



The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header

List View

General Information | Contact | Default Values | Discount | Document Information

Procurement Folder: 184203

SO Doc Code: CEOI

Procurement Type: Central Contract - Fixed Amt

SO Dept: 0606

Vendor ID: 000000167525

SO Doc ID: HSE1600000002

Legal Name: ECSI LLC

Published Date: 2/26/16

Alias/DBA:

Close Date: 3/9/16

Total Bid: \$0.00

Close Time: 13:30

Response Date: 02/10/2016

Status: Closed

Response Time: 15:10

Solicitation Description: Addendum No. 3-Responses attached and extend the bid opening

Total of Header Attachments: 0

Total of All Attachments: 0



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

**State of West Virginia
 Solicitation Response**

Proc Folder : 184203

Solicitation Description : Addendum No. 3-Responses attached and extend the bid opening

Proc Type : Central Contract - Fixed Amt

Date issued	Solicitation Closes	Solicitation No	Version
	2016-03-09 13:30:00	SR 0606 ESR02101600000003422	1

VENDOR
000000167525 ECSI LLC

FOR INFORMATION CONTACT THE BUYER
 Tara Lyle
 (304) 558-2544
 tara.l.lyle@wv.gov

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

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

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Professional engineering services				\$0.00

Comm Code	Manufacturer	Specification	Model #
81100000			

Extended Description : Professional engineering services



ECSI.LLC

ENGINEERS ■ CONSULTANTS ■ SCIENTISTS ■ INTERNATIONAL

ARCHITECTURAL - ENGINEERING SERVICES
TECHNICAL PROPOSAL

Riverine Flood Hazard Analysis & Mapping Services

Solicitation No.
HSE1600000002

State of West Virginia
Division of Homeland Security
& Emergency Management

February 16, 2016

1345 North State Route 2 ■ New Martinsville, WV 26155
340 South Broadway, Ste. 200 ■ Lexington, KY 40508
Phone: 304.398.4979
www.engrservices.com

February 3, 2016

State of West Virginia
Department of Administration, Purchasing Division
2019 Washington Street East
P.O. Box 50130
Charleston, West Virginia 25305-0130
Attn: Tara Lyle

RE: Centralized Expression of Interest
Solicitation No. HSE160000002
Riverine Flood Hazard Analysis & Mapping Services
ECSI Proposal 016-046

Members of the Selection Committee:

ECSI, LLC is pleased to present our proposal to the State of West Virginia for professional engineering services in response to Solicitation No. HSE160000002 - Riverine Flood Hazard Analysis & Mapping Services.

ECSI, LLC, a Lexington-based firm, brings together a diverse group comprising of 30 professionals with engineering and environmental backgrounds, including civil and environmental engineers, land surveyors, hydrologists, hydrogeologists, geologists, environmental scientists and biologists. ECSI was founded as a Lexington firm by our current President, Steve Gardner, and has a 32-year history of providing various engineering and environmental services to clients throughout Kentucky, West Virginia and other neighboring states.

Our team members have provided a wide variety of hydrologic/hydraulic analyses for both public and private companies over the past 35+ years. This work includes FEMA flood insurance studies; Letters of Map Revision (LOMR); flood inundation mapping; stormwater studies; stormwater sewer designs; detention and sedimentation pond design; channel relocations; stream restoration; and water quality improvement designs. We have included examples of some of this work in the attached Statement of Qualifications, but would be happy to discuss our experience in more detail. Our proposed project manager for this contract began his career in 1977 as part of a team of hydrologists performing Flood Insurance Study services that ultimately included twelve (12) counties, sixteen (16) communities/cities, and over 270 miles of rivers and streams. More recently, our team members have performed HEC-RAS and HEC-HMS analyses for LOMRs, streambank improvements, and bridge replacement projects.

Primary proposed ECSI team members on this project include Douglas Mynear, PE; Fred Eastridge, PE, PLS; Steve Gardner, PE; Seth Mittle, EIT; Karen Rose, EIT. Additional engineers, environmental scientists, surveyors and technical personnel are available to be assigned to the project, as need and schedule dictate. We have designated Douglas Mynear as our proposed Project Manager for this contract.

In summary, we are very interested in this project and look forward to hearing back from you. We can be reached by email at jsgardner@engrservices.com or dmynear@engrservices.com. Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Douglas Mynear". The signature is written in a cursive style with a large initial 'D'.

Douglas K. Mynear, PE, CPESC, LEED AP
Vice President/Director of Civil Engineering

**Expression of Interest, Affidavit & Other
Required Forms**

CERTIFICATION AND SIGNATURE PAGE

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

ECSI, LLC

(Company)

Douglas K. Mynear, PE, VP/Director



(Authorized Signature) (Representative Name, Title)

(859) 233-2103(T) (859) 259-3394(F) 15-Feb-2016

(Phone Number) (Fax Number) (Date)

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

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

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

DEFINITIONS:

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

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

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

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: ECSI, LLC

Authorized Signature: *Wangela Myneer* Date: 12-Feb-2016

State of Kentucky

County of Fayette, to-wit:

Taken, subscribed, and sworn to before me this 12 day of February, 2016.

My Commission expires September 26, 2017.

AFFIX SEAL HERE



NOTARY PUBLIC *Kimberly M Ferrero*



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: 184203

Doc Description: Engineering firm for flood hazard analysis

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2016-01-25	2016-02-16 13:30:00	CEOI 0606 HSE1600000002	1

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:

ECSI, LLC
 340 S. Broadway, Suite 200
 Lexington, KY 40508
 (859) 233-2103

FOR INFORMATION CONTACT THE BUYER

Tara Lyle
 (304) 558-2544
 tara.l.yle@wv.gov

Signature X

FEIN # 27-3277647

DATE 12-Feb-2016

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

ADDITIONAL INFORMATION:

The West Virginia Purchasing Division for the Agency, WV Division of Homeland Security and Emergency Management, is soliciting CEOI responses from qualified firms to provide a contract to provide necessary engineering and other related professional services to provide riverine flood hazard analysis and mapping services for the State of West Virginia on an as needed basis, per the attached documentation.

INVOICE TO	SHIP TO
ACCOUNTING TECHNICIAN 304-558-5380 HOMELAND SECURITY & EMERGENCY MANAGEMENT BLDG 1 RM EB80 1900 KANAWHA BLVD E CHARLESTON WV25305-0360 US	ACCOUNTING TECHNICIAN 304-558-5380 HOMELAND SECURITY & EMERGENCY MANAGEMENT BLDG 1 RM EB80 1900 KANAWHA BLVD E CHARLESTON WV 25305-0360 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Professional engineering services		

Comm Code	Manufacturer	Specification	Model #
81100000			

Extended Description :

Professional engineering services

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	Technical questions due by 4:00 pm	2016-02-04

HSE160000002	Document Phase Final	Document Description Engineering firm for flood hazard analysis	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

CERTIFICATE OF *Authorization*

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

*The West Virginia State Board of Registration for Professional Engineers
having verified the person in responsible charge is registered in
West Virginia as a professional engineer for the noted firm, hereby certifies*

*has complied with section §30-13-17 of the West Virginia Code governing
the issuance of a Certificate of Authorization. The Board hereby notifies you of its
certification with issuance of this Certification of Authorization for the period of:*

providing for the practice of engineering services in the State of West Virginia.

IF YOU ARE REQUIRED TO REGISTER WITH THE SECRETARY OF STATE'S OFFICE,
PLEASE SUBMIT THIS CERTIFICATE WITH YOUR APPLICATION.



IN TESTIMONY WHEREOF, THE WEST VIRGINIA STATE BOARD OF
REGISTRATION FOR PROFESSIONAL ENGINEERS HAS ISSUED THIS COA
UNDER ITS SEAL, AND SIGNED BY THE PRESIDENT OF SAID BOARD.

BOARD PRESIDENT

Firm Qualifications

Firm Qualifications

ECSI, LLC, (ECSI) a Lexington-based firm, brings together a diverse group comprising 30 professionals with engineering, technical and environmental backgrounds; including civil/environmental engineers, hydrologists, geologists, environmental scientists, biologists and surveyors. ECSI has a 33-year history of providing various engineering and environmental services to clients throughout Kentucky, West Virginia, and other neighboring states.

ECSI was initially formed by Steve Gardner in 1983 and is a Lexington-based engineering firm, currently with 30 employees. Over the past five years with the staff additions of Fred Eastridge and Douglas Mynear, the firm has greatly expanded its expertise in street, hydrology/hydraulics and stormwater engineering services. Both of these senior project managers have over 35-years of experience designing and managing civil engineering projects throughout the region. In total, ECSI has six (6) Licensed Engineers (five licensed in West Virginia). ECSI also has three (3) EIT's, two licensed surveyors (one licensed in West Virginia), and two (2) professional geologists and numerous support personnel.

Specialized experience and technical competence of the person or firm with the type of service required –Our assigned project manager, Douglas K. Mynear, PE; with over 37 years of hydrologic/hydraulic analysis and civil engineering design experience, has completed numerous similar projects and has a thorough understanding of the expectations for projects that will be assigned under this contract. During his career, Mr. Mynear has performed FEMA flood insurance studies for several communities/counties in Kentucky involving over 275 miles of streams/rivers. Some of these studies include Hopkinsville; Bowling Green/Warren County; Frankfort/Franklin County; Scott County; Bourbon County; Marshall County; and Henderson County. Mr. Mynear recently (2014) performed and submitted a LOMR request for Dry Run Creek in Georgetown, KY; and performed the HEC-RAS analyses for three bridge replacements located on the Blue Grass Army Depot in Richmond, Kentucky. He also was responsible for the FY2004 performance of the Southpoint Tributary flood insurance study for LFUCG. His experience includes using HEC-RAS, HEC-HMS, XP-SWMM, and TR-55 software packages.

Fred Eastridge, PE, PLS, also with over 35 years of civil engineering experience will serve as deputy project manager on this contract. Mr. Eastridge has designed and/or served as project manager on dozens of civil engineering projects during his career. In addition to conducting dozens of hydrologic/hydraulic studies, Mr. Eastridge's direct FEMA experience includes the performance of LOMR's for Bryan Station Creek at Liberty Road; North Elkhorn Creek at Mt. Brilliant Farm; and Baughman Fork at Blue Sky Industrial Park.

Character, integrity, reputation, judgment, experience and efficiency of the person or firm – ECSI consists of a diverse group of 30 trained professionals including environmental engineers, hydrogeologists, geologists, environmental scientists, biologists, surveyors and civil engineers. These personnel in turn are led by a management team consisting of individuals with over 35 years of engineering experience, including the management of large multi-disciplinary, multi-firm project teams. Our President/CEO, Steve Gardner, currently serves as the national

president of the Society of Mining, Metallurgy & Exploration (SME); has previously served as a member of the Kentucky State Board of Licensure for Engineers and Land Surveyors; and has instilled the principles of integrity and ethical behavior throughout the company. We fully recognize the past success of our company has been built solely on a foundation of trust with our repeat clientele, and our future success is equally dependent on a continuation of that trust.

With Doug serving as project manager and Fred serving as deputy project manager, our team offers demonstrated background knowledge and experience to successfully complete the hydrologic/hydraulic analyses and mapping development required by this contract.

In total, ECSI has five (5) West Virginia Licensed Engineers along with three (3) EIT's, two (2) licensed surveyors (one in West Virginia) and numerous support personnel.

Past record and performance on contracts with governmental agencies and private industry with respect to such factors as control of cost, quality of work and ability to meet scheduling – Much of the work ECSI performs is for private industry, where cost efficiency and ability to meet a stringent schedule are of paramount importance. Also, since most of this work is ultimately reviewed and approved by one or more governmental agencies, the attention to detail and quality of work (i.e., making sure it is correct the first time) directly affects the control of costs and ability to meet the schedule.

Budget and schedule management have always been critical to the success of a project. This rings even more true in today's market, with prices fluctuating widely as economic factors change, it is important to have an ongoing strategy to effectively manage both. ECSI recognizes this market dynamic and has implemented internal quality procedures to ensure our projects finish on time and on budget. Following selection for this contract, our first task will be to meet with the assigned project management team to further discuss and refine the time for completion, and review of budgets allocated to the project. Along with refinement of the schedule and budget, this initial meeting will be used to fully define and agree on the scope of the project. Scope creep is often primarily responsible for projects exceeding schedule and budget targets, and is best managed by early recognition and prompt attention.

Likewise, continual routine communications between the ECSI design and West Virginia Homeland Security and Emergency Management's project team is critical to keeping the project on schedule and budget.

ECSI's project manager, Doug Mynear, will be primarily responsible for schedule and budget control. He will be assisted in this effort by our internal administrative staff that includes clerical, bookkeeping/accounting, and project coordinator personnel. In particular, our internal project coordinator, Jeff Baird, is tasked with monitoring the budget and schedule on all projects within the Lexington office. Internally, we maintain detailed schedules of all our resources and our current workload. This ensures the development and production of a project that stays on schedule. Manpower requirements are reviewed weekly to ensure the necessary skills and resources are available. As a result of these procedures and practices, ECSI has developed an

outstanding track record for completing projects on time, within budget and with minimal change orders.

Complete Firm Service Listing

Civil Engineering and Surveying

Our civil engineering experience provides a complete understanding of site methodologies from inception through construction.

Site Development	Erosion/Sedimentation Control
Land Use Planning	Construction Observation
Flood Control Planning	Slope Stability
Flood Insurance Studies	Stream Restoration
Earth Dam and Levee Design	Dam Safety Studies
Watershed Modeling	Hydrology/Hydraulic Studies
Surveying (Conventional & Drone)	Drainage Design
Pre/post Blasting Surveys	Sanitary Sewer Design

Mining - Coal and Hard Rock

ECSI provides a complete understanding of mining methodologies from exploration and resource estimation to mine planning and design through reclamation and closure.

Exploration/Reserves	Processing/Materials Handling
Feasibility Studies	Refuse Disposal
Resource Valuation/Appraisals	Subsidence Investigations
Environmental Assessments	Pre/post Blasting Surveys
Baseline Monitoring Studies	Mine Surveying
Mine Planning & Engineering Design	Reclamation/Remediation
Permitting Services	Water Resource Engineering
Cumulative Impact Assessments	Compliance Services
Energy Supply Planning and Evaluations	Incident Investigation and Response
Hydrologic Investigations/Geological Services	Mine Closure and Restoration
Emissions Inventories & Reduction Programs	Due Diligence

Environmental

ECSI is a leader in environmental technology and training. Our team is fully versed in all applicable environmental regulations relating to air, water quality, and soil contamination. Our experience and background in sustainable design can assist client's stewardship of natural resources.

Environmental Assessments, Phase I & II	Biological Studies/Benthics
Permitting/Environmental Compliance Services	Acid Mine Drainage Solutions
Stream Restoration/Mitigation	Erosion Control
Wetland Design and Construction	Due Diligence

Sustainable Development
Landfill Design, Construction and Closure

Crisis Management

Forensic Investigation

ECSI has a staff of professional engineers, scientists, and experts that provide forensic investigations to insurance companies, attorneys, and corporations.

Expert/Factual Witness
Accident Reconstruction
Industrial Accidents
Environmental Mining

Litigation Support
Technical Evaluations
Construction

Risk Management

ECSI applies the principles of risk management techniques to industrial, mining, and environmental sites. Our team is recognized by regulators and clients for their innovative, practical and scientific approach to risk assessment. Working with regulatory authorities, ECSI provides evaluations that encourage change while integrating good risk management into general management activity.

Asset Analysis
Liability Assessment
Investigations
Strategy

Environmental
Remediation
Surveillance
Operations/Property Management

Project Approach

Project Approach

Field Reconnaissance/Surveys

The purpose of this contract is to provide riverine flood hazard analysis and mapping services for the State of West Virginia on an as-needed, task order assigned basis. Each project may involve the development of approximate 1% annual chance floodplains for FEMA's Flood Insurance Rate Maps and/or in areas without previously mapped flood risks.

Upon assignment of a project task order, the initial step will involve a kickoff meeting between ECSI and West Virginia's Homeland Security and Emergency Management's project team. This meeting will establish the lines of communication, schedule and overall expectations for the project. A transfer of any existing data files (i.e., previous studies or FEMA HEC-RAS model data) to ECSI will be made at this time. Immediately following this kickoff meeting, a field reconnaissance by the team members will be conducted to verify the validity of data used in any previous studies. Often we have found that development has occurred post-study that will affect the hydraulic model input data.

Hydrologic Analysis

ECSI proposes to use the software program HEC-HMS for the development of hydrologic models in determining stream flows. Our proposed project manager is very familiar with this software and has recently used it to develop the hydrology for a 4,000-acre southeast Kentucky watershed analysis involved in a legal case. ECSI proposes to delineate subwatersheds within the overall watershed through the use of publicly available LiDAR mapping. We frequently use LiDAR files as a base to quickly develop accurate digital terrain models (DTM), from which the appropriately-sized subwatersheds can be quickly and electronically determined. This LiDAR-based DTM will also be used to determine intermediate cross sections for supplemental input into the hydraulic model (HEC-RAS). Flows will be developed for the 10-, 2-, 1- and 0.2-percent-annual-chance events as required for subsequent entry into the hydraulic model discussed below. Results from the hydrologic analysis using HEC-HMS will be compared to and rectified with previous studies of the watershed, including the FEMA flood insurance study mapping hydrology.

Hydraulic Analysis

ECSI proposes to use the software program HEC-RAS for hydraulic analyses of applicable stream studies. Our proposed project manager started his professional career performing flood insurance studies and has performed many stream analyses during his career using either HEC-2 or its predecessor HEC-RAS. The most recent examples of this are the Dry Run Creek (Scott County) LOMR performed in early 2014; the Blue Grass Army Depot Bridge Replacements analyses performed in summer of 2015; and the Westpark Streambank Improvements project in late 2015. Cross section data for input into the HEC-RAS model may be obtained through field survey data, supplemented with LiDAR-based DTM-extracted cross sections. Bridge dimensions, culvert sizes and road crossing elevations will be measured during the field surveys. Design storm discharges will be developed for flow input as discussed

in the paragraph "Hydrologic Analysis". The constructed model will be checked with the associated cHECK-RAS software to determine if any questionable input parameters exist in the model. After rectification of any questionable data, the HEC-RAS model will be executed using the specified design storm events. Results from this analysis will be used to develop floodplain limits for each of the design storm events. Regulatory floodway limits will then be established using the HEC-RAS software encroachment procedures. Digital copies of all mapping and background data files will be submitted to West Virginia Division of Homeland Security and Emergency Management in a coordinate system compatible with their current GIS mapping system.

LOMR Analysis and Submittals

When assigned, ECSI will prepare Letter of Map Revision applications for submittal to FEMA requesting the establishment of new regulatory floodplain limits. ECSI has recently prepared a similar submittal for Dry Run Creek in Georgetown/Scott County. As part of the LOMR submittal, ECSI will prepare and submit the required HEC-RAS Existing Conditions Model, the Duplicate Effective Model, the Corrected Effective Model, and the Revised Condition Model, along with new flood boundary maps depicting the flooding limits of the 1% and 0.2%-annual-chance events, and new floodway boundary maps. Also submitted will be a map with an overlay of the new boundaries superimposed on the existing FIRM mapping. ECSI will address all review comments from FEMA's review and resubmit the application as necessary.

Floodplain Delineation and Mapping

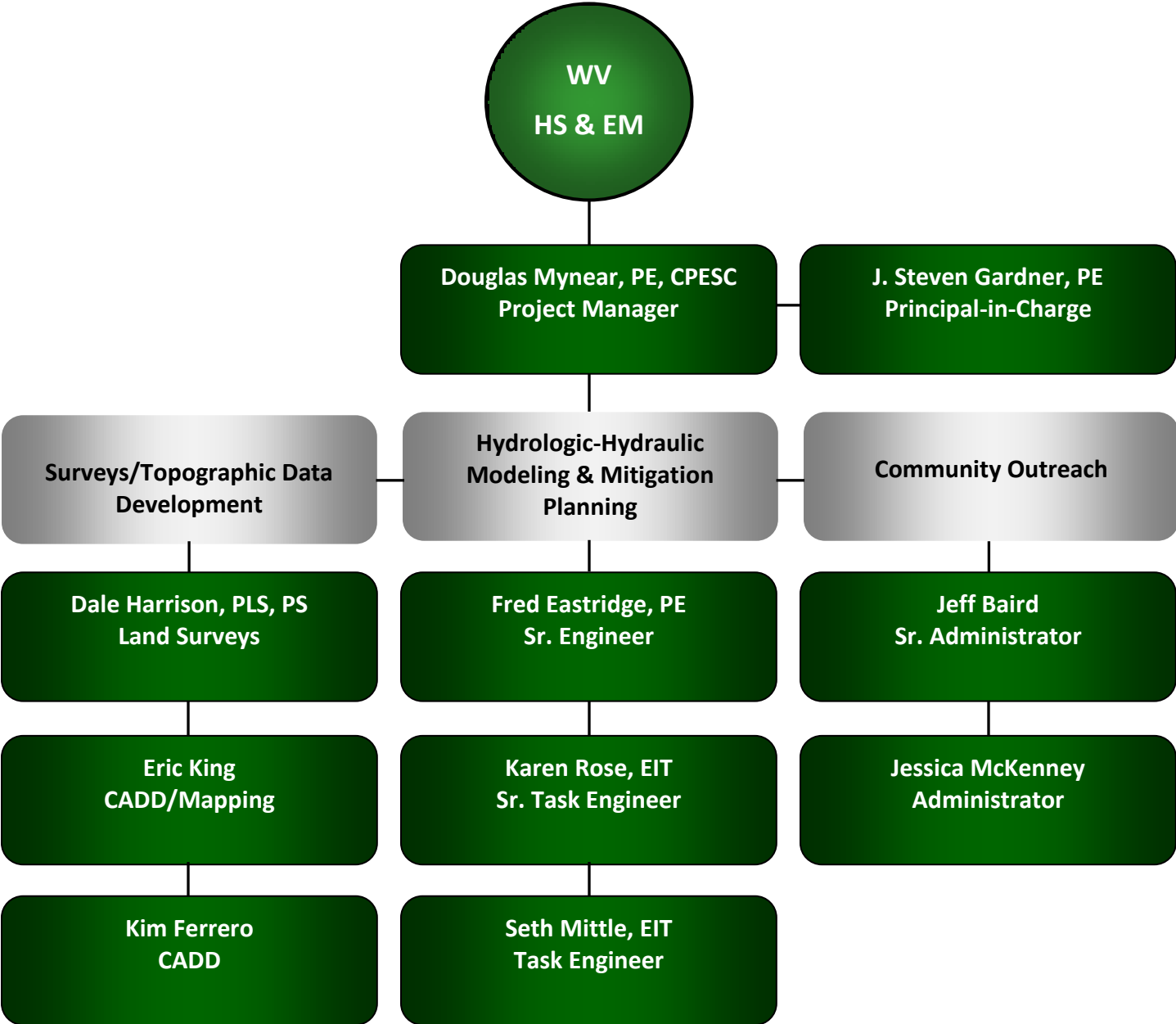
ECSI will use either available client-supplied base mapping or will develop base mapping from public sources to be used in the delineation of floodplain limits. Our familiarity with using LiDAR mapping sources is previously presented in the paragraph "Hydrologic Analysis" above, so where that data is available, mapping development will be relatively straight-forward. Floodplain limits established during the HEC-RAS runs will be transferred onto the electronic mapping files in a format acceptable for FEMA's Technical Service Contractor review.

Digital FIRM Information

Digital DFIRM data will be prepared for submittal using the results of the hydrologic/hydraulic analyses and will include shape files of the cross section geometry; limits of the Base Flood (one percent-annual-chance floodplain boundary); limits of the 500-year flood (0.2 percent-annual chance boundary); and, hydrologic/hydraulic tabular data. All mapping files will be georeferenced to the applicable coordinate system.

Project Team

TEAM ORGANIZATION CHART



Licenses:

Professional Engineer:
KY [REDACTED], WV [REDACTED]
LEED Accredited

Professional: U.S. Green
Building Council

Certified Professional in
Erosion & Sediment
Control

Education:

MS, Agricultural
Engineering/Urban
Hydrology - UK

BS, Agricultural Engineering -
U K

Training:

LEED Training Workshop -
U.S. Green Building
Council

How to Write and Implement a
SWPPP to Meet NPDES
Requirements –
International Erosion
Control Association

XP-SWMM Training
Stormwater and Urban Water
Systems Modeling
Conference -
Computational Hydraulics
International

Drainage Design Workshop,
Kentucky Transportation
Cabinet

Associations:

Kentucky Society of
Professional Engineers

American Society of Civil
Engineers

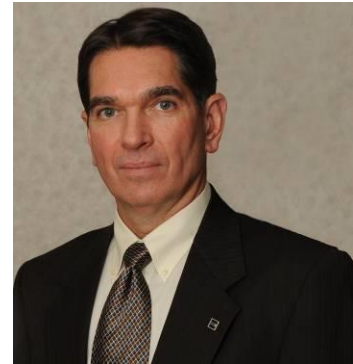
Society of American Military
Engineers

American Council of
Engineering Companies of
Kentucky – EEC

Environmental
Subcommittee Member

Association of State Dam
Safety Officials

Mr. Myneer is experienced in hydrological/hydraulic studies, drainage design, floodplain analysis, site planning/design, highway/roadway design, water distribution, storm and sanitary sewers, and has served as expert witness assistance on several flooding litigation cases. Mr. Myneer began his professional career performing flood insurance studies for four counties in western Kentucky, and has since performed FEMA flood insurance studies in Franklin, Scott, Marshall, Muhlenberg and Henderson Counties. He has experience in using HEC-RAS, HEC-2, HEC-HMS, XP-SWMM, TR-55, Autodesk Storm/Sanitary, and SedCad software packages. His relevant experience includes:



- Dry Run Creek, HEC-RAS analysis and Letter of Map Revision (LOMR), Georgetown, KY
- Hydrologic/hydraulic analysis for Rogers Road Neighborhood Stormwater Improvements, LFUCG - Lexington, Kentucky
- XP-SWMM stormwater model for West Hickman 10,000-acre watershed, Lexington, Kentucky
- Town Branch storm sewer investigation, underground survey and XP-SWMM model, Lexington, Kentucky
- HEC-HMS model development and analysis for 4,000-acre watershed associated with KayJay, KY flood litigation case
- Drainage investigation, XP-SWMM analysis – Floyd Dr./Dartmoor Ct.
- North Pointe HEC-HMS hydrologic analysis and detention basin repairs, Lexington, Kentucky
- Drive-in Branch Drainage Improvements including upstream channel improvements, detention basin and HEC-2 analysis of 1.5 miles downstream channel, Louisville, Kentucky
- Drainage improvement design projects – West Glendover, Coventry Ct., Lexington; Reeves Rd., Esther Ave, Parkwood/Triangle Drive Area, Louisville; Van Voorhis Family Housing Fort Knox, Kentucky
- Southpoint Tributary HEC-RAS analysis and flood insurance study, Lexington, KY
- US Route 27 Highway Improvements including over 10,000 LF of storm sewers, Alexandria, Campbell County, Kentucky
- North Beach Atlantic Avenue Drainage Improvements and ocean outfall pipe, Virginia Beach, Virginia
- Clay City high-flow diversion channel HEC-RAS analysis, channel design and LOMR preparation, Clay City, Kentucky
- Site design for Charlottesville Transit System, including stormwater management system to meet LEED certification criteria, Charlottesville, Virginia
- Mammoth Cave stormwater pollution control treatment system, Mammoth Cave, Kentucky
- Hydrologic/Sedimentologic (SedCad) analysis and conceptual design of thirty (30) large sediment ponds on the Mina de Cobre copper mine project, Republic of Panama
- Hydrologic/Sedimentologic (SedCad) analysis and conceptual design of 12 large sediment ponds serving proposed Gramalote Gold Mine project, and conceptual design of re-routing of Rio Guacas around the mine pit, Providencia, Colombia
- Bowling Green/Warren County Flood Insurance Studies – HEC-2 analysis and development of flood work maps for 50 miles of streams, Warren County, Kentucky
- Frankfort/Franklin County Flood Insurance Studies – HEC-2 analysis and development of flood work maps for 40 miles of streams, Franklin County, Kentucky

Licenses:

Professional Engineer:

KY [REDACTED] WV [REDACTED] 3,
IN [REDACTED] 1,
MO [REDACTED]
OH [REDACTED] IL [REDACTED] 8,
NCEES [REDACTED]

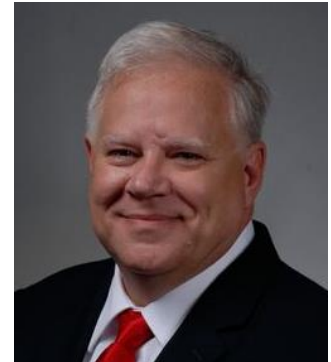
Professional Land Surveyor:

KY [REDACTED]

Education:

Bachelor of Science, Civil
Engineering - University of
Kentucky
Bachelor of General Studies -
University of Kentucky
KYTC Traffic Impact Study
Course

Mr. Eastridge, a licensed Professional Engineer for over 33 years, has a variety of civil experience including road and trail design, site development, storm and sanitary sewer design, environmental mitigation, utility design, and surveying. During the course of his career he has worked extensively with the Kentucky Department of Transportation, the Kentucky Division of Water, and many Kentucky municipalities.



- Designed stormwater quality and quantity control facilities for a 385 acre watershed in Lexington.
- Westpark Streambank Improvements Analysis and Design, Wickenburg, AZ
- Anniston/Wickland storm sewer and storm water control in the North Elkhorn Watershed.
- Wallhampton Area Flood Study for the LFUCG in the West Hickman Watershed, Lexington
- Flood control design for the LFUCG'S Wolf Run WR-F project, Lexington
- Stream studies and LOMR in the Boone Creek Watershed
- Stream Study, CLOMR and LOMR in the North Elkhorn Watershed, Lexington
- Rogers Road Stormwater Improvements, Lexington
- Design of stormwater control facilities for Jaggie Fox Industrial Park and Konner Woods Subdivision in the Cane Run and Town Branch Watersheds.
- Design of stormwater control measures for West Tiverton Way Commercial Development in the South Elkhorn Watershed.

Licenses:

Professional Engineer:

KY [REDACTED] TN [REDACTED]
WV [REDACTED] VA # [REDACTED]
PA [REDACTED] 2, CO [REDACTED]
NCEES [REDACTED]

Professional Surveyor:

WV [REDACTED]

Education:

M.S., Mining Engineering,
University of Kentucky
B.S., Agricultural Engineering,
University of Kentucky
Environmental Systems
Certificate, University of
Kentucky

Mr. Gardner is a licensed Professional Engineer, graduate Mining Engineer and Agricultural Engineer. Providing professional environmental and engineering services for over 35 years, his consulting practice focuses on sensitive land use issues, reclamation liability, environmental, health and safety issues, mining and quarry operations, due diligence studies, and industrial heritage projects. Some of the projects that Mr. Gardner has directed include:



- Cumulative Impact Assessments (CIA) for Middle Fork Kentucky River Watershed; North Fork Kentucky Watershed; and Licking River Watershed. These three individual studies involved a ground-breaking approach to analyze the cumulative impacts of mining, logging, development, and other anthropogenic influences on the water quality and benthic health of streams within these HUC-8 watersheds. Mr. Gardner managed the projects, coordinated all subconsultants and devised the study methodologies.
- Nationwide Environmental Impact Statement addressing the impact of the proposed stream protection rule. ECSI worked on a team of consultants chosen by the Department of Interior, Office of Surface Mining, Reclamation and Enforcement on the preparation of the Draft EIS. ECSI provided expertise in surface hydrology, groundwater hydrology, mining, and miscellaneous environmental sections of the study.

KAREN ROSE, EIT

Sr. Task Manager

Licenses:

Engineering in Training:
KY# [REDACTED]

Education:

Bachelor of Science, Mining
Engineering - University of
Kentucky

Rosgen Level I – Fluvial
Geomorphology for
Engineers

Rosgen Level II – River
Morphology & Applications

Rosgen Level III – River
Assessment & Monitoring

Rosgen Level IV – River
Restoration & Natural
Channel Design

Ms. Rose, Senior Task Manager, is responsible for the coordination of environmental permit applications for ECSI. She has completed several courses and seminars related to stability analysis, sediment control, computer-aided design, stream and ecosystem restoration plans.

Sediment Control Analysis/Design

Black Mountain, Kentucky

This project involved sediment control analysis and design for a proposed surface mine in an Outstanding Resources Watershed. Ms. Rose completed site studies, surveys, and designs of experimental sediment control structures to decrease/prevent any impact to the biological community from the mining activity.

Hydrologic/Sedimentologic Analysis and Sediment Ponds Design

Minera Panama SA – Cocle del Norte, Panama

This project involved the hydrologic and sedimentologic analysis and preliminary design of thirteen (13) independent sediment ponds at the port facility associated with the proposed Mina de Cobre Panama copper mine project located on the north coast of the Republic of Panama. Hydrologic analyses were conducted using two different design storms. Pre-development condition analyses were also conducted to allow comparison of the developed-condition pond discharge rates to existing. Ms. Rose designed the ponds and performed hydrologic and sedimentologic analysis of the ponds using SedCAD modeling software.



SETH MITTLE, EIT

Task Manager

Licenses:

Engineering in Training:
KY# [REDACTED]

Education:

Bachelor of Science, Mining
Engineering - University of
Kentucky

Training:

Principles of Stability Analysis
of Slopes

Forest Management Service –
Tree Identification,
Pennyrite State Park

Associations:

Society of Mining, Metallurgy
and Exploration

Mr. Mittle serves as Task Manager handling hydrologic-hydraulic analyses, permitting and environmental compliance/inventory assessments. He is responsible for the timely completion of SMCRA mining permits for contour and area surface mining sites. He also assists in surveying, mapping, and resource evaluation.

Westpark Streambank Improvements

Task manager for HEC-RAS modeling of the stream to determine flow velocities, elevations and scour potential for the 100-year design storm flow. The model incorporating the proposed improvements was compared to the existing regulatory flood elevations to verify that the improvements would not result in a rise of flood elevations along the stream reach.

Taborlake Subdivision Reservoir Dam Breach Analysis

Task manager for performing a dam breach analysis to evaluate the downstream effects of a potential dam failure for a small reservoir located within the Taborlake Subdivision. The breach analysis was required to satisfy Kentucky Division of Water Dam Safety criteria, and to see if the structure could be exempted from regulatory control.



DALE HARRISON, PLS, PS

Professional Land Surveyor Sr. CADD Technician

Education:

Coursework at Glenville State College, Glenville, West Virginia

Training:

Geology, Underground, Surface - Carlson Modules

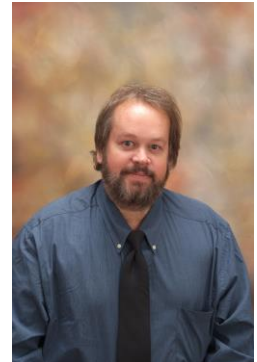
Registrations:

KY: Professional Land Surveyor [REDACTED]
WV: Professional Land Surveyor [REDACTED]

Certifications:

EPA Method 9 Visible Emission Certified
Certified MSHA Impoundment Inspector

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



- Matewan & Williamson Flood Control Projects: Matewan, WV and Williamson, WV - These projects involved first order surveying accuracy for the construction and monitoring of the flood protection walls for Matewan & Williamson West Virginia. The projects also included the surveying layout and changes to the public utility systems such as water, gas, sewer, and storm water along with other construction layouts such as roads & buildings.
- Donaldson Branch Stream Restoration: Gilbert, WV - This project involved design for the removal of the sediment control structure and freshwater pond, the restoration of the stream channel and its riparian zone, documentation included in a 401 Water Quality Certification application, and a U.S. Army Corps of Engineers Section 404 Nationwide Permit 21 application.

Jeff Baird

Vice President/Marketing Director Public Outreach Manager

Education:

Bachelor of Science, Paralegal Studies - Sullivan University

Associations:

Kentucky Oil & Gas Association

Mr. Baird is ECSI's Vice President of Business Development and regularly manages complex projects. Prior to joining ECSI in 2010, Mr. Baird was a Senior Litigation Paralegal with Wyatt, Tarrant and Combs, LLP. As a paralegal he accumulated over 14 years of experience in managing complex environmental litigation cases with a concentration in environmental and mining related matters. In addition, he was involved in several coal-related mergers and acquisitions which required environmental, permitting and enforcement due diligence.



Mr. Baird has substantial experience with environmental permit and enforcement reviews, regulatory database research (SMIS, AVS, ECHO and CERCLIS) and preparation of expert witness reports, testimony and exhibits. He works closely with both clients and regulatory agencies to expeditiously resolve permitting and enforcement actions.

- Nationwide Stream Protection Rule Environmental Impact Statement
- Environmental Justice Study for a group of Appalachian Mining Companies
- The Nature Conservancy Assessment of Surface Disturbance & Appraisal for 100K Acres
- Western KY Industrial Mineral Exploration & Feasibility Study

Education:

Central Kentucky Vocational
Technical School - Drafting
Lexington Community College
- General Studies

Mr. King is a CAD Specialist with ECSI. He is responsible for the mapping standards for ECSI and works with Project Managers to ensure timely completion of all AutoCAD work. Researching new GIS related mapping information and data as well as keeping base maps up to date for Kentucky and the surrounding states are also his responsibility. Mr. King works with and trains technical staff and student interns on CAD related mapping. Representative projects that Mr. King has provided CADD or mapping include:



- Rogers Road Stormwater Improvements, Lexington-Fayette Urban County Government – Lexington, KY
- Hydrologic/Sedimentologic Analysis & Sediment Ponds Design for \$6.2B Mina de Cobre Copper Mine, Minera Panama SA – Coclé del Norte, Panama
- Future-Gen - Kentucky's Response to Future-Gen Alliance Request for Potential Sites, Governor's Office of Energy Policy - Frankfort, Kentucky
- Falls Creek Letter of Map Revision (LOMR) – Georgetown, KY
- Cumulative Impact Assessments for Middle Fork Kentucky River, North Fork Kentucky River, and Licking River Watersheds – Kentucky
- Tenke-Fungurume - Design of Two Large Embankment Ponds – Democratic Republic of the Congo

Training:

Geology, Underground,
Surface - Carlson Modules
OSHA Standards for the
Construction Industry
OSHA Standards for General
Industry
American Safety and Health
Institute (ASHI)
Adult/Pediatric CPR
ASHI First Aid

Ms. Ferrero has many years of surveying experience gained while operating a land surveying company. In addition to her surveying experience, Ms. Ferrero brings 15 years of automated computer drafting experience to ECSI. Related projects on which Ms. Ferrero has provided technical assistance include:



- Rogers Road Stormwater Improvements, Lexington-Fayette Urban County Government – Lexington, KY
- BCTC Parking Lot Expansion – Danville, KY
- Tractor Supply Site Designs – Berea and Williamsburg, KY
- Gateway Community and Technical College Site Design – Boone County, KY
- Laurel County Library Expansion Site Design – London, KY
- Golf Home of Cherry Blossom Infrastructure Design – Georgetown, KY
- Stream Restoration, Nally & Haydon – Lebanon, KY
- Hydrologic/Sedimentologic Analysis & Sediment Ponds Design for \$6.2B Mina de Cobre Copper Mine, Minera Panama SA – Coclé del Norte, Panama
- Falls Creek Letter of Map Revision (LOMR) – Georgetown, KY

Project Team Experience

Falls Creek Letter of Map Revision (LOMR)

Location: Georgetown, Kentucky
Client: Oxford Place, LLC
Status: Accepted by FEMA
Est. Cost: \$8K



Services Provided:

- Field Surveys
- HEC-RAS Analysis
- Floodplain/Floodway Mapping
- Application to FEMA

ECSI, LLC provided hydrologic and hydraulic analysis and subsequent submittal of an application for a Letter of Map Revision (LOMR) request from FEMA for an approximate 1.5-mile reach of stream located in Georgetown, Kentucky.

Proposed development of the Falls Creek property would be severely affected by new FEMA mapping scheduled to become effective January 8, 2014 because of the increased floodplain and floodway widths proposed in the new mapping. ECSI worked with the client to demonstrate to FEMA that the background topographic mapping (circa 2006) used in development of the new maps was already outdated due to recent road construction and development within the floodplain area that had followed the original floodway limits that were effective at the time of construction. ECSI obtained and used the effective HEC-RAS stream model of Dry Run Creek, modifying the cross section data using more up-to-date 2012 LiDAR mapping supplemented by field verification surveys to demonstrate the actual floodplain and floodway limits based on current field conditions. New mapping, HEC-RAS computer runs and stream profile data were submitted to FEMA as part of the request for the Letter of Map Revision.

Team Members Worked on Project:

- Douglas Mynear – Project Manager
- Fred Eastridge – Sr. Engineer
- Eric King – Sr. Technician
- Kim Ferrero – Sr. Technician

Investigation Of South Charleston Flooding

Location: Charleston, West Virginia
Client: Huddleston Bolen, LLP representing CSX Railroad
Status: Completed
Est. Cost: \$20K

Following a major flooding event during August 2013, ECSI was engaged by the client to investigate the possible causes of flooding within the South Charleston residential and commercial area. ECSI personnel visited the area within 5 days of the flooding event to witness firsthand and photographically document the extent of flooding that had recently occurred. The South Charleston subject area is bounded on the north by the Kanawha River and on the south by the CSX Railroad. The primary stream that drains the area lies adjacent to the toe of the CSX railroad embankment. A majority of the residential/commercial area lies within the limits of the 100-year Kanawha River floodplain, however, for this particular storm the Kanawha did not appear to either cause or contribute to the flooding. The field investigation identified one questionable downstream pipe culvert (constructed circa 2003) that appeared to be under-sized in relation to the stream flow.

ECSI then proceeded to collect the most recent LiDAR data for the area from which topographic mapping of the area could be

Services Provided:

- Field investigations
- Hydrologic and Stream Hydraulic Modeling
- Mapping and Flood Boundary Delineation
- Exhibit Preparation

developed, and additionally obtained current and historic aerial photographs to determine if any recent construction in the area was contributing to the flooding. Using the topographic mapping data, ECSI developed a stormwater model. Various return frequency storms were entered into the model and the resultant analysis indicated that the storm experienced on the August flooding date fell between the 2-year and 5-year event. Flood limits were delineated on the available mapping and profiles were drawn for the various flood events.

The conclusions drawn from the study were that the downstream culvert was in fact undersized to carry the 5-year storm flow and resulted in floodwaters ponding and causing flooding of some residences in the area. However, it was also found that the flooding limits caused by the ponding and predicted by the hydraulic model did not include all of the flooded areas that had been witnessed or reported following the August 2013 event. This led to the conclusion that there were other factors that lead to flooding in the area that were not simply a result of the stream flow and ponding cause by the undersized pipe.

Team Members Worked on Project:

- Douglas Mynear, PE, CPESC, LEED AP – Project Manager
- Eric King – Sr. Technician/Mapping

Hydrologic/Hydraulic Analysis - BG Army Depot Railroad Bridge Replacement

Location: Richmond, Kentucky
Client: K. Hayes Limited
Status: Completed
Est. Cost: \$20K



ECSI, LLC was contracted by K. Hayes Limited for the purpose of conducting field surveys and performing HEC-RAS hydraulic analyses associated with the proposed replacement of three (3) railroad bridges at the Bluegrass Army Depot, located near Richmond, Kentucky. In addition to performing the HEC-RAS modeling, ECSI performed field surveys to gather cross section data for the streams, performed topographic surveys for each of the three bridge sites and for the proposed access roads leading from a currently accessible roadway/parking lot to each bridge site; provided the layout staking for the bridge construction; and assisted K. Hayes in preparing the necessary permit approval documents for submittal to the U.S. Army Corps of Engineers.

ECSI's survey crew obtained field cross section data along the stream for the immediate channel and also obtained field measurements for the three existing railroad bridges and other highway bridges crossing the stream within the study reach. This field survey data was then combined with the floodplain overbank elevation data extracted from existing LiDAR mapping to create the cross section data for entry into the HEC-RAS model.

Services Provided:

- HEC-RAS Stream Modeling
- Field Surveying
- Corps of Engineers Permitting Assistance

Team Members Worked on Project:

- Fred Eastridge, PE, PLS
- Douglas Myneer, PE, LEED AP, CPESC
- Gabe Shepherd

Stormwater Analysis & Design - Westpark Streambank Improvements

Location: Wickenburg, Arizona
Client: Lowham Walsh, LLC
Status: Under Construction
Est. Cost: \$36K



Westpark Community is a 48.32-acre residential development located in Wickenburg, Arizona. The site is bordered on the west by the Flying E Wash that runs approximately 1,650 feet along the west and north sides of the site. The Flying E Wash is a perennial stream causing significant erosion and bank failure and thus endangering the existing buildings, parking and loss of property. ECSI worked through Lowham Walsh and provided HEC-RAS modeling of the stream to determine flow velocities, elevations and scour potential for the 100-year design storm flow. The model incorporating the proposed improvements was compared to the existing regulatory flood elevations to verify that the improvements would not result in a rise of flood elevations along the stream reach.

The proposed improvements included undercutting the streambank failure areas down to stable material and constructing gabion basket walls extending down below the scour depth of the streambank. In areas where the velocity at the streambank was acceptably low, riprap stone protection methods were proposed.

Services Provided:

- HEC-RAS Stream Modeling
- Streambank Stabilization Design
- Final Construction Document Preparation

Team Members Worked on Project:

- Fred Eastridge, PE, PLS
- Douglas Myneer, PE, LEED AP, CPESC
- Seth Mittle, EIT

Buddy Schneider Dam Breach Analysis

Location: Lexington, Kentucky
Client: Cypress Property Group
Status: Completed
Est. Cost: \$4K



At the request of the Kentucky Division of Water, ECSI performed a HEC-RAS Dam Breach analysis for the Buddy Schneider Dam located within an upscale Lexington subdivision. The small reservoir had been surrounded by private residence and townhome development during the past 30 years. The Kentucky Division of Water wished to remove the structure from regulatory control due to the relatively small size of the impoundment; however, they needed further verification that downstream safety was not a concern in the event of a sudden breach of the embankment. ECSI modeled the impoundment and downstream reaches using HEC-RAS and provided the justification for removal of the structure from regulatory oversight.

Services Provided:

- HEC-RAS Analysis
- Flood Inundation Mapping
- Field Investigations

Team Members Worked on Project:

- Douglas Mynear, PE, LEED AP, CPESC
- Seth Mittle, EIT
- Jonathan Nickell, EIT

Investigation Of Knox County Flooding

Location: Knox County, Kentucky
Client: Mannion & Gray Co. L.P.A.
Status: Completed
Est. Cost: \$100K

Southeastern Kentucky was subjected to a large precipitation event during June 2011, resulting in flooding along several streams in the area. The measured rainfall of 7.11 inches at the nearest gauging station indicated the storm magnitude was slightly above that of a 100-year event. ECSI was subsequently engaged by Mannion & Gray to provide expert witness services on a litigation case involving Nally & Hamilton Enterprises, a mining company with operations located near the community of Kayjay.

As part of the project, ECSI developed a HEC-HMS hydrologic model of the entire 4000-acre watershed lying above the Kayjay community to assist in predicting the flooding impacts from various storm events, and to illustrate that mining was not the likely major contributor to the flooding that was experienced downstream. The overall watershed was subdivided into thirty-seven (37) smaller subwatersheds, and composite curve numbers

and lag times were calculated and assigned for each. Composite curve numbers were calculated for each of the subwatersheds based on the percentage of four (4) different land use types (forest, mining, logging, and residential development) as measured from recent aerial mapping. In developing the model, ECSI further incorporated twenty-one (21) sediment ponds that existed within the mining area at the time of the storm event.

Analysis of the watershed showed that there was nearly twice as much logging acreage (17.0%) compared to mining acreage (9.2%) within the watershed. The HEC-HMS analyses were performed for four (4) watershed conditions: June 2011 conditions with forest, mining and logging; totally forest conditions; forest conditions with only mining area; and forest conditions with only logging area. Conclusions derived from the modeling analysis were that although logging operations contributed more to flooding than the mining operations, flooding of the Kayjay community would have occurred even under totally natural forest conditions because of the high volume of rainfall experienced over a short duration.

Services Provided:

- Field investigations
- HEC-HMS Modeling
- Exhibit Preparation

Team Members Worked on Project:

- J. Steven Gardner, PE
- Douglas Mynear, PE, CPESC, LEED AP
- Donnie Lumm, PhD, PG
- Seth Mittle, EIT

West Hickman Watershed Modeling

Location: Lexington, Kentucky
Client: Lexington-Fayette Urban County Government
Status: Completed
Est. Cost: \$200K



Over the past 25 years, development in the 15 square-mile West Hickman watershed has expanded to the Jessamine County Line. Increased development has significantly changed characteristics of the watershed from farmland to urban development. This increase in urbanization significantly changed stormwater movement and has created new concerns about flooding.

The proposed objectives of the study were to:

- Install stream staff gauges to measure stream flow during record rainfall events;
- Survey and map hydraulic structures in the watershed;
- Define sub-watersheds within the West Hickman watershed;
- Create channel sections with 2 foot contour information;
- Construct a XP-SWMM hydraulic model;
- Identify hydraulic structures and critical channel sections that have significant effect on stormwater conveyance;
- Develop useful model for all design within subwatersheds;
- Calibration of the model with historical rainfall data and stream staff gauge measurements;
- Prepare report of procedures, findings and recommendations.

Services Provided:

- Field Investigations
- Hydraulic Model Development
- Data Collection

Team Members Worked on Project:

- Douglas Myneer, PE, served as Project Manager for this project while employed by a previous employer.

Southpoint Tributary Flood Insurance Study

Location: Lexington, Kentucky
Client: Lexington-Fayette Urban County Government
Status: Completed
Est. Cost: \$30K



New development in southern Lexington necessitated a revision of the existing FEMA Flood Insurance Maps. Southpoint Tributary extends through a newly developed residential/light commercial area and has a drainage area of approximately 1.93 square miles. West Hickman Creek has a drainage area of approximately 15.94 square miles at its confluence with Southpoint Tributary. Previously the Southpoint Tributary had been classified as Zone A.

In conducting the hydraulic studies, runoff hydrology and water-surface elevations for the 10-, 50-, 100- and 500-year storm events were computed through use of the XP-SWMM software. Flood profiles were prepared for each recurrence event showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals. Digital DFIRM data was prepared and included ArcView shape files of the cross section geometry; limits of the Base Flood (one percent-annual-chance floodplain boundary); limits of the 500-year flood (0.2 percent-annual chance boundary); and, hydrologic/hydraulic tabular data.

Services Provided:

- Field investigations
- Watershed & Stream Modeling
- DFIRM Data Preparation

Team Members Worked on Project:

- Douglas Myneer, PE, served as Project Manager for this project while employed by a previous employer.

Stormwater Handling - Minera Panama Copper Mine

Location: Coclesito, Panama
Client: Minera Panama SA
Status: Completed
Est. Cost: \$375K

Development of the proposed mine has been estimated to cost approximately \$5.5B.

In addition to providing design for thirteen (13) sediment ponds at the proposed Mina de Cobre Panama port facility area, ECSI, LLC provided hydrologic-hydraulic analysis and provided conceptual drawings for twenty (20) additional sediment ponds for support areas associated with the proposed Mina de Cobre Panama copper mine site. The sediment pond designs for these support areas were completed as individual task orders under an engineering services contract with Minera Panama S.A.

The sediment ponds were designed to meet specific design criteria and permitting requirements provided by the Owner. Hydrologic analyses were conducted using two different design storms, a 60mm, 24-Hr rainfall event (approximate 2-Yr) rainfall event for sedimentology analysis; and a 394mm, 24-Hr (100-Yr) rainfall event for sizing the emergency spillway. Pre-development condition analyses were also conducted to allow comparison of the developed-condition pond discharge rates to existing. Ponds were designed to meet a peak sediment effluent concentration of 1,000 mg/liter.

The Mina de Cobre Panama mine site is located near Coclesito, approximately 20-kilometers inland from the north coast of the Republic of Panama. The open-pit mine site will consist of three mine pits with a total concession area of over 33,500 acres. Concentrated ore from the mine site will be transported to a port facility through slurry pipelines.

Many of the sediment ponds designed under this contract were large in size (100-acres plus) because of the large acreage of disturbance and the large storm events (18.6 inches for 24-hour, 100-year storm event).

Services Provided:

- Hydrologic analysis of the catchment areas and hydraulic sizing of individual sediment ponds
- Sedimentologic analysis of pond inflow/outflow water quality
- Preparation of conceptual CADD drawings

Team Members Worked on Project:

- Douglas Myneer, PE, CPESC, LEED AP
- Karen Rose, EIT
- Eric King

Stream Mitigation - East Fork Little Sandy

Location: Lawrence County, Kentucky
Client: Enviro-Pro, Inc.
Status: Completed
Est. Cost: \$10K

ECSI provided pre- and post-construction surveys, and acted as construction inspector during the construction of this 1.4 mile stream mitigation project. ECSI conducted pre-design surveys of the entire 10-acre stream valley project area and provided that information to Mactec Engineering & Consulting for use in the design process.



ECSI then provided centerline stakeout of the stream structures and provided on-site assistance to the contractor with layout and placement of these structures. ECSI's assigned construction inspector was responsible for management and scheduling of the equipment operators and general labor personnel with respect to daily tasks including new channel construction, shaping of the old channel, building instream structures and reclaiming any excess spoil. Tasks were scheduled for proper sequencing of equipment operators while guiding them with stakeout stream channel locations, providing cut and fill stakes, and instream structure locations. ECSI performed as-built structure surveys as the job progressed and established horizontal control points for future monitoring of the stream. Overall length of the stream was 7,242 feet.

Services Provided:

- Field Surveys
- Construction Inspection

Team Members Worked on Project:

- Andy Willis, PE, PS
- Karen Rose, EIT
- Dale Harrison, PLS, PS
- Gabe Shepherd

Anniston/Wickland Capital Stormwater Project

Location: Lexington, Kentucky
Client: Lexington-Fayette Urban County Government
Status: Completed
Est. Cost: \$650K



The project consisted of storm drainage analysis, hydrology, preliminary design, final design, and construction cost opinion, permitting and construction management for the Anniston/Wickland Area in Lexington. This project analyzed methods of providing relief to the property owners resulting from over 25 years of flooding. The study analyzed causes for the flooding and recommended solutions to provide relief from flooding in the 25yr storm event. A challenge for the design was that the area involved karst substrate and the primary outlet consisted of sink holes located at the low end of the drainage system at Anniston Drive. These openings needed to be regularly cleaned and maintained free of debris and trash.

The goals of the design were to provide adequate stormwater control for the 25yr storm event and to maintain water quality BMPs to keep sediment and debris out of the sink holes. The recommended solution involved construction of three stormwater control facilities and increase in size of the storm sewer system. Phase 2 of the project included the replacement of the 10" VCP sanitary sewer with a 12" Ductile Iron sanitary sewer.

Services Provided:

- Stormwater Handling design
- Sanitary Sewer Design
- Construction Administration

Team Members Worked on Project:

- Fred Eastridge, PE, PLS served as Project Manager and designer for this project while employed by a previous employer. Construction Administration while with ECSI.

Rogers Road Stormwater Improvements

Location: Lexington, Kentucky
Client: Lexington-Fayette Urban County Government
Status: Pending Bid Advertisement
Est. Cost: \$3.4M



Stormwater improvements design to alleviate structure and street flooding within an established neighborhood located in north Lexington. ECSI responsibilities on the project include field surveys, geotechnical investigations, hydrologic/hydraulic modeling, construction document preparation, Kentucky Infrastructure Authority funding coordination, right-of-way and easement preparation, property acquisition negotiations, bidding assistance and construction oversight and administration.

The project involves construction of approximately 900 feet of 10-foot by 2-foot reinforced concrete box culvert and 1300 feet of 8-foot by 2.5-foot reinforced concrete box culvert. Project design challenges include existing utility avoidance due to grade and cover limitations, and minimization of damage to existing structures and features due to the age and degree of development.

Services Provided:

- Field Surveys
- Hydrologic/Hydraulic Analysis
- Construction Document Preparation
- KIA Coordination

Team Members Worked on Project:

- Fred Eastridge – Project Manager
- Doug Mynear – Deputy PM & Hydrologist
- Kim Ferrero – Sr. Technician
- Abby Jones Consulting



ECSI,LLC

ENGINEERS ■ CONSULTANTS ■ SCIENTISTS ■ INTERNATIONAL

HEADQUARTERS

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BRANCH LOCATIONS

KENTUCKY

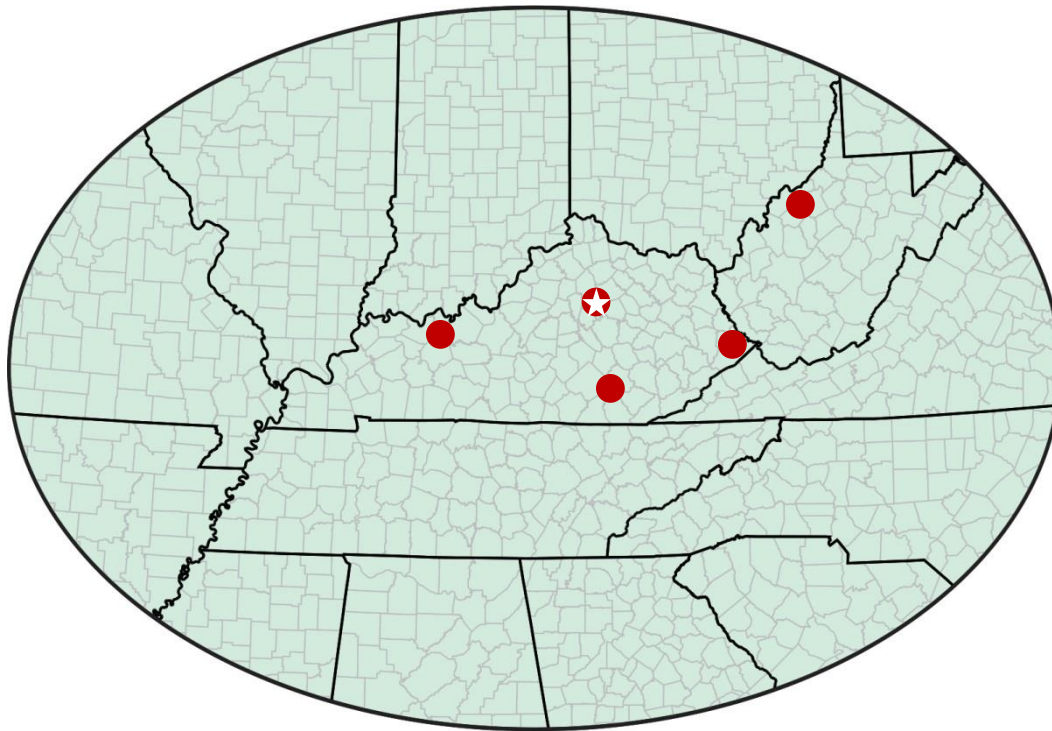
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WEST VIRGINIA

1345 North State Route 2
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Phone: 304.398.4979



Mission Statement

“With problems there are always opportunities.

We view problems and ECSI’s ability to solve them
a major asset. Looking for solutions that create value
and opportunity is our primary mission.”

J. Steven Gardner, P.E.
President & CEO