



terraddon.com

P.O. Box 519
Nitro, WV 25143
Tel: 304-755-8291

P.O. Box 1635
Lewisburg, WV 24901
Tel: 304-645-4636

102 East Maple Avenue
Fayetteville, WV 25840
Tel: 304-541-7655

December 12, 2017

Attn:
Division of Natural Resources
Property of Procurement Office
324 4th Ave
South Charleston, WV 25303

Subject:
WVDNR Wildlife Resources Section (6) Dam Modifications and Repairs RFQ

To Whom It May Concern:

I am pleased to submit the enclosed package for the above referenced project.

TERRADON proposes the following qualifications to provide engineering consulting services for the above referenced. The included package details TERRADON's qualifications, expertise, management and staffing capabilities, prior experience related to the proposed project, and required documentation for consideration.

TERRADON Corporation is a full services engineering firm with locations in ~~Poca, WV~~, Lewisburg, WV and Fayetteville, WV. TERRADON has an experienced team of professionals experienced in site design, civil engineering, and ancillary engineering and construction services to fully service this project.

TERRADON plans to lead this project under the management of Jason Asbury, ASLA, CESSWI, Geo-Environmental and Testing & Inspection Vice President and under the lead engineering services of John James, PE.

Upon your review of the enclosed, please do not hesitate to contact me at 304-755-8291 with any questions or concerns. I look forward to hearing from you soon.

Sincerely,

Ryan Wheeler
Director of Business Development





State of West Virginia
Expression of Interest
Architect/Engr

Procurement Folder : 393240

Document Description : A/E Services for Modifications/Repairs of Six (6) Dams

Procurement Type : Agency Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version	Phase
2017-11-10	2017-12-13 13:30:00	AEOI 0310 DNR1800000005	1	

SUBMIT RESPONSES TO:

BID RESPONSE

DIVISION OF NATURAL RESOURCES
PROPERTY & PROCUREMENT OFFICE

324 4TH AVE

SOUTH CHARLESTON

US

WV

25303-1228

VENDOR

Vendor Name, Address and Telephone

FOR INFORMATION CONTACT THE BUYER

Angela W Negley

(304) 558-3397

angela.w.negley@wv.gov

Signature X 

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

Date Printed : Nov 08, 2017 Solicitation Number : DNR1800000005

FEIN # 55-0687626

Page : 1

DATE 12/12/17


FORM ID : WV-PRC-AEOI-001

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.

Jason Ashbury, VP Geo-Env/Testing/Inspection
(Name, Title)
Jason Ashbury, VP Geo-Env./Testing/Inspection
(Printed Name and Title)
409 Jacobson Dr., Poca, WV 25159
(Address)
304-755-8291 / 304-755-2636
(Phone Number) / (Fax Number)
Jason.ashbury@terraddon.com
(email address)

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

TERRADON Corporation
(Company)


(Authorized Signature) (Representative Name, Title)

Bill Hunt, President
(Printed Name and Title of Authorized Representative)

12/12/17
(Date)

304-755-8291 / 304-755-2636
(Phone Number) (Fax Number)

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)

- | | |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> 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.

TERRADON Corporation
Company


Authorized Signature

12/12/17
Date

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

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

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

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

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

DEFINITIONS:

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

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

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

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

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: TERRADON Corporation

Authorized Signature: [Signature]

State of WV

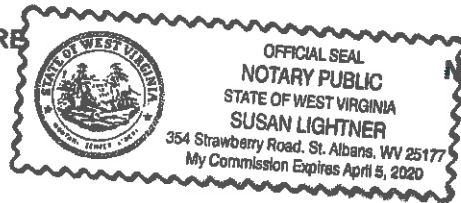
Date: 12/12/17

County of Putnam, to-wit:

Taken, subscribed, and sworn to before me this 12 day of December, 2017

My Commission expires April 5, 2020, 20

AFFIX SEAL HERE



NOTARY PUBLIC [Signature]



SUBMITTED BY:
TERRADON Corporation
P.O. Box
Nitro, WV 25143
304-755-8291

PERSON OF CONTACT:
Ryan Wheeler
Director of Business
Development
ryan.wheeler@terradon.com
304-729-9176
www.terradon.com

STATEMENT OF QUALIFICATIONS

WV Division of Natural Resources
Wildlife Resources Section
Dam Modifications and Repairs

Division of Natural Resources
Property & Procurement Office
324 4th Ave
South Charleston, WV 25303

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FOUNDED: 1989

EMPLOYEES: 65

LOCATIONS:

Poca, WV
Lewisburg, WV
Fayetteville, WV

SERVICES:

Geotechnical Engineering
Environmental Engineering
Transportation Engineering
Structural Engineering
Testing & Inspection
Construction Monitoring &
Administration
Cultural Resources
Archaeological
Civil Engineering
Land Planning & Design
Survey & Mapping
Water, Wastewater, & Storm Water

TERRADON Corporation offers a multi-faceted approach to design engineering and consulting services. For more than 25 years TERRADON staff has provided a wealth of engineering solutions blanketing West Virginia and surrounding states with successful projects. The company built its reputation on expert personnel and quality, time-sensitive service. Those same founding principles hold true today.

The firm has been recognized through numerous awards from professional organizations and agencies including the American Society of Civil Engineers, State Highway Departments, the Department of Environmental Protection and the American Institute of Architects.

TERRADON's diverse team of professionals work together on projects to offer a wide range of services in house to keep project centrally focused. By providing this range of services, TERRADON is able to work completely as a team to offer clients the most rewarding design.

TERRADON has experience working on projects funded by various agencies. Because of the variety of funding options for projects, TERRADON maintains in-house grant writing staff and support to help make funding client projects easier.

TERRADON maintains professionally registered engineers, landscape architects, and surveyors as well as a competitive team of highly certified inspectors and environmental specialists.

TERRADON's corporate culture promotes innovation and progressive thinking. Project leaders strive to sustain customers through a wide-range of engineering offerings. TERRADON employees understand the purpose behind their services and work to cultivate lasting relationships with clients through honest, hard work.



TERRADON is the largest woman-owned engineering firm in West Virginia. TERRADON is a certified Women's Business Enterprise as defined by the Women's Business Enterprise National Council and the National Women Business Owners Corporation.





TERRADON offers materials testing and construction monitoring services to document compliance with project design specifications and regulatory requirements. The firm provides construction monitoring for utility, highway, and commercial construction projects.

TERRADON also provides laboratory and field testing of construction materials. Engineers and technicians at TERRADON are West Virginia Department of Highways certified in Portland Cement Concrete, Hot-mixed Asphalt, Compaction and Aggregates.

MATERIALS TESTING & INSPECTION

- Slump of Portland Cement Concrete (AASHTO-T119)
- Air Content of Freshly Mixed Concrete (AASHTO-T196 and T152)
- Unit Weight and Yield (AASHTO-T121)
- Making and Curing of Concrete Test Specimens (AASHTO-T23)
- Compressive Strength of Concrete Specimens (AASHTO-T22)
- Fine and Course Aggregate Gradations (AASHTO-T11 and T27)
- Specific Gravity of Aggregates (AASHTO-T84 and T85)
- Atterberg Limits (AASHTO-T89 and T90)
- Moisture Content of Soil (ASTM-D2216)
- Nuclear Compaction Testing of Soil, Stone, and Hot Mixed Asphalt
- Preparation of Certification Forms and Construction Reports
- Welder Certification

CONSTRUCTION MONITORING

- Document compliance with project design specifications
- Ensures compliance with regulatory requirements
- OSHA 10-Hour and 30-Hour Construction Safety & Health Certified

SPECIALTY TESTING & INSPECTION

- Floor Flatness Testing
- Fireproofing
- Masonry Testing
- Structural Steel Inspection Certified
- Welding Inspection
- Dye Penetrant Testing
- Bolt Testing
- Project Safety Monitoring
- FAA Eastern Regional Laboratories



Constantly changing federal and state environmental requirements are difficult to track and can have a serious impact on businesses and other organizations. TERRADON offers a strong environmental services team to manage issues in a complex environment. Staff is well-versed on environmental permitting processes and regulations as well as site assessment and reporting.

TERRADON closely follows **environmental** activities on the local, state and federal levels. TERRADON has a thorough understanding of state and federal environmental permitting processes and regulations. This expertise applies to both the initial permit preparations, as well as subsequent negotiations affecting the permit. The firm's strength in addressing environmental issues is built on the diversity of its staff with credentials in chemistry, civil engineering, geotechnical engineering and geology.

SERVICES INCLUDE

- Environmental Site Assessments
 - Phase I ESA
 - Phase II ESA
- Hazardous Waste
- Process Water
- Wastewater
- Storm Water
- Groundwater
- Air Permitting
- Risk Management Plans
- Wetland Delineation
- Tier II Reporting
- Emergency Response Plans
- Environmental Audits
- Environmental Remediation
- NEPA Compliance
- Asbestos and Lead Inspection
- Underground Storage Tanks
- Impoundment Stabilization & Closure
- SPCC Planning
- BMP Planning

TERRADON's experienced environmental staff routinely performs Waters of the US determinations, wetland delineations, Nationwide Permits as well as Individual 404/401 Permits with the Army Corps of Engineers and West Virginia Department of Environmental Protection (WVDEP). TERRADON has performed hundreds of wetland delineations using the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Corps, 2012).

TERRADON has performed floodplain modeling and elevation studies according to FEMA, state, and local floodplain coordinators. Our permitting team has performed numerous assessments and documentation according to FEMA standards for our clients.

Project Owner



PROJECT PRINCIPAL,
POINT OF CONTACT

JASON ASBURY, ASLA, CESSWI

LEAD PROJECT ENGINEER

JOHN JAMES, PE

GEOTECHNICAL ENGINEERING

JOHN JAMES, PE
CHRIS HANCOCK
MARK CLUTTER

ENVIRONMENTAL

BILL HUNT, PG, LRS
ANDREW ROBINSON, PG
CLAYTON GUE

SURVEY

ROBERT THAW, PS
DAVE BROWN, PS
BRIAN BAKANAS, PS

TESTING & INSPECTION

MIKE WARD
DAVE WALLACE
CHRIS MORRIS

CIVIL ENGINEERING

JOE SAUNDERS, PE
ROBERT SIMMONS, PE
MIKE PYLES, PE



**MALLARD DAM
GLADE SPRINGS, WV**

**Cost: Est.: \$150,000
Contact: JW Hamm**

**Prime Firm: TERRADON
Role: Engineer
Location: Poca, WV**



Mallard Dam presents a difficult situation relative to the Dam Safety Rule (47CSR34) requirements. The hazard potential is represented solely by the heavily traveled roadway on the crest of the dam. The dam has overtopped at least twice previously and has a relatively large watershed which will result in future overtopping of the embankment due to inadequate spillway capacity combined with insufficient reservoir storm water storage. While the rule has provisions to determine hazard potential classifications in scenarios where houses and roadways exist downstream, it contains no specific guidance regarding hazards on the crests of dams. The lack of Rule guidance requires DEP to make design approval conditions and set precedent for this situation based upon its core dam safety mission – the protection of lives and property.

The hydraulic and hydrological studies and designs were performed using Soil Conservation Service (SCS) methods and computer program (SITES) to estimate potential runoffs and route resulting runoffs through the principal spillway pipes and dam overtopping. The dam was analyzed for a 100 year storm and the design storm (1/4PMP storm). It was found that the existing dam would overtop during a 100 year storm event by about 1 inch, thus the dam's principal spillway was upgraded. Additionally, the dam upgrade was designed to be overtopped by generally flattening the downstream slope to 5:1 (also providing an internal chimney drain) which also improves the stability of the dam. It was found that grassed permanent Erosion Control Matting (ECM) would provide the necessary shear resistance with a (considerable) Safety Factor of 2.

The proposed internal chimney drain resulted in an upgraded Static Safety Factor of 1.85 and Seismic Safety Factor of 1.3. The Sudden Drawdown condition is not applicable because there is no drain provided (grandfather provision). This is further justified due to the relatively shallow (<5 feet) depth of the pool.

**BLUESTONE DAM PHASE IV
DAM STABILITY
HINTON, WV**

Cost: Est.: \$94,788,808
Owner: United States Army Corp of Eng.
Contact: Aaron Reel, Project Manager,
304-376-8140

Prime Firm: TERRADON
Role: Engineer
Location: Poca, WV



TERRADON has performed the construction engineering and structural inspection during the Phase 4 Dam Safety project at the Bluestone Dam. The project is currently in its third year, and is expected to be completed in 2019. TERRADON performs routine inspections on all elements of the drilling platform. The steel decking is checked for deformation, section loss, confirmation that no gaps between adjacent panels exist, that all welds are performed, and that no panels are placed in such a manner that undue stresses will be introduced. We check the stringers for deformation, section loss, and that all bolts are properly installed. All connections at the dam face are checked for proper bearing onto the concrete, and the soundness of the concrete is confirmed. TERRADON worked closely with the contractor and various fabricators to develop and approve welding procedures in accordance with AWS D1.5 for these critical items. TERRADON was intimately involved in verifying the setting of welding equipment, the travel speed, welding materials, preheat application, interpass temperatures and proper position. TERRADON also reviewed all ultrasonic and radiographic testing performed during the development of the welding procedure and welder qualification.

TERRADON performed a detailed analysis of the existing stringer-on-pier system that was in place when the current contractor was awarded the project. The platform system originally consisted of nine (9) HP-14x89 stringers spaced at 3'-0-3/8". There have been a maximum of 107 pier systems installed at any given time, and the platform has been lowered 8'-0" in elevation twice, for a total of 16'-0".

The analysis of this platform included placing multiple pieces of equipment that included, but is not limited to a 150 ton crane, a 20 ton carrydeck, and a 22.5 ton drill rig at various locations on the platform in order to determine the governing load condition for the various structural steel elements. Because of the angle of the pier column, tension forces are induced into the pier cap. These forces are transferred to the dam by way of two (2) 2" diameter Williams Forms Spin Lock anchors. It was later required for the spans in key locations to be doubled to 15.2', while maintaining access for all equipment. In order to do this, deeper stringers (W24x84) were required. Because of this increased depth, as well as the fact that the HP14x89 stringers were still in use in adjacent locations, it was required that the new W24x84 stringers have the bottom flange and portions of the web coped at the ends. A new bottom flange, as well as bearing stiffeners was designed, and a complete fatigue analysis was performed to confirm that this was an acceptable design approach. Modifications to the column base plates were also required, adding an additional 2' to the overall length, and performing a full penetration groove weld on the 2-7/8" thick plate. Finally, a "fender" system was developed in order to protect portions of the column that have the potential to be submerged during high water events from woody debris collisions.

**PETTIGREW LAKE
TORNADO, WV**

Cost: Est.: \$100,000
Owner: Kanawha County
Parks & Rec

Prime Firm: TERRADON
Role: Engineer
Location: Poca, WV



Pettigrew Lake is located in the Meadowood Park in Tornado, WV. The recreational lake is approximately eight acres with an average depth of 10 feet. Over the course of several years, the dam had been significantly weakened by burrowing animals, which resulted in a near breach of the dam, plus the cmp outlet structure had mostly deteriorated. The dam had been damaged for approximately 10 years and the public facility was in disrepair. The Kanawha County Parks & Recreation Commission did not have adequate budget to make the repairs, as there were higher priorities for allocated funds.

Through the cooperative efforts of volunteers organized by the Coal River Group (a nonprofit community organization), the Kanawha County Parks and Recreation Commission and WVDEP granted permission to proceed with the project. TERRADON Corporation volunteered its engineering services to design plans for the repair of the dam structure. The design for the repair of the dam consisted of establishing an access road and compacted fill material to seal a 15 foot breach in the existing dam plus the installation of a new HDPE outlet structure. Massey Coal Services brought in a five man crew and bulldozers to carry out the construction of the design plans.

**CHATHAM LAKE DAM
GLADE SPRINGS, WV**

Cost: Est.: \$1,300,000

Owner: Glade Springs

Prime Firm: TERRADON

Role: Engineer

Location: Poca, WV



The general project included development of residential properties around an upscale golf resort in southern West Virginia. Initial involvement included planning, which evolved from three smaller dams and lakes to one large dam and lake. The chosen design resulted in a 70' high dam with one 70 acre lake. Studies included water balance studies including low flow augmentation requirements and golf course irrigation requirements. Of interest: it was found that low flow augmentation requirements, irrigation needs and peak summer evaporation rates were each about equal. After selecting appropriate lake and dam sizing, the dam was designed with safety and cost effectiveness paramount.

Several cost-saving innovations/items were incorporated into the design, including optimizing the use of available materials in a zoned earth and rock fill embankment, the use of a manhole riser as opposed to standard lake riser, (this was permitted as innovative/experimental by West Virginia Dam Safety), and the use of rigid/flexible principal spillway outlet pipe. (Designer John James partnered with WVDEP Dam Safety Engineer on a Paper presented at the ASDSO Southeast Regional Conference, Charleston, WV, May 4, 2010). This procedure provided for the use of high strength concrete pipe with limited flexibility joints to be installed in a flexible configuration within the dam as opposed to conventional concrete cradle on bedrock. This procedure included filling the dam to the half diameter elevation of the outlet pipe, cutting a "cradle" the size for the pipe for it to rest in. Dusting the cradle and top of pipe with dry bentonite (key for seepage control) and continue filling of the dam. While both these procedures were considered somewhat controversial by some peers, monitoring has indicated very successful performance to date. While such "new" or "experimental" practices may not be appropriate for USACE dam projects, it demonstrates TERRADON's willingness and ability to develop, consider and design cutting-edge and innovative solutions. It is estimated that these innovations saved up to 50% on the cost of the dam.

Other design procedures included hydraulic design to provide a nearly constant lake level (the difference in lake level between normal pool and 100 year pool is only one foot, as requested by developer). The design also included dambreak modeling (using both the National Weather Service Dambreak and HEC-RAS programs) and development of downstream inundation maps and resultant emergency action plan. The cost of the dam project was about \$1.3 Million.

Appendix A:
Resumes

JASON ASBURY, ASLA, CESSWI

VP GEO-ENVIRONMENTAL & FIELD SERVICES

EDUCATION

B.S. Landscape
Architecture
West Virginia
University

WORK EXPERIENCE

TERRADON
Corporation
2010-Present

Robert Gabriel &
Associates
2009-2010

R.G.S. Associates,
Inc.
2004-2009

CERTIFICATIONS

Certified Erosion
Sediment Storm
Water Inspector

38 Hour USACE
Wetland Delineation
Training

30 Hour OSHA
Construction Safety
& Health Certification

40 Hour OSHA
HAZWOPER
Certification

OSHA Confined
Space Entry Trained

OPEC SafeLandUSA

Jason Asbury is the Vice President of Geotechnical, Environmental and Field Services at TERRADON. Additionally, Asbury is a Geo-Environmental Project Manager and serves as an Environmental Agency Coordinator. Acting as regulatory liaison/coordinator, Asbury provides critical project support for specialized permitting and erosion and sediment control planning, as well as conducting field work for wetland assessment/ delineation projects and Section 404/401 permitting. Asbury is also responsible for scheduling and coordinating field service teams for Construction QA/QC services. Asbury also provides site grading, landscape and utility plans, site detailing and erosion sediment control plans and permitting for energy, commercial, and educational projects.

PROJECT EXPERIENCE

The Bechtel Summit National Scouting Reserve

Served as Regulatory Coordinator for a 10,600+- acre recreational development in Fayette County, WV, acting as the primary contact with the WVDEP on behalf of all contractors and consultants, for more than 50 site permits. Task included NDPEs design and permitting, including erosion and sediment control, for multiple contractors/consultants with the WVDEP. Also coordinated monthly site inspections with representatives from the WVDEP and numerous on-site contractor representatives. The project included 550,000 tons of aggregate, 600 acres of grading activities, 28 miles of drainage swales, 14 miles of new road construction, 4 earthen dams, and more than 60 miles of new utility installation.

Above Ground Storage Tank Inspections (WVSB 373 Compliance)

Served as Regulatory Coordinator and Project Manager for Approximately 1,800 Above Ground Storage Tank Inspection across the State of West Virginia. Task included inspections of AST's, certification of tanks, submitting certifications to WVDEP for compliance. Inspections of the AST's included a visual inspection to determine if the tank was structurally sound and fit for service. Inspection and certification of secondary containment was also conducted to determine if proper spill prevention, control, and countermeasures were in place.

Tanyard Station

Served as Project Manager and Regulatory Coordinator for a 50 Acre mixed use commercial development located in Barboursville, WV acting as the primary contact with the WVDEP, US Army Corps of Engineers, US Fish and Wildlife, as well as the Village of Barboursville. The Tanyard Station project was a collaborative design effort between TERRADON and SITE Incorporated from Knoxville Tennessee. The site design included removing 956 linear feet of Tanyard Branch a Perennial Stream and re-routing the existing stream through a new 6'x8' concrete box culvert. Tasks included, conducting field assessments to determine quality of existing Tanyard Branch, preparation of sediment and erosion control plans and obtaining NPDES Permit Approval from West Virginia Department of Environmental Protection, coordination of habitat analysis study, coordination of FEMA Flood Study for Tanyard Branch, coordination of structural design of proposed box culvert, coordination of sanitary sewer and water design as well as health department permitting, coordination of all utility and access permits required from West Virginia Department of Highways.

EDUCATION

B.A. Civil
Engineering
West Virginia
Institute of
Technology

**WORK
EXPERIENCE**

TERRADON
Corporation
2004-Present

James
Engineering
1983-2004

Triad Engineering
1978-1983

James
Engineering
1973-1978

Ackenherl &
Associates
1968-1973

REGISTRATION

Professional
Engineer: WV

John James is a Senior Geotechnical Engineer for various dam, landslide, foundation investigation/design, transportation, environmental, site selection, and mining projects. He has over 48 years of experience practicing engineering in WV and surrounding states. James specializes in innovative and cost-saving concepts for his projects. Coupled with his hands on common sense approach to projects, he works with many of the accepted geotechnical and other engineering software applications for latest technical solutions.

PROJECT EXPERIENCE**Upper Glade Creek Water Supply Dam
Beckley, WV**

Geotechnical Engineer. The \$205K project included providing an additional 15 days of storage for drought conditions for Beckley Water Company. The selected water storage facilities included the Lower and Upper Glade Creek Dams. The study/design was complicated by the necessity to route design floods through the upstream Flattop Lake. The Lower Dam is a concrete weir type dam, and the impoundment is bisected by WV Route 3. The upper dam is a 76 foot high earth and rock fill dam built circa 1977. The study phase included: 1) evaluating the installation of automatic gates on the lower water supply dam, which would be operated during "normal" flood events to prevent overtopping of WV Route 3 during flood events less than 100 years, 2) provide storage during drought conditions, 3) increasing the pool volume by dredging and excavating below the pool level, 4) constructing another dam on water company property, and 5) using an innovative method of raising of the lake level in the upper impoundment. Cost analysis indicated that raising the lake level in the upper reservoir would be the least expensive.

**Chatham Lake Dam
Glade Springs, WV**

The \$1.3 million dam project was complicated by the development of residential properties around an upscale golf resort in southern West Virginia. Initial involvement included planning, which evolved to combine three smaller dams and lakes to one large dam and lake. The chosen design resulted in a 70' high dam with one 70 acre lake. Studies included water balance studies including low flow augmentation requirements and golf course irrigation requirements. It was determined that low flow augmentation requirements, irrigation needs and peak summer evaporation rates were each about equal. After selecting appropriate lake and dam sizing, the dam was designed with safety and cost effectiveness paramount.

**Dawson Dam
Dawson, WV**

The developer desired a lake as a design feature for a residential development in Dawson, Greenbrier County, WV. The initial scope included a study of dam height/cost/lake area and included some non-engineering aspects as aesthetic details. As a residential feature, the developer was interested in the lake area as opposed to water volume. After the lake area was chosen, TERRADON designed the dam to be as economical as possible and included such innovative concepts as making a portion of the emergency spillway a wetland as part of necessary mitigation. TERRADON also provided QC and construction certification for the Dawson Dam and provided the required dam safety inspections since the completion of construction. Services included the development of an Emergency Action Plan and an Operation and Maintenance Plan for the Dawson Dam. Total construction costs totaled \$350K.

RESUME CONT. | JOHN JAMES, PE

Water Supply Dams, Design & Upgrades West Virginia, Statewide

Provided upgrade and design services for various water supply dams throughout West Virginia. Projects include: Upper & Lower Dog Run Dams, Salem, West Virginia; Key Dam, Bluefield, West Virginia; and Weston Water Supply Dam, Weston, West Virginia. Geotechnical analysis and studies included: seismic analysis and monitoring; seepage analysis and corrective design; and reconstruction and structural design components.

Bluestone Dam Structural Design & Inspection Hinton, WV

Designs included structural cantilevered steel framing anchored to the sloped downstream face of the dam that supports drilling operations for anchor installation and a 150 ton crane. The cantilevered platform extends 32' from the face of the dam, with supports spaced up to as much as 15'. This spacing provides main support members to accommodate the full weight of the 150 ton crane and support vehicles, and requires a detailed examination of fatigue prone members for the design service life of the project. All members below high water level were designed to support full loadings and force effects from water and debris collisions.

EDUCATION

B.S. Civil
Engineering,
West Virginia
Institute of
Technology

**WORK
EXPERIENCE**

TERRADON
Corporation
2012-Present

ms consultants
2003-2012

Buchart Horn
1998-2003

Laborers Union
1990-1998

REGISTRATION

Professional
Engineer:
WV, OH, VA, NC,
KY, NV

Joe Saunders is a Professional Engineer, licensed in West Virginia, Ohio, Virginia, North Carolina, Kentucky and Nevada. Saunders offers a wealth of experience through projects performed for the West Virginia Department of Transportation and Ohio Department of Transportation and the related to engineering design and plan development for structures and roadways.

As Lead Designer for Transportation at TERRADON Corporation, Saunders is responsible for the development of construction plans for transportation, including bridge replacements and rehabilitations, roadway and highway design, right-of-way plans, and ancillary design. Additional responsibilities include preliminary design and reports, construction plans and specifications, construction estimates, contracts and bidding review, and construction engineering. Saunders directs the highway design team at hydrology and hydraulic calculations. Saunders also works with the highway design team to schedule manpower and capacity for design projects and provides daily coordination of project tasks with clients/owners. With 18 years of experience as a designer and almost a decade of additional experience in highway and bridge construction, Saunders is experienced with all critical elements required of this contract.

PROJECT EXPERIENCE**Bluestone Dam Structural Design & Inspection
Hinton, WV**

Senior Design Engineer for the Bluestone Dam Phase IV Construction team. Designs included structural cantilevered steel framing anchored to the sloped downstream face of the dam that supports drilling operations for anchor installation and a 150 ton crane. The cantilevered platform extends 32' from the face of the dam, with supports spaced up to as much as 15'. This spacing provides main support members to accommodate the full weight of the 150 ton crane and support vehicles, and requires a detailed examination of fatigue prone members for the design service life of the project. All members below high water level were designed to support full loadings and force effects from water and debris collisions.

US-35 Design**Mason County, WV**

Served as Principal Designer on the design of this 3.5 mile section of divided four lane highway on a new alignment with up to 4 million yards of excavation, several bridges and culverts, and a half mile of stream relocation. The design was completed on a fast track schedule within 6 months (instead of normal 18 month). Saunders coordinated this effort and provided quality control on this \$48M project by directing as many as 45 professionals at any time. The project won the engineering excellence award, the bids were under budget and was constructed with no change orders.

Corridor H**Grant County, WV**

Served as Principal Designer on the design of this 2.5 mile section of divided four lane highway on a new alignment with several million yards of excavation, culverts, access roads and complete right of way plans. Saunders coordinated this effort by partnering with WVDOH and various environmental permitting agencies in the early stages of the design to meet the schedule. The project won the engineering excellence award, the bids were under budget and was constructed with no change orders.

ROBERT SIMMONS III, PE

SENIOR ENGINEER

EDUCATION

B.S. Civil
Engineering,
West Virginia
Institute of
Technology

WORK EXPERIENCE

TERRADON
Corporation
2011-Present

Chapman
Technical Group
2009-2011

HC Nutting
2007-2009

REGISTRATION

Professional
Engineer: WV

Robert Simmons serves as a Project Engineer at TERRADON Corporation. He offers a background in structural, highway, geotechnical, and hydraulic design, as well as material testing and inspection. He has provided services on a number of projects throughout West Virginia, Virginia, Kentucky, and Ohio.

PROJECT EXPERIENCE

Bluestone Dam Phase IV, Summers County, WV.

Simmons was a Senior Design Engineer for the Bluestone Dam Phase IV Construction team. Designs have included structural cantilevered steel framing anchored to the sloped downstream face of the dam that is able to support not only the drilling operations for anchor installation, but also a 150 ton crane. The cantilevered platform extends 32' from the face of the dam, with support spacing in excess of 15'. The design required not only that each main support member was able to accommodate the full weight of the 150 ton crane and supply vehicles, but also required a detailed examination of fatigue prone members for the design service life of the project. An additional design concern was that all members below high water level had to be designed to support full loadings, along with force effects from water and debris collisions.

Catfish Man of the Woods Bridge, Cabell County, WV.

Simmons was a Senior Design Engineer for the design of the replacement of the Catfish-Man-of-the-Woods-Bridge. Tasks included assisting with the layout of the new bridge and roadway alignment, design of cantilever wing walls with up to 18 foot heights, drilled shaft foundations, semi-integral abutments, reinforced elastomeric bearings, spread pre-stressed box beams, and reinforced concrete deck. He also provided technical assistance to junior staff.

Portsmouth Bypass Design/Build, Scioto County, OH.

Simmons was a Senior Design Engineer for the design of two bridge for the proposed Portsmouth Bypass Design Build project. Tasks included assisting with the layout of new bridges, driven pile foundations, integral abutments, reinforced and un-reinforced elastomeric bearings, pre-stressed bulb "T" beams, and a 35' tall cap and column pier. He also provided technical assistance to junior staff.

Noise Wall Design, Montgomery County, OH.

Simmons was a Design Engineer assisting in the design of the drilled shaft foundations, FAA aeronautical clearance requirements, and plan review of the free standing noise wall located adjacent to I-75 near Dayton, OH.

Value Engineering for Sections 3 and 5 of Corridor "H", Tucker County, WV.

Simmons aided in the design of roadway drainage, super elevations, and vertical geometry. He also provided assistance with plan and cross section review and quantities.

MIKE PYLES, PE

SENIOR PROJECT ENGINEER

EDUCATION

A.S. Mining
Engineering
Technology
West Virginia
Institute of
Technology

B.S. Civil
Engineering
West Virginia
Institute of
Technology

M.S. Engineering,
Marshall University

WORK EXPERIENCE

TERRADON
Corporation
2009-Present

HTNB Consulting
Engineers
1997-2009

Kelley Gidley, Blair
& Wolfe
Consulting
Engineers
1986-1997

WV DNR
1978-1986

WV DOH
1973-1978

REGISTRATION

Professional
Engineer: WV

Mike Pyles is a Senior Project Engineer for various civil and environmental engineering projects with emphasis on transportation, water, and sewer projects. Pyles is responsible for engineering studies, design, contract documents, engineering analysis, computer modeling, regulatory compliance, and permitting with emphasis on public water and sewer systems.

PROJECT EXPERIENCE

- Fairmont Gateway Connector, Fairmont, WV**— Design Engineer for the storm water system on a WVDOH project for the relocation and upgrade of WV 273 to a four-lane divided highway and a new interchange with I-79.
- Corridor H – Davis to Bismarck Section 3, Tucker County, WV** – Design Engineer for the revised storm water ditch design on a WVDOH project for Corridor H – Davis to Bismarck Section 3.
- Corridor H—Davis to Bismarck Section 5, Tucker County, WV**—Design Engineer for the revised storm water ditch design on a WVDOH project for Corridor H – Davis to Bismarck Section 5.
- Huntington Mall Road, Cabell County, WV** – Design Engineer for the storm water system and culverts on a WVDOH project for the upgrade of US Rt. 60, Mall Road, and Ring Road, and the new road crossing over I-64 from US Rt. 60 to Ring Road to better accommodate Mall traffic.
- Culloden I/C, Cabell & Putnam Counties, WV** – Design Engineer of the storm water system on a WVDOH project for the I-64 interchange and modifications of Route 60/21.
- North Mineral Wells Relocated WV 14, Mineral Wells, WV**— Design Engineer for the storm water system and culverts on a WVDOH four lane divided highway project for the relocation and upgrade of approximately 1.5 miles of WV 14.
- Pleasant Valley I/C to WV Route 310 I/C, Marion County, Fairmont, WV** – Design Engineer for the storm water system on a WVDOH project for the widening of approximately 1.5 miles of I-79 from a 4-lane road to an 8-lane road.
- Harsh Sugar Camp Bridge, WV**— Design Engineer for a scour analysis of the piers and abutments on a replacement bridge for a WVDOH project.
- Fort Seybert Bridge, WV** – Design Engineer for a scour analysis of the piers and abutments on a replacement bridge for a WVDOH project.
- US Route 35 Relocation, near Buffalo, WV** – Design Engineer for a scour analysis of the piers and abutments on three new bridges for a WVDOH project. Design Engineer for the storm water system and culverts on a WVDOH four lane divided highway project for the relocation and upgrade of approximately 3 miles of US 35 to a four-lane divided highway.
- New River Bridge, Hinton, WV** – Design Engineer for a scour analysis of the piers and abutments on an existing bridge for a WVDOH project.

MIKE WARD

EDUCATION

B.A. Accounting,
Marshall University

Engineering &
Construction
Management,
West Virginia State
University

**WORK
EXPERIENCE**

2009 - Present
TERRADON
Corporation

Thrasher
Engineering

Day & Zimmerman

Ghosh Engineering

CERTIFICATIONS

WVDOH Aggregate
WVDOH
Compaction

WVDOH Portland
Cement Inspector

WVDOH Portland
Cement Technician

OSHA 10-Hour
Construction Safety
and Health

WVDOH
Bridgemont TRET
Certification—Level
III

OPEC
SafeLandUSA

Michael Ward serves as a Senior Field Technician for TERRADON Corporation. He has provided construction management, construction observation, testing, and inspection services in the engineering industry for 30 years. Ward serves as a third-party independent inspector, or the owner's representative for municipal, commercial and industrial projects. He has extensive experience in heavy highway construction, underground utilities, soils, asphalt, concrete, grout, auger cast piles, and anchor testing.

PROJECT EXPERIENCE

**The Summit Bechtel Family National Scouting Reserve
Glen Jean, WV**

As the Senior Inspector, provided QA/QC inspection services during the construction of four (4) earthen dams. Inspection consisted of the observation of fill placement, soil compaction testing of fill, observation of concrete placement for spillways and strength testing of concrete. In addition, Mr. Ward performed evaluations of soil borrow areas used as fill material for the construction of these four (4) dams. Daily and weekly inspection logs were completed and turned into the client for documentation of construction activities and progress. In addition, the Senior Inspector led the construction inspection team which oversaw QA/QC on 14 miles of new road construction built to WVDOH specifications; installation of 64 miles of underground utilities, including 21 miles of waterline, 24 miles of sewer line, 17 miles of electric conduit, and 2 miles of gas lines; installation of the largest grey/ Blackwater sewage system east of the Mississippi. The camp also had 600 acres cleared, grubbed and graded with 28 miles of drainage swales, including erosion and sediment control best management practices. The work also included the testing of over 7,000 CY of structural concrete and over 5 Million CY of mass excavation and compaction. In addition 4 earthen dams were built with over 800,000 CY of embankment.

**Above Ground Storage Tank Inspections
West Virginia, Statewide**

Senior Inspector for approximately 1,800 Aboveground Storage Tank (AST) inspections. Task included navigation to and conducting field inspections of AST's according to the specifications of WVDEP. Tanks were certified as Fit for Service, Fit for Service but Repairs Required, or Not Fit for Service. The field inspections also included marking each AST with the company emergency contact number, WVDEP's emergency spill number, and the WVDEP tank identification number.

**City of Dunbar Wastewater Treatment Plant
Dunbar, WV**

Construction Manager and Field Inspector 10M Wastewater treatment plant and storm and sanitary line upgrades for the City of Dunbar, WV and the West Virginia Department of Environmental Protection. Contracts 2&3 installation of storm conduit and wastewater piping Inspection of 50,000 ft. of waste water and sanitary piping. 48" to 6". Excavation depths 6' to 28' monitoring excavation, backfill and compaction procedures and road repairs to ensure compliance with approved plans and specifications, inspection for alignment, grade and leakage. Extensive documentation and resolve of any complaints concerning construction activities.



ROBERT THAW, PS

LEAD SURVEYOR

EDUCATION

A.S. Survey
Technology, West
Virginia Institute of
Technology

B.S. Surveying,
West Virginia
Institute of
Technology

WORK EXPERIENCE

TERRADON
Corporation
1994-Present

Bowman Land
Surveying
1992-1994

Dunn Engineers
1990-1992

Kelley Gidley Blair
& Wolfe
1988-1990

Pierson &
Whitman
Architects and
Engineers
1984-1986

REGISTRATIONS

Professional
Surveyor: WV

With more than 30 years of experience in a wide range of surveying projects Robert Thaw serves as head of TERRADON's Survey and Mapping department. He organizes and supervises survey crews, reviews project plans, and creates base mapping for various projects including noise barriers, interchanges, connectors, bypasses, sidewalks, bike paths, and bridges. Thaw oversees all TERRADON survey activities, including: preparation of Right-Of-Way plans; the development of GPS static networks for aerial mapping in the design of roadways; identification of existing utilities and property lines; base image development and control placement for construction projects; and drafting of legal descriptions for ROW parcels.

PROJECT EXPERIENCE

Laurel Fork Campground Bridge

TERRADON provided surveying and design engineering on a USDA Forest Service project in Randolph County, West Virginia. Surveyors led by Thaw provided Right-Of-Way services, including courthouse research, construction easements, and location of alignments. Additionally, provided topographic mapping, project control for construction, hydraulic cross sections, and stream profiles.

Sedalia Arch Bridge

Thaw oversaw survey services for the replacement of an existing concrete arch bridge with a 72' single span bridge. The bridge consisted of adjacent concrete pre-stressed box beams with a cast-in-place concrete deck. Survey services consisted of a topographic survey, ROW plans, construction control, and legal description creation. Roadway design consisted of new bridge approaches and a designed detour. Drainage, maintenance of traffic, and right-of-way plans were included in the scope of work.

Sleeth's Run Bridge

Thaw provided Right-Of-Way services during the design for the replacement of an existing truss bridge in Lewis County, WV. The project included the design of a new 200' structure and approaches. Survey services consisted of a topographic survey, ROW plans, construction control, and legal description creation.

Grade Road

Thaw oversaw Right-Of-Way services for the new construction of two lanes adjacent to an existing two-lane roadway. Right-Of-Way services included Right-Of-Way Plans, legal descriptions, and questionnaires for take parcels.

St. Mary's Bypass

Working for the WVDOT, Thaw led transportation survey services for the relocation of WV 16 in Pleasants County, from Pleasants County Route 18 to WV 2 in Saint Mary's, West Virginia for approximately two miles of highway. The project included topographic mapping, survey control mapping, right-of-way and utility cost estimates, and inventories.

EDUCATION

B.S. Engineering
Technology/
Surveying, West
Virginia Institute of
Technology

WORK EXPERIENCE

1999-Present
TERRADON
Corporation

1997-1999
Trans Ash

1997
Summit Engineering

1996-1997
USGS

PROFESSIONAL QUALIFICATIONS

Registered
Professional
Surveyor: WV, TN

DAVE BROWN, PS

SURVEY MANAGER

Since joining TERRADON in 1999, Dave Brown has been involved in highway design/right of way projects and many surveying projects in West Virginia and surrounding states. Brown's responsibilities include survey project management, GPS networks, control surveys, subdivision design, development of highway Right-of-Way Plans, boundary solutions, reports, courthouse research, drafting, construction staking, survey data reduction, and preparation of surveying cost estimates and proposals.

RELEVANT PROJECT EXPERIENCE

The Summit Bechtel Family National Scouting Reserve (SBR) Glen Jean, WV

Assisted in incorporating design drawings from multiple sources and as-built features into an overall GIS for the project. This work consisted of organizing drawings in different phases (preliminary, final, as-built) from the various engineering and architectural firms working on the project to keep a current plan of the site at all times during construction. Provided construction staking, volume calculations for various aspects of the project. Collected as-built information, including x,y,z, locations of all underground utilities installed on the Summit Bechtel Reserve, which was incorporated into GIS. This information was collected by conventional survey method and by real-time GPS, utilizing the WVDOH VRS network. This information is invaluable for future development and conflict avoidance during construction. Additionally, supervised a 14.5-mile boundary survey of a portion of the SBR property boundary line.

WVDOH Corridor L Right of Way Project Summersville, WV

Performed a GPS static network and placed aerial mapping target control for aerial mapping for the project in Nicholas County, WV. Performed boundary ties, hydraulic cross sections, mapped existing underground and above ground utilities, and established reference points for the project.

Harris Riverfront Park Huntington, WV

Prepared a detailed topographic and existing utility survey of the 50 + acre site, including a 25 acre hydrographic survey of the Ohio River -utilizing GPS and sonar equipment to map the river bottom for design of a new marina. Existing underground utilities were located and surveyed to avoid conflict during construction and aid in design.

Yeager Airport Charleston, WV

Conducted an ALTA/NSPS survey for the 19 acre General Aviation portion of Yeager Airport, which involved creation of a new surveyed boundary line for the leasehold area. The title commitment involved over 130 Schedule B2 items, which were examined and reconciled as to their affect on the subject property.

WV Turnpike Bridges

Prepared detailed surveys of two bridges on I-77 Turnpike, which including x,y,z locations of existing bridge girders, pier caps, abutments, bridge decks and topographic survey of the area surrounding the bridge, along with underground utility location. Surfaces were delivered for the bottoms of the girders, tops of pier caps and abutments and decks to allow for design of the bridge deck replacements.