the completion and/or review and submission of required field reports for clients and owners.	
EDUCATION (Degree, Year, Specialization)	
WV State College	
MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)	
PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)	
WVDOH Certified Tech Training, Troxler 8 Hour Nuke Safety & Operation, Troxler Radiation Safety Officer Training, 40 Hour OSHA Training, MSHA Impoundment Inspector Training, USACOE-Contractor QC Training, WVDOT/DOH Potland Cement Inspector, ACI-Grade I Field & Lab Tech, MSHA Above Ground Hazard Trained, PCI Level I and II, etc.	

13i. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**McCabe, Jason, T., Project Manager**
Years & Type of Experience:	**17**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	

Brief Explanation of Responsibilities

Mr. McCabe has over 20 years of experience, specializes in the management and completion of environmental assessments, including Phase I and II ESAs; soil, groundwater, and waste characterization; site remediation; waste management planning; hazardous materials assessments; field operations oversight and documentation; construction monitoring; NEPA environmental assessments, and geophysical investigations. Additionally, Mr. McCabe's experience with NEPA-focused EAs includes federally funded transportation, housing, healthcare, and economic development/ redevelopment projects. Through his work with federal and private clientele in more than a dozen states, Mr. McCabe has an intimate familiarity with the operations, regulations, and special need for projects of all shapes and sizes, turning site specific challenges into project highlights.

EDUCATION (Degree, Year, Specialization)

B.S., Geology & Graduate Certificate, Geotechnics

MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)

PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)

PennDOT Certified Drill Inspector, USACE Construction Quality Management Certification, HAZWOPER 40-Hour/8-Hour Refresher

13k. PERSONAL HISTORY STATEMENT OF PRINCIPLES AND ASSOCIATES **RESPONSIBLE FOR AML PROJECT DESIGN** (Furnish complete data but keep to essentials).	
NAME & TITLE (Last, First, MI):	**Metz, Heather, A., Environmental Services Manager**
Years & Type of Experience:	**22**
Years of AML Related Design Experience:	
Years of Domestic Waterline Design Experience:	

Brief Explanation of Responsibilities

Triad SW Environmental Services Manager & Senior Environmental Scientist; has assisted WVDEP & USEPA at numerous WV SEMS sites; has performed regulatory file reviews, negotiated ROE agreements, field operations management, multi-media sampling, data analysis, HRS site scoring, and report generation; as LRS, has performed a variety of tasks for sites in the WV UECA, VRP and Brownfields programs (including preparation of VRP applications, agreements, sampling and analysis plans, extensive site characterization activities, risk evaluation, remedial actions, and report preparation).

EDUCATION (Degree, Year, Specialization)

B.S., 2001 - Environmental Science

MEMBERSHIP IN PROFESSIONAL ORGANIZATION(S) & REGISTRATION STATUS (Type, Year, State)

Air and Waste Management Association (AWMA)-Board Member and Treasurer
Society of American Military Engineers (SAME)

PROFESSIONAL LICENSE(S) (Type, State, Expiration Date)

WV Licensed Remedation Specialist (LRS), WV Monitoring Well Driller, HAZWOPER, OSHA 8 Supervisor

14. Provide a list of software and equipment available in the primary office which will be used to complete AML Design Services.
Each office maintains robust network infrastructure to support a wide range of technical functions, including CADD operations, hydrogeologic evaluations, water balance modeling, roadway design, stormwater management and surface water drainage. Triad also provides engineering design, stability analyses, risk assessment, survey data reduction, and mapping. These comprehensive, in-house, capabilities provide Triad with greater control over project schedules, quality, and costs—minimizing potential issues throughout all phases of a contract. Over the course of 50 years in business, Triad has evolved with equipment/technology and has managed to keep up to date with the latest equipment and software that is available to meet the needs of clients in every line of service. It is Triad's vision to meet the clients needs on every targeted project and to ensure prompt service, open communication, and high quality work.

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED FIRM OF RECORD				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
WV Board of Risk Management Charleston, WV	WV BRIM	To conduct surface and subsurface investigations for the purpose of determining if structures have been damaged by mine subsidence.	NA	NA
Artistic Cleaners Huntingon, WV	City of Huntington Huntinton, WV	Waste disposal, water quality evaluation and mitigation headings	NA	90%
U.S. Route 58 Vesta Design Build Project	VDOT Koerner Lane Purcellville, VA	Geotechnical drilling, boring inspection, logging, infiltration testing, and laboratory testing.	NA	80%
Flint Pigments-MU WV VRP Huntinton, WV	Marshall University Huntington, WV	Environmental Services - WV VRP-site characterization & remediation activities.	NA	95%
NOAA Area B Data Center, Fairmont, WV (Technology)	West Virginia High Technology Foundation, 1000 Galliher Dr., Fairmont, WV 26554	Civil Design	NA	10%

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
South Fence Stormwater Repairs, Morgantown, WV (Technology)	SI Group, 1000 Industrial Park Rd., Morgantown, WV 26501	Civil Design	NA	20%
Sheetz Remodel #182, Bridgeport, WV (Commercial)	Sheetz, Inc., 5700 6th Ave., Altoona, PA 16602	Civil Design	NA	30%
Exxon Bulk Terminal Hungtinton, WV	Intersection 215, LLC Huntington, WV	Waste disposal, water quality evaluation, mitigation	NA	5%
WVDOH District 1 Shopping Area Nitro, WV	WVDOH Charleston, WV	Waste Disposal, water quality evaluation	NA	75%
Service Wire Project Culloden, WV	ARCO Construction	Civil site design, including hydrological calculations, stormwater design, permitting, surveying, geotechnical investigation, drilling, construction layout, construction quality testing	NA	75%
TOTAL NUMBER OF PROJECTS: 10			NA	

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

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRM'S RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				Entire Project	Your Firm's Responsibility
Clifftop Strip Complex Winona, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included 14 borings, installation of 3 standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Clifftop (Road Fork) Drainage Clifftop, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included 2 borings, installation of 2 standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Crosier Road Portals Rainelle, Greenbrier County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included 5 borings, installation of 5 standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Lookout (Moore) Subsidence Clifftop, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included boring, installation of 1 standpipe piezometer, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Fayette Station Slide & Drainage Kaymoore, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included 4 borings, installation of 4 standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Keeney Creek Mines Winona, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included 5 borings, installation of 5 standpipe piezometer, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA

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

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRM'S RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				Entire Project	Your Firm's Responsibility
Royal Coal #5 Loadout Fayetteville, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included two (2) borings, installation of two (2) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Nuttallburg, South Bench Edmond, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included seven (7) borings, installation of seven (7) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Floyd Creek Highwalls & Drainage Clifftop, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included three (3) borings, installation of three (3) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
County Route 82 Portals Winona, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included four (4) borings, installation of two (2) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Winona Complex Winona, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included twenty-two (22) borings, installation of five (5) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Winona East Highwall & Drainage Winona, Fayette County, WV	Geotechnical and drilling exploration, and topographical survey in support of project design. The geotechnical and drilling exploration included eight (8) borings, installation of eight (8) standpipe piezometers, and a geotechnical report summarizing the findings. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA

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

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRM'S RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				Entire Project	Your Firm's Responsibility
Buffalo Creek Complex Thayer, Fayette County, WV	Topographical survey in support of project design. The topographic survey included the collection of field data: elevations, location of natural and man-made features, spot elevations, and providing CAD drawings.	WVDEP 601 57th Street SE Charleston, WV 25304	NA	NA	NA
Marion 10 South 1 Airshaft, Metz, WV	Construction Materials Testing & Inspection Services	Marion County Coal 3Q 2025 Resources, Inc., Jonny Cake Rd., Metz, WV 26585	2025	NA	NA
Westerman Bridge Replacement Thornton, WV	Geotechnical Investigation	Core Natural Resources, Inc., 275 Technology Drive Suite 101, Canonsburg, PA 15317	2025	NA	NA
2025 Quarterly Survey Services Philippi, WV	Survey Services	21550 Barbour County Hwy., Philippi, WV 26416	2025	NA	NA
Bovard Refuse Design, Bovard, PA	Environmental Services	Westmoreland Conservation District, 216 Donohoe Rd., Greensburg, PA 15601	2025	NA	NA

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

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED? (YES OR NO?
East Beckley Bypass Beckley, WV	WVDOH Building 5 1900 Kanawha Blvd. E. Charleston, WV 25305	NA		NA
Crawley Creek Road County Road Slide 3 Logan County, WV	WVDOH Building 5 1900 Kanawha Blvd. E. Charleston, WV 25305	NA		NA
US 52-Maher Slide Mingo County, WV	WVDOH Building 5 1900 Kanawha Blvd. E. Charleston, WV 25305	NA		NA
US 52-Stonecoal Slide Wayne County, WV	WVDOH Building 5 1900 Kanawha Blvd. E. Charleston, WV 25305	NA		NA
WV 37-Twelve Pole Creek Slide Wayne County, WV	WVDOH Building 5 1900 Kanawha Blvd. E. Charleston, WV 25305	NA		NA
8-acre Parcel Property Wood County, WV (Land Development)	Resource Consultants and Developers, Inc. 100 Star Ave., Parkersburg, WV 26101	NA	2022	Yes

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED? (YES OR NO?
WVU Parking Lots - Parking Area 1, Monongalia County, WV (Higher Ed)	West Virginia University Facilities Management 975 Rawley Ln., Morgantown, WV 26506	NA	2022	Yes
ADA Ramps, Holland Ave., Monongalia County, WV (Road, Highway, Bridge)	WVDOH Building 5 1900 Kanawha Blvd. E. Charleston, WV 25305	NA	2022	Yes
WVU Coliseum Addition, Monongalia County, WV (Higher Ed, Athletics)	WVU Department of Intercollegiate Athletics PO Box 0877, Morgantown, WV 26507	NA	2024	Yes
Flint Pigments-Tract A Huntington, WV (Waste disposal, Mitigation)	Huntington WV 0422, LLC Huntington, WV	NA	2025	NA
Poplar Fork Multifamily (Civil site design, stormwater/hydrology, permitting, surveying)	Meeks Realty Hurricane, WV	NA	2024	NA
South Bend Telecom Building (Civil site design, stormwater/hydrology)	American Electric Power (Indiana - Michigan Power) South Bend, IN	NA	2024	NA

18. COMPLETED WITH WITHIN THE LAST 5 YEARS ON WHICH YOUR FIRM HAS CONTSRUCTION OVERSIGHT ON PROJECTS

PROJECT NAME, TYPE AND LOCATION	NAME/TELEPHONE COMPANY CONTACT	ESTIMATED CONSTRUCTION COST	YEAR COMPLETED	CONSTRUCTED? (YES OR NO?
Galloway Shaft Taylor County, WV	Arhc Coal, Inc. Mark Spencer 304.457.1895	NA		Yes
Marion County Coal Resources Marion County, WV	Marion County Coul Resources Keith Vilsec 304.534.4735	NA		Yes
Meigs Mine Ponds Pomeroy, OH	Derek Chapman Meigs County, OH MCIWV	NA		Yes
Morgantown Municipal Airport Runway 18-36 Extension, Morgantown, WV (Airport)	Morgantown Municipal Airport, 100 Hart Field Rd., Morgantown, WV 26505	NA	2020	Yes
SLH Well Pad & AST PAD, Bridgeport, WV (Energy)	Arsenal Resources, 6031 Wallace Rd Extension Suite 200, Wexford, PA 15090	NA	2025	Yes

PROJECT NAME, TYPE AND LOCATION	NAME/TELEPHONE COMPANY CONTACT	ESTIMATED CONSTRUCTION COST	YEAR COMPLETED	CONSTRUCTED? (YES OR NO?
WDTN-28 (Energy)	CNX Resources, 1000 Consol Energy Drive, Canonsburg, PA 15317	NA	2025	Yes
Southern Alleghenies Biogas, Davidsville, WV (Energy)	Southern Alleghenies Biogas, LLC, 251 Valley View Dr, Davidsville, PA 15928	NA	2025	Yes

19. COMPLETED WORK WITHIN THE 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 COMPLETED	CONSTRUCTED? (YES OR NO?	FIRM ASSOCIATED WITH
Campbell's Creek Piezometer Installation	WVDEP 601 57th Street Charlesotn, WV 25304	NA	2025	NA	Alliance Consulting, Inc.
Lorgan Airport Underground Mine Fire Logan, WV	WVDEP 601 57th Street Charlesotn, WV 25304	NA	2024	NA	Alliance Consulting ,Inc.
AML Contract 6 Drilling Project	WVDEP 601 57th Street Charlesotn, WV 25304	NA	2024	NA	Civil Tech
Camden Wilson AML Drilling Project, Lewis County, WV (AML)	WVDEP Office of AML and Reclamation, 601 57th St. SE, Charleston, WV 25304	$20K (Drilling Services)	2020	Yes	E.L. Robinson Engineering, Inc.
FBI Clarksburg Office Building, Clarksburg, WV (Government)	Federal Bureau of Investigations, 1000 Custer Hollow Rd., Clarksburg, WV 26306	$40 K (Survey Services)	2020	Yes	Desbuild, Inc.
National Oceanic and Atmospheric Assn., AWHIPS Antennae, Fairmont, WV (Tech)	WV High Technology Foundation, 1000 Galliher Dr., Fairmont, WV 26554	$25K (Geotechnical Services)	2022	YES	March-Westin Co., Inc.

Signature:

Title: Controller/Treasurer

Printed Name: Tom Chandler

Date: 8/14/2025

AML and RELATED PROEJCT 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.	Remaining Evaluation	Mine/Rufuse Fire Abatement	Subsidence Investigatio Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation , Replacement	Construction Inspection / Management	Water Treatment	Active / Passive Water Treatment Systems	Equipment/ Structure Removal	Stream Restoration	Geotechnical/Stability	Dave Hooper, PE	John Haynes, PE	Jeremi Stawovy	Lloyd Kirk, PS	Tyler Spiewak	James "Bo" Criniti, PE	John "JoBe" Hope	Heather Metz, LRS
Clifftop Strip Complex	C	See Project Profile	X		X	X				X							X	X	PM	P	P	P	P			
Clifftop (Road Fork) Drainage	C	See Project Profile	X		X	X				X							X	X	PM	P	P	P	P			
Crosier Road Portals	C	See Project Profile	X		X	X				X								X	PM	P	P	P	P			
Lookout (Moore) Subsidence	C	See Project Profile	X		X	X												X	PM	P	P	P	P			
Fayette Station Slide and Drainage	C	See Project Profile	X		X	X												X	PM	P	P	P	P			
Keeney Creek Mines	C	See Project Profile	X		X	X				X								X	PM	P	P	P	P			
Royal Coal #5 Loadout	C	See Project Profile	X			X												X	PM	P	P	P	P			
Nuttalllburg South Bench	C	See Project Profile	X		X	X												X	PM	P	P	P	P			
Floyd Creek Highwalls & Drainage	C	See Project Profile	X		X	X			X									X	PM	P	P	P	P			
County Route 82 Portals	C	See Project Profile	X		X	X				X								X	PM	P	P	P	P			
Winona Complex	C	See Project Profile	X		X	X				X						X		X	PM	P	P	P	P			
Winona East Highwall & Drainage	C	See Project Profile	X		X	X			X	X						X		X	PM	P	P	P	P			
Buffalo Creek Complex	C	See Project Profile	X			X				X						X			PM	P	P	P	P			
Artistic Cleaners	C	See Project Profile								X		X														P
Flint Pigments	C	See Project Profile								X		X														P
WVDEP Drilling for Northern Counties	C		X	X	X			X	X		X						X			P						
WVDEP Drilling for Southern Counties	C		X	X	X			X	X		X						X			P						
Service Wire Facility Expansion	C					X												X	P	P		P		P	P	
Poplar Fork Mutlfamily (aka Cottage Cout)	C					X																P		P		
South Bend Telecom Building	C					X																		P		
Winter Portals AML Suveying	C				X																	P				
Meigs County Mine Closure	C				X																				P	
Quinwood Coal Refuse	C							X												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.

Office of Surface Mining Reclamation and Enforcement
Instructions for Completing the AML Contractor Form OMB #1029-0119

Purpose: The Office of Surface Mining Reclamation and Enforcement Applicant/Violator System (AVS) office is required to conduct eligibility checks for businesses performing abandoned mine land (AML) reclamation work to ensure those businesses are not associated with any coal mining violations in accordance with the Surface Mining Control and Reclamation Act (SMCRA). This form is used to update the AVS database which maintains relationship information between individuals and their associated businesses. If you have any questions, please contact the AVS Office at 800-643-9748.

Part A: General Information: Part A should be completed by the AML Contractor. You can find an electronic fillable form on our website (https://www.osmre.gov/programs/regulating-coal-mines/avs).

Part B: Obtain an Organizational Family Tree (OFT): Part B should be completed by the AML Contractor. An Organizational Family Tree (OFT) indicates the relationships between individuals and their associated business.

You can obtain an OFT two ways:

1. Call the AVS Office at 800-643-9748 to request your company's OFT.
2. Go to the AVS website (https://avss.osmre.gov). Click "Access AVS", and then "Login as Guest". Place your cursor on the "Entity" Module and click. Type your business name (or entity number) in search box and press enter. Select your company and then click on the "Relationship" tab to display your Entity OFT information. Print the Entity OFT from AVS. Review the OFT, if you need to make updates complete Part D. Attach the OFT to your AML Contractor Form.

If you are a new company or this is your first AML bid: Your business is most likely **not** in the AVS. If your company does not appear in the AVS database, move on to Part C, check Box 3, and complete Part D of this form.

If your company has worked on previous AML projects or in the coal mining industry: Your business is most likely in the AVS, but may need to be updated. Obtain and review your OFT and then complete Part C.

Part C: Certifying and updating information in the Applicant/Violator System (AVS). Part C should be completed by the AML Contractor. Please check the box that best describes your situation, sign and date.
Note: Signature date must be recent (within 30 days) to be considered.

Part D: OFT Information. Part D should be completed by the AML Contractor **only** if you want to make updates to what information is in the AVS, or if your company **does not** have any information in the AVS. Include **all** fields, including the relevant begin and/or end dates for individuals, including middle name or initial for individuals if possible.

Answers to Part D FAQs:

Which employees should be included in Part D?
Any current or separated employee of significance should be listed. Refer to the list provided at the top of Part D. For those owning less than 10% reporting the ownership is optional. Include those employees who direct, manage, or control the project. If, for example, a Professional Engineer has the power to determine how the project is conducted you should include him/her on Part D.

What address and phone number should I use?
Use the address and phone number where the person receives business correspondence.

What are the begin and end dates for?
Begin dates indicate when a person started in that position in your company. If an individual still works at the company you can simply fill in the begin date and leave the end date blank or write "N/A". **End dates** are used for indicating that someone no longer works in that capacity or is no longer employed at the company. **If an employee has held more than one position** or title, note the begin dates/end dates for each position.

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:	Triad Engineering, Inc.
Tax ID #:	55-0592364
Address:	10541 Teays Valley Road
City, State, & Zip:	Scott Depot, WV 25560
Phone Number:	(304) 755-0721
Email Address:	jkinder@triadeng.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, _____ (Print Name), have express authority to certify that:

☐ 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 A VS. 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.

Date	Signature	Title
8/14/2025		Controller / Treasurer

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

Part D: OFT Information

Contractor's Business Name: Triad Engineering, Inc.

If the current Entity OFT information for your business is incomplete in the AVS, or if there is no information in the AVS for your business, you must provide all of the following information as it applies to your business. Please include additional copies of this page if the space below is not sufficient to capture all information.

- Every officer (President, Vice President, Secretary, Treasurer, etc.);
- All Directors, Partners, and Members;
- All persons performing a function similar to a Director;
- Every person or business that owns 10% or more of the voting stock in your business;
- Any other person(s) who has the ability to determine the manner in which the AML reclamation project is being conducted.
- **Please list an end date for any person who is no longer with your business.**

Name:	Larry McCoy Jr.	Name:	
Address:	10541 Teays Valley Road	Address:	
City, State, Zip:	Scott Depot, WV 25560	City, State, Zip:	
Begin Date:	7/31/2020	Begin Date:	
End Date:	3/2024	End Date:	
% Ownership:	0	% Ownership:	
Position/Title:	Manager/Vice President	Position/Title:	
Phone Number:	NA	Phone Number:	

Name:	Jerry "JD" Kinder	Name:	
Address:	10541 Teays Valley Road	Address:	
City, State, Zip:	Scott Depot, WV 25560	City, State, Zip:	
Begin Date:	5/27/2025	Begin Date:	
End Date:		End Date:	
% Ownership:	0	% Ownership:	
Position/Title:	Manager	Position/Title:	
Phone Number:	304-755-0721	Phone Number:	

PAPERWORK REDUCTION STATEMENT

The Paperwork Reduction Act of 1995 (44 U.S.C 3501) requires us to inform you that: Federal Agencies may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current valid OMB control number. This information is necessary for all successful bidders prior to the distribution of AML funds, and is required to obtain a benefit.

Public reporting burden for this form is estimated to range from 15 minutes to one hour, with an average of 30 minutes per response, including time for reviewing instructions, gather and maintaining data, and completing and reviewing the form. You may direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Office of Surface Mining Reclamation and Enforcement, 1849 C Street, NW, Room 4559, Washington, DC 20240.

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT QUALIFICATION QUESTIONNAIRE — Attachment "A"

PROJECT NAME	DATE (DAY, MONTH, YEAR)	FEIN
	August 19, 2025	34-1603505

1. FIRM NAME	2. HOME OFFICE BUSINESS ADDRESS	3. FORMER FIRM NAME
EnviroScience, Inc.	5070 Stow Rd., Stow, OH 44224	n/a

4. HOME OFFICE TELEPHONE	5. ESTABLISHED (YEAR)	6. TYPE OWNERSHIP	6a. WV REGISTERED DBE (Disadvantaged Business Enterprise)
330-688-0111	1989	Individual Corporation Partnership Joint-Venture ESOP	YES (NO)

7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE

5070 Stow Rd., Stow, OH 44224 / 330-688-0111 / Sheila Rayman, P.E.

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM	8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
Kevin Puls - General Manager	Greg Zimmerman - Vice President

9. PERSONNEL BY DISCIPLINE

— ADMINISTRATIVE	27 ECOLOGISTS	— LANDSCAPE ARCHITECTS	— STRUCTURAL ENGINEERS	
— ARCHITECTS	— ECONOMISTS	— MECHANICAL ENGINEERS	— **SURVEYORS**	
35 **BIOLOGIST**	— ELECTRICAL ENGINEERS	— **MINING ENGINEERS**	— TRAFFIC ENGINEERS	
1 **CADD OPERATORS**	— ENVIRONMENTALISTS	— PHOTOGRAMMETRISTS	— OTHER	
— CHEMICAL ENGINEERS	— ESTIMATORS	— PLANNERS: URBAN/REGIONAL		
3 **CIVIL ENGINEERS**	2 **GEOLOGISTS**	— SANITARY ENGINEERS		
19 CONSTRUCTION INSPECTORS	— HISTORIANS	— SOILS ENGINEERS		
— DESIGNERS	— HYDROLOGISTS	— SPECIFICATION WRITERS	227 TOTAL PERSONNEL	
— DRAFTSMEN				

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 1

***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: **EnviroScience, Inc.** **5070 Stow Road** **Stow, OH 44224**	SPECIALTY: **-T&E Surveys** **-Environmental Construction Inspection** **-Restoration** **-Environmental Permitting**	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
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE _____ Yes _____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE _____ Yes _____ No

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

YES Description and Number of Projects:_____

NO

B. Is your firm experienced in Soil Analysis?

YES Description and Number of Projects:_____

NO

C. Is your firm experienced in hydrology and hydraulics?

YES Description and Number of Projects:_____

NO

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

YES Description and Number of Projects:EnviroScience utilizes drones equipped with LiDAR and aerial photography to produce contour data for construction sites that are undergoing restoration of water features.

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:_____

NO

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

YES Description and Number of Projects:_____

NO

G. Is your firm experienced in construction oversight?

YES Description and Number of Projects:EnviroScience has completed thousands of SWPPP inspections throughout WV for utility suppliers

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 21		
Liptak, Michael, Ph.D. **Senior Ecologist**	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:

Brief Explanation of Responsibilities Dr. Liptak has experience in preparing mitigation plans for many different projects, including wetland creation, restoration, and enhancement, and preparing upland restoration and prairie planting plans. Dr. Liptak has extensive experience with terrestrial, aquatic, and wetland surveys for projects of all sizes. He has 30 years of experience in wetlands research and consulting and is a Certified Senior Ecologist (Ecological Society of America). His primary responsibilities at EnviroScience Inc. include wetland mitigation planning, wetland assessments and delineations, technical report preparation, and permitting.

EDUCATION (Degree, Year, Specialization)

Ph.D., Env. Science Grad Program - Ohio State University, 2000
B.S. Biology, University of Toledo, 1995

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
U.S. Army Corps of Engineers Wetland Delineator Certification Training, Health and Safety for Hazardous Waste Operations Course CFR 1910.120 (HAZWOPER), Biocriteria and QHEI, Identification of Grasses, Rushes and Sedges, Forested Wetland Restoration Course, Wetlands Training Institute, Planning Hydrology for Constructed Wetlands Course, Fundamentals of Traffic Noise Short Course	**Certified Senior Ecologist (Ecological Society of America)**

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 28		
Zimmerman, Greg **Vice President**	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:

Brief Explanation of Responsibilities As Vice President at EnviroScience, Inc. Mr. Zimmerman oversees and manages the operations of the company including endangered species consultations, transportation projects, and underwater construction / inspection projects. Mr. Zimmerman has 30 years of experience in the fields of aquatic survey and freshwater mussel and fish identification and consulting. He has been approved by the USFWS as a mussel and fish contractor in various regions since 1997 including WV, OH, PA, KY, IN, and NY. Mr. Zimmerman has worked extensively with over 90 species of freshwater mussels, including 12 federally-listed and numerous state-listed species. He has also designed and managed some of the largest ESA and biological monitoring survey projects completed to date in North America.

EDUCATION (Degree, Year, Specialization)

M.L.S. Biology and GIS, Kent State University, 2004
B.A. Environmental Biology, Hiram College, 19966

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Association of Diving Contractors International, Commercial Air Diver, ODOT Ecological Training and PDP Training, Advanced Diving Openwater Drysuit Search and Recovery Certifications, 40h HAZWOPER eRailSafe, CPR AED First Aid O ygen Administration, Endangered Mussel & Fisheries Biologist (Fed. Permit TE130900-7, Ohio 16-47)	**Approve G1 - Ohio mussels**

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 27		
Bingham, Julie **Director, Restoration Services**	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:

Brief Explanation of Responsibilities Ms. Julie Bingham is the Restoration Practice Area Director at EnviroScience, where she uses her 27 years of experience to manage a multidisciplinary team of staff, develop, manage, and oversee work throughout EnviroScience's operating areas. Julie has been involved with over 180+ restoration design projects and over 160+ construction projects.

EDUCATION (Degree, Year, Specialization)

Hiram College, 1997

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Rosgen Applied Fluvial Geomorphology Levels I, II, III & IV, OEPA Qualified Data Collector QHEI Level 3, OEPA Qualified Data Collector Fish Evaluation Level 3, Ohio EPA's Primary Headwater Habitat Assessment (PHWH), Ohio EPA's ORAM Version 5.0	**Certified Ecological Restoration Practitioner (CERP)**

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 28		
Voorhees, Christina, Ph.D **Director, Natural Resource Services**	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:

Brief Explanation of Responsibilities Christina Voorhees, Ph.D., is a senior-level Certified Wildlife Biologist® and serves as EnviroScience's Director of Natural Resource Services. She is based in Pennsylvania and has over 20 years of experience coordinating projects with threatened and endangered species concerns, assisting clients with state and federal agency consultation, and providing business development support.

EDUCATION (Degree, Year, Specialization)

Ph.D. Recreation, Park, and Tourism Management, Penn State University, 2007
M.S. Forest Resources, Penn State University, 2002
B.S. Wildlife Science, Virginia Tech, 2000

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
President - The Wildlife Society, Pennsylvania Chapter	**Certified Wetland Biologist**

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 7		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Fultz, Luke **Bat Biologist**			

Brief Explanation of Responsibilities As Bat Project Manager at EnviroScience, Inc. Mr. Fultz oversees and manages the operations of the bat program including bat project management and Endangered Species Act (ESA) endangered bat consultations. Mr. Fultz has 7 years of experience in the fields of bat surveys and identification, various avian surveys, and environmental consulting. He has held a WV scientific collection permit for bats since 2020, a Virginia scientific collection permit since 2024, and USFWS Federal recovery permit for Indiana bat, northern long-eared bat, and gray bat since 2024.

EDUCATION (Degree, Year, Specialization)

Bachelor of Science in Wildlife Ecology and Conservation, Juniata College, 2019

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
	•West Virginia Scientific Collection **•Viginia Scientific Collection** **•USFWS Federal Recovery –Indiana bat, northern long-eared bat, and gray bat**

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 29		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Rayman, Sheila, P.E. **Director, Compliance Services**			

Brief Explanation of Responsibilities Ms. Sheila Rayman, P.E., is the Director of EnviroScience, Inc.'s Compliance Services Practice Area where she helps clients reach and maintain compliance with environmental regulation through design and implementation of stormwater management facilities, NPDES Permit management and implementation, infrastructure improvements, Stormwater Pollution Prevention Plans, and Spill Prevention, Control, and Countermeasure Plans. Sheila has spent over 29 years as a municipal and consultant engineer, project manager, and compliance and stormwater specialist.

EDUCATION (Degree, Year, Specialization)

B.S. Civil Engineering, University of Akron, 1995

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
	Professional Engineer, State of West Virginia No. 23577 **FHWA – NHI Safety Inspection of In-service Bridges** **CPESC No. 13073**

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 13		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Sargiovanni, James **Director, Environmental Inspection**			

Brief Explanation of Responsibilities Mr.Sargiovanni is the Director for the Environmental Stormwater Inspection Group within Compliance Services at EnviroScience, where his responsibilities consist of managing projects and professionals for environmental inspections following SWPPP guidelines and proper management of stormwater during construction and post construction. He is a Certified Erosion, Sediment, and Storm Water Inspector (CESSWI) and holds an Inspection and Maintenance Certification for Storm Water Control Measures in Ohio.

EDUCATION (Degree, Year, Specialization)

B.S., Conservation, Kent State University, 2010

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
	Certified Erosion, Sediment and Storm Water Inspector (CESSWI)

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:

Brief Explanation of Responsibilities

EDUCATION (Degree, Year, Specialization)

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

Water Quality / Sediment Sampling*	WQ - YSI Handheld Multi Parameter (ProDSS or similar)
	WQ - YSI Deployable Multiparameter Sonde (DO, Cond, pH, Temp, Turbidity standard)
	WQ - Hach Turbidity Meter
	WQ - Trace Metals Van Dorn Sampler
	WQ - Kemmerer sampler
	WQ - Petite Ponar
	WQ - Standard Ponar
	WQ - PAR Meter
	WQ - Hand Corer
	WQ - Swoffer Current Meter Set
	WQ - Peristaltic Pump
	WQ - Water Level Meter
	WQ - ISCO Composite Sampler
	GS - SDI VibeCore-Mini Sediment Sampler
	GS - SDI VibeCore-D Sediment Sampler and Frame
Biological Sampling Equipment	BS - Scientific Collecting Permit
	BS - Sampling Site Consumables (glass/plastic containers, preservatives, etc.)
	BS - Smith Root APEX-Electrofisher w/ Generator (Boat / Longline)
	BS - ETS Trident #1-Electrofisher w/ Generator (Boat / Longline)
	BS - ETS Trident #2-Electrofisher w/ Generator (Boat / Longline)
	BS - Smith Root GPP 2.5 Generator-Electrofisher (Longline)
	BS - Smith Root GPP 5 Generator-Electrofisher (Boat)
	BS - Smith Root 12-B Backpack Electrofisher 24V (Backpack)
	BS - Four (4) Anabat SD2 Bat Detector w/ST1 Microphone
	BS - Fish Sampling Nets & Associated Equipment
	BS - Aquatic Research Instrument Bongo Net
	BS - Macroinvertebrate Sampling Nets and Seines
	BS - Bongo Plankton Net
	BS - Hester Dendy Samplers (macroinvertebrate sampler - consumable)
	BS - Plankton Nets
	BS - Spotting Scope w/ Tri-pod (Bird / Dragonfly / Other)
	HP - Herp Morphometric and Tagging Kit (includes BioMark PIT reader and tags)
	BS - AquaView Camera
	HP - Boroscope
	HP - AHDriFT close focus Reconyx Cameras
	HP - Net Turtle Hoop Nets
	HP - Gravelometers
	HP - Moultrie M2 Game Cameras
	HP - Promar Traps
	HP - Coated Minnow Traps

GPS / Hand-held Data Collection	GPS - TDC 150, Geo7X and GeoXH 6000 Handheld GPS (Sub-foot, Sub-meter Units 1,2,3,7,9,10,11,12,13,14)
	GPS - Data-collector Tablet w/ Sub-m Geode (Units Geode 1, Geode 2 , Geode 3)
	GPS - Basic Handheld GPS (i.e., Garmin handheld 3-meter)
	PDA - Hand-held Data Collection PDA and Software / GPS
UAV	Unmanned Aerial Vehicle (UAV) - Inspection Class - DJI Matrice 300 RTK with LiDAR
	Unmanned Aerial Vehicle (UAV) - Inspection Class - DJI Phantom 4 RTK
	Unmanned Aerial Vehicle (UAV) - Work Class: Invasive Spraying - TTA G200
Restoration & Survey Equipment	RS - SP80 and Ranger
	RS - Total Station
	RS - Stream Survey Equipment/Laser Level
	RS - Large Scale Map (plotter) (computer-generated map that is 36" x 48")

Boats & Trailers	~10' Kayaks
	~15' Canoe
	~14' Small Jon Boat
	~16' Medium Jon Boat
	17' Angler Boat / motor / trailer (Angler)
	18' Grizzly Boat / 45hp / trailer (Judy Chop)
	18' Oquawka Jon Boat Aluminum / 50hp / trailer (No. 5 / T-1000)
	20' Oquawka Boat / motor / trailer (Furiosa)
	24' Oquawka Boat / 150hp / trailer (E.O. Wilson Dive Vessel)
	25' Carolina Skiff / 200hp / trailer (Leopold)
	25' Carolina Skiff Elite SS / 250hp / trailer (TN Pride)
	25' Steiger Boat / motor / trailer (Mooneye)
	26' Oquawka Boat (Proteus)
	30' Oquawka Boat (Danny Dee)
	Vibracore Pontoon / 40hp / Trailer
	Large Dive / Work Trailer
	Small Dive / Work Trailer
	Electrofishing Raft / Trailer
	Emergency Response Trailer / Mobile Office

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

TOTAL NUMBER OF PROJECTS:	TOTAL ESTIMATED CONSTRUCTION COSTS: $

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

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY

17. 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)

18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS CONSTRUCTION OVERSIGHT ON PROJECTS				
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)

19. 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

20. In order to meet the demands of an ever-changing technical and regulatory environment,EnviroScience maintains an inventory of state-of-the-art technology and field equipment forprojects of all sizes. This includes a large fleet of sampling and diving vessels, electrofishinggear for any application, water quality meters, work trailers, GPSs, depth temperature andflow survey equipment, and extensive hardhat, surface-supplied diving equipment, and underwater construction equipment. EnviroScience maintains a fleet of more than 15 boatsand 24 vehicles ready for any sized project or condition. In addition to our equipment,EnviroScience boasts one of the most experienced and heavily utilized bioassaylaboratories in the region.

21. The foregoing is a statement of facts.

Signature: _____ Title: General Manager Date: 08/19/2025

Printed Name: Kevin Puls

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	Active/Passive Water Treatment Systems	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	Greg Zimmermann	Dr. Christina Voorhees	Luke Fults	Dr. Michael Liptak	Jimmy Sargiovanni	Julie Bingham	Sheila Rayman P.E.
U.S. ROUTE 33 SCOTT MILLER HILL BYPASS EA SUPPORT	C											x							P						
AEP RACINE HYDROELECTRIC PROJECT	C											x							M						
STORMWATER POLLUTION PREVENTION PLAN AND SPILL PREVENTION	C											x													M
IMPACT ASSESSMENT, DELINEATION, AND FRESHWATER MUSSEL SURVEY	C											x										M			
STORMWATER MANAGEMENT IMPROVEMENTS: BASIN RETROFIT & CONVEYANCE SYSTEM UPGRADES	C											x	x			x	x							M/P	M
SUMMIT STREET DAM REMOVAL AND RIVERRESTORATION	C					x										x	x							M	
BULLDOG SOLAR INSPECTIONS	C											x	x										M		
BAT MIST-NET, HIBERNACULA AND PRT SURVEYS	C																		M/P	M	P				
MONONGAHELA RIVER WATER QUALITY AND CENTRALIZED MINE DISCHARGE TREATMENT PROJECT	C					x						x		x	x				M						

*** 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 "B"

Office of Surface Mining Reclamation and Enforcement
Instructions for Completing the AML Contractor Form OMB #1029-0119

Purpose: The Office of Surface Mining Reclamation and Enforcement Applicant/Violator System (AVS) office is required to conduct eligibility checks for businesses performing abandoned mine land (AML) reclamation work to ensure those businesses are not associated with any coal mining violations in accordance with the Surface Mining Control and Reclamation Act (SMCRA). This form is used to update the AVS database which maintains relationship information between individuals and their associated businesses. If you have any questions, please contact the AVS Office at 800-643-9748.

Part A: General Information: Part A should be completed by the AML Contractor. You can find an electronic fillable form on our website (https://www.osmre.gov/programs/regulating-coal-mines/avs).

Part B: Obtain an Organizational Family Tree (OFT): Part B should be completed by the AML Contractor. An Organizational Family Tree (OFT) indicates the relationships between individuals and their associated business.

You can obtain an OFT two ways:

1. Call the AVS Office at 800-643-9748 to request your company's OFT.
2. Go to the AVS website (https://avss.osmre.gov). Click "Access AVS", and then "Login as Guest". Place your cursor on the "Entity" Module and click. Type your business name (or entity number) in search box and press enter. Select your company and then click on the "Relationship" tab to display your Entity OFT information. Print the Entity OFT from AVS. Review the OFT, if you need to make updates complete Part D. Attach the OFT to your AML Contractor Form.

If you are a new company or this is your first AML bid: Your business is most likely **not** in the AVS. If your company does not appear in the AVS database, move on to Part C, check Box 3, and complete Part D of this form.

If your company has worked on previous AML projects or in the coal mining industry: Your business is most likely in the AVS, but may need to be updated. Obtain and review your OFT and then complete Part C.

Part C: Certifying and updating information in the Applicant/Violator System (AVS). Part C should be completed by the AML Contractor. Please check the box that best describes your situation, sign and date.
Note: Signature date must be recent (within 30 days) to be considered.

Part D: OFT Information. Part D should be completed by the AML Contractor **only** if you want to make updates to what information is in the AVS, or if your company **does not** have any information in the AVS. Include **all** fields, including the relevant begin and/or end dates for individuals, including middle name or initial for individuals if possible.

Answers to Part D FAQs:

Which employees should be included in Part D?
Any current or separated employee of significance should be listed. Refer to the list provided at the top of Part D. For those owning less than 10% reporting the ownership is optional. Include those employees who direct, manage, or control the project. If, for example, a Professional Engineer has the power to determine how the project is conducted you should include him/her on Part D.

What address and phone number should I use?
Use the address and phone number where the person receives business correspondence.

What are the begin and end dates for?
Begin dates indicate when a person started in that position in your company. If an individual still works at the company you can simply fill in the begin date and leave the end date blank or write "N/A". **End dates** are used for indicating that someone no longer works in that capacity or is no longer employed at the company. **If an employee has held more than one position** or title, note the begin dates/end dates for each position.

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:	EnviroScience, Inc.
Tax ID #:	34-1603505
Address:	5070 Stow Road
City, State, & Zip:	Stow, OH 44286
Phone Number:	330-688-0111
Email Address:	ghocevar@enviroscienceinc.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, Kevin Puls (Print Name), have express authority to certify that:

☐ 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.

08/19/2025		General Manager
Date	Signature	Title

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

Part D: OFT Information

Contractor's Business Name: EnviroScience, Inc.

If the current Entity OFT information for your business is incomplete in the AVS, or if there is no information in the AVS for your business, you must provide all of the following information as it applies to your business. Please include additional copies of this page if the space below is not sufficient to capture all information.

- Every officer (President, Vice President, Secretary, Treasurer, etc.);
- All Directors, Partners, and Members;
- All persons performing a function similar to a Director;
- Every person or business that owns 10% or more of the voting stock in your business;
- Any other person(s) who has the ability to determine the manner in which the AML reclamation project is being conducted.
- **Please list an end date for any person who is no longer with your business.**

Name:	Kevin Puls
Address:	5070 Stow Road
City, State, Zip:	Stow, Ohio 44224
Begin Date:	December, 2024
End Date:	
% Ownership:	0%
Position/Title:	General Manager
Phone Number:	330-697-5908

Name:	Greg Zimmerman
Address:	5070 Stow Road
City, State, Zip:	Stow, Ohio 4224
Begin Date:	March, 1994
End Date:	
% Ownership:	0%
Position/Title:	Vice President
Phone Number:	614-738-6175

Name:	Christina Voorhees
Address:	5070 Stow Road
City, State, Zip:	Stow, Ohio 44224
Begin Date:	February, 2022
End Date:	
% Ownership:	0%
Position/Title:	Director, Natural Resource Services
Phone Number:	570-439-7851

Name:	
Address:	
City, State, Zip:	
Begin Date:	
End Date:	
% Ownership:	
Position/Title:	
Phone Number:	

PAPERWORK REDUCTION STATEMENT

The Paperwork Reduction Act of 1995 (44 U.S.C 3501) requires us to inform you that: Federal Agencies may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current valid OMB control number. This information is necessary for all successful bidders prior to the distribution of AML funds, and is required to obtain a benefit.

Public reporting burden for this form is estimated to range from 15 minutes to one hour, with an average of 30 minutes per response, including time for reviewing instructions, gather and maintaining data, and completing and reviewing the form. You may direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Office of Surface Mining Reclamation and Enforcement, 1849 C Street, NW, Room 4559, Washington, DC 20240.

Section 7
Certificates of Authority and Professional Licenses

State of West Virginia

Certificate

I, Kris Warner, Secretary of State of the State of West Virginia, hereby certify that

BRIERLEY ASSOCIATES CORPORATION

a corporation formed under the laws of Colorado filed an application to be registered as a foreign corporation authorizing it to transact business in West Virginia. The application was found to conform to law and a "Certificate of Authority" was issued by the West Virginia Secretary of State on March 02, 2017.

I further certify that the corporation has not been revoked by the State of West Virginia nor has a Certificate of Withdrawal been issued to the corporation by the West Virginia Secretary of State.

Accordingly, I hereby issue this Certificate of Authorization

CERTIFICATE OF AUTHORIZATION

Validation ID:3WV32_WSWEN

Given under my hand and the Great Seal of the State of West Virginia on this day of

August 19, 2025

Secretary of State

The State of West Virginia

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

To all to whom these presents shall come Greeting

"Know Ye" *That* **The State Board of Registration for Professional Engineers**
of the State of West Virginia, reposing special confidence in
the Intelligence, Integrity and Discretion of

Joshua Zimmermann

DOES IN PURSUANCE OF AUTHORITY VESTED IN IT
by law hereby certify that he having submitted
satisfactory evidence of his ability and experience is a

REGISTERED PROFESSIONAL ENGINEER

Registration Number 25975

"To Hold" *and use such title in the practice of his profession,*
subject to the conditions prescribed by law.

Given under the hand of the
Seal of the Board at the Capitol in the
City of Charleston,
This 16th day of May
in the year of our Lord 2023
and of the State
the One Hundred Fifty-Ninth

Members of the Board

Search: Details

Name:	JOEL EDWARD JAMES
WV Professional Engineer:	**PE License Number:** 026432
	PE License Status: Active
	PE Issue Date: 02/27/2024
	PE Expiration Date: 12/31/2026
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 19.50
	Carryover Hours for Next Renewal: 15.00
	Last Renewal or Reinstatement Date*: 12/9/2024
WV Engineer Intern:	**EI Certification Number:**
	EI Issue Date:
Primary Address of Record:	1482 COMMERCE DRIVE UNIT T LARAMIE, WY 82070
Primary Employer of Record:	BRIERLEY ASSOCIATES
	* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may **not** be used for future renewals.

This data was retrieved on 8/19/2025.

WEST VIRGINIA BOARD OF PROFESSIONAL SURVEYORS

Certificate of Authorization

Triad Engineering, Inc.

Scott Depot, WV

CERTIFICATE OF AUTHORIZATION # 25-5438

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 05 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

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

TRIAD ENGINEERING, INC.
C00516-00

Engineer in Responsible Charge: BRADLEY A. REYNOLDS - WV PE 014842

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

Search: Details

Name:	DAVID W. HOOPER
WV Professional Engineer:	**PE License Number:** 013515
	PE License Status: Active
	PE Issue Date: 10/09/1997
	PE Expiration Date: 12/31/2026
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 43.00
	Carryover Hours for Next Renewal: 13.00
	Last Renewal or Reinstatement Date*: 12/11/2024
WV Engineer Intern:	**EI Certification Number:**
	EI Issue Date: 07/01/1994
Primary Address of Record:	152 EDGEMEADE DRIVE MONROEVILLE, PA 15146
Primary Employer of Record:	TRIAD ENGINEERING, INC

* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may **not** be used for future renewals.

This data was retrieved on 8/15/2025.

Search: Details

Name:	JOHN J. HAYNES
WV Professional Engineer:	**PE License Number:** 016856
	PE License Status: Active
	PE Issue Date: 06/16/2006
	PE Expiration Date: 12/31/2026
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 37.00
	Carryover Hours for Next Renewal: 7.00
	Last Renewal or Reinstatement Date*: 12/19/2024
WV Engineer Intern:	**EI Certification Number:** 8508
	EI Issue Date: 01/11/2006
Primary Address of Record:	770 SUPPER CLUB ROAD LETART, WV 25253
Primary Employer of Record:	TRIAD ENGINEERING INC

*This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may **not** be used for future renewals.

This data was retrieved on 8/15/2025.

Print Search Again

Search: Details

Name:	JAMES RALPH CRINITI, JR
WV Professional Engineer:	**PE License Number:** 022418
	PE License Status: Active
	PE Issue Date: 06/23/2017
	PE Expiration Date: 12/31/2026
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 42.00
	Carryover Hours for Next Renewal: 12.00
	Last Renewal or Reinstatement Date*: 12/12/2024
WV Engineer Intern:	**EI Certification Number:** 9007
	EI Issue Date: 07/06/2009
Primary Address of Record:	1545 LOUDEN HEIGHTS ROAD CHARLESTON, WV 25314
Primary Employer of Record:	TRIAD ENGINEERING INC

* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may **not** be used for future renewals.

This data was retrieved on 8/15/2025.

WEST VIRGINIA Board of Professional Surveyors

Search this site

SURVEYOR SEARCH RESULTS

Lloyd Allen Kirk
License Number: 2247
Current Status: Active
Scott Depot, WV 25560

WEST VIRGINIA
Board of Professional Surveyors

Search this site

SURVEYOR SEARCH RESULTS

Douglas Alan Bell
License Number: 2379
Current Status: Active
Morgantown, WV 26505

west virginia department of environmental protection

Division of Land Restoration
601 57th Street SE
Charleston, WV 25304

Harold D. Ward, Cabinet Secretary
dep.wv.gov

October 4, 2023

Heather Metz
Triad Engineering, Inc.
10541 Teays Valley Road
Scott Depot, WV 25560

Renewal - Licensed Remediation Specialist Certification

Dear Ms. Metz:

Congratulations! We are pleased to inform you that you have filed your renewal application in accordance with appropriate time frames along with evidence of continuing education in the environmental remediation field. You have completed in a timely manner all of the license renewal requirements.

Please find your Licensed Remediation Specialist Renewed License Certificate enclosed and you may continue to practice as a licensed remediation specialist.

Sincerely,

Robert Rice
Director

Enclosure: LRS License Renewal Certificate
ec: LRS file: Registration Number 269

Renewal

West Virginia

Department of

Environmental Protection

METZ, HEATHER

Licensed Remediation Specialist

Registration Number: 269

Director, Division of Land Restoration

10/01/2023 - 09/30/2025

Date Issued - Date Expires