TERRADON CORPORATION

terradon.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

June 13, 2017

Attn:
Ms. Jessica Chambers
Jessica.s.chambers@wv.gov
304-558-0246

Subject: EOI: CEOI 0313 DEP1700000003 – Leachate Tank Study – Monongalia/Morgantown

Ms. Chambers:

TERRADON is pleased to re-submit a Statement of Qualifications (SOQ) package detailing technical experience related to the above referenced project following an agency issued addendum extending the submission date.

TERRADON is aware than an addendum to this solicitation was issued on June 12, 2017. TERRADON wishes to acknowledge the addendum by including the acknowledgment forms attached herein for which we wish be included with this new submittal.

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
TERRADON Corporation

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

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 323504

Doc Description: Addendum 1- EOI: Leachate Tank Study - Monongalia/Morgantown

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-06-12	2017-06-15 13:30:00	CEOI 0313 DEP1700000003	2

BID RECEIVING LOCATION

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

VENDOR

Vendor Name, Address and Telephone Number:

FOR INFORMATION CONTACT THE BUYER

Jessica S Chambers
(304) 558-0246
jessica.s.chambers@wv.gov

Signature X Samuel P Wilt **FEIN #** 55-0687626 **DATE** 6/13/17

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

ADDITIONAL INFORMATION:
Addendum

Addendum No.01 issued to publish and distribute the attached information to the vendor community.

The addendum is available for download on the Vendor Self Service Portal. Here is the link to the site: www.wvoasis.gov You need to double click Vendor Self Service, which will take you to the VSS site. To view the solicitation you will need to click the Public Access button on the lower left hand side. If you need anything else, please let me know.

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The Acquisition and Contract Administration Section of the Purchasing Division (Purchasing Division) is soliciting Expression(s) of Interest for the Department of Environmental Protection (Agency), from qualified firms to provide architectural/engineering services (Vendors) as defined herein.

INVOICE TO	SHIP TO
ENVIRONMENTAL PROTECTION OFFICE OF ENVIRONMENTAL REMEDIATION 601 57TH ST SE CHARLESTON WV25304 US	ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Monongalia County and City of Morgantown Landfills	0.00000	

Comm Code	Manufacturer	Specification	Model #
81100000			

Extended Description :

Leachate Holding Tank Study, Recommendation, and Construction QAQC for Monongalia County and City of Morgantown Landfills per the attached specifications, bid requirements, and terms and conditions, incorporated here by reference and made a part hereof.

SOLICITATION NUMBER: CEOI 0313 DEP1700000003
Addendum Number: No.01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[✓] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[✓] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[ ] Other

Description of Modification to Solicitation:

Addendum issued to publish and distribute the attached documentation to the vendor community.

1. To address all technical questions received and extend the bid opening to 06/15/2017 at 1:30 PM (EST)

No other Changes.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

Technical Questions
CEOI DEP17*3

1. The questionnaire asks for a firm's experience with landfill closure construction inspection and cost estimating. Is experience with landfill closure required for consideration for this project?

A: No. The question should be answered with the appropriate experience.

1. For our submission, are we limited to the West Virginia Department of Environmental Protection Consultant Qualification Questionnaire, or are we allowed/ encouraged to also submit a Statement of Qualifications?

A: In addition to the questionnaire, it is encouraged that firms submit additional information as noted below in Section Four, Number 3 of the Expression of Interest.

3.1 Required Elements of EOI Response: The director of purchasing shall encourage such firms engaged in the lawful practice of the profession to submit an expression of interest, which shall include a statement of qualifications, and performance data and may include anticipated concepts and proposed methods of approach to the project.

2. For the purposes of the evaluation requested, are there electronic records of the leachate generation amounts for both sites? If so, at what frequency are these taken (i.e. daily, monthly, annually)?

A: The records are different for each site. The Morgantown site is connected to a sanitary sewer and metered. The Monongalia site is stored in a tank and hauled to POTW as needed. The information that is available will be provided to the awarded vendor.

3. Is there local rainfall data for both sites? If so, at what frequency is this data collected?

A: No

4. Is it correct to assume that there is existing survey control established at each site?

A: The only existing permanent structures for survey purposes is the monitoring wells.

5. As part of developing an accurate approach and methodology for this project, we would like to understand a bit better what the Agency's goals and objectives are for each site:

a. Are there current issues with the existing systems?
   A: To be determined by the study.

b. Has it been identified that there are storage capacity or discharge limitation issues at either site?
   A: Storage capacity for each site is listed in the individual permits

c. Are there concerns from the local wastewater plants accepting the leachate for disposal?
   A: No

d. Have there been any operational challenges that have been experienced at either facility that are drivers for this project?
   A: No. The purpose of the study is to determine if the existing structure meet all requirements of the applicable rules. If not, recommend changes and oversee any construction activities to bring the sites into compliance.

7. Although there is no mention of the CQQ in the Expression of Interest Instructions, it is attached as part of the project Solicitation posting.
   a) Is the CQQ required?

      A: Yes, the CQQ is required.

   b) Is the CQQ in place of a Letter of Interest and Proposal?

      A: In addition to the questionnaire, it is encouraged that firms submit additional information as noted below in Section Four, Number 3 of the Expression of Interest.

      > **3.1 Required Elements of EOI Response**: The director of purchasing shall encourage such firms engaged in the lawful practice of the profession to submit an expression of interest, which shall include a statement of qualifications, and performance data and may include anticipated concepts and proposed methods of approach to the project.

   c) Is the CQQ in addition to our Letter of Interest and Proposal?

      A: Yes.

8. How many copies of our submittal are required?
   (Note: In Section 2: Instructions to Bidders, the number of "convenience copies" has been left blank)

      A: One copy will be sufficient.

9. Are any drawings available depicting the extent of the landfill area?

A: Yes these will be available to the awarded vendor.

10. Provide a summary of the leachate quality (analytical lab data) and quantity (gallons per day/month/year) being produced at each landfill on a daily/monthly/yearly basis. Also, include any pertinent NPDES permit limits the leachate must meet prior to treatment at the PSDs.

A: A copy of this will be provided to the awarded vendor.

11: Provide a summary of the quantity of the leachate that is generated from surface water (Gallons/month or overall %) verses groundwater (gallons/month or overall %) at each landfill.

A: A copy of this will be provided to the awarded vendor.

12: Is the suspected infiltration problem due to surface water penetrating the landfill cap or from the groundwater infiltration into the leachate collection system?

A: Each site is different and this is to be determined by the study.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: _____

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

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

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

[X] Addendum No. 1	[ ] Addendum No. 6
[ ] Addendum No. 2	[ ] Addendum No. 7
[ ] Addendum No. 3	[ ] Addendum No. 8
[ ] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] 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

Samuel P Mitts
Authorized Signature

6/13/17
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

CORPORATION
TERRADON

SUBMITTED BY:
TERRADON Corporation
409 Jacobson Drive
Poca, WV 25159
304-755-8291
Fax: 304-755-2636

BUSINESS DEVELOPMENT PERSON OF CONTACT:
Ryan Wheeler
Director of Business Development
ryan.wheeler@terradon.com
304-634-2894

PROJECT MANAGER & POINT OF CONTACT
Sam Wilkes, MS, PWS, LRS
VP Geo-Environmental
Sam.wilkes@terradon.com
304-755-9119

STATEMENT OF QUALIFICATIONS

Leachate Tank Study
Monongalia & Morgantown Landfills

TABLE OF CONTENTS

FOUNDED: 1989

EMPLOYEES: 61

LOCATIONS:
Poca, WV
Lewisburg, WV
Fayetteville, WV

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

Certified WBENC Women's Business Enterprise

CERTIFIED Women Business Enterprise
National Women Business Owners Corporation

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

TERRADON Corporation offers a multi-faceted approach to design engineering and consulting services. For more than 28 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.

LANDFILL EXPERIENCE

TERRADON has performed a variety of services on landfill projects throughout West Virginia for more than 28 years. TERRADON engineers and Geo-Environmental groups are experienced in landfill cap designs and cap system cross sections, survey and mapping landfills, design elements including leachate design, leachate studies, landfill analysis, and NPDES certifications. TERRADON's experienced professionals have worked on a number of WVDEP Landfill Closure projects through the WVDEP Landfill Closure Assistance Program. Additionally, TERRADON has completed a wide variety of landfill maintenance and inspection projects. TERRADON maintains a staff of knowledgeable and experienced key personnel who have serviced West Virginia landfill projects spanning 50 years.

LANDFILL SERVICES

- SURVEY & MAPPING
- LABORATORY ANALYSIS
- SUBSURFACE INVESTIGATION
- CAP SYSTEM DESIGN
- GRADING PLANS
- CAP SYSTEM CROSS SECTIONS
- LEACHATE COLLECTION DESIGN
- STORAGE SYSTEM DESIGN
- NPDES CERTIFIED
- SEDIMENT & EROSION CONTROL
- QA/QC SERVICES
- ENGINEERING COST ESTIMATES
- SOLID WASTE FACILITY SITING PLAN
- CERTIFICATE OF NEED
- CERTIFICATE OF SITE APPROVAL
- QUARTERLY & ANNUAL REPORTS
- LEACHATE STUDIES

TERRADON is experienced in designed landfill closures that sufficiently manage leachate, control sediment and erosion, control and manage natural gases, and monitor groundwater on both composite lined and lined or un-lined cells. TERRADON services customers to standards of the West Virginia Department of Environmental Protection. TERRADON offers clients full in-house services needed to complete landfill projects throughout the state. TERRADON offers subsurface investigation through our experienced geotechnical department lead by a professional engineer with more than 50 years experience servicing landfill and leachate projects throughout the state. TERRADON also offers survey and mapping, sediment and erosion control, construction document services, permitting and approvals, and environmental services to meet the needs of each individual project.



TRANSPORTATION ENGINEERING

TERRADON's Roadway and Bridge Design group is one of the most respected in the region. The department is well-known for its structural design capabilities and expert knowledge in bridge erection planning. Whether the job requires project planning, preliminary engineering studies or detailed roadway design, TERRADON maintains the resources needed to successfully complete transportation projects. Success on each project is achieved by using advanced technology to produce innovative, pragmatic design. TERRADON engineers are among leading professionals experienced in an array of transportation and quality & assurance measuring services.

TERRADON's certified staff is trained to work under unique and changing task orders and to maintain quality work to clientele that creates a maintained respected relationship between TERRADON and it's client.

TERRADON provides a diverse staff of professionals capable of providing project planning and preliminary engineering services, as well as final roadway and bridge designs (plans, specifications, and estimates). The firm's transportation engineers and technicians apply the latest technology to innovative, award-winning projects. TERRADON's transportation staff has a wide range of experience that includes preparing maintenance of traffic plans, signing and pavement marking plans, utility coordination, drainage design, and right-of-way plans.

> **TERRADON is prequalified to provide engineering design services for the West Virginia Department of Transportation (WVDOT) through a Statewide Engineering Consulting Contract and for Design-Build services.**

TERRADON's Transportation sector has enjoyed a long-standing relationship with several states' Departments of Transportation including the WVDOT. TERRADON has performed successful engineering design for the agency for more than 20 years. The group is led by an experienced transportation engineer and includes veteran staff with demonstrated experience.

TERRADON routinely works on transportation projects, including survey, right-of-way, utilities, and specification design and review with WVDOT personnel. Additionally, TERRADON has been recognized for outstanding engineering work on several occasions with engineering excellence nominations and awards.

SERVICES INCLUDE

- Structural Engineering
- Bridge Design
- Roadway Planning & Review
- Structural Planning & Review
- Roadway Design
- Maintenance of Traffic
- Traffic Analysis
- Right of Way Plans
- Grading Studies
- Survey
- Materials Testing
- Construction Inspection
- Materials Certification



SERVICES INCLUDE

- Site Civil Engineering
- Master Planning
- Site Feasibility Studies
- Schematic Design
- Layout Plans
- Grading Plans
- Utilities Design
- Preliminary Designs
- Storm Water Management Plans
- Erosion Control Plans
- Planting Plans
- Presentation Drawing
- Renderings
- Graphic Design
- Construction Observation
- Bidding
- Phase I ESA
- Phase II ESA
- Construction Review
- Permitting Oversight
- QA/QC
- Survey
- Building Renovations & Additions Design
- Geotechnical Engineering
- Archaeological
- Cost Estimating
- Project Management
- Site Assessments
- Construction Inspection

TERRADON maintains LEED accredited professionals on staff.

TERRADON's Land Planning and Development department offers creative and innovative site design plans that have been brought to life throughout the region. Land Planning and Development engineers, landscape architects and CAD designers work closely with other TERRADON departments to deliver the most efficient design for each project.

TERRADON's Land Development department works with public and private entities and has remained a strong presence in the commercial, educational and, parks and recreational development sectors.

The Land Planning and Development group is focused on retaining lasting relationships with it's customers and prides itself on repeat clientele and referrals.

The Land Planning and Development department provides all services in-house from schematic design through construction drawings.

TERRADON maintains LEED accredited professionals in the Land Planning and Development department who remain on the forefront of sustainable design initiatives that aid clients in reducing significant energy costs on projects. TERRADON's Land Development department has more than 25 years experience working on industrial, commercial, parks and recreational, and other projects.

TERRADON has performed engineering and landscape design services for various monuments and plazas throughout the state. TERRADON has ample experience incorporating thematic design elements to achieve honorable memorial and monument plaza sites.

TERRADON has also worked on various renovation and addition projects ranging in sizes from small commercial gas stations, to large industrial sites. TERRADON has specialty staff that have worked on building renovation and additions comparable in size to the proposed project.



TERRADON has been a leader in West Virginia and the surrounding region for the land surveying industry since 1989. The team has developed an extensive resume of successful surveying and mapping projects performed for a diverse group of repeat private and public sector clients. TERRADON's experienced staff of licensed professional surveyors and mappers bring expertise and proficiency to every project task.

The company is committed to staying ahead of the industry's pace by investing in state-of-the-art equipment and technology. That commitment enables TERRADON to overcome unique and challenging project conditions or obstacles, and efficiently provide the most accurate and complete information available to clients.

TERRADON has a long history of providing design and construction survey services for numerous transportation projects. Efficient and accurate results are ensured by prioritizing the use of modern technology, including state of the art GPS and robotic total stations, with the latest design software.

TERRADON maintains full-time Professional Surveyors on staff. The firm services projects through the use of in-house field survey crews who are backed by corporate staff members, including an experienced team of CAD designers. TERRADON's transportation survey group is experienced in preparing highway right-of-way plans, including courthouse research and right of way questionnaires, and writing legal descriptions for right of way take parcels, temporary construction easements and permanent drainage easements.

TERRADON's Professional Surveyors are licensed in:

- West Virginia
- Pennsylvania
- Kentucky
- Tennessee

SERVICES INCLUDE

- Mapping
- Construction Layout
- ALTA survey
- Topographic Survey
- GPS Network Control Surveys
- Aerial & LiDAR Mapping

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.



TERRADON offers some of the most experienced staff in the region for local geotechnical expertise. This team of experts brings a distinctive, specialized understanding of the difficult soil and groundwater conditions found in the Ohio Valley and Appalachian Regions of the United States.

The Geotechnical group has provided investigations associated with earthen dams, mining, waste disposal, new building construction, landslides analysis and remedial design, cell and high mast towers, landfill permitting and cap design, flexible/rigid pavement design, and environmental remediation.

SERVICES INCLUDE

- Test Borings
- Test Pit Excavations
- Monitoring Well and Piezometer Installation
- Soil and Rock Logging, Sampling & Testing
- Landslide Analysis and Remedial Design
- Stability Analysis
- Retaining Structure Design
- Earthen Dams
- Foundation Design
- Municipal and Industrial Landfills
- Flexible and Rigid Pavement Design
- Complete Removal for Landslide Repair
- Removal, Stabilization & Replacement
- Buttressing and Regrading
- Subsurface Drainage
- Structural Corrections
- Retaining Walls
- MSE Walls and Other Gravity Walls
- H-Piles and Lagging
- Anchors (Rock or Soil Nailing)

GEOTECHNICAL DESIGNS

- Complete Removal for Landslide Repair
- Removal, Stabilization, Replacement
- Buttressing and Regrading
- Subsurface Drainage
- Structural Corrections
- Retaining Walls
- MSE Walls and Other Gravity Walls
- H-Piles and Lagging
- Anchors (Rock or Soil Nailing)

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 (ASSHTO-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

GREENBRIER COUNTY SANITARY LANDFILL
LEWISBURG, WV

TERRADON has been the Engineer of Record for Greenbrier County Sanitary Landfill for the more than one year. TERRADON has been working with the facility to address compliance issues in regards to storm water management and leachate management. The facility operates a leachate collection system which flows into two leachate storage ponds. Pre-treatment, in the form of a package plant, is performed on a percentage of the leachate in one of the ponds. The leachate is eventually pumped via approximately four miles of force main to the local PSD collection system. The treatment plant imposes daily flow restrictions and halts flow completely during periods of wet weather when the plant experiences large inflow and infiltration problems.

TERRADON is working with Greenbrier County Landfill to best manage its storage capabilities to provide the required 30-day leachate storage while utilizing its existing leachate management facilities. This management includes guidance on cell development to minimize leachate generation and storm water management to reduce the potential for storm water to enter the leachate collection/storage system. TERRADON is also evaluating the need for expansion to leachate storage ponds.

SERVICES PROVIDED
Compliance Study
Storm Water Management
Leachate Collection Study
Leachate Management
Storage Management
Inspection
Design

PROJECT REFERENCE
Wayne Childers, Manager
Greenbrier County Landfill
304-645-2489

HAM SANITARY LANDFILL
PETERSTOWN, WV

TERRADON has been the Engineer of Record for HAM Sanitary Landfill for more than 10 years. TERRADON has designed and overseen construction of a leachate conveyance line, one MSW disposal cell and two Asbestos/C&D disposal cells over this period.

TERRADON Corporation provided site characterization, surveying, mapping, subsurface investigation, groundwater study, monitoring, cell design, and Certificate of Need application for a Major Modification to HAM Landfill's existing facility.

HAM Landfill initially collected leachate in a series of above ground storage tanks and trucked leachate off-site to PSD for treatment. Growth of the facility warranted change in leachate management. Through a series of permit modifications, HAM Landfill now has a gravity connection to the PSD for leachate removal and is under construction to replace the above ground storage tanks with a lined leachate pond. TERRADON works with HAM Landfill to manage its leachate flow to meet flow restrictions by the PSD while accommodating the WVDEP's requirement for on –site 30- day leachate storage.

TERRADON is currently overseeing the construction of a 2 acre asbestos/C&D disposal cell, a 2 acre MSW disposal cell, and a leachate storage pond at HAM Sanitary Landfill

SERVICES PROVIDED

Compliance Study
Storm Water Management
Leachate Collection Study
Leachate Management
Storage Management
Construction Inspection
Construction Management
Cell Design
Hazardous Materials
Site Characterization
Subsurface Investigation
Groundwater Study

PROJECT REFERENCE

Cassie Bradley, Manager
HAM Sanitary Landfill, LLC
304-753-9470

TUCKER COUNTY LANDFILL
DAVIS, WV

CELL 5 DESIGN & CERTIFICATIONS
For the Tucker County Solid Waste Authority, TERRADON performed surveying, cell design, and construction observation and certification for the extension of Cell 5.

EXISTING LEACHATE POND REPAIR
TERRADON assessed the need for scheduled relining of the leachate Pond and correctly determined the problem was ground water leakage under the pond and designed an intercept ditch to fix the problem, resulting in several hundred thousand dollars savings.

CELL 6 DESIGN
TERRADON performed surveying, mapping, subsurface investigation, Certificate of Need and Major Modification permit application, Cell Design, construction monitoring and certification for the six-acre cell.

CELL 7 DESIGN
TERRADON provided Certificate of Need (CON) application and major modification for the permit for a 20-acre, 50-year new cell design including leachate pond and innovative gravity loadout facility design, QA/QC services, and final certification. Design included provisions for cell lining in four phases, storm water and leachate management.

CAPPING FOR CELLS 1-4
TERRADON provided design for the capping of Cells 1-4 including gas venting and leachate management.

SERVICES PROVIDED
Cell Design
Construction Observation
Certification
Leachate Pond Repair
Surveying & Mapping
Subsurface Investigation
Construction Monitoring
Leachate Management
Geotechnical Investigations
Monitoring Well Installation
HELP Analysis
QA/QC
Reporting

PROJECT REFERENCE
Joe F. Drenning, Chairman
Tucker County Solid Waste Authority
304-259-5580

MCDOWELL COUNTY LANDFILL LCAP
MCDOWELL COUNTY, WV

The project consisted of capping approximately 12 acres with a HDPE Liner. The project included: surveying, develop exiting topo map, site assessment, concept plans, bid documents, permitting, bidding, construction and construction oversite, and certification. Site assessment included extensive surface and subsurface evaluations to minimize the amount of groundwater entering the leachate collection system.

SERVICES PROVIDED

Cap Design
Surveying
Topo Mapping
Site Assessment
Concept Plans
Bid Documents
Permitting
Bidding
Construction Oversight
Surface & Subsurface Evals

PROJECT REFERENCE

DIETZ HOLLOW LANDFILL
HUNTINGTON, WV

The project included: preliminary surveying, develop exiting topographic map, site assessment, field reconnaissance, historical data research, preliminary capping costs, ground water sampling for hazardous waste, and preliminary post closure care/ cost. TERRADON also reviewed water quality data and revised the sampling strategy and parameter list.

SERVICES PROVIDED
Preliminary Surveying
Topo Mapping
Site Assessment
Cost Estimating
Ground Water Sampling
Construction Oversight

PROJECT REFERENCE
Jim Insco
Public Works Director
City of Huntington
304-696-5903
Inscoj@cityofhuntington.com

PINE CREEK LANDFILL
LOGAN, WV

For the WVDEP LCAP, TERRADON Corporation designed the permanent closure plan including an additional landfill cell, stormwater management, capping, leachate management and storage tank, construction QC and certification for the abandoned landfill.

JACSON COUNTY SANITARY LANDFILL
JACKSON COUNTY, WV

As part of the WVDEP's Landfill Closure Assistance Program, TERRADON Corporation prepared interim closure plan including stormwater management, leachate management, sediment pond and leachate pond repairs, regrading and re-vegetation of disturbed areas.

COPPER RIDGE LANDFILL
CAPELS, WV

TERRADON provided services to Enviro Solutions for the Cooper Ridge Landfill. TERRADON services included stormwater management, leachate management, and subsurface investigations. The project had a $5.6 Million construction cost.

WYOMING COUNTY SANITARY LANDFILL
WYOMING COUNTY, WV

TERRADON Corporation provided landfill and geotechnical services for the Wyoming County Landfill in WV. Services included site characterization, stormwater management, leachate management including storage tanks, pump station and force main to POTW; slope stability regrading; and Subtitle D cap for the WVDEP.

TERRADON's Project Understanding
TERRADON's understanding of the project is that there are two landfills, the Monongalia County Landfill, and the City of Morgantown Landfill which are the subject of this investigation. Both of these landfills are closed and no longer accepting waste materials. They are enrolled into WVDEP's Landfill Closure Assistance Program (LCAP). Presently, WVDEP is seeking an evaluation of the leachate holding tanks and ponds to determine if they are in compliance with Title 33 CSR Series 1 Solid Waste Management Rule, Title 47 Series 63 Aboveground Storage Tanks, and other appropriate regulations. Along with this evaluation, WVDEP is seeking cost effective alternates to bring the facilities into compliance.

Monongalia County Landfill (SWC-1007/WV0109045)
Latitude: 39° 35' 52" N
Longitude: 80° 04' 03" W
The Monongalia County Landfill was capped under the WVDEPs' LCAP program in 2001. The landfill is approximately 16 acres with four monitoring wells and is currently in post closure status. Leachate is presently stored in two 25,000 double walled tanks and trucked to the Fairmont Waste Water Treatment Facility for treatment as needed, a round trip of approximately 50 miles. The Monongalia County Landfill is located 5.4 miles South of I-79 exit 152 off of Little Indian Creek Road (Orange Pipe Gate).

City of Morgantown Landfill (SWC-4870/WV0109053)
Latitude: 39° 38' 24" N
Longitude: 79° 55' 15" W
The City of Morgantown Landfill was capped under the WVDEP's LCAP program in 1998. The landfill is approximately 29 acres with six monitoring wells and is currently in post closure status. Leachate from this landfill is retained in a 252,000 gallon component lined primary pond, flows into a 259,000 gallon component lined polishing pond and then is transported to the Morgantown Waste Water Treatment Facility via pipeline for treatment. The Morgantown Landfill is located off of I-68 exit 4, Route 7 into Saberton, tight turn onto Route 857, and then right onto Everlasting Lane, landfill gate is on the left side.

Both landfills suspended DMR monitoring of sediment pond discharges in 2012 after application to and approval by DEP based on no indication of pollution from the landfill.

1.1 WVDEP's Project Goals and Objectives

The goals and objectives of the project, for each site to be considered are the following:

- Site Investigation of Existing Features
- Surveying and Mapping
- Subsurface Investigation
- Corrective Action Design
- Sediment and Erosion Control Plan
- Construction Specifications, Drawings, Cost Estimate, and QA/QC Plan
- Construction Bid Evaluation
- Construction QA/QC Oversight
- All Applicable Permit Applications
- Right of Way, Right of Entry
- Compliance with 33CSR1, 47CSR63 AST Rule, and other rules

The following sections are TERRADON's approach to accomplish WVDEP's required goals and objectives.

2.0 Site Investigation

TERRADON's engineers and scientists will conduct a comprehensive site investigation to obtain information necessary for evaluation of existing facilities and alternatives. This investigation will include a review and evaluation of existing information pertaining to the sites, evaluation of surface and subsurface soil and hydrogeological conditions, as well as evaluation of current facilities and operations at each landfill. The site investigation may include the following items:

2.1 Records Review

TERRADON will review all the LCAP closure design files available from WVDEP on the two landfills. This will include an evaluation of the stormwater runoff design, leachate collection system, leachate holding system, and treatment facilities. The design information provided by the LCAP program will be reviewed for compliance with 33CSR1. Utilizing this information, TERRADON will assemble a site investigation program for each landfill.

2.2 Site Survey

Part of this task may also include a site survey of existing features, if existing survey files are not adequate. A design quality survey may be required to obtain existing site topography and other important site features. This quality of survey would allow for design of the leachate holding facilities and better control of surface water. TERRADON's survey department can conduct all required surveys, if required.

2.3 Leachate Collection System Evaluation

TERRADON will review and inspect the existing leachate collection system in place at each landfill. This will include an evaluation of the surface water component that is entering the leachate collection system and potential solutions to reduce surface water volume. If observations or records indicate a potential problem, an evaluation of the groundwater may be conducted. The source of groundwater and potential engineering controls to reduce or eliminate groundwater infiltration into the leachate collection system may be necessary and will be designed, if required.

2.3.1 Subsurface Investigation

The site investigation plan may include a subsurface investigation consisting of subsurface soil borings and may include the installation of additional groundwater monitoring wells. This subsurface investigation would be conducted to assist in the determination of soil types, type and depth of bedrock, and depth to groundwater and groundwater flow properties. The subsurface investigation will allow TERRADON to evaluate the data to determine if viable engineering alternatives may be beneficial in upgrading the leachate storage and treatment system.

2.3.2 Surface Water Evaluation

The surface topography and existing stormwater controls will be evaluated to determine if additional engineering controls can be implemented to reduce the amount of surface water entering the leachate collection system.

2.4 Leachate Storage, Treatment, and Disposal Systems Evaluation

TERRADON will review and evaluate the existing leachate storage and treatment facilities in place at the landfills. This evaluation will include a compliance evaluation with 33CSR1 and a feasibility analysis to determine the extrapolated costs of operations and maintenance of the existing facilities. This analysis will also be critical for comparison to determine if upgrades or complete redesign of the facilities would be cost effective over time.

3.0 Feasibility and Cost Evaluation Study

TERRADON will perform a feasibility and cost evaluation study that will include the records review, field investigation data, and analysis of several potential alternatives. TERRADON will continually collaborate with WVDEP to develop the alternatives to be studied. Close collaboration with WVDEP is anticipated during the alternative selection process to ensure that the most desirable and cost effective alternative is selected. Some of the potential alternatives may include the following:

3.1 Alternative 1: Conduct business as usual (Normal O&M costs) for remaining life expectancy of the existing facility.

3.2 Alternative 2: Upgrade existing system components to address deficiencies or cost issues to become compliant with current State/Federal Standards. Calculate yearly O&M costs and life expectancy.

3.3 Alternative 3: Design new components of the leachate storage and transport system to be compliant with current State/Federal Standards. It is anticipated that existing aboveground storage tanks may not be compliant with recently enacted AST requirements. Calculate yearly O&M costs and life expectancy.

3.4 Alternative 4: Evaluate new treatment technology to improve treatment or become compliant with State/Federal Standards. Calculate yearly O&M costs and life expectancy.

3.5 Alternative 5: Evaluate decommissioning the old system. The alternative may include the design and construction of a completely new leachate storage and treatment system. This alternative would require phased construction in order to continue to operate the old system until the new system is on line. Calculate yearly O&M costs and life expectancy.

3.6 State and Federal Regulatory Compliance

As part of the feasibility study, TERRADON will conduct a complete state and federal regulatory review to ensure the facility is compliant with all current regulations. This review will also include a WVDEP permitting review to ensure the facilities have all appropriate permits.

4.0 Selected Alternative Support

TERRADON will provide conclusions and recommendations in the feasibility report. This information will represent TERRADON's professional opinion as to the most desirable and cost effective solutions to accomplish the project goals and objectives and to be in compliance with current state and federal regulations. TERRADON will work in conjunction with WVDEP and the landfill stakeholders to provide guidance and professional opinions during WVDEPs alternative selection process. TERRADON will provide support to WVDEP for their selected alternative to be implemented at each of the landfill facilities.

4.1 Corrective Action Design Support

TERRADON will work in conjunction with WVDEP to design the selected alternative. TERRADON will complete the required design drawings and construction specifications necessary for bid. TERRADON can also provide review of construction bids and provide a recommendation on the selection of the construction firm, if requested.

4.2 Additional Construction Support

TERRADON can provide additional project support prior to and during construction activities. Additional support may consist of the following services:

- 4.2.1 Right of Way or Right of Entry support
- 4.2.2 Permitting Support
  - 4.2.2.1 WVDEP Construction Stormwater NPDES permit, including stormwater management plans
  - 4.2.2.2 404/401 permitting with the Army Corps and WVDEP
  - 4.2.2.3 Stormwater pollution prevention plans (SWPPP)
  - 4.2.2.4 Groundwater pollution prevention plan (GPP)
  - 4.2.2.5 Other potential plans and permitting, as required
- 4.2.3 Construction Inspection services to ensure that construction activities are conducted according to design specifications.
- 4.2.4 As Built Survey and final As Built Plans

Appendix A:
Resumes

JOHN JAMES, PE

LEAD GEOTECHNICAL ENGINEER

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.

James' project experience includes: foundation investigations and designs ranging in size from small projects to major industrial complexes; studies and designs for landfills and other environmental facilities; studies and designs for earth, earth/rockfill and concrete dams; all types of retaining wall designs, including conventional concrete walls, MSE walls, sheet piling, and H Pile and lagging, all with or without various anchoring systems; landslide analysis and remediation; roads; highways and bridges; surface and groundwater studies; storm drainage facilities; airport facilities; and forensic engineering.

PROJECT EXPERIENCE

Tucker County Landfill
James has been the lead design engineer/engineer of record for the TCLF for the past 10 years, including responsibility for siting, permitting, design and all other services for the landfill. He has devised many cost-saving solutions and designs, including the incidental mining of previous mined-out coal workings for a cost savings for $8,000,000 of $10,000,000 Cell 7 cost.

Ham Landfill Expansion
Provided site characterization, surveying, mapping, subsurface investigation, groundwater study, monitoring, cell design, major modification to permit, and Certificate of Need application for the Ham Sanitary Landfill Expansion Project in Peterstown, WV.

Pine Creek/Omar Landfill
This project was under the WVDEP LCAP Program. James provided design and permitting services for the landfill that used 12 Acres HDPE Liner, in Pine Creek, Logan County, WV.

Dam Experience
James has been Engineer of Record for numerous earth and rock fill dams in West Virginia, and some recent projects include: Mallard Dam (presently in design), 8 acres; Upper Glade Creek Water Supply Dam upgrade (from 95 to 112 acres+/-; Dawson Dam, 30 acres+/-; Lake Chaweva Reconstruction, 24 acres+/-; and Chatham Dam, 65 acres+/-. Also provided consultation and construction design for the United States Army Corps of Engineers for Bluestone Dam.

Site Selection Experience
James specializes in site evaluation from geologic and topographic perspectives with an ability to visualize relevant features of both geotechnical and topographical, including literature research and site reconnaissance, for specific project needs.

Transportation Experience
Worked on numerous roadway (cut and fill slopes) designs, landslide evaluation and remediation, site designs for numerous projects and foundation investigations for approximately 1,000 projects in West Virginia and the surrounding states.

TERRADON

MARK CLUTTER

SENIOR LANDFILL DESIGN ENGINEER

EDUCATION

B.S. Civil Engineering Technology
Fairmont State College

A.A.S. Civil Engineering Technology
Fairmont State College

A.A.S. Drafting/ Design Engineering Technology
Fairmont State College

WORK EXPERIENCE

TERRADON Corporation
2010-Present

Triad Engineering, Inc.
2000-2010

WV Army National Guard
1990-2003

Mark Clutter is a Project Manager/Design Engineer who is experienced in preparing construction documents and associated permitting for numerous projects throughout Kentucky, Ohio, and West Virginia including: creating erosion and sediment control plans, storm water management, design of impoundment closures, slope stability analysis, field surveying, drawings and specification preparation, design, design drafting, construction inspection, quality control testing, shop drawing review, project management, contract administration, permitting, and report preparation.
Clutter's landfill experience adheres to the WVDEP's Landfill Closure Assistance Program (LCAP) for landfill designs and construction, including all closure-related activities such as: leachate management control, sediment and erosion, gas management, groundwater monitoring, and a final cover on non-composite lined landfills.

PROJECT EXPERIENCE

Tucker County Landfill, Cell 7 Design
For the Tucker County Solid Waste Authority, performed major modification of the permit, geotechnical investigation, new 50-year cell design, and leachate pond closure plan, groundwater statistical report, leachate management, QA/ QC services, stormwater ponds, subsurface investigation, and Certificate of Need (CON) application, HELP mode and installation of monitoring wells for a 20 acre cell at the Tucker County Landfill in Davis, WV.

Tucker County Landfill Permitting
Solid Waste Facility Siting Plan, Certificate of Need, Certificate of Site Approval, Part 1-Site Evaluation Application, Part 2-Design Application, DWWM-Module A-NPDES, Major Modification, Quarterly Report, Annual Report for the Tucker County Landfill.

Tucker County Landfill Cells 1-4 Capping
The project consists of capping approximately 20 acres of previous landfill cells with a HDPE Liner. The project included the following: preparation of construction drawings, technical specifications, contract and bidding documents, advertisements for bid, design report outlining the calculations to support the design, Erosion and Sediment Control permits, modifications to the NPDES storm water permit, permits to the West Virginia Solid Waste Authority for capping and reuse of methane, air pollution control permits for use of the methane gas emissions, and field services for Quality Control.

Tucker County Landfill
TERRADON provides quarterly surveying of the current landfill surface and calculation of the quarterly volume and compaction rate; producing semi-annual statistical analysis and reports; creating annual reports that include: construction activities, financials, MSW tonnage, leachate generation, groundwater and discharge monitoring reports, and airspace summaries.

Ham Landfill Expansion
Provided site characterization, surveying, mapping, subsurface investigation, groundwater study, monitoring, cell design, major modification to permit, and Certificate of Need application for the Ham Sanitary Landfill Expansion Project.

Additional LCAP Experience
Provided design and permitting for the following under the WVDEP LCAP Program:

- Pine Creek/Omar Landfill, 12 Acres HDPE Liner, Pine Creek, Logan County, WV
- Buckhannon Landfill, 14 Acres Geo-synthetic Clay Liner, Buckhannon, WV
- Don's Disposal, 24 Acres HDPE Liner, near Eden's Fork, Kanawha County, WV
- McDowell County Landfill, 12 Acres HDPE Liner, near Welch, McDowell County, WV

ROBERT THAW, PS

VP SURVEY

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

Nitro Landfill Topographic Survey
Thaw was responsible for surveying the boundary of the former Landfill for future cap and development. Thaw and the survey & mapping staff performed topographic survey of the site , and prepared project mapping plans.

Tucker County Landfill
Thaw established survey control for the landfill. His responsibilities included creating topographic surveys on a quarterly basis to be used for volume reporting for the landfill. Tucker County Landfill is a repeat client to TERRADON.

Charleston Landfill
Thaw performed topographic surveys, and located bore hole locations for the Charleston Landfill.

Charleston Landfill Geotechnical Studies
As part of the Charleston Landfill study, Thaw conducted a feasibility study for Leachate tank siting. Thaw also performed topographic surveys of proposed leachate tank sites to be used in the feasibility study.

Nicholas County Landfill Design
Thaw provided survey services to establish control for the landfill. Responsibilities for the project included creating topographic surveys for design studies.

AEP– John Amos Power Plant Industrial Landfill
Thaw established survey control, performed topographic surveys used for access road design, completed construction staking for access road, and excavation, provided daily volume reports. The client for this project was Shelly and Sands Inc..

The Summit Bechtel Reserve, Glen Jean, WV
Thaw delivered more than 14,000 acres of LiDAR, which was flown during full summer canopy. TERRADON provided the horizontal and vertical control utilizing GNSS receives, and least square static network adjustment. A subsequent control network, utilizing GNSS receivers and least square network adjustment was established by TERRADON for construction staking. Concrete monuments, and aluminum disks were used for the control points. The entire 14,000 acres was mapped at 2' contour interval, will accuracy's better than 1' contour specifications.

City of Huntington Marina, Huntington, WV
Thaw provided services which included: aerial photogrammetry control, aerial photography, LiDAR, engineering design survey, data computation, CADD, digital terrain modeling, boundary survey, civil information model (CIM), and hydrographic surveys. Utilizing VRS and GNSS, TERRADON provided the photo control to develop base mapping for the City of Huntington Marina. After receiving the aerial mapping, TERRADON performed field edits to confirm critical areas with the LEICA TS 15 P-1, and VRs GNSS.

TERRADON

SAMUEL P. WILKES, MS, LRS, PWS VP GEO-ENVIRONMENTAL

EDUCATION
M.S. Environmental Science & Policy, Johns Hopkins

B.S. Earth & Environmental Science, Wilkes University

WORK EXPERIENCE
TERRADON Corporation
2014-Present

Tetra Tech
2003-2014

McCormick Taylor
2001-2003

Dynamac Corporation
1997-2001

Wilkes University
1995-1997

CERTIFICATIONS
OSHA
1910.120/1926.65
HAZWOPER

Professional Wetland Scientist by the Society of Wetland Scientist (#1395)

Maryland Biological Stream Survey Sampling Certificate of Training, MDNR

Samuel Wilkes joined TERRADON in April 2014. He is a Professional Wetland Scientist with more than 20 years of consulting experience as a project manager and senior environmental scientist who provides technical support to watershed management restoration, natural resource conservation, and hazardous materials programs. Wilkes has provided assistance to public drinking water systems throughout West Virginia to assess potential contaminant sources and preparing source water protection plans. His experience enabled him to work with the WVDHHR-BPH staff and directly with various Public Service Districts throughout WV. He provides oversight and manages field teams and contractors collecting wetland, stream quality, environmental media data and general site condition data for site characterization. He has assisted clients by managing research, data analysis, data mapping and as a contributory author on scientific documents and peer reviewed research papers. Wilkes routinely oversees and conducts technical reviews of other consultants' work plans, sampling analysis plans, health and safety plans, quality assurance project plans, site characterization reports, and provides oversight of field crews conducting scientific data collection, delineations of wetlands and waters of the United States.

PROJECT EXPERIENCE

Independent Oil and Gas Association
Currently providing technical scientific support to IOGA during the appeal process of Regulated Aboveground Storage Tanks in WV. Providing expert witness testimony during the evidentiary hearing to the Environmental Quality Board. Zones of Critical Concern and Zones of Peripheral Concern.

Aboveground Storage Tank (WV Senate Bills 373 and 423) Implementation
The TERRADON Team supported numerous clients by conducting time critical visual inspections of approximately 2,000 ASTs throughout the state. The inspection documentation resulted in a "Fit for Service", "Not Fit for Service", or "Fit with Required Repairs" determination for each tank. In addition, completed or updated SPCC or Spill Prevention, Response Plans for submittal to the WVDEP.

Wetland, Waters of the US Delineation, and Endangered Species
Currently providing wetland and waters of the US delineations and permitting support to numerous private development and oil/gas clients. Acting as an Authorized Agent, submitted Nation Wide Permits and Individual 404 Permits to the Army Corps of Engineers. Conducted endangered species clearance through the USFWS project review process in WV and KY.

Environmental Audits
Conducts site visits to confidential industrial client's facilities to review environmental permitting requirements and daily business practices. Recommend appropriate environmental permitting requirements for the facility to meet federal and state requirements. Best management practices are recommended for complying with spill prevention, control, and countermeasure (SPCC) plans and other regulations. Conducted environmental audits for industrial clients in WV, VA, MD, AZ and TX.

Cabin Creek Health Care System NEPA Environmental Assessment
Providing technical scientific evaluation of the proposed development site to establish a health care facility. Conducted evaluations for Threatened and Endangered Species, Historical Structures, Cultural Resources, Wetlands and Waters of the US, and hazardous contamination. Initiated a formal US Fish & Wildlife Threatened and Endangered Species Review for the property. Conducting a public meeting and established a repository for the public review of the EA Document.

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PHIL REED, PE

SENIOR CIVIL ENGINEER

EDUCATION
B.S. Civil Engineering
VA Tech

WORK EXPERIENCE
TERRADON Corporation
2006-Present

ET 2000, Inc.
1990-2006

Brackenrich & Associates
1992-1998

Cornerstone Land Surveying
1991-1992

Norfolk Southern
1989-1991

CERTIFICATIONS
WVDOT Concrete & Compaction Inspector

Philip Reed serves as TERRADON'S Lewisburg, WV Office Director and provides services to clients for Quality Control, Materials Testing and Engineering Design. Reed provides technical direction on a variety of civil engineering markets including landfills, commercial and industrial developments, housing, energy and infrastructure. Reed is responsible for engineering analysis and modeling, design, regulatory compliance and permitting, in addition to quality control and assurance. He has created numerous residential subdivision designs with roadways and drainage.

PROJECT EXPERIENCE

HAM Sanitary Landfill
Responsible for all aspects of solid waste landfill permitting (H.A.M. Sanitary Landfill, Inc.), including: Certificate of Site Approval through local county Solid Waste Authority; Certificate of Need through Public Service Commission; Part 1 Solid Waste Facility Permit to include geologic and hydrologic evaluation of site; Part 2 Solid Waste Facility Design Application to include site design, leachate modeling, and composite liner design; and solid waste cell construction drawings, Construction Specifications, and Construction Quality Assurance / Quality Control Plan. Also responsible for all aspects of Construction Monitoring, including: monitoring of construction of both municipal solid waste disposal cells and Construction/demolition and asbestos disposal cells; responsible for construction stakeout and monitoring of construction, and Final Certification of construction.

Greenbrier County Landfill
Reed has been working with the facility to address compliance issues in regards to storm water management and leachate management. The facility operated a leachate collection system which flows into two leachate storage ponds. Pre-treatment, in the form of a package plant, is performed on a percentage of the leachate in one of the ponds. The leachate is eventually pumped via approximately four miles of force main to the local PSD collection system. The treatment plant imposes daily flow restrictions and halts flow completely during periods of wet weather when the plant experiences large inflow and infiltration problems.

Triana Energy Fresh Water Impoundment
Responsible for site design, construction certification, and bi-weekly inspections for 15 acre-feet freshwater impoundment in Northern, WV. Responsible for oversight of construction monitoring inspectors, reporting and permit compliance.

Summit Bechtel Reserve
Provided Engineering Support for a 12,000-acre site development in Fayette County, WV. Oversaw site layout, grading, and survey support for one of the largest infrastructure projects in West Virginia. Oversaw all QC services and provided project direction of 20 inspectors and technicians during installation of more than 100 miles of utilities and nearly 50 miles of roadway construction. Additional inspection and monitoring activities included vertical construction of three buildings and an iconic wingtip pedestrian bridge.

TERRADON

GREG HARVEY

SENIOR INSPECTOR

Greg Harvey is a Level III Inspector and is an experienced designer and construction manager for a wide variety of civil engineering projects. Major design and construction projects with which Harvey has been involved include water and sanitary system upgrades, buildings, roadway design, drainage design, site design, abandoned mine land reclamation, permitting, property surveys, construction administration, and oversight.

RELEVANT PROJECT EXPERIENCE

S&S Landfill, Clarksburg, WV
QA/QC and Inspection which included but was not limited to; Earthwork, Drainage, Concrete and HDPE Liner. The various projects included 3 new MSW cells and one cell that was tied into an existing cell. Total cost was approximately 9 million dollars.

Nicholas County Landfill, Craigsville, WV
Environmental Study for WV LCAP Program which included but was not limited to; Field work and Final report preparation.

Fayette County Landfill, Cunard, WV
Design, QA/QC and Inspection which included but was not limited to; Earthwork, Drainage, Concrete and HDPE Liner. The Project was a landfill closure under WVLCAP program.

McDowell County Landfill, McDowell County, WV
Project Management/ Construction Management, Design, QA/QC and Inspection which included but was not limited to; Earthwork, Drainage, Concrete and HDPE Liner. The Project was a landfill closure under WVLCAP program.

CHRIS MORRIS

SENIOR INSPECTOR

Chris Morris is a Senior Inspector for TERRADON Corporation. He is responsible for quality control testing and inspection for WVDOT, commercial, and residential construction projects throughout West Virginia. He interfaces with site owners (public and private) and contractors to complete testing and inspection projects. Morris is responsible for monitoring contractor's work for conformance to the design plans, specifications and general permit requirements; experience tracking daily quantities, completing daily inspection reports, reviewing payment requisitions and maintaining field sketchbooks and as-built drawings.

RELEVANT PROJECT EXPERIENCE

Charleston Landfill—Charleston, WV - Observation and Density Control
AEP John Amos Plant—Winfield, WV - QA/QC mass concrete pours for large mat foundations and contractor's QC of controlled fill and various concrete placement.
AEP Glen Lynn Power Plant, Glen Lynn, VA - Observation and Density Control
Winfield Locks and Dam—Winfield, WV - Observation and Density Control
Mingo County Airport—Williamson, WV - Primary QA Technician
Western Regional Jail—Barboursville, WV - Owners QA Technician of Auger Cast Pile Installation
Raleigh Memorial Airport—Beckley, WV - Observation and Density Control
Winfield Locks and Dam—Winfield, WV - Observation and Density Control
Blennerhassett Bridge—Parkersburg, WV - QA/QC for all facets of construction of new bridge
AEP Kyger Creek Power Plant—Cheshire, OH - Observation and Density Control