State of West Virginia
Expression of Interest
Architect/Engr

Procurement Folder : 393240
Document Description : Addendum No.1 A/E Services-Modifications/Repairs of Six 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	2	

BID RESPONSE	Vendor Name, Address and Telephone
DIVISION OF NATURAL RESOURCES PROPERTY & PROCUREMENT OFFICE 324 4TH AVE SOUTH CHARLESTON WV 25303-1228 US	Gwin, Dobson & Foreman, Inc. 3121 Fairway Drive Altoona, PA 16602 Telephone: (814) 943-5214

FOR INFORMATION CONTACT THE BUYER
Angela W Negley
(304) 558-3397
angela.w.negley@wv.gov

Signature X _____ , President **FEIN #** 251209285 **DATE** December 13, 2017

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

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: AEOI DNR1800000005

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)

- ☑ Addendum No. 1
- ☐ Addendum No. 2
- ☐ Addendum No. 3
- ☐ Addendum No. 4
- ☐ Addendum No. 5
- ☐ Addendum No. 6
- ☐ Addendum No. 7
- ☐ Addendum No. 8
- ☐ Addendum No. 9
- ☐ Addendum No. 10

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

GWIN, DOBSON & FOREMAN, INC.
Company

, President
Authorized Signature

December 12, 2017
Date

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

GD&F
GWIN
DOBSON &
FOREMAN
ENGINEERS

December 13, 2017

WV Division of Natural Resources
Property and Procurement Office
324 4th Avenue
South Charleston, WV 25303-1228

RE: Expression of Interest
A&E Services for Modifications/Repairs of Six (6) Dams
Solicitation No. 1800000005

To Whom It May Concern:

Please find enclosed our Expression of Interest for the above referenced project.

Gwin, Dobson & Foreman, Inc. is one of the region's outstanding dam engineers with over 64 years experience in the field. GD&F has designed many dam rehabilitation projects including the full range of structures and appurtenances.

We call your attention to the following clients and projects that provide insights into our relevant experience and expertise.

- GD&F has a similar contract with the PA Department of Conservation and Natural Resources (DCNR) for design of improvements to state-wide State Park and Forestry Bureau dams via an open-end agreement.
- GD&F designed and permitted the largest new dam in West Virginia for the Morgantown Utility Board, the largest public water supplier in the state. This $35 million project involves the construction of a 79-foot high earth dam and 375 million gallon reservoir. This project is scheduled to start construction in the spring of 1918. This dam is located within 10 miles of the Upper Decker Creek dams and Fairfax Pond dam.

GD&F maintains a close working relationship with personnel of the WV Division of Dam Safety and are completely familiar with all Dam Safety Rule (47 CSR 34) requirements and the Certificate of Approval process. Together with our geotechnical consultant, CTL Engineering of WV, Inc., GD&F has the relevant experience and familiarity with other state agencies to meet the goals and expectations of DNR.

We appreciate the opportunity to submit this proposal for your review and consideration. If you have any questions or require additional information, please contact our office at your convenience.

Respectfully submitted,
GWIN, DOBSON & FOREMAN, INC.

Mark Glenn, P.E.
President

MG/mad
Prop/2017/WVDNR_A&EServices.doc
cc: Central File

3121 FAIRWAY DRIVE ALTOONA, PA 16602 814.943.5214 FAX 814.943.8494 WWW.GDFENGINEERS.COM

Section 1
PROJECT PLANNING AND DESIGN PROCESS

1.1 Specific Project Work Elements

General - WV Division of Natural Resources requires an engineering firm to design and specify modifications and repairs for Upper Decker Creek #3 and #7 Dams, Fairfax Pond Dam, Rollins Lake Dam and Turkey Run Dam for compliance with the WV Dam Safety Rule and WV Division of Dam Safety requirements.

Project Parameters - The following procedures are set forth by GD&F to meet the communication, budgetary controls and schedule goals of DNR. The services will generally be civil and structural design efforts associated with the possibility of several different projects being designed under short completion schedules. The anticipated types of projects may include, but are not limited to dam and control structure modification and rehabilitation, slope and stability analysis of concrete and earthen dams, structural analysis of spillways and retaining walls, structure repairs, hydraulic and hydrologic evaluations, hydraulic modeling, inspection of dams, preparation of emergency action plans, dam breach analysis and downstream inundation area mapping.

Work Product - GD&F will furnish a complete set of contract documents (plans and specifications), suitable for public bid and in accordance with a prescribed DNR format and in accordance with applicable State and Federal codes and requirement. GD&F will adhere to our in-house quality assurance program to insure that all documents are acceptable and of the highest quality prior to submission of said documents to the DNR.

Environmental Evaluation - Areas of related environmental study associated with these design projects may include, but are not limited to, wetlands, soil, geology, dam safety and waterway management, and Corps of Engineers 404 permits, and WV Department of Environmental Protection water quality management requirements. The environmental studies shall be conducted in accordance with accepted analysis techniques and methodologies and include any or all of the following to ensure a complete environmental investigation has been performed; provide all necessary environmental services, material and equipment necessary to collect, analyze and organize data, assess impacts, prepare reports and design mitigation plans. The reports and other graphic material to be prepared include, but are not limited to, plans of study, meeting minutes, preparation of permit application documents, mitigation plans and reports, and wetland and floodplain findings.

Engineering Design Elements - GD&F will perform any or all of the following duties: attend site visits; prepare minutes; perform necessary field surveys; plot topography and cross sections; develop erosion control plans; prepare type, size and location reports; prepare construction drawings, specifications and estimates; procure core borings; provide soil and foundation engineering reports;; investigate utility involvement; evaluate alternatives using benefit/cost analysis; develop other details and narratives; inspect major and unusual structures; develop rehabilitation strategies; and also, review shop drawings, catalog cuts and attendance at construction job conferences.

Computer Modeling - GD&F is completely familiar with WV DEP Division of Dam Safety and U.S. Army Corps of Engineers procedures relative to dam safety regulations and design techniques. GD&F has specific experience with spillway hydraulic and embankment stability/seepage analyses including extensive utilization of computer programs for flood routing, dam break analysis, spillway design, water surface profiles, spillway discharge and approach channels, stability analysis and hydrologic computations.

Design Team - For the DNR projects, GD&F has assembled a highly qualified and experienced team of engineers and support staff, all experienced in dam design and engineering, to perform the various tasks required under contract. CMT Engineering is part of our design team to assist with geotechnical engineering and subsurface exploration services. Please see a summary of CTL Engineering qualifications and dam-related projects attached to this section.

Accessibility - The GD&F office in Altoona, PA is located two (2) hours (120 miles) from the proposed Upper Decker Creek dams and Fairfax Pond dam via I-99 and I-68. These projects are located within 10 miles of the Cobun Creek No. 2 dam designed by GD&F and scheduled for construction in 2018 and 2019.

For the Rollins Lake Dam, GD&F is located 285 miles (4.5 hours) from the site via I-99, I-68, I-79, Rt. 50 and I-77. GD&F is located 275 miles from Turkey Run Dam (4.5 hours) via I-99, I-68, I-79 and Rt. 50.

Summary - GD&F has the experience, technical expertise and personnel to perform the dam improvements and meet all cost and schedule goals and expectations of DNR.

PROJECT EXPERIENCE

Geotechnical Services

- City of Indianapolis DPW: Southport WWTP Levee Evaluation - Indianapolis, Indiana
- Ohio Department of Natural Resources: Mt. Gilead State Park Dam Improvements - Mt. Gilead, Ohio
- Clear Fork Reservoir Dam: Seepage Investigations - Mansfield, Ohio
- Ohio Department of Natural Resources: Buckeye Lake Dam Improvements - Buckeye Lake, Ohio
- Point Marion Lock & Dam: USACE – Pt. Marion, Pennsylvania
- Grays Landing Dam and Spillway: USACE – Grays Landing, Pennsylvania
- City of Fairmont WWTP Reservoir – Fairmont, West Virginia
- CONSOL Impoundments
- MEPCO Impoundments

Construction Monitoring / Materials Testing

- Ohio Department of Natural Resources: Acton Lake Dam Improvements - Oxford, Ohio
- Ohio Department of Natural Resources: Mt. Gilead State Park Dam Improvements - Mt. Gilead, Ohio
- Ohio Department of Natural Resources: Lake White Dam Improvements - Waverly, Ohio
- Lake Loramie State Park: Lake Loramie Dam Spillway Improvements - Minster, Ohio
- Point Marion Lock & Dam: USACE – Pt. Marion, Pennsylvania
- Grays Landing Dam and Spillway: USACE – Grays Landing, Pennsylvania
- Marmet Lock and Dam: Kokosing / Fru-Con, LLC – Marmet, West Virginia
- Tygart Lake Dam: Joseph B. Fay Co. – Grafton, West Virginia
- Harrison Power Settlement Pond A – Harrison County, West Virginia

Civil Site Design / Surveying / Mapping / Environmental

- Mine Impoundment Annual Inspections - Northern WV & Southwestern PA
- Upper Deckers Creek Impoundment - Preston County WV
- Point Marion Lock & Dam: USACE – Pt. Marion, Pennsylvania

- **Structural Engineering.** Structural design and analysis, steel piles and caissons, pier and abutment design, deck and parapet design, super-structure, beam elements; soils and foundation engineering; structural inspections and reports; field inspection of construction sites; and site testing and reconnaissance. ADA and code compliance design. Warehouse, industrial and commercial building design.

- **Geotechnical Engineering.** Geotechnical engineering, foundation analysis, structural geology stratigraphy, mineral evaluation and development; surface and subsurface mining engineering; mine drainage control and treatment; abandoned mine reclamation; plant and property appraisal; surface water and groundwater hydrology; geological reconnaissance studies; mineral exploration; hydrogeology; and soil-water sampling/analysis.

- **Surveying.** Mine, land, geodetic, cartographic, highway, bridge and railroad construction stakeout, hydrographic, photogrammetric, property, and engineering surveys via three (3) fully equipped survey crews.

- **Construction Monitoring.** Observation of roadway, bridge, drainage, paving, water and wastewater facilities construction, materials/compaction testing, concrete/aggregate testing and computer documentation, building construction work including HVAC, mechanical, plumbing, electrical and architectural elements and project management services.

- **Electrical Engineering.** Power distribution system design and analysis; lighting system design; sound and communication system design; fire alarm/security system design; and automatic control system design.

2.3 Facilities

GD&F maintains one of the most modern and technologically-advanced engineering offices in central Pennsylvania with a 13,000 SF facility at 3121 Fairway Drive, Altoona, PA.

2.4 Computer Office/Survey Software

- Server - Microsoft Windows Dell Server PE1800 Intel(R) Xeon(TM) CPU 3.00 GHz 2.99 GHz, 4.00 GB of RAM
- Backup Disaster Recovery (BDR) - HP BDR, 2TB, Raid 5 server
- Base CAD System - AutoCAD Architectural 2017, AutoCAD AEC 2017, AutoCAD Infrastructure Design Suite Premium, AutoCAD Map, Microstation Version V8, Microstation Inroads, ArcView GIS 10.3.1, ArcGIS Explorer, Bentley SewerCAD V8i, WaterCAD, HyproCAD, SewerGems Sanitary V8i, FlowMaster
- Raster Imaging Software - AutoCad Raster Design 2017
- Scanner - Kip 3000 and Kip 3100 Full Size (42" Wide Flatbed Type) Document Scanner
- Three Dimensional (3D) Modeling Platform - AutoCAD Architectural 2017, AutoCAD AEC 2017, AutoCAD Civil 3D 2017, AutoCAD Infrastructure Design Suite Premium, Inventor Fusion, Autodesk Recap, 3D Studio Viz8

- Electrical Test Devices - Amp/Ohm/Volt Meters, Calibration Equipment, Motor Vibration Meters, Handheld Temperature Sensors, Telemetry Radio Locator (UHF/VHF), Hand held GPS Locators (with Topo Software)
- Digital Sound Level Meter
- PosiTector Ultrasonic Thickness Gage

2.6 Survey Field Equipment

- Sokkia SRX Robotic Total Station
- Topcon GPT 3002 Total Stations - 3 Each
- Sokkia Radian RTK Global Positioning System (GPS) Equipment
  a. Radian GPS Receivers - 2 Each
- Carlson Explorer 600+ Data Collector & RTK Controller - 1 Each
- Carlson Surveyor + Data Collector
- Allegro Data Collectors with SMI and Carlson Software - 3 Each
- Zeiss Automatic Levels -1 Each
- Topcon Automatic Levels - 2 Each
- Sokkia Automatic Level - 1 Each
- Vehicles - 1 Each
- Miscellaneous Equipment
  a. DJI Phantom 4 Drone
  b. Fathometer
  c. Motor Boat
  d. Ultrasonic Depth Finder
  e. Schonstedt Magnetic Locator - 3 Each
  f. Hewlett Packard Handheld Calculators
  g. Cell Phones and Motorola Walkie-Talkies
  h. Tripods - 9 Each
  i. Tribrachs, Adapter & Prism Setups - 9 Each
  j. Quick Stick, Adjustable Rod with Prism - 3 Each

2.7 Dam Projects

City of Lock Haven, Water Supply Dams Improvements, Clinton County, PA

- **Modifications to Warren H. Ohl Dam** - Planning and design for improvements to Warren H. Ohl Dam (circa 1964), an earth embankment dam, 1,010 feet in length with a height of 59 feet and a capacity of 781 million gallons. Work includes the installation of a crest parapet wall, reinforced concrete spillway rehabilitation, mechanical piping intake tower modifications, new intake tower bridge, downstream valve vault and related dam modifications. Construction Cost: $3,500,000.

- **Modifications to Boyd R. Keller Dam** - Planning and design for improvements to Boyd R. Keller Dam (circa 1956), an earth embankment dam, 590 feet in length with a height of 53 feet and a capacity of 82 million gallons. Work includes the installation of a five (5) cycle labyrinth overflow weir or FuseGate type spillway, concrete spillway chute, terminal structure and energy dissipater, channel modifications, crest parapet wall, reinforced concrete spillway rehabilitation, intake tower modifications, new intake ports, downstream valve vault and related modifications. Construction Cost: $10,000,000.

- **Laurel Run Dam No. 2 Breach Analysis and Emergency Action Plan, Plains Township, Luzerne County, PA** - Hydraulic analysis, dam breach and downstream inundation mapping for a 37 foot high, 298 foot long, masonry dam, maintaining a normal pool capacity of 107 acre-feet (35 MG) located at the intersection of I-81 and SR 115 near Wilkes-Barre. The watershed area for the reservoir is 8.73 square miles. A detailed scope of work and independent cost analysis was performed to breach the dam for DNR budget purposes at a cost of $1,300,000. The scope of work involved construction of a 1-mile access road and specialty demolition procedures for the existing masonry dam.

- **Olyphant Dam No. 3 Breach Analysis and Emergency Action Plan, Luzerne County, PA** - Dam breach analysis and related construction demolition evaluation for a 37 foot high, 760 foot long, earth embankment, maintaining a normal pool capacity of 151 acre-feet (49.4 MG) and a drainage area of 0.6 square miles located near Scranton, PA. A detailed scope of work and independent cost analysis was performed to breach the dam for DNR budget purposes at a cost of $2,100,000. The dam was constructed in 1898 by the Pennsylvania Gas & Water Company and later conveyed to the State of Pennsylvania for recreational purposes.

Reed's Gap Dam Modifications, Petersburg Borough Water Authority, Huntingdon County, PA. Design of $1.1 million modifications to a 15-foot high composite earthen and timber crib dam originally constructed in 1934. Project included a new concrete cutoff wall along the entire axis of the dam, extending from the crest to the foundation; a new concrete spillway and crest cap to provide overtopping protection during the probable maximum flood; and new stilling basin and downstream erosion protection. The existing timber and earth structure was replaced with a compacted, engineered fill embankment and the upstream face was resurfaced with a pressure mortar surfacing. A cast-in-place concrete intake tower with multi-port valve system was installed, which also included an operating platform, aluminum access bridge and valve operators and an intake line was placed through the embankment with concrete encasement.

Bakerton Dam Modifications, West Carroll Township Water and Sewer Authority, Cambria County, PA. Design and construction observation of $1.5 million, 30-foot high, extreme high hazard composite earthen/Amberson concrete slab and buttress dam with new overflow section, embankment, intake structure, downstream erosion protection and dredging. The existing concrete slabs/buttresses were incorporated in the new compacted earth dam, thus combining structural and waterproofing elements with a more stable and durable earth embankment. A low cost alternative was devised to provide upstream intake control. Precast concrete culvert boxes were inverted and stacked for a multi-port intake tower.

Lake Mokoma Dam Modifications, Lake Mokoma Association, Laporte Borough, Sullivan County, PA. The dam (with timber crib core) consists of an earth embankment, 500-feet long and 19-feet high with a storage capacity of 260 million gallons. The existing spillway could only pass 39% of the probable maximum flood. In addition, there were questions about the stability of the existing embankment and possibly excessive seepage. The $2.5 million project consisted of the following design components: a) embankment overtopping protection used an articulated, precast concrete block (Armor Flex®) revetment system. This slope protection is designed to pass the Standard Project Flood without significant embankment erosion, b) lowering of the embankment phreatic surface groundwater level was accomplished by a

Montgomery Dam Modifications Design, Clearfield Municipal Authority, Pike Township, Clearfield County, PA - Engineering design and evaluation of Montgomery dam for compliance with PA Division of Dam Safety requirements for 100-foot high zoned earth and rock fill dam. Project Cost - $12,000,000.

- Spillway upgrade to accommodate probable maximum precipitation (PMP) as the spillway design flood (SDF)
- Hydrologic analysis using HEC-1/HEC-HMS
- Hydraulic analysis using HEC-RAS and other computational techniques
- Roller Compacted Concrete (RCC) downstream slope protection
- Primary spillway consisting of a reinforced concrete ogee weir, chute spillway
- Stability Analysis using GSTABL7 software to model rapid drawdown and other possible failure scenarios
- New intake tower and intake piping modifications
- Development of preliminary plans and cost estimates

Piffer Dam Breaching and Lake Saguin Replacement, Polk State Hospital, Polk Borough, Venango County, PA - The project involved the breaching of Piffer dam. The former impoundment (Lake Saguin) was replaced with a 1.9 million gallon pond to provide institutional fire protection. Piffer dam was an earthen dam, 377-feet long and 26 feet high. Classified as a "high hazard" dam by DEP Division of Dam Safety, the 8-acre impoundment had a capacity of 19 million gallons. The breaching of the 110-year old Piffer Dam (Phase I) included excavation, channel stabilization, storm sewer extension, rock lining of the breach area, spillway demolition and water management. The breach opening was hydraulically sized for the "probable maximum flood" condition. The sanitary sewer relocations included a 12-inch sewer along the south dam abutment and a 110-foot long, 36-inch deep wide-flange beam over the breach opening to support the existing gravity sewer. The new pond construction included a geo-synthetic clay liner and riprap slope protection at the stream side of pond. The Sandy Lick Creek pond intake included a reinforced concrete intake, screens, outlet works, 12-inch pond fill line, channel modification, stream diversion and appurtenances. Project Cost - $1,200,000.

Singer's Gap Dam Rehabilitation, Mt. Union Area Water Authority, Huntingdon County, PA, 1998 - Design and construction administration of renovations to Singer's Gap dam consisting of a 35-feet high, 700-feet long Amberson-type reinforced concrete buttress dam. Renovations included concrete rehabilitation, spillway overflow section, downstream erosion protection and other miscellaneous items. Project Cost, $350,000.

Impounding Dam Modifications, Altoona City Authority, Logan Township, Blair County PA - Design of modifications to fifty-five (55)-foot high earthfill/rockfill dam for potable water supply. Project involved modifications to existing dam including a 65-foot high reinforced concrete intake tower and outlet works (17-feet diameter) with two 36" diameter sluice gate intake ports with knife gate valves; 36" diameter dam drain/supply line with concrete encasement; 25-foot long stainless steel principal spillway weir assembly to control the water surface in reservoir including 25'x15' stainless steel weir channel and 1,200 ft. long tunnel lined with vitrified clay liner plates; 116-foot long uncontrolled reinforced concrete emergency spillway with 4-foot high spillway mounted inflatable rubber dam; 15-foot high rock fill heel installed with 50 mil impervious PVC membrane waterproofing liner with geotextile fabric; and replacement of emergency downstream 36" dam drain valve and mechanical piping.

Moose Creek Dam Modifications, Clearfield Municipal Authority, Lawrence Township, Clearfield County, PA - Design and construction observation for grouted gabion mattress slope protection installed on downstream slope of 35-foot high earthen dam (800 feet crest length) to comply with dam safety requirements. Project included concrete rehabilitation of existing reinforced concrete spillway using pressure mortar surfacing. Project Cost - $500,000.

Montgomery Run Dam Intake Tower Concrete Rehabilitation, Clearfield Municipal Authority, Pike Township, Clearfield County, PA - Design and construction observation for renovations to the spillway and intake tower using pressure mortar surfacing repair methods. Project Cost - $250,000.

- **James F. Potopa, P.E.,** will serve as the Project Mechanical Engineer specializing in system hydraulics and unit operation design. Mr. Potopa has over 32 years experience in mechanical engineering design, mechanical systems applications and facilities layout. Mr. Potopa has an Associate's Degree in Mechanical Engineering Technology from Penn State University and is a registered professional engineer.

- **Matthew R. Orner**, Senior Project Manager, has 14 years experience in water system design, sitework and site drainage design, stormwater design, surface water hydrology, project inspection and project management. His experience involves familiarity with HEC-RAS, DAMBRK, HEC-HMS and VTPSUHM hydrological modeling programs. He holds a Bachelor's Degree in Civil Engineering Technology from the University of Pittsburgh.

- **Steven J. Gibson, P.E., Project Engineer,** will be a key member of the GD&F design team as Project Civil Engineer with 8 years of experience in engineering design . He has seven years of design experience in stormwater management design, storm sewer system modeling and monitoring, mechanical piping layout, water system design, preparation of contract documents, permitting and cost estimating. Mr. has a Bachelor of Science Degree in Civil and Environmental Engineering from Pennsylvania State University. He is a registered professional engineer.

- **Travis J. Long, CIP,** is the Senior Project Environmental Scientist responsible for performing the Phase I Environmental Assessment, project wetlands permitting; submerged lands license agreement applications and water supply permit applications. He also has broad experience with watershed assessments and source water protection plans, statistical low-flow stream evaluations, reservoir yield evaluations, groundwater quality analysis, stream water quality and biological evaluations, aquatic biology surveys, stream flow field measurements and related work. Mr. Long has a Bachelor's Degree in Environmental Science and Ecology from Juniata College and is a Board-Certified Environmental Professional. He has 18 years of extensive experience in environmental science, technology applications and environmental permitting and is a licensed water system operator.

- **Maggie K. Weitzel,** is the Project Environmental Scientist and holds a BS degree in Environmental Science from Juniata College with over 10 years of experience in environmental science and performing advanced technical tasks in wetlands delineation and mitigation, environmental and ecological investigations and the preparation of environmental permit applications. Experience includes permit applications, NEPA-level environmental assessments, findings of no significant impact-type environmental reviews and PNDI searches and mitigation measures. Ms. Weitzel is a certified Environmental Professional-In-Training.

- **Jerome D. Brunner, P.L.S.,** Chief of Surveys and will provide the control and construction surveying. He has over 41 years of surveying experience with both field and office capacities. His experience includes construction stakeouts, property utilities, and topographic surveys, as well as cadastral, engineering, geodetic, and photogrammetric engineering surveys involving subdivisions and rights-of-way, drainage, water and sanitary lines, storm sewers, and aerial controls for topographic mapping. Mr. Brunner's

- **Douglas Batt, P.E., Project Geotechnical Engineering Consultant (CTL),** Mr. Batt is Project Manager, Geotechnical Engineer and Manager of the CTL Cincinnati Branch Office of CTL with over 28 years of engineering experience. He will provide geotechnical consultation as part of the design team. Mr. Batt possesses BSCE and MSCE degrees from the University of Cincinnati.

  His technical and project management experience includes geotechnical investigations, foundation design and evaluations, and construction materials testing and inspections for the following types of projects: roadways and bridges; reinforced earth embankments, earth dams, and earth retaining systems; slope stability analyses and landslide remediation; above and below ground fuel and water storage tanks; wastewater treatment facilities; manufacturing and parking facilities; and multistory office, hotel and school buildings.

- **Carl Selfridge, Project Exploratory Drilling and Soil Testing Consultant (CTL),** Mr. Selfridge Mr. Selfridge is responsible for directing all aspects of the Geotechnical Engineering Department for CTL Engineering of West Virginia, Inc. This includes the management of field drilling activities, field classification of soil and rock, field and laboratory safety procedures, the assignment of a laboratory testing program, and performing geotechnical evaluations. Engineering evaluations include foundation recommendations, settlement analysis, slope stability analysis, earth pressure coefficients and report preparation. Mr. Selfridge possesses a 1996 BSCE degree (along with post-graduate geotechnical engineering work) from Rensselaer Polytechnic Institute.

Affiliations

American Academy of Water Resources Engineers, Diplomate

American Academy of Environmental Engineers, Diplomate

American Society of Civil Engineers

Water Environment Federation

American Water Works Association

Association of State Dam Safety Officials

United States Society of Dams

Publications

ASCE Geotechnical Division - "Rehabilitation of Plane Nine Dam," 1993 (Co-Author)

ASCE Water Resources - "State College Water Distribution System Modeling," 1998 (Co-Author)

ASDSO - "Rehabilitation of Singer's Gap Dam," 1999 (Co-Author)

ASDSO - "Lake Altoona Dam Rehabilitation," 2001

ASDSO - "Tipton/Blair Gap Dam Rehabilitation," 2005 (Co-Author)

ASDSO - "Bakerton Dam Rehabilitation," 2006

AWWA-PA - "Clearfield Water System Improvements," 2014

Instruction

St. Francis University, Adjunct Instructor - Environmental Engineering

Clearfield Municipal Authority, Montgomery Dam Spillway Evaluation, Clearfield County, PA
Project engineer for hydrologic and hydraulic evaluation of Montgomery Run spillway with an alternatives evaluation for increasing spillway capacity. Recommended improvements included dam overtopping protection using roller compacted concrete and new intake tower at a cost of $10 million.

Altoona Water Authority, Mill Run Dam Evaluation, Blair Co., PA
Project engineer for hydraulic and hydrologic evaluation of Mill Run dam using USACE/USBR criteria for the probable maximum flood. Subsurface investigation, rock slope geological evaluation and seepage and stability analysis were included. Abutment rock slope, geotechnical analysis performed using subsurface investigation and geological engineering methods. Derivation of standard project flood using HEC-HMS modeling software. Alternatives evaluation included staged ogee and labyrinth weil spillways, floodwalls, RCC overtopping protection and new intake tower. Proposed dam modifications total $12 million.

Altoona Water Authority, Bellwood Dam Modifications, Blair Co., PA
Project principal for design of $12 million Bellwood dam modifications. Hydrologic and hydraulic evaluation of Bellwood dam using HEC-HMS evaluation techniques and criteria for spillway adequacy. Project includes staged labyrinth weir spillway and new intake tower.

PA Department of Public Welfare, Polk Center, Piffer Dam Replacement, Venango Co., PA
Project principal and design engineer for the breeching of Piffer Dam (25-foot high earth dam), new 1.5 million gallon fire pond, intake structure, 12-inch pond intake line and water and sewer line relocations. Cost - $1,000,000.

Clearfield Municipal Authority, Water System Improvements, Clearfield County, PA
Project principal and design director for $25 million water system improvements project including Moose Creek and Montgomery Run well field development, computer modeling, flow calibration, network analysis, area-wide water system replacement (200,000 L.F.), Montgomery Run treatment plant improvement project, coagulation and chemical feed facilities, Mt. Zion water system (0.1 MG tank and 10,000 LF distribution system), Hillsdale water system (0.1 MG tank and 6,000 LF distribution system) and Moose Creek Dam modifications.

Altoona Water Authority, Horseshoe Curve Water Supply Dams Hydrologic/ Hydraulic Evaluation, Blair County, PA
Project engineer and author of evaluation report on Horseshoe Curve water supply dams to comply with the U.S. Corps of Engineers (USCOE) and PA DER Division of Dam Safety spillway capacity criteria including hydrologic and hydraulic evaluation of three (3) dams with evaluation of channels, tunnels, spillways, side channel overflows, dam overtopping and related analysis. Final engineering report recommended $15 million improvement project, which were completed in 1999.

ATK Tactical Propulsions and Controls, Allegany Ballistics, Laboratory, New Surface Water Intake and WTF Upgrade, Rocket Center, WV, 2011
Architectural/structural designer for a 2 MGD water treatment plant. Total project cost: $7 million.

City of Moundsville, Water Treatment Facility, Marshall County, WV
Architectural and structural designer for a 22,000 square foot water treatment facility which included masonry, pre-cast concrete and steel design and detailing. Architectural design accounted for the owner=s requirements for both office/staff space and a treatment facility in one structure. The office/staff space includes a laboratory, bathroom and breakroom facilities and a conference area. Structural design accounted for all water treatment operations and storage including an 18' deep, 6,000 square foot clearwell area below finished floor elevations, and suspended flow channels.

Driftwood Borough, Water Treatment Facility Improvements, Cameron County, PA
Project manager and engineer for a building addition and equipment upgrades. Project Cost $200,000.

Irvona Municipal Authority, Water Treatment Facility, Clearfield County, PA
Architectural and structural designer for a water treatment facility which included masonry, steel and aluminum design and detailing. Architectural design accounted for the owner's requirements for both office/staff space and a treatment facility in one structure. Structural design accounted for all water treatment operations and storage including a 10' deep, 2,000 square foot clearwell area below finished floor elevations supported by a mat foundation.

Alexandria Borough Water Authority, Water Treatment Facility, Huntingdon County, PA
Architectural and structural designer for a water treatment facility which included masonry, steel and aluminum design and detailing. Architectural design accounted for the owner's requirements for both office/staff space and a treatment facility in one structure. The office/staff space includes a laboratory and bathroom facilities. Design also included the preparation of a subsurface report based on excavated test pits and the associated structural design based on the poor soil conditions uncovered during that subsurface investigation.

Pennsylvania American Water Company, Aldrich Station Improvements, Elrama, PA
Structural design and specification preparation for security modifications consisting of the replacement of metal panels and standard windows with masonry walls and bullet resistant glass, steel framed windows. Design included structural support for the wall modifications.

State College Borough Water Authority, Electric Generator Building, State College, PA
Structural and architectural designer/specifier for a 320 square foot, $150,000 pre-engineered metal building addition to a High Service Pump Station.

West Carroll Township Water and Sewer Authority, Bakerton Dam Emergency Action Plan Update, West Carroll Township, Cambria County, PA (2011)
Assisted project manager with updating the existing Emergency Action Plan (EAP) for Bakerton Dam as required by the PADEP 2009 EAP Guidelines.

Clearfield Municipal Authority, Water System Improvements, Clearfield County, PA (2014)
Project Manager for the design and construction of two (2) 1.5 MG water storage tanks, one (1) 0.5 MG water storage tank, 10,000 L.F. transmission main and pump station facilities at a cost of $6 million. Responsible for project coordination and construction administration. Duties included: conducting progress meetings, performing field inspections, coordinating scheduling, review and approving pay applications, issuing change orders, answering RFI's, review of all equipment and material submittals and working with Owner and Contractors.

Clearfield Municipal Authority, Water System Improvements, Design Phase, Clearfield County, PA (2012-2013)
Responsible for assisting the project engineer with the design of two (2) 1.5 MG water storage tanks, one (1) 0.5 MG water storage tank, 10,000 L.F. transmission main and pump station facilities. Duties included waterline design, cost estimation, specification preparation, answering questions during the bidding phase and permitting.

PA DGS - State Correctional Institution at Cresson, New Water Storage Tank, Cambria County, PA (2012)
Assisted the project engineer with the design of a new 750,000 gallon, elevated (hydropillar and composite), water storage tank. Project also involved repainting and rehabilitation of an existing 250,000 gallon elevated tank (with lead abatement) and demolition of an existing 85,000 gallon elevated tank. Duties included obtaining permits and approvals and cost estimation.

Altoona Water Authority, Reservoir Operation and Management Plan, Blair County, PA (2011)
Assisted project engineer with a reservoir operation plan for 13 reservoirs in the Altoona water system. Utilized Corps of Engineer's RES-SIM software to model a 65-year period of reservoir operation. Tasks included performing a statistical analysis using linear regression and frequency analysis techniques, drought management plan, safe yield determination and reservoir reliability analysis. The fully integrate reservoir management plan was summarized in a comprehensive engineering report and planning document.

Sharpsville Borough, Water Distribution System Improvements, Sharpsville, Mercer County, PA (2010)
Responsible for assisting the project manager with the construction administration of the 40,000 LF waterline replacement project. Duties included review of shop drawings and payment applications.

Altoona Water Authority, Bellwood Water Treatment Facility Improvements, Blair County, PA, 2016-Present
Project engineer for implementation of a 5-month membrane filtration pilot study featuring four (4) different membrane manufacturers. Project design engineer for the upgrade of an existing 5.0 MGD water treatment facility featuring raw water ozonation and traveling bridge sand filters, to a 0.1 micron membrane filtration system with automatic chemical cleaning system, new ozone generator system, upgraded chemical feed systems, piping modifications, instrumentation and SCADA upgrades, pump replacements, etc., at an estimated cost of $8 million.

Pennsylvania American Water Company, Two Lick Creek Water Treatment Plant Chemical Facilities and Intake Improvements, Indiana County, PA, 2016-Present
Project design engineer for the upgrade of an existing 6.0 MGD water treatment facility. Project featured updating to a bulk sodium hypochlorite, bulk caustic soda and bulk liquid lime chemical feed systems including building expansion, delivery and tank secondary containment, new half-screen automatic backwashing raw water intake system, miscellaneous chemical feed system and piping upgrades, SCADA upgrades, etc., at an estimated cost of $2.7 million.

Owens-Illinois Corporation, Anhydrous Ammonia System Upgrade, Auburn, NY, 2015
Project design engineer for the upgrade of an anhydrous ammonia bulk tank feed system. Project included a new 1,000 gallon bulk tank with vaporizer, pressure reducing valves, ammonia pressure regulator and appurtenances inside new FRP enclosure. Included tank and transfer station concrete secondary containment structures all designed to meet current OSHA and N.Y. State requirements. Total estimated project cost: $200,000.

Harpers Ferry Water Works, Water Treatment Facility Improvements, Jefferson County, WV, 2014-Present
Project engineer for the design of a $6.25 million water system improvement project including new intake structure, pre-treatment system with chemical oxidation, flocculation and sedimentation followed by membrane filtration and UV disinfection. Responsible for preparing a feasibility study and preliminary engineering report on the existing water distribution, storage and treatment system. Coordinated and managed a 6-week membrane filtration system pilot study. Analyzed providing a new above ground clearwell, high service pumps, emergency generator, SCADA and telemetry system and various treatment facility piping and instrumentation upgrades. Performed hydraulic modeling to replace 20,000 feet of distribution system piping and install a duplex packaged booster pumping station.

and infrastructure for the Nine Star Capital LLC 100-acre site of I-80 Exit 81 (Rt. 28) including roadway geometry, drainage design, traffic analysis, drainage design, TS&L submission, E&S plan, stormwater BMPs, permitting, design roadway plans development, quantities, cost estimates and related project consultation.

Belfast Township, Fulton County, PA
Provide engineering review services for township site developments and roadways pursuant to land development and subdivision ordinances. Responsibilities include plan review for compliance with applicable township ordinances and standard engineering practices, providing recommendations to the Board of Supervisors and land development plan approval.

Jefferson County Commissioners - JC-16 Bridge Replacement, Pine Creek Township, Jefferson County, PA, 2016
Performed detailed hydrologic and hydraulic (H&H) design for replacement of existing timber bridge with structural plate arch bridge. Design consisted of temporary and permanent roadway design, bridge design and specifications, permitting of stream crossing with PADEP, project bidding and construction administration. Project Cost $300,000.

East Nittany Valley Joint Municipal Authority (ENVJMA) Building Expansion, Porter Township, Clinton County, PA
Design included additional site grading and parking layout for maintenance building expansion analysis and retrofit design of existing SWM facility and site landscaping to meet local land development requirements.

Sheffield Property, Porter Township, Huntingdon County, PA, 2016
Designer of site for compliance with PADEP consent order. Design included analysis of unpermitted improvements within floodplain and development of a Corrective Action Plan (CAP) to come into compliance with PADEP consent order.

Christian Missionary Alliance Church Expansion, Williamsburg, Blair County, PA
Designer of 8-acre worship and fellowship hall expansion. Expansion included providing additional parking areas and design of underground stormwater management BMPs. Project also required coordination with approving agencies for approval of plans to meet local ordinances.

Tate Office Building, City of Annapolis, MD
Designer of an approximately 6-acre commercial redevelopment site, previously used as an automobile service center. Design included sediment and erosion control design, the design of bioretention areas and rain gardens for qualitative stormwater management and the analysis of existing storm drainage systems to determine adequacy of existing facilities. Project was designed to LEED Silver Certification standards.

Affiliations

American Society of Civil Engineers, Member

Pennsylvania Society of Professional Engineers, Member

National Society of Professional Engineers, Member

Pennsylvania Water Environment Association, Member

Water Environment Federation, Member

Jefferson County Public Service District, Glen-Haven Cavaland Water System Improvements, Jefferson County, WV
Engineer for replacement of 15,000 L.F. of 2" and 4" waterline, well house improvements, hydropnematic pumping systems, chlorine contact and control systems.

Johnsonburg Municipal Authority, New Water Supply and Treatment System, Elk Co., PA
Senior project engineer for new $12 million water supply and treatment system for Johnsonburg water system. New 1.5 MG water supply includes an intake on the East Branch of the Clarion River and new water treatment facility including membrane filtration, pretreatment, sedimentation, flocculation and coagulation, groundwater supply, new 1.0 MG water storage tank and water transmission main.

Altoona City Authority, Bellwood Water Treatment Facility, Blair County, PA
Mechanical process designer for new 5.0 MGD direct filtration water treatment plant employing ozonation facilities, continuously backwashed mixed media filtration system, computer control and instrumentation system, pumping facilities, chemical feed and storage facilities, plant hydraulics, mechanical piping systems, rapid mix/flocculation tanks, and 4.0 MGD steel water storage tank.

Altoona City Authority, Homer Gap Water Treatment Facility, Blair County, PA
Mechanical process designer for new 1.0 MGD direct filtration water treatment plant employing ozonation facilities, continuously backwashed mixed media filtration system, computer control and instrumentation system, pumping facilities, chemical feed and storage facilities, plant hydraulics, mechanical piping systems, rapid mix/flocculation tanks, 15,000 L.F. - 12" transmission main and 0.15/1.0 MGD water storage tanks.

Altoona City Authority, Horseshoe Curve Water Treatment Facility Renovations, Blair County, PA
Mechanical process designer for renovations to the 11.0 MGD water treatment plant. Modifications to the existing facility included rehabilitation of the dual-media filter system, chlorine contact tank/clearwell, sedimentation basins, chemical feed systems, control room, offices, laboratory, sludge handling system, electrical and instrumentation system, HVAC and plumbing, storage units, plant hydraulics, pumping units, site piping, site improvements, architectural and structural repairs. Additions to the facility include ozonation system, rapid mix and flocculation tanks, solids separation units, backwash waste sump, finished water storage tank conversion, mechanical piping, crane systems, tank covers, enclosed gangway connecting all buildings/units and piping/conduit systems.

Altoona City Authority, Kettle Water Treatment Facility, Blair County, PA
Mechanical process designer for new 2.0 MGD direct filtration water treatment plant employing ozonation facilities, continuously backwashed mixed media filtration system, computer control and instrumentation system, pumping facilities, chemical feed and storage facilities, plant hydraulics, mechanical piping systems, rapid mix/flocculation tanks, and pumping station modifications.

Altoona City Authority, Annual Dam Inspections, Breach Analyses and Emergency Action Plan Preparation, Altoona, Blair County, PA
Project Manager responsible for conducting state-mandated annual dam inspections of eleven (11) water supply reservoirs for the Altoona Water System (1998-2003). Performed breaching analyses using DAMBRK software for each dam and prepared corresponding downstream inundation maps and emergency action plans as required by the Pennsylvania Dam Safety and Encroachments Act.

Clearfield Municipal Authority, Annual Dam Inspections and Emergency Action Plan Updates, Clearfield County, PA
Senior Project Manager responsible for conducting and reporting state-mandated annual dam inspections of the Moose Creek and Montgomery Dams for the Clearfield Water System (2000 to present). Also developing and updating the Emergency Action Plans (EAP) every five years as required by PADEP-Division of Dam Safety.

Blair County Commissioners, Lakemont Park Dam Annual Inspection and Emergency Action Plan Updates, Blair County, PA
Senior Project Manager responsible for conducting and reporting the state-mandated annual dam inspection for the Lakemont Dam located in Logan Township, Blair County (1999 to Present). Also developing and updating the Emergency Action Plan (EAP) every five years as required by PADEP-Division of Dam Safety.

State College Borough Water Authority, Waddle Road Waterline Relocation, Patton Township, Centre County, PA
Senior Project Manager responsible for design and construction phase administration related duties for the installation of 1,000 L.F. of 16" diameter ductile iron watermain. Responsibilities included plan and profile construction drawings, specifications, permitting, project cost-share funding and project oversite.

Sandy Township Municipal Authority, Slab Run Waterline Installation, Sandy Township, Clearfield County, PA
Senior Project Manager responsible for design and construction phase administration duties for the installation of 5,000 L.F. of 8" diameter PVC watermain including 500 L.F. of horizontal directional drilling for two stream crossings. Responsibilities included plan and profile construction drawings, bidding documents and specifications, PADEP GP-5 Stream Crossing Permit, Railroad Crossing Permit and project oversite.

Pennsylvania American Water - Washington District, Franklin/Malone Water Storage Tank and Rechloramination Station, Canton and North Franklin Townships, Washington County, PA
Senior Project Manager responsible for design and construction bid phase duties for the installation of a .75 MG elevated water storage tank, active water mixing system, rechloramination chemical feed station, meter/control valve vault, pressure reducing vault and 2,600 L.F. of 12" diameter ductile iron watermain. Responsibilities included design drawings, bidding documents and specifications and all related land development and permitting requirements.

Pennsylvania American Water Company, Hiller Reservoir Anhydrous Ammonia Chemical Injection Vault, Fayette County, PA (2015)
Responsible for design of additional anhydrous ammonia chemical injection vault and interconnection with existing anhydrous ammonia chemical feed system, preparation of site plan, process design and electrical schematic drawings, and preparation of Erosion and Sediment Control Plan and PADEP Public Water Supply Permit Amendment Application.

State College Borough Water Authority, Nixon-Kocher Well Field Water Treatment Facility Pilot Study, Centre County, PA (2015)
Assisted project engineer with the analysis of water quality data and final report composition for the well field source membrane filtration pilot study.

Johnsonburg Municipal Authority, Clarion River Surface Water Intake and Water Treatment Facility, Elk County, PA (2014-Present)
Assisted with preparation of PennVEST funding application and preliminary cost estimate. Assisted project engineer with Q7-10 low flow analysis on proposed surface water source for a new water treatment facility using USGS historical data and statistical analysis.

Town of Moorefield, Moorefield Water Treatment Plant Upgrade and Expansion, 1.5 MG Water Storage Tank and 12-Inch Transmission Main Replacement, Hardy County, WV (2013-Present)
Assistant project engineer for the design of a new 8.0 MGD membrane filtration water treatment facility which included design of liquid chemical feed systems, flocculation tanks, sedimentation basins, membrane units, UV disinfection units, clearwell, waste tank, sludge lagoons, intake structures and pump stations and process pumping/piping equipment and instrumentation.

Bellemeade Civic Association, Bellemeade-AWA Interconnection, Blair County, PA (2014-2015)
Assisted project engineer with design of a water distribution system emergency backup interconnection inclusive of 1,000 linear feet of waterline and metering valve vault. Responsible for preparation of the PADEP PWS Permit Amendment and E&S Control Plan. Prepared contract drawings and specifications.

Alliant Techsystems Tactical Propulsions and Controls, Allegany Ballistics Laboratory, Steam Plant Water Treatment Facility, Mineral Co., WV (2013-2014)
Responsible for assisting project manager with the engineering design of the river surface water intake structure and water treatment facility for process feed water to the adjacent steam plant. Responsible for preparation of application forms, specifications, drawings, contract documents and design engineer's report for the Joint Federal/State Permit for the Alteration of any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland and floodplain permit. Assisted with river intake pump and intake screen design calculations, equipment selection and physical layout. Performed comprehensive hydraulic calculations of the proposed flocculation tanks, sedimentation basins, membrane filtration units, finish water pumps and process piping to establish the hydraulic gradient and hydraulic profile through the facility.

Long, Travis J., and Matthew R. Wolfe, "Sugar Densities of Sugar Maples in relation to DBH." Journal of Ecological Sciences, Juniata College, Volume 1, 1998

Long, Travis J. "What is a Watershed?" Published by Susquehanna County Conservation District

Long, Travis J. "Natural Stream Restoration - A new way to reduce pollution." Earth Times, November 2001

Long, Travis J. "Noxious Weeds, A Growing Pain." Lake and Pond Conference, Quaker Lake, PA, August 2001, and Riparian Buffers Workshop, Keystone College, La Plume, PA, March 2002

Long, Travis J. "Natural Stream Restoration and How You Can Benefit." Annual Contractors Workshop, Keystone College, La Plume, PA, March 2002

Long, Travis J. "The Purpose and Benefits of Tracer Studies for Public Water Supply Systems" American Water Works Association, May, 2008, and PADEP Engineers Training Seminar July, 2008, PRWA Annual Conference, 2010

Long, Travis J., and James L. Balliet, Membrane Filtration for Water and Wastewater Systems, PA Rural Water Association, 2008, 2012-14

Long, Travis J., Green Sand Filtration, PA Rural Water Association, 2012

Professional Affiliations

Pennsylvania Association of Environmental Professionals, Member

National Association of Environmental Professionals, Member

Academy of Board Certified Environmental Professionals, Member

Pennsylvania Rural Water Association, Member

American Water Works Association, Member

Water Environment Federation, Member

Sykesville Borough, Water Transmission Main Replacement Project, Clearfield and Jefferson Counties, PA
Senior Project Manager responsible for the planning, design and permitting oversight, funding acquisition, construction oversight and client representation for a 23,000 L.F. waterline replacement project, complete with chlorine injection station, controls, and SCADA to address water quality and flow conditions within the Sykesville service area.

Municipal Authority of the Borough of Belle Vernon, Water Treatment Plant Evaluation and Feasibility Study, Fayette County, PA
Senior Project Manager responsible for the detailed evaluation of a 90 year old water treatment facility and distribution system on the Monongahela River, versus an option of interconnection with a neighboring public water supply system to adequately address the current and long term treatment, operations and sustainability needs of the water system and service area.

Punxsutawney Area School District, Corrosion Control Treatability Study for the Mapleview Elementary School, Jefferson County, PA
Senior Project Manager responsible for the plan development and implementation of a detailed water system evaluation to assess corrosion control treatability and associated lead and copper issues within the distribution system of an elementary school, and develop a treatment plan to address water quality.

Mapleton Municipal Authority, Water Softening System for Well No. 1, Huntingdon County, PA
Senior Project Manager responsible for the design and permitting associated with the installation of a softening system to adequately address the hardness and overall water quality of the systems groundwater well.

Mapleton Municipal Authority, Potable Water Storage Tank Replacement, Huntingdon County, PA
Senior Project Manager responsible for the planning, design and permitting, funding acquisition and construction management associated with the replacement of a 0.150 MG potable water storage tank to address the system's needs for adequate and reliable storage and overall system infrastructure improvements.

Morgantown Utility Board, Water Resource Evaluation and Feasibility Study, Monongalia County, WV
Senior Environmental Scientist tasked with the planning and implementation of detailed evaluation and assessment of a potable water supply reservoir including sediment depth assessment, sediment collection and analysis, mapping, environmental site reconnaissance and assessment of potential reservoir development areas and agency coordination to assess the need for additional potable water supply storage and transmission.

Irvona Municipal Authority, Levee Crossing Waterline Replacement, Clearfield County, PA
Responsible for General Permit 11 application and E&S Control Plan for waterline replacement across Levee at Irvona Borough Flood Control Project.

Clearfield Municipal Authority, LT-2 Compliance Monitoring, Clearfield County, PA
Conduct cryptosporidinum and E. Coli sampling as part of the 2-year Long Term and Enhanced Surface Water Treatment Rule requirements on behalf of the Authority.

Ulster Municipal Water Authority, Bradford County, PA
Provide assistance in the pilot study, permitting and funding acquisition of a new 0.100 MGD microfiltration membrane water treatment facility to treat the Authority's existing wells, determined to be groundwater under the direct influence of surface water.

Saxton Borough Municipal Authority, Bedford County, PA
Obtain Water Allocation Permit Renewal for Juniata River, Raystown Branch and corresponding ACT 220 Registration and Compliance Monitoring. Provided assistance in the planning and design of the Kenrock/Putts Hollow Intake Monitoring Project.

Brookville Municipal Authority, Jefferson County, PA
Provide assistance in the pilot study and permitting of a new 1.5MGD microfiltration membrane water treatment facility to treat the Authority's existing North Fork Red Bank Creek source.

Westminster Woods/Huntingdon Borough Water Department, Public Water Supply Major Amendment, Huntingdon County, PA
Acquire Public Water Supply Amendment to permit the domestic portion of the water booster station to become part of the Huntingdon Borough Water Department system, due to proposed expansion of Westminster Woods, a not-for-profit senior living network.

Borough of Sharpsville, Water Distribution System Project, Mercer County, PA
Provide assistance in funding acquisition, Uniform Environmental Review, and Disable Business Enterprise Solicitation for the Borough of Sharpsville installation of approximately 20,000 LF of 12' Ductile Iron waterline and 30,000 LF of 8" Ductile Iron waterline.

Irvona Municipal Authority, Waterline Replacement, Clearfield County, PA
Complete General Permit 11- Repair of Water Obstructions and Encroachments and Erosion and Sedimentation Plans for two stream crossing waterline replacement projects within Clearfield Creek and North Whitmer Run within Irvona Borough.

Altoona Easterly Wastewater Treatment Facility, BNR Upgrade Project, Blair County, PA
Construction manager for $30 million plant upgrade and expansion.

Karthaus Wastewater Treatment Facility, Clearfield and Centre Counties, PA
Construction manager for $3 million new wastewater treatment facility.

East Providence Township Municipal Authority Upgrade, Bedford County, PA
Construction manager and design engineer for $4 million wastewater plant upgrade.

Petersburg Borough Sewer Authority, Wastewater Treatment Plant Upgrade and Expansion, Huntingdon County, PA
Construction manager for $2.5 million wastewater plant upgrade and expansion.

Shawnee State Park Water Treatment Facility (2010-2011)

Lancashire AMD Wastewater Treatment Facility (2009-2011)

McConnellsburg Water Treatment Facility (2009-2010)

Spring Creek Wastewater Treatment Facility (2009-2010)

Roth Lane Wastewater Treatment Facility (2008-2010)

Greenwood Furnace State Park Wastewater Treatment Facility (2008-2009)

Moose Creek Water Treatment Facility (2008-2009)

Logan Township Wastewater Treatment Facility (2008-2009)

Moshannon Creek Water System Improvements (2007-2008)

Osceola Mills Wastewater Facility (2006-2007)

Spangler Water Treatment Facility (2006-2007)

Snake Springs Water Treatment Facility (2006-2007)

Brown Township Wastewater Facility (2006-2007)

Fort Littleton Wastewater Facility (2006-2007)

Schellsburg/Shawnee State Park Wastewater Treatment Facility (2006-2007)
Penn Nursery Office Building (2005-2006)

Saxton Water Treatment Facility (2004-2005)

Penn State Water Treatment Facility (2004-2005)

Continuing Eduation (Cont.)

Survey Measurement Analysis 1/23/12

Control Surveying with GPS 1/23/12

Control Survey with GPS 1/25/11

Finding & Prioritizing Boundary Evidence, 1/26/11

Civil 3D for Surveyors 2/11/11

West Virginia Surveying Practice Standards and Surveying Ethics 12/13/07, 6/28/2008, 5/7/2010, 4/29/10, 5/11/12, 2/22/14

Florida Laws of the Profession 4/28/00, 12/24/10, 12/18/12, 12/20/14

Chapter 177 of the Florida Statutes 12/19/08, 12/24/10, 12/18/12, 2/20/14

Modernization of the National Spatial Reference Systems 11/17/10

Impact of Right-of-Way Plans and Acquisition 10/20/10

Storm Sewer Design 1/25/10, 1/24/11, 1/25/12, 1/14/13

Encroachment 1/26/10

Legal Aspects of Roads 1/26/10

Surveyors Role in the Legal System 1/27/10

Stormwater Review for Licensure 1/27/10

Boundary Conflict 1/26/09

State Plane Coordinate Systems 1/28/09

GPS for the Field Surveyor 1/27/09, 1/25/11

GPS Basics with Applications 1/26/09

Contract Law for Surveyors and Mappers 2/22/07

Legal Descriptions Seminar 1/15/07

Negligence Law for Surveyors & Mappers 12/7/04, 2/22/07

Florida Laws Affecting the Practice of Surveying & Mapping 2/4/03, 1/15/07, 12/19/08, 12/5/10

Deed Interpretation 2/4/03, 1/15/07

PSLS Seminar - Understanding RTK Positioning 9/28/05

Spring Township Water Authority - Commerce Street Waterline Replacement, Centre County, PA
Supervise field survey operations for topographic survey.

Clearfield Municipal Authority - Novey/Timko Waterline Easement Dispute, Lawrence Township, Clearfield County, PA
Supervise field survey operations for collecting boundary information/data for analyses.

Altoona Water Authority - Easterly CSO Metering Manhole, Blair County, PA
Collect survey data for use to design CSO improvements.

McCalmont Township - Spruce Street Culvert Replacement, Jefferson Co., PA
Supervise field survey operations for topographic survey.

Norfolk Southern Corporation - Right-of-Way Stake-Out, City of Bethlehem, Lehigh County, PA
Supervise boundary survey for right-of-way determination.

Norfolk Southern Corporation - Real Estate Division - Harrisburg 6th Street ALTA Survey, Dauphin County, PA
Supervise field survey operations for boundary/ALTA survey for proposed Norfolk Southern Acquisition.

Joseph Kaczor - Property Survey - 20 Acre Tract, Gallitzin Township, Cambria County, PA
Supervise survey field operations for boundary survey.

Norfolk Southern Corporation - Construction Stakeout, Yard Improvements, Raleigh, NC
Supervise survey field operations for construction stakeout survey.

Clearfield Municipal Authority - Moose Creek Rt. 322 Waterline Replacement, Lawrence Township, Clearfield County, PA
Supervise survey field operations for topographic survey.

Norfolk Southern Corporation - Yard Improvements, Conway, Beaver County, PA
Supervise survey field operations for construction stakeout survey.

Norfolk Southern Corporation-Intermodal Facility Paving Project, Baltimore, MD
Supervise survey field operations for topographic and construction stakeout surveys.

Brookville Municipal Authority - Phase 1A, Wastewater Conveyance System Improvements (Pennworks Grant), Jefferson County, PA
Supervise survey field operations for topographic survey.

Petersburg Sewer Authority - Wastewater Treatment Facility Upgrade and Logan Township Sewer Extension, Huntingdon County, PA
Supervise survey field operations for topographic survey.
Supervise survey field operations for ALTA boundary survey.

drawings along with drafting of waterline plans and profiles and details and applying for highway occupancy and DEP general permits and easement drawings for water system facilities and a property subdivision for the proposed water treatment facility.

Sykesville Borough, Water Transmission Main Replacement, Clearfield and Jefferson Counties, PA
Project designer and CADD manager for a water transmission main from the City of Dubois in Clearfield County to the Borough of Sykesville in Jefferson County. Work included design and drafting of approximately 4 miles of water transmission main and a new chlorination/pressure boosting station and details along with highway occupancy and DEP general permits and right of way acquisitions.

Northeast Bradford School District, Water System Improvements, Bradford Co., PA
Designed, drafted and managed upgrades to the schools water storage facilities and distribution pumping system. Plans included several details of the existing and proposed water system throughout the school, including pipe routing and connections to existing facilities.

State College Borough Water Authority, Waddle Road Waterline Relocation, Centre County, PA
Designer and CADD manager overseeing the design, and drafting for approximately 1,500 L.F. of 16" ductile iron waterline relocation on Waddle Road in Patton Township which was required due to a PennDOT roadway and bridge expansion project. Project included supervision of drafting staff and drafting of civil plans and profiles and details, working closely with PennDOT officials to keep very tight deadlines to keep their project on schedule. Also had to work with other utility companies to keep utilities separated throughout the project limits.

Pennsylvania American Water Company, Various Water Projects, Clarion, Indiana, Punxsutawney, Pittsburgh, Washington and Kane Districts, PA
Project designer and CADD manager for several water projects throughout the western part of Pennsylvania. Work included design and drafting of waterline plans and profiles and details along with highway occupancy and DEP general permits and acquisition of right of ways.

Bear Valley Joint Authority, Franklin County, PA
Designer and CADD manager overseeing the design, and drafting for a proposed membrane filtration water treatment facility. Project included supervision of drafting staff and drafting of civil, architectural, structural, and electrical drawings along with drafting of waterline plans and profiles and details and applying for highway occupancy and DEP general permits and securing a property subdivision for the facility and easement drawings for well fields and utilities.

Pennsylvania American Water Company - Statewide Watermain Replacement Projects
Project designer and CADD manager for numerous waterline replacement projects throughout Pennsylvania. Work included design and drafting of waterline plans and profiles and details along with highway occupancy, DEP general permits and all easements for over 250,000 L.F. of utility line work.

Groundwater Exploration and Well Field Development, Borough of Driftwood, Cameron County, PA - Project Hydrogeologist for well field development for a 100-customer public water supply system including geological reconnaissance, preparation of drilling and testing specifications, exploratory drilling, 72-hour aquifer pump testing, water quality sampling and testing, drawdown curve, safe yield evaluation and DEP Public Water Supply Permit application.

Groundwater Exploration and Well Field Development, Mapleton Borough Water Authority, Huntingdon County, PA - Project Hydrogeologist for well field development for a 150-customer public water supply system including geological reconnaissance, preparation of drilling and testing specifications, exploratory drilling, 72-hour aquifer pump testing, water quality sampling and testing, drawdown curve, safe yield evaluation and DEP PWS permit application.

Coal Exploration, Reserves and Valuation Report, O.W. Lerch Tract, Licking Township, Clarion County, PA - Coal Geologist for a coal reserve and valuation study including preparation of coal exploration drilling program, preparation of geologists logs from rock core sampling, stratigraphy evaluation, coal proximate analysis (sulfur, moisture, volatile matter, ash, fixed carbon) and BTU thermal testing, reserves and valuation analysis and report preparation.

Hazardous Waste Site Groundwater Monitoring and Evaluation, Easterly Wastewater Treatment Facility, Altoona Water Authority, Blair County, PA - Project Hydrogeologist for groundwater monitoring project relative to a hazardous wastewater disposal site at a wastewater treatment facility including sampling, testing and chemical analysis evaluation. Contaminants of concern included perchloroethylene, trichloroethylene and benzene.

Coal Exploration and Bituminous Surface Mine Permitting, C&K Coal Company, Western Pennsylvania - Coal Geologist for large bituminous surface mining company with operations throughout Clarion, Jefferson and Cambria Counties; work included supervising coal exploration drilling programs, logging test borings, performing overburden analysis, preparing geologic and hydrogeologic components of PADEP mine drainage and mine permit applications and managing water quality monitoring programs.

Groundwater Contamination Site Assessment and Monitoring, PA Department of Environmental Protection, Southcentral Regional Office, Harrisburg, PA - Staff Hydrogeologist for evaluation of groundwater contamination sites throughout the PADEP Southcentral Region including Olin Chemical, Red Lion, PA; Hamilton Watch, Lancaster, PA and AMP, Harrisburg, PA.

Municipal Solid Waste Landfill Permit Application Reviews, PA Department of Environmental Protection, Southcentral Regional Office, Harrisburg, PA - Staff Hydrogeologist for reviewing waste management permit applications throughout PADEP Southcentral Region including, Keystone Landfill, Dunmore, PA; Greater Lebanon County Landfill; Southcentral Counties Solid Waste Authority Landfill, Hopewell, PA; Adsco Landfill, Biglerville, PA; among others.

Douglas Batt, M.S., P.E.

Cincinnati Branch Manager

As a Project Manager and Geotechnical Engineer, Mr. Batt is responsible for supervision of professional, technical and laboratory personnel and resources performing geotechnical engineering services. Mr. Batt's experience as a geotechnical and materials engineering consultant covers a variety of infrastructure, commercial and industrial projects. His technical and project management experience includes geotechnical investigations, foundation design and evaluations, and construction materials testing and inspections for the following types of projects: roadways and bridges; reinforced earth embankments, earth dams, and earth retaining systems; slope stability analyses and landslide remediations; above and below ground fuel and water storage tanks; wastewater treatment facilities; manufacturing and parking facilities; and multistory office, hotel and school buildings.

In addition, Mr. Batt has performed flexible and rigid pavement designs and assessments; monitored and evaluated pile load tests for industrial and commercial facilities; and has monitored, inspected and authored EPA certification reports for Subtitle D landfill liner and cap construction projects.

EDUCATION

Master of Science
University of Cincinnati, Cincinnati, Ohio 1992
Bachelor of Science, Civil Engineering
University of Cincinnati, Cincinnati, Ohio 1989

PROFESSIONAL REGISTRATION / CERTIFICATION

Registered Professional Engineer, Ohio, Kentucky & New Jersey

CTL PROJECT EXPERIENCE

CLEAR FORK RESERVOIR DAM SEEPAGE INVESTIGATION
City of Mansfield, Ohio
Miami Valley Hospital South, Highway Sign, Cincinnati, Ohio

SHAWNEE STATE FOREST DAM IMPROVEMENTS AND REPAIRS (ODNR)
Adams and Scioto Counties, Ohio
Developed remediation design plans, specifications and construction cost estimates for the retrofit of the existing earth dams. Executed Preliminary Investigation, Preliminary Design and Final Design phases for four earth embankment dams that required increased storage-discharge capacity, structural repair of the principal concrete box culvert spillways along with evaluating the improvements for stability and seepage control. Performed geotechnical explorations, hydrologic and hydraulic analyses of watersheds and dam outlet structures, design of earth retaining walls, spillway inlets, sliplining of box culvert outlets and roller compacted concrete (RCC) dam embankment overlayment. His design approach included value engineering of several design alternatives that included increasing the height of three existing embankments along with constructing new emergency spillways and developing a breaching plan for fourth dam embankment.

MEMORIAL PARKWAY TREATMENT PLANT RESERVOIR
Fort Thomas, Kentucky
Mr. Batt acted as CTL's Project Manager for the geotechnical exploration on a project that consisted of the analysis of the existing reservoir embankment slopes, including laboratory testing of the soils encountered in the embankments and slope stability analyses in both long term steady state seepage and rapid drawdown conditions.

Section 4
PROJECT APPROACH - DAM PROJECTS

Project Management/Administration - GD&F's Project Management Team will plan, schedule, organize and control the resources to achieve specific objectives within established schedule, budget and quality standards. GD&F's Project Manager is responsible for, but not limited to, the following:

1. Assemble and direct the design team
2. Conduct project kick-off meetings
3. Serve as the single point of contact for project communication
4. Coordinate project issues with outside agencies
5. Schedule project development activities
6. Review product quality and assure compliance
7. Monitor design team performance and project development
8. Control project costs
9. Promote an atmosphere of team work among project participants
10. Coordinate the flow of information concerning the project
11. Conduct constructability review

We will provide personnel to attend all project meetings to maintain proper liaison with DNR. Minutes of all meetings and records of telephone conversations, along with directives or decisions, will be prepared and distributed by GD&F to DNR.

Surveys - This task consists of providing the survey requirements associated with specific DNR projects designated for studies, reports, design and construction.

GD&F will obtain published horizontal and vertical control data for specific project use. GD&F will research municipal, County and DNR files to obtain existing mapping and other pertinent information. Upon completion of this research, we will determine field information requirements and perform the field survey. Proper field survey notebook compilations, numbering and content indexing will be used to record all survey information.

GD&F will establish horizontal and vertical control relative to referenced monumentation. Project control monumentation will be completed in the field. The horizontal control will be based on the State Plane Coordinate System NAV 83. The vertical control will be based on the NGVD 88 vertical datum. Benchmarks and references for construction stakeout will be established and recorded.

Utility Investigation - While investigating property information in the applicable County Courthouse, we will obtain a utility listing in accordance with Act 187. We will utilize the West Virginia Miss Utility System to notify utilities of the project and to obtain underground facility locations.

Plans will be developed and forwarded to all utilities involved for their verification and identification of potential conflicts. The input received from the affected utilities will be incorporated into the design and construction documents.

2. Visual Site Inspection

We will verify and supplement the information obtained above with a site inspection. It will include determination of the location of the proposed structural, other existing structures in the project vicinity including their type and condition; visual examination of surface soils, topography and vegetation; drainage features; rock outcrops; excavations; visible indications of subsurface conditions; existing problem areas such as slope movements, subsidence, mine shafts or sinkholes; and utility locations.

3. Reconnaissance Soils and Geological Engineering Report

GD&F will prepare a report to present the findings of our soils and geological investigations as outlined above. It will include the site identification; data obtained during the search for published and unpublished information; mining information correspondence; subsurface features and structures observed during visual site inspection and air photo interpretation; scope of subsurface exploration, if conducted; identification of geological formations in the area; conditions encountered in the subsurface exploration; evaluation of the effect of the condition encountered or anticipated on the proposed construction; relative advantages and limitations of the sites under consideration; topographic map showing proposed site and locations of important site features; indication of further exploration requirements such as in situ and/or laboratory testing, if needed, for the determination of bearing capacity and/or settlement analysis for the proposed foundations.

4. Foundation and Soils Exploration Plan

We will prepare the number of test borings for each structure unit, a discussion of the possible adverse and positive subsurface conditions, mining information, profile showing existing and design grades, alignment, estimated typical section, recommended method of subsurface exploration, plan sheet noting suggested test boring locations, recommended laboratory testing program and a copy of pertinent foundation information from the Reconnaissance Soils and Geological Engineering Report. Recommended laboratory tests may include rock strengths such as unconfined compression, shear resistance, etc. and soil parameters such as gradation, density, direct shear, consolidation and CBR.

5. Laboratory Testing

To characterize and assess the engineering behavior of soils/rock at the project site, a laboratory testing program will be prepared, with the testing only performed upon concurrence by DNR. All laboratory soil testing will be performed at an approved laboratory. The laboratory testing program will include unconfined compression tests on intact rock cores (if applicable) and tests to determine the corrosive potential of soil and water samples. Soil testing including soil classification, standard penetration test (SPT), Atterberg limits, soil density-moisture testing and tri axial shear and direct shear tests (where obtainable). The proposed laboratory testing program will be included with the geotechnical engineering report. GD&F will obtain testing approval.

Waterway Permits/Environmental Review - This task is the coordination with the appropriate environmental agencies and the preparation of permit applications.

GD&F's work will involve preparation of a Corps of Engineers 404 or NPDES application including an Environmental Assessment Form. This task includes Wetland Identification/Mitigation, if required. The appropriate coordination with required agencies is included in this task.

Early coordination and necessary information will be obtained to complete the Application Checklist and Environmental Assessment Form. This form will accompany the permit application. GD&F will prepare the permit application and all supporting documentation for submission to DNR which will then be forwarded to WVDEP. GD&F will coordinate with the U.S. Fish and Wildlife Service, the Pennsylvania Historic and Museum Commission, the U.S. Army Corps of Engineers and the WV Department of Environmental Protection related to threatened or endangered species, National Register listed or eligible historic properties, wetlands and other environmentally sensitive issues.

Archaeology investigation will be limited to a preliminary plans and narrative submission to PHMC by GD&F on behalf of DNR for WV Division of Culture and History review and clearance. Should WV Division of Culture and History require further studies after their initial review, the agreement with DNR may be supplemented for the additional work scope.

Preliminary Design Engineering Report - This task consists of the assembly of preliminary design engineering studies and development of recommendations for proposed dam improvements.

GD&F will provide preliminary design and engineering with respect to the selection of dam spillways, outlet structures, overtopping and erosion protection, mitigation measures during construction, embankment stability modifications, intake/dam drain conduits, concrete rehabilitation, and related modifications.

The Preliminary Design Engineering submission will include the following tasks:

1. Develop a location map showing the features to be constructed.
2. Evaluate results of geotechnical report to identify potential foundation and stability structure mitigation measures.
3. Recommend spillway modifications.
4. Evaluate constructability and site constraint issues.
5. Prepare cost estimates for alternative modification designs.
6. Prepare justification for recommended alterative.
7. Prepare transmittal letter, plans and report for DNR submission.
8. Provide outline plans and specifications
9. Identify all required permits and approvals.

2. Develop a narrative report describing the project and indicating project purpose, engineering assumptions, specifications and calculations for erosion control measures and facilities. The narrative shall include a schedule of installation and removal of temporary and permanent erosion control measures and facilities as related earth-moving operations with a maintenance program for each temporary and permanent erosion control measure and facility.

3. Provide detail instructions of the sequence of construction on the plan and in narrative form. Include staging, sequencing and scheduling of earthmoving activities and installation and removal of erosion and sediment pollution control measures and facilities, as required.

4. In the narrative report, provide a detailed description of all soil types located within the project limits including each soil type, depth, slope and resistance to erosion. The soil boundaries and a summary table of the soil types and limitations will also be included on the plans.

5. Provide all applicable construction schedules, maintenance programs (including the removal and disposal of accumulate soil materials).

6. Prepare transmittal letter, plans and narrative report for submission to the County Conservation District. Meet with the County Conservation District before submission to discuss submission requirements and to review conceptual plan.

The following tasks will be prepared for the NPDES permit application:

1. Develop an NPDES boundary map that includes the following information: limits of disturbance, dam alignment, cut & fill limits, ROW lines, contours, stations, location identifiers and the permit boundary.

2. Complete the NPDES Permit Application. The application package will consist of the following items: Act 15 Notification, PNDI Form, location map, NPDES Application Form, Cultural Resources Notice (if involving a Special Protection Watershed), General Information Form (if involving a Special Protection Watershed or an Individual NPDES Application) and the Erosion and Sediment Pollution Control Plan.

3. Submit NPDES Permit Application package to DNR for review, if required. Revise as necessary. Obtain DNR's notarized signature on the application and make the designated amount of copies to submit to the County Conservation District and, if applicable, to WVDEP.

4. Schedule review meetings with the agencies before submitting the NPDES permit package to expedite the permitting process.

5. Submit permit package to the Conservation District/WVDEP.

9. As required by DNR, provide advice on modifying the project documents (deleting items or limiting quantities, preparing and reviewing alternate designs, bids or contingencies) if lowest bids exceed available construction funds.

Construction Coordination

1. Participate in a DNR preconstruction conference, finalize the contract and participate in all meetings related to construction activities.

2. Review and approve all material and equipment samples, shop drawings, certificates, renderings and other pertinent construction documentation submitted by the contractors.

3. Prepare all change orders, as required.

4. Attend regular on-site DNR construction progress meetings (as required) with all parties to review and discuss construction. Make other field visits to the work site as frequently as requested by DNR to:

    a. Observe the quality of work
    b. Confirm the quality of materials and equipment delivered to the work site
    c. Ensure full compliance with project specifications
    d. Guard against work defects and deficiencies

5. IF directed by DNR prepare minutes of all on-site construction progress meetings and distribute copes of minutes to all parties.

6. Advise and fully participate in negotiations and pertinent DNR conferences for the duration of the project.

7. Prepare all design revisions, if requested by DNR.

8. Certify and prepare written recommendations for contractor payments. A payment schedule will be negotiated prior to construction.

9. As required by DNR, be available to consult with contractors during construction

10. Participate in DNR iinal inspection to identify and document all deficiencies in workmanship and materials to be completed or corrected, if necessary. If deficiencies are identified, schedule and conduct follow-up final inspections until all corrections have been successfully completed.

11. Review contractors operating instructions and manuals, extended warranties, guarantees and other similar documentation of materials and equipment used and installed during construction.

12. Prepare and submit to the DNR reproducible as-built record drawings and CADD files.

13. Prepare a simple methodology showing recommended procedures for new system operation and maintenance, if applicable.