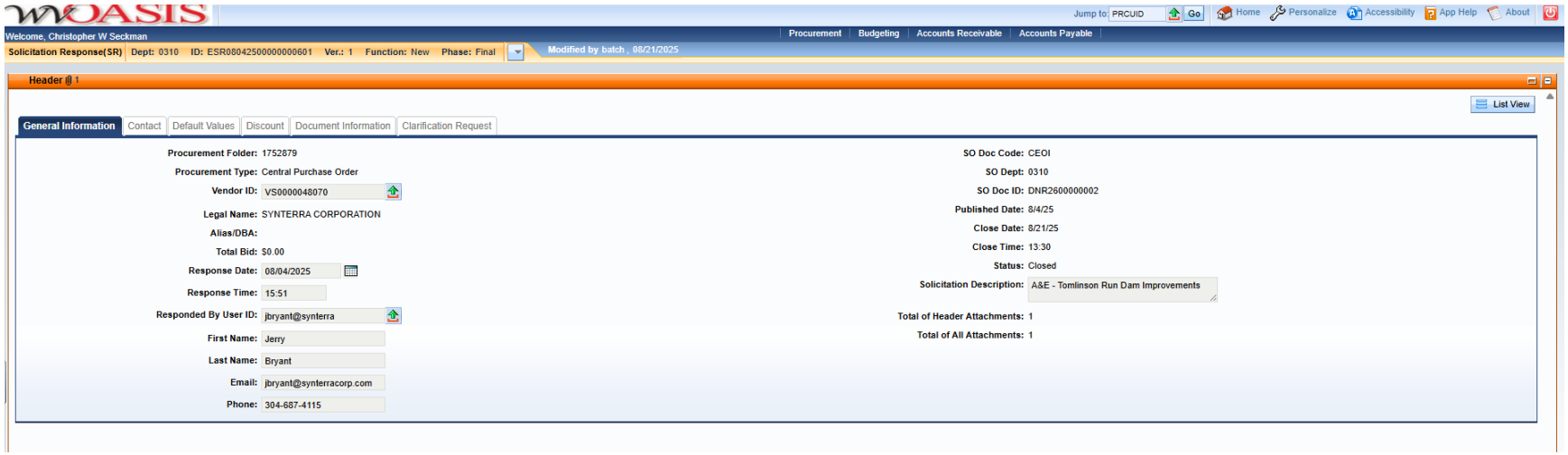
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency 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: 0310 ID: ESR08042500000000601 Ver.: 1 Function: New Phase: Final
Modified by batch , 08/21/2025
Header 1
List View
General Information
Contact
Default Values
Discount
Document Information
Clarification Request
Procurement Folder: 1752879
Procurement Type: Central Purchase Order
Vendor ID: VS0000048070
Legal Name: SYNTERRA CORPORATION
Alias/DBA:
Total Bid: $0.00
Response Date: 08/04/2025
Response Time: 15:51
Responded By User ID: jbryant@synterra
First Name: Jerry
Last Name: Bryant
Email: jbryant@synterracorp.com
Phone: 304-687-4115
SO Doc Code: CEOI
SO Dept: 0310
SO Doc ID: DNR2600000002
Published Date: 8/4/25
Close Date: 8/21/25
Close Time: 13:30
Status: Closed
Solicitation Description: A&E - Tomlinson Run Dam Improvements
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:	1752879
Solicitation Description:	A&E - Tomlinson Run Dam Improvements
Proc Type:	Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2025-08-21 13:30	SR 0310 ESR08042500000000601	1

VENDOR

VS0000048070
SYNTERRA CORPORATION

Solicitation Number: CEOI 0310 DNR2600000002

Total Bid: 0 **Response Date:** 2025-08-04 **Response Time:** 15:51:40

Comments:

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

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

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

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Professional engineering services				

Comm Code	Manufacturer	Specification	Model #
81100000			

Commodity Line Comments: Synterra Corporation is interested in performing work on this project.

Extended Description:

Design and contract administration services of dam improvements at Tomlinson Run State Park.

Statement of Qualifications:

Qualifications Related to Abandoned Mine Lands Reclamation and Remediation

Submitted to:

State of WV DEP AML Division

Attn: Travis Parsons
Travis.g.parsons@wv.gov
WV AML Manager
601 57th St. SE
Charleston, WV 25304

synTerra
Science & Engineering Consultants

Science & Engineering Consultants
148 River St., Suite 220, Greenville, SC 29601 | 864.421.9999

July 7, 2025

WVDEP- AML Division
Attn: Travis Parsons
Travis.g.parsons@wv.gov
601 57th Street. SE,
Charleston, WV 25304

Subject: **SynTerra Corporation Submittal of Qualifications (SOQ)**

Dear Mr. Parsons,

SynTerra Corporation (SynTerra) is pleased to provide our Statement of Qualifications to your agency to provide engineering support to reclaim and/or remediate abandoned mine lands in West Virginia.

The primary contact person that we would commit to WVDEP-AML Division for this opportunity is Mr. Jerry Bryant, Project Manager, who is based out of our Pikeville, KY office. Mr. Bryant has more than 19 years of experience conducting and managing environmental projects in the Coal and Natural Gas industries. His professional experience includes a broad range of industrial compliance, environmental, and engineering services.

We understand that the WVDEP-AML Division has identified many areas that need to either be reclaimed or remediated over the past few years. Our experience with mining reclamation permitting, designs, and other compliance requirements can be of value to you.

We hope our submittal is informative and responsive to your needs. If you have questions or comments, please contact Mr. Jerry Bryant via email at jbryant@synterracorp.com, by phone at (304) 687-4115 or by mail at 336 Town Mountain Road, Ste. 4, Pikeville, KY 41501.

Best regards,

SynTerra

Jerry Bryant
Project Manager

Andy Willis, PE, PS
Senior Peer Review

Attachments: Attachment A – Team Member Matrix
Attachment B – Project Experience Matrix
Attachment C – Resumes
Attachment D – Services Offered at SynTerra

QUALIFICATIONS AND EXPERIENCE

SynTerra Corporation is a 100% employee-owned, full-service professional science and engineering consulting firm with five offices and approximately 100 employees throughout the Southeast. Established in 1992 in Greenville, South Carolina, SynTerra has been serving public and private sector clients for more than 30 years. Current fiscal year projections indicate ample resources and availability to staff projects and tasks as presented in this SOQ. Our size and locations throughout the Southeast make us a fully responsive team that WVDEP can depend on.

Founded in 1992, we are headquartered in Greenville, SC, with offices in Lexington and Pikeville, KY and two additional offices in Charlotte and Cary, NC.

Cary, NC Office:
511 Keisler Drive, Suite 102
Cary, NC 27518
Phone: (919) 858-9898

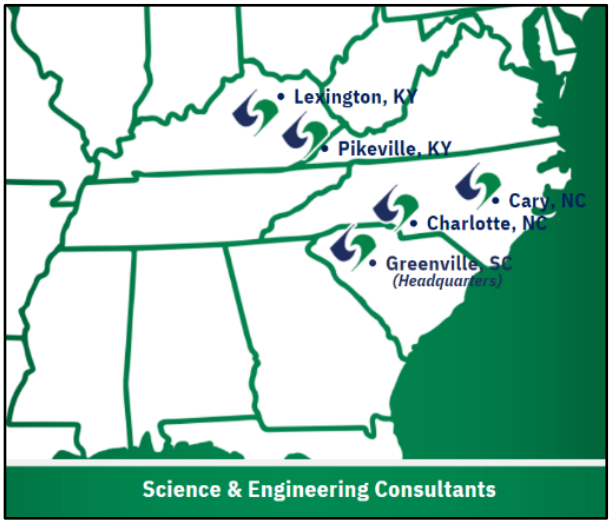
Charlotte, NC Office:
5015 W WT Harris Blvd, Suite C
Charlotte, NC 28269
Phone: (980-312-5999)

Greenville, SC Office (HQ):
148 River Street, Suite 220
Greenville, SC 29601
Phone: (864) 421.9999

Lexington, KY Office:
170 Turner Commons Way, Suite 120
Lexington, KY 40511
Phone: (859) 233-2103 ext. 202

Pikeville, KY Office:
336 Town Mountain Road, Suite 4
Pikeville, KY 41501
Phone: (606) 432-2443

Federal ID No.: 57-0962660



SynTerra's office locations

Our firm has flourished as a local science and engineering consulting firm. From the beginning, we have focused intently on client success. **We strive to meet our clients' objectives in a cost-effective way while achieving compliance with laws, rules, and regulations.** In addition, we design creative solutions that meet unique project needs, and we focus on sustainability and being good stewards of the environment and our clients' resources.

Health and Safety

SynTerra's greatest resource is our people. Protecting the safety of each worker is our first priority. If a job cannot be performed in a safe manner, we will not do the job until steps are taken to make each task safe to perform. Safety is the first item on the agenda of every meeting and the first topic of conversation on each job site.

A specific Health and Safety Plan is written for each project, which details the work to be performed, hazards expected to be encountered, engineering controls used to minimize the hazards, and appropriate personal protective equipment.

We understand our safe work performance today allows us to earn your trust and work on projects in the future. SynTerra also maintains compliance standing in both ISNetworld and Avetta platforms.

Qualifications Built on a History of Successful Mining Engineering Services

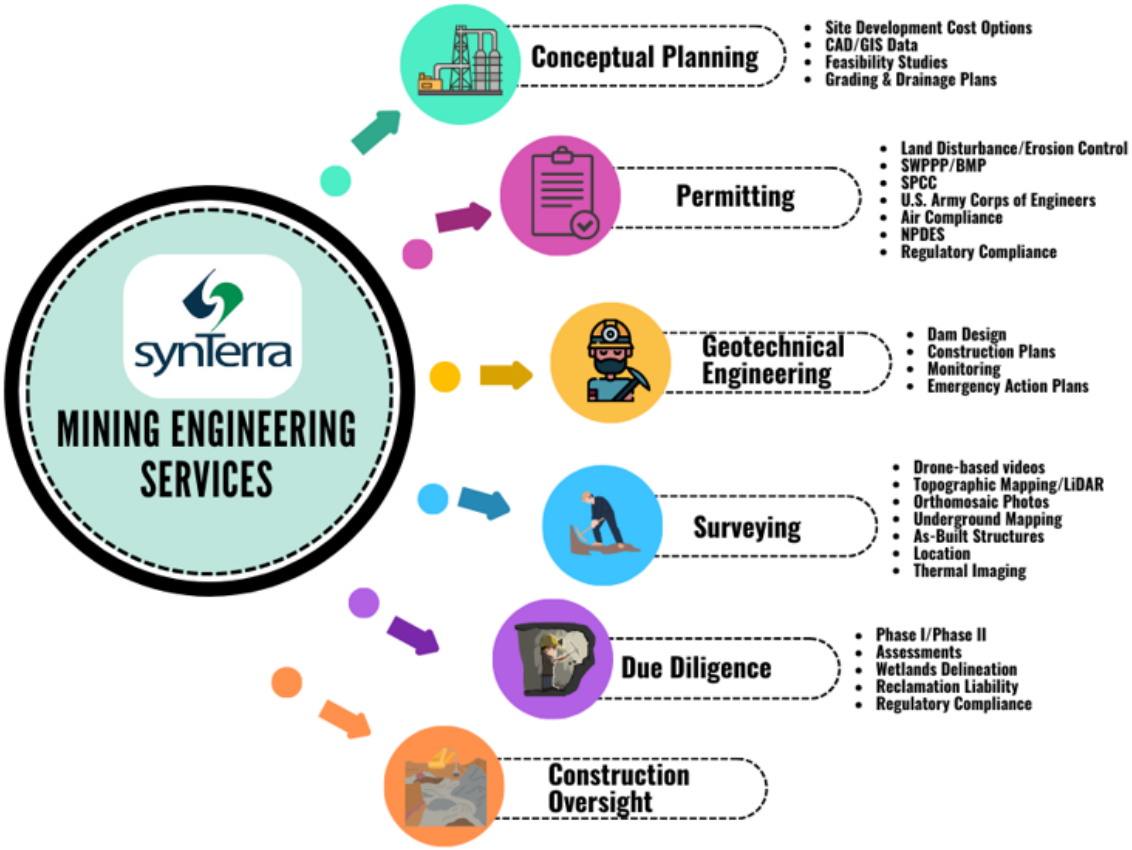


Figure 2-1. Mining Engineering Services

SynTerra is positioned to deliver the engineering services WVDEP requires for a seamless continuation of services, as needed, with minimal to no transition necessary.

SynTerra has built our capabilities over time by recruiting and maintaining our industry's top professionals. Because engineering projects often contain multiple elements and disciplines, our team's experience spans a broad spectrum of mining engineering services.

Specific experiences that set us apart from many other firms include underground surveying services, groundwater flow models, and geotechnical engineering.

SynTerra has a team of individuals experienced in modeling groundwater for site characterization, data analysis and three dimensional (3D) numerical model development. The modelers can develop a steady state 3D flow model to evaluate the effects of any dewatering that may occur due to mining operations.

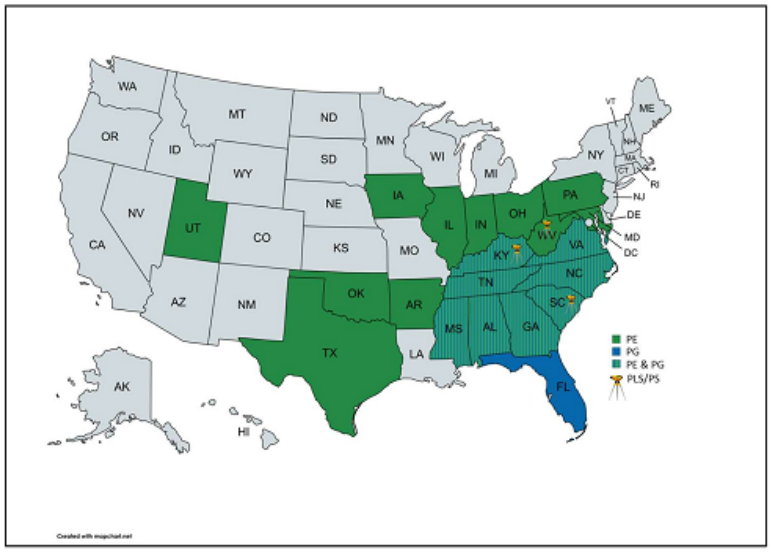
Our geotechnical engineers have assisted in planning and zoning proposals by evaluating mine projections and the effects of karst topography and sinkholes on the mine and the surrounding aquifer. Additionally, geotechnical engineers have vast experience in foundation design and embankment stability.

Mining Engineering Services Backed by Credentials and Current Experience

SynTerra staff are licensed and certified professional engineers, geologists, safety managers and inspectors. SynTerra staff further hold Federal Aviation Administration (FAA) licenses to operate unmanned aircraft systems (sUAS). We follow best-practices related to local and federal regulations. As a firm, we hold certificates of authorization to practice engineering in West Virginia and several other states.

Professional Certifications

- Our Professional Engineers include Mining, Civil, Chemical, and Environmental Engineers
- Our Professional Geologists have hands-on experience in drilling and exploration
- Additionally, we have numerous engineering graduates, environmental scientists, GIS specialists, CADD specialists, soils lab technicians



Experienced Team

We offer the WVDEP-AML Division a highly qualified staff of licensed geologists, professional engineers and environmental scientists who have more than 200 years of combined experience in environmental consulting, engineering, and more specifically mining engineering services. The scope of work described in our earlier conversations with WVDEP-AML personnel will be performed and managed by Jerry Bryant. Jerry has extensive experience working with mining and industrial clients to provide designs and environmental expertise, as well as regulatory guidance. Our team that will be involved with your projects has substantial experience and a diverse portfolio with respect to Environmental Management and Mining Engineering. Our experience ranges from construction, maintenance, and operations, to engineering design, surveying, environmental monitoring, regulatory compliance, and risk assessment (emergency action planning for safety measures). The Team Member Matrix in **Attachment A** shows how SynTerra will organize our team to meet the needs of WVDEP. A project Experience Matrix can be found

in **Attachment B**. Resumes are provided in **Attachment C** for staff who will be assisting with WVDEP project opportunities. **Attachment D** shows a list of services offered at SynTerra.

Project Experience and Services Provided

Article 3 and Article 11 Permitting in West Virginia

SynTerra has assisted in obtaining approval of numerous new Article 3 and Article 11 permits for both underground and surface coal mining in West Virginia, along with Modifications, IBRs, Revisions, Renewals, and Phase Releases. The scope of work for these actions include:

- Property and mineral research and verification
- Designing mine plans based on geology, reserve analysis and topographical information
- Preparation of reclamation plans;
- Design of required drainage control, both temporary and permanent;
- Design of post mining drainage for underground mining works based on geo-hydrologic data;
- Preparation of all required mapping and design drawings for all parts of each permit type.

All applications were submitted, underwent rigorous review, and gained approval by the West Virginia Department of Environmental Protection.

Aggregate Mine Facilities Permitting – Various agencies

SynTerra was retained to permit and design a greenfields limestone quarry. The site was also part of the U.S. Army Corps of Engineers 206 Ecological Restoration Project on the Lower Cumberland River bank. Stone transportation is by barge and required the design and permitting of a barge fleeting facility. The site is roughly 17 miles downstream from the Land Between the Lakes, which is a bald eagle habitat restoration area, and approximately one mile upstream from the public water intake for the County.

This project involved:

- Design of the mine, materials handling, and barge loadout facilities.
- Kentucky Department of Natural Resources Non-coal Permit, Division of Air Quality Permit, NPDES Permit, Streambed Construction Permit, Water Quality Permit, Individual Corps of Engineers 404 and Section 10 Permit, Eagle Study, Archeological Study, Mussel Survey.
- A Five Mile Variance Study was required due to the close proximity of the public water intake. The Study included assurances the water discharged from site was pretreated so the effluent would not degrade the quality of water entering the public water intake.

Pre-Blast Surveys and Post-Blast Investigations

SynTerra has been involved in numerous pre-blast survey projects for clients in West Virginia and Kentucky. SynTerra employs a WV Approved Pre-Blast Surveyor with extensive experience in all aspects of the pre-blasting procedures dictated by WV Code R. §38-2-6.

AML Reclamation Design - Clay and Leslie Counties, KY:

This project involved engineering design for the reclamation of five abandoned mine land sites located in Clay and Leslie Counties. SynTerra completed conceptual, preliminary, and final designs for each location. During the project, necessary permits were obtained and consent from landowners were gathered. Conditions found during site reconnaissance included open mine portals, disturbed surface areas, mine water discharge, substandard effluent flows, garbage piles, highwall instability, slope stability issues, backfill failure, and subsidence.

Horsepen Creek Stream Restoration – Gilbert Creek, WV:

This project involved survey work and the design for the installation and eventual removal of two 120-inch diameter culverts following mining and the restoration of the stream channel and its riparian zone. It also included documentation for a 401 Water Quality Certification application and a U.S. Army Corps of Engineers Section 404 Individual Permit application.

Stockpile Survey

SynTerra has been retained to perform quarterly and annual certified stockpile surveys for coal processing facilities in Southern West Virginia and Eastern Kentucky as well as limestone quarries in south central Kentucky for inventory and evaluation purposes. Field work utilizing survey crews perform volumetric surveys, density estimates and final tonnage calculations. SynTerra has performed these surveys since 1986.

Mining & Environmental Engineering

SynTerra was contracted by an aggregate company to develop design plans for the restoration and relocation of two streams located within a quarry permit boundary. On the east side of the quarry the relocation/restoration involved one segment of a tributary to Indian Lick Creek, which flowed through previously mined and disturbed areas and ponded in the unfilled quarry pits. To facilitate the planned future work at the quarry, the aggregate company wished to relocate a newly-created stream channel out of the way of the proposed mining. The restoration needed to be accomplished in advance of the mining, so existing pits could be de-watered and the mining operations could progress in a safe manner.

As part of the project, the aggregate company also desired to re-construct a stream segment within the current mining area located on the west side of the State Highway.

This project involved:

- Field data collection to ascertain the hydrologic and geomorphic characteristics for the streams including upstream and downstream reference reaches.
- Stream relocation/restoration design using natural stream design techniques for 1163 feet of stream on the west side of Highway 208, and for 2172 feet of stream on the east side of Highway 208.
- Completion of US Army Corps of Engineers 404 Permit Application and Kentucky Division of Water 401 Water Quality Certification Application.

Mining Engineering, Geological Services, Biological Services

SynTerra was hired to recommend a reclamation and mitigation plan for the ongoing acidic drainage and odor issues occurring at an Ohio quarry. The acidic water, iron staining and noxious

smell occurring at the quarry are due to both the highly-organic nature and the high pyrite content of the New Albany Shale.

In proposing a reclamation and mitigation plan SynTerra reviewed previous and current reclamation and mitigation attempts, conducted a site visit, held discussions with quarry personnel, and took water and core samples to assist in determining the cause and extent of the ongoing water and odor problems.

A multifaceted reclamation plan including active and passive treatments was proposed. Active treatment included the addition of a neutralizing agent to alleviate both acid water production and the odor. Secondary passive treatments include a drainage plan, aerobic wetlands, and specialized vegetation for acidic spoil.

This project involved:

- A team consisting of a biologist, geologist, and engineers to understand the multidimensional problems observed at the quarry.
- Geologic core sampling.
- Engineering modeling

Environmental Compliance

SynTerra planned and designed the Best Management Practices Plan, Spill Prevention, Control and Countermeasure (SPCC) Plan as well as Groundwater Protection Plan for a coal mining operation. SynTerra was also responsible for acquiring approvals from the regulatory agencies for the operation and provided the necessary documentation and assistance to the contractors working on the project. Each plan contains the chemical type, potential risks, and contingency procedures specific to each site.

The following laws and regulations are identified within the plans:

- Section 402 of the Clean Water Act of 1977 – *Best Management Practices*
- Ground Water Protection Plans
- 40 CFR §110 Oil Pollution Prevention

AML Reconnaissance and Mapping

SynTerra was contracted to provide site reconnaissance, forensic research and mapping services for the Prime Contractor for KYAML on several sites throughout East Kentucky. Conditions to be remediated at these various sites included an underground mine fire, slope stability problems, coal mine waste issues and adverse mine discharges.

SynTerra performed terrestrial investigations and surveying as well as aerial-based photogrammetry, LiDAR scanning and thermal imaging to define targeted mine fire "hot spots". We also provided aerial mapping of fifteen smaller sites across Letcher and Knott Counties along with conventional survey locations of utilities and other ground features to aid in the design of remedial measures.

Republic of Panama: Sediment Pond Design, Hydrologic Evaluation

In addition to providing design for thirteen (13) sediment ponds at a proposed Panama port facility area, SynTerra provided hydrologic-hydraulic analysis and provided conceptual drawings for twenty (20) additional sediment ponds for support areas associated with the proposed Mina de Cobre Panama copper mine site. The sediment pond designs for these support areas were completed as individual task orders under an engineering services contract. The Panama mine site is located near Coclesito, approximately 20-kilometers inland from the north coast of the Republic of Panama. The open pit mine site will consist of three mine pits with a total concession area of over 33,500 acres. Concentrated ore from the mine site will be transported to a port facility through slurry pipelines. Development of the proposed mine has been estimated to cost approximately $5.5B.

The sediment ponds were designed to meet specific design criteria and permitting requirements provided by the Owner. Hydrologic analyses were conducted using two different design storms, a 60mm, 24-Hr rainfall event (approximate 2-Yr) for sedimentology analysis; and a 394mm, 24-Hr (100-Yr) rainfall event for sizing the emergency spillway. Pre-development condition analyses

were also conducted to allow comparison of the developed-condition pond discharge rates to existing. Ponds were designed to meet a peak sediment effluent concentration of 1,000 mg/liter.

This project involved:

- Hydrologic analysis of the catchment areas and hydraulic sizing of individual sediment ponds using SedCAD software package
- Sedimentologic analysis of pond inflow/outflow water quality using SedCAD software package
- Preparation of conceptual CAD drawings for the proposed sediment ponds

Civil, Environmental, and Mining Engineering, Geological, and Surveying

In response to litigation challenging the issuance of 404 permits in Kentucky, SynTerra (previously ECSI) organized projects to prepare Cumulative Impact Assessments (CIA) of the six major HUC 8 watersheds covering Eastern Kentucky.

SynTerra then managed three of the six CIAs while developing the methodology utilized on all. The projects were conducted at a cost of approximately $5,000,000 with approximately 20 consulting firms and over 100 engineers and scientists.

The Cumulative Impacts Assessment of the North Fork of the Kentucky River was the second of these six CIA projects and was prepared in support of a number of companies owning land and mining operations there.

SynTerra designed this CIA of the North Fork HUC 8 Watershed and managed a multidisciplinary team over the course of approximately one year to complete this project. The results were compiled and evaluated to relate the story of all human activities in the North Fork of the Kentucky River, including the long-term effects of mining, reclamation, and mitigation.

Civil, Environmental, and Mining Engineering, Geological, and Surveying

SynTerra was retained by a Fortune 50 Company to conduct scoping, exploration and a feasibility study for certain industrial mineral resources (fluorspar and zinc). Tasks included geologic evaluation and modeling, exploration program development and management, reserve/resource determination and disclosure, conceptual mine engineering and process plant design, infrastructure and transportation evaluation, capital and operating cost estimating.

This project involved the development of the geology and engineering studies necessary to determine the presence, quantity and quality of an industrial mineral required for chemical processing. SynTerra developed a comprehensive exploration plan in accordance with SEC Industry Guide 7 based on the geologic conditions and historical mining records for the area. Upon completion of the initial exploration phase, a technical and economic viability evaluation for the development of one or more mining operations was undertaken.

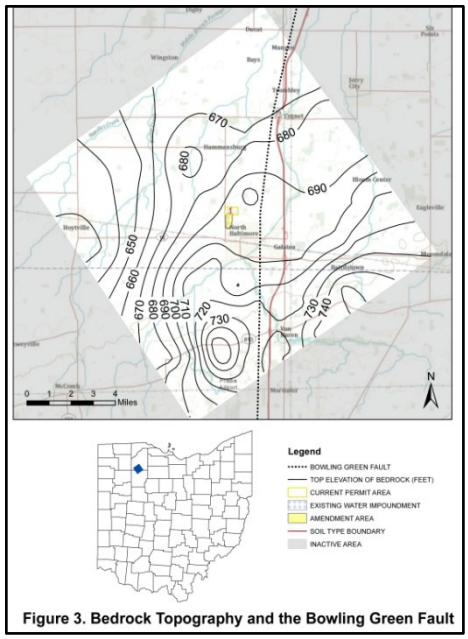
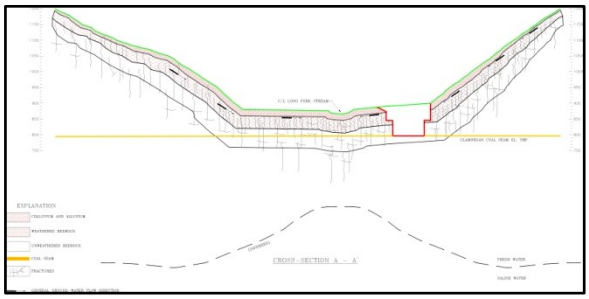


Figure 3. Bedrock Topography and the Bowling Green Fault

In addition to the technical components of the exploration program and feasibility study, SynTerra personnel developed strong relationships with community leaders to gain support for the project. This was accomplished through constant open dialogue, presentations and meetings with groups such as the local Chamber of Commerce.

Civil, Environmental, and Mining Engineering, and Hydrogeological Expertise

SynTerra was hired to conduct a hydrogeologic investigation of the impact of the surface excavation and underground mining on the surrounding groundwater regime by a mining operation on Long Fork of Shelby Creek in Pike County, Kentucky operated by Premier Elkhorn Coal Co. (PECC). Shortly after PECC had constructed a box cut approximately 100 feet below drainage in an area with numerous homes, residents began to complain of problems with their water supply wells.


Site Plan

SynTerra evaluated the impact of the surface excavations and the underground mining on the surrounding groundwater and identified the impacted area.

The report completed by SynTerra addressed groundwater interruption, draw-down potential, and contamination potential. SynTerra was then asked to address the potential impact of the projected underground mining and make further recommendations.

TAILINGS IMPOUNDMENTS AND REFUSE AREAS

Synterra manages several coal waste tailings impoundments and refuse areas throughout Kentucky, West Virginia, and Illinois. SynTerra remains in consistent communication with regulatory authorities for these sites. Our projects provide a thorough assessment of coal slurry

impoundments and refuse areas. Our experienced team of engineers and technicians conduct detailed evaluations covering multiple aspects critical to the safety and compliance of these facilities. The key components of our services include:

Geotechnical Engineering:

- Conduct comprehensive geotechnical investigations to assess soil and foundation conditions. This involves project management and coordination with subcontractors to develop drilling and sampling programs.
- Evaluate the stability of impoundment structures and address potential geotechnical challenges.

Earthquake Engineering:

- Assess seismic vulnerability and design modifications to enhance impoundment resilience against seismic events.
- Implement state-of-the-art earthquake engineering principles to ensure structural integrity. SynTerra has worked on several Kentucky projects located near the Wabash Valley seismic hazard zone, and special considerations are taken based on the history of seismic activity in the area.

Federal Regulatory Compliance Process:

- Navigate federal regulatory requirements to ensure compliance with relevant guidelines and standards.
- Prepare and submit necessary documentation to regulatory authorities. SynTerra serves as a liaison between the client and various regulatory authorities to ensure that the client meets their business goals and objectives.

Impoundment Design Modifications:

- Develop engineering solutions for necessary design modifications to enhance safety and performance.
- Collaborate with stakeholders to incorporate sustainable and cost-effective design changes.

Hydrology and Hydraulics:

- Conduct hydrological studies to analyze water flow patterns and drainage characteristics.
- Implement hydraulic modeling to assess the impact of potential modifications on impoundment performance.

Storm Routings:

- Analyze stormwater routings to evaluate the impoundment's ability to withstand extreme weather events.
- Implement stormwater management strategies to mitigate potential risks.

Instrumentation Installation:

- Installation of various monitoring instruments such as piezometers, inclinometers, settlement gauges, and tilt meters to measure parameters such as pore water pressure, ground movement, settlement, and slope stability.

Data Collection:

- Routine collection of data from installed instruments to track changes in ground conditions, water levels, and structural behavior over time.

Visual Inspections:

- Conducting visual inspections of impoundment structures and surrounding areas to identify any signs of distress, erosion, or other issues that may require attention.

Environmental Monitoring:

- Monitoring of water quality, groundwater levels, and surface water runoff to assess potential impacts on the surrounding environment and comply with regulatory requirements.

Data Analysis and Reporting:

- Analysis of collected data to evaluate the performance of impoundments, identify trends or anomalies, and make informed decisions regarding maintenance, remediation, or design modifications. Regular reporting to stakeholders on the findings of field monitoring activities.

Soil Testing:

- Soil Classification: Determination of soil types and properties using standard classification systems such as the Unified Soil Classification System (USCS).
- Index Properties: Measurement of properties such as grain size distribution, moisture content, density, and Atterberg limits to assess soil behavior and suitability for construction.
- Interpretation of laboratory test results to assess material properties, validate engineering assumptions, and inform design decisions.

- Preparation of detailed laboratory test reports documenting test procedures, results, and conclusions for use by project stakeholders.

Closure Plans:

- Our approach to closure planning involves the development of comprehensive plans outlining the procedures and measures for safely decommissioning and closing coal slurry impoundments at the end of their operational life. This includes site stabilization measures, final cover systems, post-closure monitoring protocols, regulatory compliance, and financial assurance strategies.

Dam Breach Analyses:

- We employ advanced hydraulic modeling techniques to conduct dam breach analyses, assessing the potential consequences of a breach scenario and designing mitigation measures to minimize risks to life safety, property, infrastructure, and the environment. Our team evaluates failure modes, conducts risk assessments, recommends mitigation measures, and develops emergency response plans to ensure preparedness and resilience in the event of a dam breach.

UNDERGROUND COAL MINE PROJECTS

For over 30 years SynTerra has been providing engineering and consulting services to the underground coal mining industry. SynTerra is comfortable with all aspects of the permitting process; from initial exploration activities and property acquisition assistance, through routine permit maintenance, to final release of reclamation performance bonds. We have prepared thousands of underground mine plans and permit applications, ventilation plans, and regularly design and certify underground mine seals. SynTerra is experienced in conventional and continuous-miner room-and-pillar mines, both above and below drainage utilizing slopes, shafts and drift entries, as well as longwall operations.

Ventilation Plans, Various Clients and locations

SynTerra has aided in the preparation of ventilation plans, plan updates and Annual Ventilation Reviews for numerous Appalachian coal mining clients in Kentucky and West Virginia.

Pillar Stability Analysis with Seam Interaction Considerations, Clintwood Elkhorn Mining Company, Pike County, Kentucky and Dickenson County, Virginia

Verify long-term stability of coal support pillars in room-and-pillar mining operations which were affected by subjacent or superjacent mine workings. High pressure concentration areas were modeled through the use of LaMODEL computer modeling software, as well as the National Institute of Occupational Safety and Health's ARMPS (Analysis of Retreat Mining

Pillar Stability) software. Results of these studies were used to allow mine management to choose appropriate areas for construction of underground facilities.

Air Permitting for a Confidential Client's SC Quarry

SynTerra was contracted to complete an air construction permit application for a greenfield quarry in South Carolina and prepare the off-site impact modeling for the new equipment. The project scope included:

- Preparing the emission calculations for each source
- Comparing the proposed emission rates to exemption thresholds for modeling
- Reviewing the regulatory applicability for the site and the emission sources
- Performing off-site impact modeling using the AERMOD model via BEEST software for refined modeling of the sources in multiple locations and arrangements
    - SynTerra gave the client feedback on the lowest impact source locations
- Preparing figures to support the application showing the site and the location of the emission sources
- Completing the state required construction permit application forms

A complete permit application was submitted to the former South Carolina Department of Health and Environmental Control (SCDHEC) and approved. SynTerra reviewed and made comments on the draft construction permit prior to finalization on behalf of the client.

Quality Focused and Client Business Minded

At SynTerra, quality is everyone's responsibility placing emphasis on making our clients successful. We work with our clients to develop innovative solutions to improve environmental performance and reduce cost.

Our mission is to produce high-quality work products with our clients' business objectives in mind. SynTerra's management and staff members are committed to continuous improvement initiatives. SynTerra's quality policies, procedures, and corporate expectations regarding quality are outlined in our Quality Program. We are a multifaceted and agile organization which is large enough to service your projects, yet small enough to remain focused on quality and the functional needs of our clients.

Flexible and Responsive

SynTerra is available immediately to assist the WVDEP-AML Division. We pride ourselves on being responsive, providing exemplary service, and delivering high-quality work products. Our size and company structure (employee-owned) allow us flexibility in accommodating special requests related to project staffing, schedules, and budgets.

We have an excellent track record of meeting client commitments, and we intend to do so for the WVDEP-AML Division. SynTerra's standard project approach enables our clients to make timely, cost-effective decisions. We start by aligning our solutions with your objectives. We will place an emphasis on innovation, collaboration, agility, and resourcefulness to save time and money.

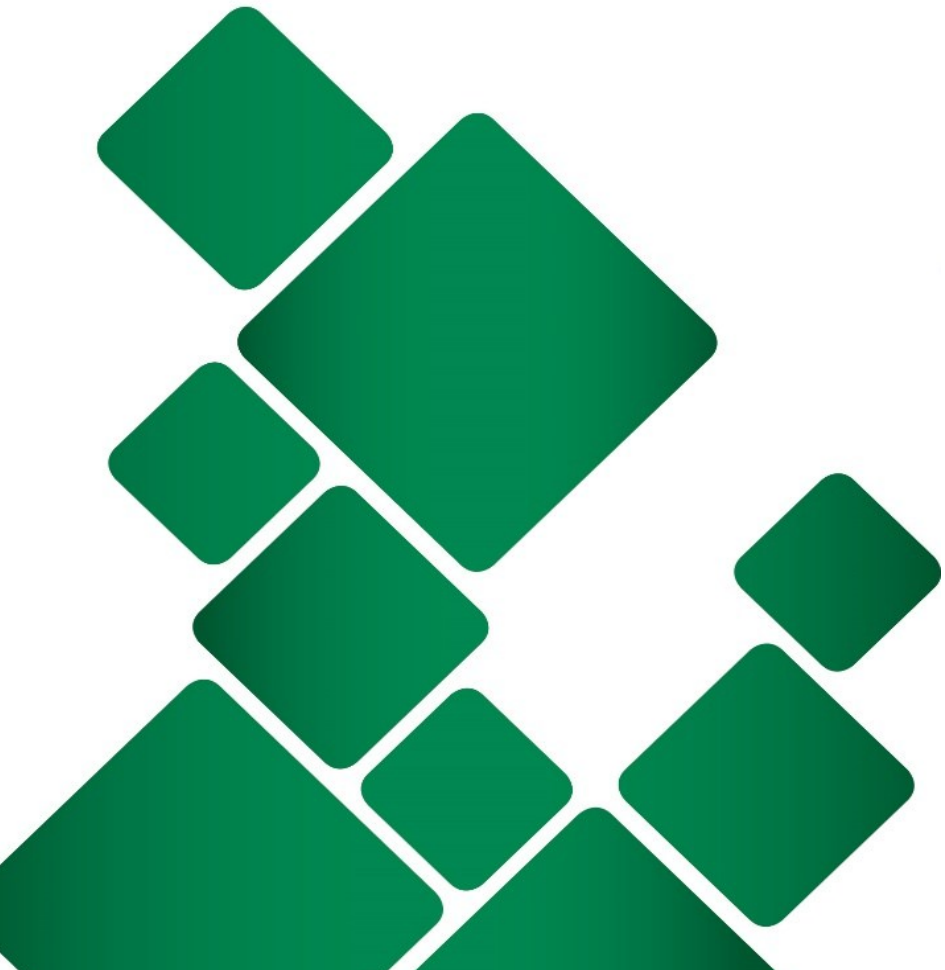
ATTACHMENT A

TEAM MEMBER MATRIX

TEAM MEMBERS	Team Member #1	Team Member #2	Team Member #3	Team Member #4	Team Member #5	Team Member #6
NAMES	**Jerry Bryant**	**Andy Willis**	**Charles Bishop**	**Gabe Shepherd**	**Dale Harrison**	**Jacob Shepherd**
Relevant Professional Certifications/Licenses		P.E. KY License #18915 P.E. WV License #12208 P.E. PA License #097425 P.E. MD License #37945 P.E. VA License #402034017 P.E. OH License #E-62112 PS WV License #1492 FAA sUAS Pilot Certification #4056723 WV Approve Pre-Blast Surveyor, #18-263 MSHA Impoundment Inspector	P.E. KY License #10619 P.E. WV License #009770 P.E. IL License # 062070148 MSHA Impoundment Inspector	FAA sUAS Pilot Certification WV/KY Underground Miner WV/KY Surface Miner MSHA Impoundment Inspector	PS WV License #996 LS KY License #3461 MSHA Impoundment Inspector WV/KY Underground Miner WV/KY Surface Miner	Engineering, Permitting, Property, Survey
Relevant Academic Degree(s)	• B.S. Biological Science	• B.S. Mining Engineering	• M.S. Civil Engineering	• Surveying & Mapping Technology	• Professional Surveyor	• B.S. Criminal Justice
Proposed Role / Function for Projects	• Project Manager	• Engineering Manager	• Technical Lead	• Surveyor/Technician	• Surveyor/Technician	• Environmental Specialist
Team Member's Office Location	• Pikeville, KY • Chapmanville,WV	• Pikeville, KY	• Lexington, KY	• Pikeville, KY	• Pikeville, KY	• Pikeville, KY
Number of Years with Current Firm (ECSI purchased by SynTerra in January 2019)	• 6 years	• 6 years	• 6 years	• 6 years	• 6 years	• 6 years
Number of Years of Relevant Experience	• 19+ years	• 35+ years	• 40+ years	• 20+ years	• 35+ years	• 19+ years
Titles/Responsibilities	• Project Manager	• Senior Mining Engineer	• Senior Geotechnical Engineer	• Senior Field Specialist	• Professional Surveyor	• Consulting Scientist

ATTACHMENT B

PROJECT EXPERIENCE MATRIX



synTerra

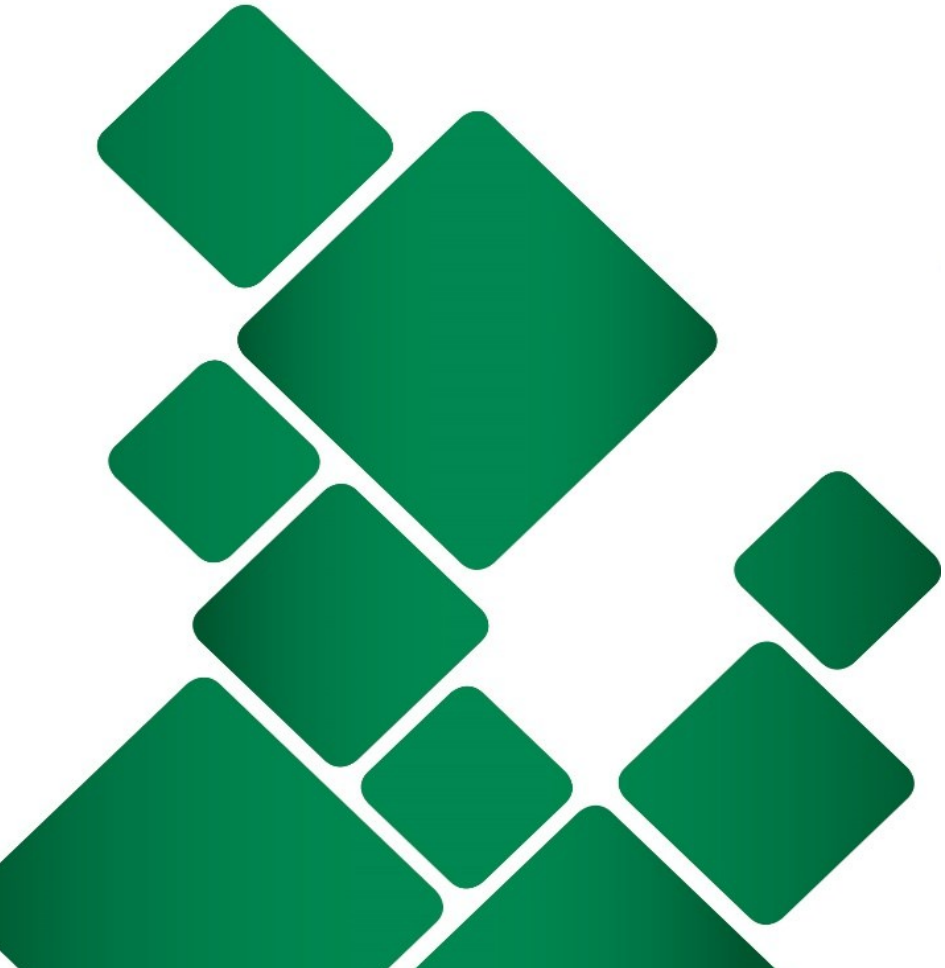
Science & Engineering Consultants

Project Experience

Team Members	Design					Geotech				Air			Expert Knowledge						Water							Survey								Software										
	Groundwater Flow & Transport	Mine / Strategic Planning	Reclamation Management	Coal / Rock / Mineral Reserve Analysis	Mine Feasibility	Foundation Design	Soil & Rock Testing / Analysis	Slope Stability	Impoundment Designs	Emission Calculations / Modeling Analysis	EPA Method 9 / Opacity	Air Permit Compliance / Permitting	Expert Witness for mining / Enviro Legal cases / Report prep Exhibits	Environmental Site Analysis	Planning & Zoning	Due Diligence	Phase I ESA's	Reclamation Liability	Surface Water Hydrology	Stream Restoration Plans	SPCC / BMP / SWPPP/ GWPPP	Hydrologic / hydraulic Models / Studies	401 / 402 / 404 Permitting	Wetland Delineation	Floodplain Permitting	GPS Surveying	Drone Certified	ALTA Surveys	Deed Research	Boundary Surveys	Topographic Surveys	Stockpile Surveys	Residential Layouts (Surveys)	Autocadd	Carlson	Sedcad	Sedcad w/Earthworks	Sites	Stedwin	Pix4D	AERMOD	Arc GIS	HECRAS
Andy Willis		X	X	X	X			X	X				X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X					X	X
Charles Bishop						X	X	X	X				X	X		X		X	X														X			X	X				
Jerry Bryant		X	X	X				X				X	X	X	X	X	X	X	X	X	X	X	X	X	X								X	X	X					X	
Jacob Shepherd			X	X				X					X	X	X	X	X	X	X	X	X	X	X	X	X				X		X	X	X	X	X			X			
Gabe Shepherd								X			X		X	X	X		X	X	X	X	X			X		X	X	X	X	X	X	X	X	X	X	X			X	
Dale Harrison									X				X	X	X	X	X	X	X	X	X			X	X	X		X	X	X	X	X	X	X	X	X			X	
Trevor White								X									X		X	X	X			X		X				X	X	X	X	X	X					

ATTACHMENT C

RESUMES



Science & Engineering Consultants

D. ANDY WILLIS, P.E., P.S.

MINING ENGINEERING GROUP LEADER/PRINCIPAL

- 336 Town Mountain Rd., Ste. 4
- awillis@synterracorp.com
- 606-432-2443

EXPERTISE

- Surface and underground coal/aggregates mine planning and design
- Environmental permitting
- Reclamation management and design
- Coal and aggregate reserve analysis and calculations
- Mine feasibility using geologic modeling
- Mine extraction and subsidence modeling
- Litigation support as expert witness for mining and environmental cases
- Environmental site analysis
- Construction inspection
- Inspection and certification of underground coal mine seals
- Mine surveying
- Certified operator FAA-approved unmanned aerial system (UAS)

EDUCATION

B.S., Mining Engineering, OSU

REGISTRATIONS / CERTIFICATIONS

- Professional Engineer: KY #18915, OH #E-62116, WV #12208, VA#034017, MD #37945, UT#12764765, AL#40541-E, IN#12100510, PA#097425
- Professional Surveyor: WV#1492
- MSHA Impoundment Instructor M86730288
- FAA UAS Pilot Certification #4056723
- WV Pre-Blast Surveyor #18-263

EXPERIENCE SUMMARY

Mr. Willis, a licensed engineer and surveyor, serves as the Mining Engineering Group Leader. Andy is responsible for managing operations in SynTerra's Pikeville, Kentucky, and Tuscaloosa, Alabama, offices where he serves as Senior Project Manager for selected projects. He has more than 30 years of experience throughout Appalachia and the Midwest.

Andy's experience includes design, construction monitoring, and certification of surface and underground facilities associated with a variety of mining projects. Andy has a long history of environmental permitting experience in the Appalachian coalfields and Midwest Aggregates, including NPDES and state water discharge permits.

Due diligence work performed by Mr. Willis includes Phase I Environmental Site Assessments, environmental and mine reclamation liability assessments, and regulatory research.

SELECTED KEY PROJECTS

AML RECLAMATION DESIGN - CLAY AND LESLIE CO., KY:

This project involved engineering design for the reclamation of five abandoned mine land sites located in Clay and Leslie Counties. SynTerra completed conceptual, preliminary, and final designs for each location. During the project, necessary permits were obtained and consent from landowners were gathered. Conditions found during site reconnaissance included open mine portals, disturbed surface areas, mine water discharge, substandard effluent flows, garbage piles, highwall instability, slope stability issues, backfill failure, and subsidence.

HORSEPEN CREEK STREAM RESTORATION - GILBERT, WV:

This project involved survey work and the design for the installation and eventual removal of two 120-inch diameter culverts following mining and the restoration of the stream channel and its riparian zone. It also included

documentation for a 401 Water Quality Certification application and a U.S. Army Corps of Engineers Section 404 Individual Permit application.

THE NATURE CONSERVANCY - EVALUATING SOLAR ENERGY DEVELOPMENT ON PREVIOUSLY MINED LANDS:
West Virginia, although having adequate solar insolation, has witnessed very little solar development to date. The reasons vary, but some of the obstacles to future development appear to be the absence of state-level policies and regulations promoting growth in the solar industry. This study involved a deep dive into evaluating these opportunities, barriers, and changes needed to promote the growth of solar energy development on previously mined lands. Some of the opportunities include access to large tracts of underused, inexpensive lands; the ability to repurpose existing infrastructure; an available displaced mine labor workforce; and large landowners looking for replacement revenue from their land holdings. Barriers include cultural resistance to change from a traditionally coal-powered economy, middle-range insolation values; state-regulated utility market; absence of a Renewable Portfolio Standard and no available state incentives; challenging aspects of existing regulations (PURPA, interconnection, net metering etc.), and historically low electricity rates.

Using data from the West Virginia Mine Permit Databases, mine sites were identified that could hold potential for solar development sometime in the future. The process used in this study involved the development of a site evaluation tool using Google Earth Pro™ to overlay mine permit maps, existing power lines, and substations onto current Google satellite imagery.

This project involved:

- Evaluation of state and federal energy policies
- Opportunities and barriers analysis
- Development of site evaluation tool using Google Earth Pro™
- High-level financial analysis of selected sites
- Preparation of final report

UNDERGROUND MINE SEAL INSTALLATION CERTIFICATION, VARIOUS LOCATIONS:
Since the MINER Act of 2006, more stringent regulations have been in place for the installation of mine seals. Serving as Project Manager, Andy assists operators in the plans needed to install mine seals and with the inspections and certifications of those seals. Over the past 15 years, Andy has provided services for various aspects of mine ventilation seals for a variety of clients in Alabama, Colorado, Kentucky, Ohio, Pennsylvania, Utah, Virginia, and West Virginia.

ASSOCIATIONS:
West Virginia Coal Association
Kentucky Coal Association
Kentucky Crushed Stone Association
National Society of Professional Engineers
Ohio Aggregates & Industrial Minerals Association
Society of Mining, Metallurgy & Exploration (SME)
Tug Valley Mining Institute
Metallurgical Coal Association

CHARLES BISHOP, P.E.

SENIOR GEOTECHNICAL ENGINEER

- 170 Turner Commons Way, Suite 120, Lexington, KY 40511
- cbishop@synterracorp.com

EXPERTISE

- Geotechnical engineering
- Foundation engineering & design
- Dam design
- Slurry impoundments & refuse disposal
- Landslide & embankment stability
- Subsurface investigations
- Floodplain evaluation & permitting
- Corrective action plans
- Forensic investigation & expert witness services
- Abandoned mine land projects

EDUCATION

- M.S., Civil Engineering, University of Kentucky, 1976
- B.S., Civil Engineering, University of Kentucky, 1972

REGISTRATIONS / CERTIFICATIONS

- Registered Professional Engineer KY #10619, IN #10100329, IL #062.070148, WV #9770, VA #039700

EXPERIENCE SUMMARY

Mr. Bishop is a Senior Geotechnical Engineer at SynTerra. He has more than 40 years of experience in geotechnical and foundation engineering. His experience includes work on freshwater dam design, abandoned mine land projects, highway geotechnical investigations and designs, landslide investigation and remedial designs, mine subsidence investigations, tailings dam design, construction materials testing, and expert witness services.

SELECTED KEY PROJECTS

DAM DESIGN PROJECTS:

He has designed two privately owned freshwater dams located in Kentucky and two flood retention dams in West Virginia. He has also been involved with the design and construction of over twenty coal refuse slurry dams. Work activities included foundation investigations, rock pressure testing, embankment materials testing, seepage and stability analyses, hydrology and hydraulic analyses, spillway design, and storm routings as well as the development of construction specifications. Construction monitoring and testing were part of each project. He recently designed and developed construction plans and documents for replacement of the emergency spillway structure in the General Butler State Park Lake dam. The design work included storm routings, spillway hydraulics, permitting, and geotechnical evaluations.

LANDSLIDES AND EMBANKMENT STABILITY:

His experience includes identification, investigation, monitoring, testing, modeling, analysis, remedial measures evaluation, and design of slope stabilization. Project types included highways, industrial development, active mining, natural slopes, and abandoned mine lands.

Mr. Bishop has designed and implemented embankment stabilization measures, such as retaining walls, soil nailing, and drainage systems, to enhance slope stability and mitigate landslide risks. He has provided expert consultation to clients and regulatory agencies on geotechnical aspects related to landslide mitigation, ensuring compliance with safety standards and environmental regulations. Mr. Bishop has managed project budgets, timelines, and resources effectively to deliver high-quality geotechnical solutions within established constraints.

CHARLIE BISHOP, P.E.

SENIOR GEOTECHNICAL ENGINEER

FOUNDATION / GEOTECHNICAL ENGINEERING:

Mr. Bishop's experience with subsurface investigations and foundation design includes a variety of site development and building construction projects. Work activities on these projects included the development of boring plans, supervision of drilling and sampling, development of laboratory testing programs, engineering analyses, evaluation of laboratory data, and recommendations for construction and building foundation types.

Conducted detailed geotechnical investigations and site characterization studies to assess soil properties, geological conditions, and groundwater levels for infrastructure development projects. Performed slope stability analyses using advanced numerical modeling software to evaluate the stability of natural slopes and engineered embankments under various loading conditions. Collaborated with structural engineers and architects to integrate geotechnical considerations into the design of foundations, earthworks, and slope reinforcement systems. Prepared comprehensive geotechnical reports, feasibility studies, and design recommendations for clients and project stakeholders, communicating technical findings effectively.

FORENSIC INVESTIGATION AND EXPERT WITNESS SERVICES:

Investigative services within the scope of earth and foundation movements causing damage to structures have been provided to private owners, government, insurance companies, and legal teams representing large industrial companies. Structure type on which services have been provided are single-family homes, multi-story buildings, retaining walls, and buried gas lines. Expert witness testimony has also been provided.

DALE HARRISON, PLS

SURVEYOR

- 336 Town Mountain Road, Suite 4, Pikeville, KY 41501
- dharrison@synterracorp.com
- 605-432-2443

EXPERTISE

- Data evaluation
- Topographic surveying and mapping
- Survey and site design
- Elevation certification
- AutoCadd/SurvCADD

EDUCATION

- Coursework at Glenville State College, Glenville, WV

REGISTRATIONS / CERTIFICATIONS

- Professional Land Surveyor: KY #3461
- Professional Land Surveyor: WV#996
- MSHA Impoundment Inspector
- EPA Method 9 Visible Emission Certified
- Certified Underground/Surface Miner

EXPERIENCE SUMMARY

Mr. Harrison serves as Land Surveyor for selected projects, planning and conducting all surveying throughout the life of the project. He also serves as Senior Engineering Technician and is involved with surveying, mine design, and permitting. He is a licensed Professional Land surveyor in Kentucky and a licensed Land Surveyor in West Virginia. Mr. Harrison has been performing topographic; property and boundary; and mine and construction surveys since 1978. He is also experienced with GPS and drone surveying techniques.

SELECTED KEY PROJECTS

ALTA SURVEYS

Mr. Harrison has performed various surveys to ALTA standards throughout his career.

CONSTRUCTION SURVEYS
SLEEP OUTFITTERS

Mr. Harrison coordinated with the architectural term to provide topographic surveys, site grading, drainage construction staking, and site utility coordination.

HAMPTON INN – PIKEVILLE, KY

Mr. Harrison worked with the architectural team on designing Utility Layouts, Drainage Improvements, Construction Staking and Property Boundaries associated with the construction of the hotel.

SITE DEVELOPMENT DESIGN & SURVEYING
CHASEN B. GARRETT ARCHITECTS
MOTEL SLEEPERS, INC.

Mr. Harrison assisted in the renovation of the existing Moose Lodge located in Williamson, West Virginia, into a private motel intended for Norfolk & Southern Railroad employees. The site, located at the intersection of second Avenue and Dickinson Street, was a very confined space, with the existing building occupying approximately one-half of the surface area of the site.

SynTerra (formerly ECSI) initially provided a boundary and topographic survey of the site to accurately portray the existing conditions. Final site construction drawings were then prepared to provide the necessary parking, pedestrian access, and drainage improvements for the site. Drawings provided for the project included site survey; site demolition; erosion and sediment control; site grading; and site improvement plans.

MATEWAN & WILLIAMSON FLOOD CONTROL PROJECTS

These projects involved first-order surveying accuracy for the construction and monitoring of the flood protection walls for Matewan and Williamson, WV. The projects also included the surveying layout and changes to utility systems such as water, gas, sewer, and stormwater along with other construction layouts such as roads and buildings.

COAL UNDERGROUND & SURFACE MINING

Mr. Harrison has experience in Underground & Surface Mine Surveying . This also includes Updating Mine Mapping, Mine Planning, Ventilation, and Permitting.

QUARRY UNDERGROUND & SURFACE MINING

Mr. Harrison has experience surveying in Underground Limestone mines as well as Limestone Surface Mining. This also includes Mine Mapping, Planning, and Permitting

GABE SHEPHERD

ENGINEERING & SURVEY TECHNICIAN

- 336 Town Mountain Road, Suite 4, Pikeville, KY 41501
- gshepherd@synterracorp.com
- 864-421-9999

EXPERTISE

- Topographic surveys
- Boundary surveys
- Construction staking
- As-build surveys
- Stream design/surveys

EDUCATION

- Survey & Mapping Technology Degree - Mayo Technical College
- Undergraduate Course Work -
- Mining Engineering - University of Kentucky
- UAS Remote Pilot
- OSHA Standards for General

REGISTRATIONS / CERTIFICATIONS

- KY Underground & Surface Miner
- EPA Method 9 Visible Emission MSHA Impoundment Inspector
- Rosgen Level I – Applied Fluvial Geomorphology
- Rosgen Level II – River Morphology Applications
- Rosgen Level III – River Assessment & Monitoring

EXPERIENCE SUMMARY

Gabe serves as an engineering technician and assists with surveying for selected projects. He is involved with construction stakeout, aerial control points, gas well and line locations, topographic and boundary surveys, establishment of boundary corner markers, as-builts, profiles, stockpiles, and underground mine surveying (precise borehole locations, ventilation mapping, elevations). He is proficient in standard and GPS surveys, AutoCAD, Carlson, and Pix4D software packages.

Gabe is a certified UAS (drone) Pilot. He has logged more than 1,500 hours of flight time. Combining all of his projects, he has mapped over 20,000 acres. To go along with this certification, he processes the raw data to provide clients with orthomosaic photos and topographic contour maps.

SELECTED KEY PROJECTS

UNDERGROUND MINE SURVEYING – VARIOUS SITES

Mr. Shepherd is well versed in establishing surveyed mine control in the floor. Based on the company needs Gabe will transfer floor control to the back using a laser. Using a sky lift or basket truck hangers can be installed in the back to attach reflective site rods or highly reflective paint can be used to paint projection intersections. As needed Mr. Shepherd will locate pillar and face corners or any other areas of interest. If necessary, Gabe will provide tie surveys from outside to active faces or between multiple levels to maintain proper mine plans.

DRONE SURVEYS – VARIOUS SITES

As a FAA licensed UAS Drone Pilot, Mr. Shepherd has mapped thousands of acres in KY, VA, WV, OH, SC, NC, AL, TN, and GA. The drone payloads that Mr. Shepherd operates include photogrammetry, thermal, and LiDAR capabilities. Mr. Shepherd uses PIX4D and Global Mapper in processing his data and converts the data into a dwg file. The data has been used to provide up to date surface permit maps, flow diagrams for sediment control design, SPCC and BMP plans, stockpile volumes, stripping volumes, and many other uses.

TRADITIONAL SURVEYS – VARIOUS SITES

Mr. Shepherd has nearly 20 years of experience using traditional survey methods. He has performed numerous surveys for locating lease lines, property, or permit boundaries, staking out stream buffer zones or delineating wetland areas.

JACOB SHEPHERD

SENIOR PROJECT MANAGER

- 336 Town Mountain Rd. Ste. 4, Pikeville, KY 41501
- jshepherd@synterracorp.com
- 864-421-9999

EXPERTISE

- Surface and underground coal mine planning
- Environmental permitting (including SMCRA and KPDES)
- Reclamation management and design mine feasibility
- Stream analysis and restoration plans
- Environmental site analysis
- Protection and enhancement plans
- GPS surveys

EDUCATION

- Bachelor of Criminal Justice, Eastern Kentucky University

REGISTRATIONS / CERTIFICATIONS

- MSHA Certificate of Training for Metal/Non-Metal & Coal Mining

EXPERIENCE SUMMARY

Mr. Shepherd serves as a Senior Project Manager with more than 15 years of experience. He is responsible for preparing and submitting environmental, bond release, and mine permit applications for SynTerra. His other duties include coordinating fieldwork, site visits with regulatory agencies, and surveying. Along with his other areas of expertise, he is involved with surface surveying including gas well and line locations, aerial control points, property, profile, radial stake-out, and deed research. Mr. Shepherd has also completed short courses covering stream monitoring and assessment, HEC-RAS, and REAME Analysis.

SELECTED KEY PROJECTS

CONFIDENTIAL CLIENT - ENVIRONMENTAL MANAGEMENT SYSTEM AUDIT:

This project involved qualifying as an approved auditor through USEPA and associated states. ECSI now SynTerra evaluated the capability and effectiveness of the Environmental Management System (EMS) through a series of document reviews, personnel interviews and site reviews. Additionally, the audit findings and recommended ways to improve the EMS and its implementation were compiled. Mr. Shepherd assisted in gathering data and provided site inspections.

ICG - CUMULATIVE IMPACT ASSESSMENT (CIA) - MIDDLE FORK OF THE KENTUCKY RIVER:

This project involved the development of cumulative impact assessment protocols and CIA report for a client in preparation for a U.S. Army Corps of Engineers 404 Permit. The CIA include taking a cross-section of impacts within a HUC8 watershed (360,000 acres), collecting and analyzing macro-invertebrate sampling, and surface water monitoring. ECSI now SynTerra led a team of engineers, biologists, and geologists in developing sampling protocols, data compilation, and analysis. Mr. Shepherd participated in field reconnaissance and collected data during the project.

HAMPTON INN - PIKEVILLE, KENTUCKY:

Mr. Shepherd assisted with the site topography survey, construction plans, and a Phase I Environmental Assessment.

KY PIKE SOLAR - PIKE COUNTY, KENTUCKY
Using contour map data prepared from drone flights, created grading plans for a 900+ acre proposed solar farm. Grading plans included analysis of volume of material to be moved and final configuration plan view and cross-sections.

FRASURE CREEK MINING, LLC - CORPS OF ENGINEERS 401/404 PERMITS - BAISDEN, WEST VIRGINIA:
This project involved the Permit application written and processed for White Oak Surface Mine No. 6. COE 401/404 Permits were also written and processed, which involved stream mitigation work, and benthic studies.

LAUREL CREEK STREAM RESTORATION - BLAINE, KENTUCKY:
This project involved surveying and stakeout of 2,500 linear feet of stream structures to be constructed. Design plans were used to establish vertical control throughout the stream and staked out the longitudinal profile bankfull, top and bottom edges, riffles, cross vanes, J Hooks, and fords of the mainstream and x-weirs for tributaries. As-built structure surveys were performed, and horizontal control was established for future monitoring of the stream.

GEORGIA PACIFIC PROPERTIES ENVIRONMENTAL ASSESS- MENTS - WEST VIRGINIA:
This project was a preliminary environmental inspection of several thousand acres of property as part of Arch's pre-bid assessment. This was a "fast-track" report which involved sending several teams of professionals on ATVs into mountainous terrain with few passable roads. The report was prepared "online" on a hidden website to allow client personnel in multiple locations to review the results simultaneously.

CONFIDENTIAL CLIENT:
Mr. Shepherd used UAS flown mapping to design a backfilling plan for a surface coal mine to facilitate the post-mining land use of a solar farm. Additionally, Mr. Shepherd reviewed the conditions of the approved mine permit to create a plan to rapidly release the permit and install the solar panels within contract terms and permits.

STITES & HARBISON LAW FIRM - ASTM CERTIFIED PHASE I ENVIRONMENTAL ASSESSMENTS -KENTUCKY AND WEST VIRGINIA:
SynTerra (previously ECSI) was contracted to perform ASTM certified/standard Phase I Environmental Assessment of more than 50 tracts located across eastern Kentucky and West Virginia totaling over 15,000 acres. This project involved the expertise of environmental engineers, scientists, geologists, and other field personnel. An extensive background research of each individual tract was conducted to identify past, current, or future environmental impacts from multiple sources including mining, gas & oil wells, farming, waste dumps, etc. An aerial reconnaissance prior to performing actual field work was also performed. In addition to the environmental assessment, potential operational advantages and/or hindrances that could potentially affect the economic viability of the properties were noted.

KLA MINING, INC. - MINE CONSULTING:
Mr. Shepherd has provided guidance and consulting to a new mining company. This project began with the development and submittal of Exploration Permits which led to preparing, submitting, and issuance of SMCRA and KPDES permits. Guidance continued through approval of MSHA Ground Control Plan and Mine Safety and Licensing Permit. Upon disturbance, Mr. Shepherd made multiple site visits to assist strategic planning of the extraction of the coal and sediment control.

ENTACT, LLC - AEP LOUISA POWER PLANT:
Using GPS surveying equipment, Mr. Shepherd surveyed and mapped a 20+ acre coal ash fill. Once a baseline survey was set, Mr. Shepherd returned on a regular basis to calculate landfill material being placed in foreclosure. The client used the data for construction contractor payments.

JERRY BRYANT

PROJECT MANAGER

- 336 Town Mountain Road, Suite 4, Pikeville, KY 41501
- jbryant@synterracorp.com
- 304.687.4115

EXPERTISE

- Surface and underground coal mine planning
- Environmental permitting (including SMCRA and NPDES)
- 401/404 Permitting
- Environmental site analysis
- Blasting and groundwater inventories
- AutoCAD

EDUCATION

- B.S., Biological Science, Marshall University, Minor: Chemistry 2002

REGISTRATIONS/CERTIFICATIONS

- WV Office MHST, Experienced Miner Surface Safety Training

EXPERIENCE SUMMARY

Mr. Bryant is an experienced project manager/scientist in the State of West Virginia. After graduating from Marshall University, he began his career as a middle/high school teacher and coach. In 2006, he began environmental and mining permitting as a project manager with ECSI, LLC. Mr. Bryant became proficient in environmental and mining permitting in West Virginia, preparing WV State 401 permits, U.S. Army Corps of Engineers (USACOE) 404 permitting, and conducting reserve analyses. Mr. Bryant also has experience performing site inspections and evaluations; preparing mapping; interpreting geohydrologic data; preparing and developing mine plans; designing reclamation plans; preparing incremental boundary revisions (IBR), amendments, revisions, renewals; phases and types of releases; prospecting; preparing National Pollutant Discharge Elimination System (NPDES) applications, NPDES reissuances, and NPDES modifications; and building relationships with clients and state and federal agencies to obtain approval of environmental, mining, and water permits expeditiously.

SELECTED KEY PROJECTS

FRASURE CREEK MINING, LLC: SPRING FORK NO. 2 SURFACE MINE; SURFACE MINING CONTROL AND RECLAMATION ACT (SMCRA), NPDES, WV STATE 401, AND USACOE 404 PERMITS APPROVED – MINGO COUNTY, WEST VIRGINIA:
As Senior Project Manager, Mr. Bryant led a team of engineers, scientists, surveyors, and AutoCAD technicians and coordinated with the client and state and federal agencies to gain approval of the necessary permits to allow the pursuit of mining operations in Mingo County, West Virginia.

FRASURE CREEK MINING, LLC: TAYLOR BRANCH SURFACE MINE: SMCRA, NPDES, WV STATE 401, AND USACOE 404 PERMITS APPROVED – FAYETTE COUNTY, WEST VIRGINIA:
As Senior Project Manager, Mr. Bryant led a team of engineers, scientists, surveyors, and AutoCAD technicians and coordinated with the client and state and federal agencies to gain approval of the necessary permits to allow the pursuit of mining operations in Mingo County, West Virginia.

HAMPDEN COAL, LLC: HARRY'S BRANCH POND CREEK DEEP MINE: SMCRA, NPDES, WV STATE 401, AND USACOE 404 PERMITS APPROVED – MINGO COUNTY, WEST VIRGINIA:
As Senior Project Manager, Mr. Bryant led a team of engineers, scientists, surveyors, and AutoCAD technicians and coordinated with the client and state and federal agencies to gain approval of the necessary permits to allow the pursuit of mining operations in Mingo County, West Virginia.

HAMPDEN COAL, LLC: HARRY'S BRANCH PEERLESS DEEP MINE: SMCRA, NPDES, WV STATE 401, AND USACOE 404 PERMITS APPROVED – MINGO COUNTY, WEST VIRGINIA:
As Senior Project Manager, Mr. Bryant led a team of engineers, scientists, surveyors, and AutoCAD technicians and coordinated with the client and state and federal agencies to gain approval of the necessary permits to allow the pursuit of mining operations in Mingo County, West Virginia.

LOGAN COUNTY MINE SERVICES: DAVY'S BRANCH DEEP MINE: SMCRA AND NPDES PERMITS APPROVED – LOGAN COUNTY, WEST VIRGINIA:
As Senior Project Manager, Mr. Bryant led a team of engineers, scientists, surveyors, and AutoCAD technicians and coordinated with the client and state and federal agencies to gain approval of the necessary permits to allow the pursuit of mining operations in Logan County, West Virginia.

REFLECTANCE ENERGY, LLC: SKILLET CREEK SURFACE MINE: SMCRA, IBR, AND NPDES MODIFICATION PENDING APPROVAL– MINGO COUNTY, WEST VIRGINIA:
As Senior Project Manager, Mr. Bryant led a team of engineers, scientists, surveyors, and AutoCAD technicians and coordinated with the client and state and federal agencies to gain approval of an IBR to bring the permit up to current environmental standards for both SMCRA and NPDES to allow the pursuit of mining operations in Mingo County, West Virginia.

TREVOR WHITE

FIELD TECHNICIAN

- 336 Town Mountain Road, Suite 4, Pikeville, KY 41501
- twhite@synterracorp.com
- 864-421-9999

EXPERTISE

- Assisting customers
- Surveying
- AutoCAD
- Sedcad

EDUCATION

- Shelby Valley High School, 2017

REGISTRATIONS / CERTIFICATIONS

- KY surface miner
- KY non-coal Surface
- MSHA Impoundment Inspector
- MSHA Surface/Underground Miner

EXPERIENCE SUMMARY

Trevor serves as a Field Technician for SynTerra. He assists with various jobs at the Pikeville office. While with SynTerra, He has gained experience in AutoCad, SedCad, Carlson, and field projects such as flagging and stockpiles. He also has experience with communication with clients, operating equipment, vehicle maintenance, and navigation for many different routes at previous employers.

SELECTED KEY PROJECTS

KYAML SITE REMEDIATION

Project involves a GPS and sUAS surveying to develop site plans for remedial engineering of adverse conditions throughout several locations in East Kentucky.

COAL MAC STOCKPILE SURVEY

Project involves drone flights and GPS surveys to get the elevation and overall size of the stockpiles compared to what it was prior. The volume of each stockpile was then measured for the company.

REFLECTANCE ENERGY

Permitting technical support using AutoCAD, SedCad, and Slope Analyses software for proposed areas on the permit and drainage areas for the runoff from storms (SWROA modeling). Inspects road sumps, drains, and ponds to ensure compliance with permits conditions.

HEIDELBERG, TYRONE QUARRY

Project involves a GPS surveying in an underground limestone quarry.

CARMEUSE, BLACK RIVER QUARRY, MAYSVILLE QUARRY

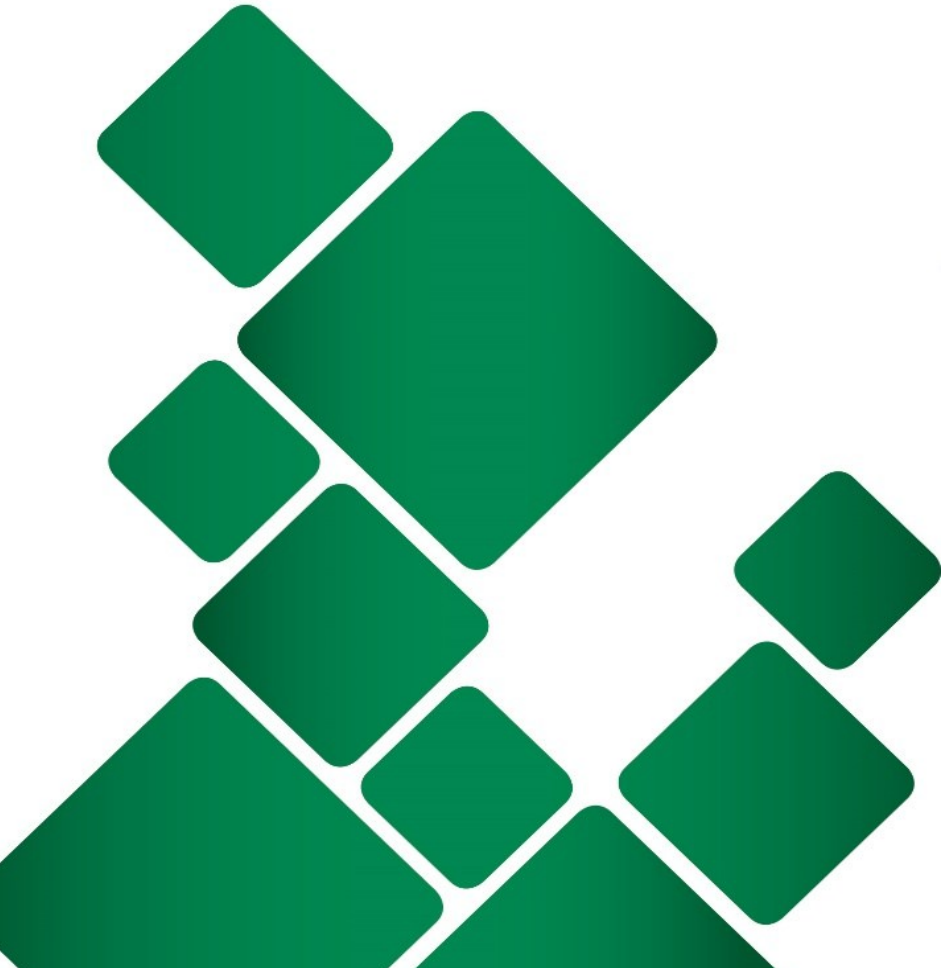
Project involves a GPS surveying in underground limestone quarries with a team of engineers.

VULCAN MATERIALS; CENTRAL QUARRY, RICHMOND QUARRY

Project involves a GPS surveying in underground limestone quarries.

ATTACHMENT D

SERVICES OFFERED AT SYNTERRA



Science & Engineering Consultants

ATTACHMENT D

Science

- Biological and Ecological Services
  - Wetlands delineation
  - Endangered species surveys
  - Ecological and human health risk assessments
- Geology and Hydrogeology
  - Mineral exploration
  - Geochemistry
  - Soil and groundwater contamination assessment
  - Groundwater monitoring and statistical analysis
  - Corrective action plans
  - Aquifer pump tests
  - Groundwater flow and transport modeling
  - Receptor surveys
  - Groundwater to surface water evaluations
  - Remediation implementation and effectiveness monitoring

Property and Industrial Hygiene Services

- Phase I and Phase II Environmental Site Assessments
- Indoor air quality and worker respiratory exposure surveys
- Underground storage tank investigation and remediation

Permitting and Compliance

- Section 404 Wetlands permitting
- Section 401 water quality certification (sediment and erosion control plans)
- Air emissions permitting
- Air emissions monitoring (Method 9)
- Hazardous materials management (RCRA, DOT, TSCA)
- NPDES wastewater discharge permitting
- Mine permitting
- Solid waste permitting
- Water withdrawal permitting
- DOT encroachment permitting
- Industrial compliance plans (SPCC, GWPPP, SWPPP, BMP, *etc*.)
- Machine guarding evaluation

ATTACHMENT D

Engineering

- Process Engineering
  - Wastewater treatment design
  - Air pollution control systems
  - Remediation systems design
- Civil Engineering
  - Hydrology
  - Earthwork (mining, landfills, site development)
  - Geotechnical engineering
  - Water supply and wastewater treatment
  - Landfill design
  - Brownfield redevelopment
  - Construction administration and quality assurance
- Mining Engineering
  - Mine planning
  - Mineral reserve and resource analyses and appraisals
  - Pre-blast surveys
  - Underground pillar stability analysis
  - MSHA Impoundment Design

Surveying

- Topographic surveys (terrestrial, unmanned aerial vehicle)
- Title surveys
- Underground surveys
- Construction layout

Expert Testimony