Chattanooga Development Symposium
Tuesday, October 17, 2017
Chattanooga State Main Campus

2017 Abstracts:

A Tale of Two Remediation Sites

A history of two remediation sites will be presented, one where spending has been limited but so has progress, and another where significant capital has been invested to pursue an aggressive cleanup strategy. Various details will be shared regarding each project, including the client approach, management style, site management strategy, regulatory interaction, progress toward closure, and approximate costs. The presenter will share his editorial opinion on whether one management strategy has been better than the other factoring in overall progress, costs to date, and other factors. The impact of project management, both good and bad, will also be discussed.

Top Three Learning Objectives:

- How much of an influence a proactive project manager and management approach/strategy have on the outcome of a project.
- The potential pitfalls of an approach of just "answering the regulatory mail".
- Lessons learned and their applicability to Brownfield redevelopment in the Chattanooga area.

Presenter:

Andrew Romanek, P.E., BCEE, PMP | Senior Engineer | The Dextra Group, Inc.

Biographical Sketch:

Andrew is a Senior Engineer at The Dextra Group, which is a small company focused on comprehensive environmental program improvement for private and public sector clients. Dextra's line of services includes "extended project management" for clients that are resource-constrained and seek project/program improvements and cost reductions.

Andrew specializes in project management and has over 18 years of experience supporting various environmental engineering projects. He holds a B.S. in Civil Engineering from the University of Notre Dame and master's degree in Environmental Engineering from the University of Texas at Austin. Andrew is an avid golfer and proud father of three.

Concrete – Series of 3 sessions

Spray-Lock Concrete Protection (SCP) is offering to deliver a series of Concrete 101 sessions. The goal is to broaden the general knowledge base of the participants, not to make them "experts," but to make them aware of many of the nuances of concrete materials and construction that can and will affect the constructability and long-term performance of their projects. Since a relatively large volume of information is going to be presented, the class is split into three (3) session for the symposium. This will allow attendees time to digest some of the information, and form comments and/or questions that can be addressed at the symposium rather than days or weeks later.

Concrete Materials 101 (50 Minutes Total)

A. Introduction

a. History of Concrete

b. Basics of Concrete Mix Design

B. Modern Concrete Mix Designs

a. Portland Cement

b. Influence of Aggregates

c. Mineral Admixtures

d. Liquid Admixtures

e. Basics of Cement Hydration

f. Curing and Environmental Effects

C. Concrete Plant Operations

a. Basics of Concrete Batching Operations

b. Ready Mixed (Dry Batch & Central Mix), Precast, & Mobile Mixing

Concrete Construction 101 (50 Minutes Total)

A. Placement Methods & Finishing

B. Curing Operations

C. Cladding, Coatings, Flooring, & Infrastructure

D. Mishaps

Concrete Specifications 101 (30 Minutes Total)

A. Prescriptive vs Performance Specifications

B. New and Upcoming Technology

Presenter:

Ariel Soriano, PE, MACI, Spray-Lock Concrete Protection

Biographical Sketch:

<forthcoming> Ariel Soriano, PE, MACI, Business Development and formerly VP-SCP Technology at Spray-Lock Concrete Protection has extensive experience with concrete including all aspects of the process (mix design, installation, rehab, etc) locally and internationally. He has been an adjunct engineering professor at UTC and was formerly Engineering Manager at City of Chattanooga.

Design and Construction of the Capitol Connector Pedestrian Tunnel

The Tennessee State Capitol in Nashville, Tennessee sits atop a limestone precipice in the heart of downtown. Home to the State Senate and legislative chambers, legislators currently access the building via the existing Motlow Tunnel from their offices in Legislative Plaza. With the relocation of the legislative offices to the Cordell Hull Building, a new access for legislators to the State Capitol is required. Work for the utility and pedestrian tunnel involves extending the existing elevator shafts fifty feet down from the terminus of the Motlow Tunnel to a new access tunnel from the newly renovated Cordell Hull Building. In addition, the schedule of the entire rehabilitation project was driven by the need to relocate the legislators prior to the 2018 legislative session. This timeline required very aggressive design and construction schedules. This paper will discuss the design and construction challenges associated with the mining of the tunnel and the elevator shaft extensions within the confines of this historic structure.

Top Learning Objectives:

- Introduction to Drill and Blast Tunnel
- Discussion of Blast monitoring in sensitive area

Presenter:

Andrew M. Stone, PE, Stone + Howorth, Principal

Biographical Sketch:

Andy is the Principal and Founder of S+H. A native of New York, Andy came to Nashville to attend Vanderbilt University and graduated with a B.S. in Civil Engineering. After graduating from Vanderbilt, Andy received a Master's Degree in Geotechnical Engineering from Cornell University. Andy began his career working for his family's civil engineering firm before moving on to large-scale projects in Washington D.C. with multiple first-rate geotechnical engineering firms. Andy returned to Nashville in 2012 with the goal of providing quality geotechnical and civil engineering services in Middle Tennessee.

Designing with the End in Mind: SCM Maintenance & Inspection

Designing with the end in mind; not your end, but theirs.
IMAs and BMP tracking forms.
Inspection ports, Access, Cost Analysis, Contractual Maintenance.
What does an inspector look for? How do I inspect?
Regular maintenance requirements and reporting/photos?

Top 3 Learning Objectives:

- Designing stormwater control structures with maintenance in mind.
    a. Golden Rule: Think of others more than yourself.
- Communication with the property owner/user should be your success criteria.
- Understand what the City requires for post-construction reporting.

Presenter:

Joshua Rogers, Water Quality Specialist II, City of Chattanooga

Biographical Sketch:

Joshua Rogers is a Water Quality Specialist for the City of Chattanooga. He is a Certified Professional in Storm Water Quality and a Hydrologic Professional in the state of Tennessee. He holds a B.S. in Biology from Piedmont College and a M.S. in Wildlife and Fisheries from the University of Tennessee Knoxville.

Joshua's current role with the City is the administration of the City's stormwater utility appeal and credit programs. Additionally, he performs investigative inspections of both public and private stormwater control structures to determines maintenance requirements and compliance verification.

EPB Community Solar

The presentation will provide an overview of EPB's Community Solar project including the RFP process, a look at the current solar market and the market forces that are driving change. We will also discuss the real purpose of the project which is to test the feasibility of a community solar business model within the TN Valley region and the challenges involved.

Top 3 learning objectives

- Understand the current solar market
- What is community solar and how does it work
- Community solar challenges

Presenter 1: Bobby Hutcherson**,** EPB, Assistant Vice President Technical Operations

Biographical Sketch:

Bobby Hutcherson has been at EPB for 13 years working in Engineering. He has a Bachelors of Science in Industrial Engineering from UTC and a Master's of Science in Engineering Management from UTC.
He also is a Licensed Professional Engineer in the State of Tennessee and is a Certified Energy Manager by the Association of Energy Engineers.

Presenter 2: Hunter Ellis, EPB, Research Analyst, Strategic Research

Biographical Sketch:

Hunter Ellis is a Research Analyst at EPB in Chattanooga, TN. During his five years at EPB, Hunter has worked in Strategic Research performing industry research, economic analysis and financial modeling. He has authored many reports detailing trends in the areas of energy, communications, alternative generation, and energy storage industries. Currently, he is developing a set of economic models that will project the economic and distribution system impacts of alternative generation and storage technologies to EPB's smart grid. He also serves as an author and contributor in grant proposals and has served as the Research and Data Analytics chair for the Young Professionals Association of Chattanooga.

FIRM Anomalies

This session will deal with many of the boo-boo's and uh-oh's produced over the years by the huge government organization known as FEMA. Sometimes humorous, with often a tongue in cheek approach, mistakes, oversights, typos and other discrepancies encountered over the years on maps and publications by the Federal Emergency Management Agency are shared. A sure cost saving method to save large sums of money on flood insurance is explored. Many things will be revealed that will make a user of FEMA's products just shake their heads and grin, wondering "what were they thinking?" Serious topics can be approached with a little levity.

Presenter:

C. Barton (Bart) Crattie, LS, CFM

Biographical Sketch:

Bart Crattie is a land surveyor, licensed in Georgia and Tennessee. He has been a Certified Floodplain Manager for 10 years, advising clients on building, planning and flood insurance issues. He has a Bachelor of Fine Arts degree in three dimensional design from Murray State University as well as a Surveying Certification earned at Chattanooga State Technical Community College. Bart serves as an officer with the Surveyors Historical Society and the Tennessee Association of Professional Surveyors. He represents TAPS as State Director with the National Society of Professional Surveyors. Writing regularly on surveying, floodplain and historic issues, he is a listed on the masthead as a contributing writer for American Surveyor magazine.

Form Based Code: Process, Tips & Tricks

Brief overview of the downtown Form Based Code: Review of the permitting process for projects and tips and tricks to help your project succeed!

Top Learning Objectives:

- Overview of the process to submit a project in the Form Based area and how to proceed if you need a variance.
- Review of some of the underutilized sections of the code that can greatly help a project.

Presenter:

Emily Dixon, City of Chattanooga

Biographical Sketch:

Emily Dixon works for the City of Chattanooga Land Development Office as a Development Review Planner. Using the Form Based Code she reviews plans, makes suggestions to reduce variances and prepares variance cases to go before the Form Based Committee. Emily holds a degree from the University of Georgia in Athens.

How the WWTA works with the development community.

The Hamilton County Water and Wastewater Treatment Authority (WWTA) maintains and operates the sewer system within Hamilton County that is located outside the City of Chattanooga and City of Collegedale limits. The mission statement of the WWTA includes the phrase “promote economic development.” The WWTA believes in upholding its mission and works with developers and engineers to ensure that economic development within the county continues to occur.

Top 3 learning objectives:

- How the WWTA works with the development community
- Learn the WWTA engineering review process
- Understand the overall objective of the WWTA.

Presenter:

Chas Webb, PE, Hamilton County WWTA, Project Engineer

Biographical Sketch:

Chas Webb is a professional engineer in the State of Tennessee who serves as the project engineer for the Hamilton County Water and Wastewater Treatment Authority. Chas reviews and approves sewer extension and rehabilitation designs for Hamilton County. He also signs plats and conducts capacity analysis. Chas graduated with a bachelor of science in civil engineering from UT-Chattanooga and is currently working on his masters in engineering management. In his spare time Chas enjoys golf, running, photography and seeing classic rock cover bands.

Innovative Stormwater Research at the University of Tennessee: Lessons Learned and a Path Forward

Sustainable development and water management are critical to ensuring ecological and human health. As healthy waterways are increasingly valued, and the degradation of these waterways by urban stormwater runoff is better understood, major efforts are underway to restore watershed function across the United States. This presentation will give an overview of various research projects being performed to better understand how to sustainably manage stormwater, from small scale observations of green infrastructure function, to watershed scale investigations that identify hotspots of impervious connectivity.

Presenter:

Jon Hathaway, PhD, PE
Department of Civil and Environmental Engineering

Biographical Sketch:

Hathaway received his PhD from North Carolina State University in 2010, where he studied the fate, transport, and removal of indicator bacteria in urban stormwater runoff. After a brief research fellowship at Monash University in Melbourne, Australia, and nearly two and half years at one of the nation's leading ecological design and consulting firms, Hathaway joined the faculty of the Department of Civil and Environmental Engineering at the University of Tennessee at Knoxville.

Is a Natural Resource Inventory a Part of your Due Diligence Package?

This presentation will focus on permitting process and plans review for the Construction General Permit.
Items discussed include natural resources inventory, erosion protection and sediment control measures and equivalence, streamside buffers, and engineering site assessments.

Learning Objectives:

- Construction Stormwater Permit - Plans requirements
- TDEC construction plans review and site inspections
- Equivalent measures review and Engineering site assessments

Presenter:

Karina Bynum, Ph.D., P. E. |Integrated Water Resources Engineer
Division of Water Resources | TN Department of Environment & Conservation

Biographical Sketch:

Karina Bynum works for the Division of Water Resources at TDEC (Tennessee Department of Environment and Conservation). Under TDEC's watershed approach, her work includes developing performance criteria for stormwater, optimizing wastewater operations for nutrient removal, developing TMDL monitoring plans, and consulting on stream and wetland restoration projects. Karina holds Bachelor's and Master's degree in civil and environmental engineering from Tennessee Technological University and a Ph.D. from the Czech Technical University in Prague on adaptive watershed restoration. Karina is a registered engineer in the state of Tennessee.

The New Chickamauga Lock

The Chickamauga Lock provides commercial barge traffic access to 318 upstream navigable river miles and is also the most active lock on the Tennessee River for recreational vessels. Over the last three quarters of a century, Chickamauga Lock has become more challenging to maintain and operate. This presentation will provide an overview of the importance of the new lock to both commercial industry and recreational river traffic, the construction of the new Chickamauga lock project, and some of the key design elements of the new lock.

Presenter 1:

Adam Walker, PE , U.S. Army Corps of Engineers, Nashville District
Project Manager, Chickamauga Lock Replacement

Biographical Sketch:

Adam Walker holds both Bachelor and Master of Science degrees in Civil Engineering from Tennessee Technological University and is a registered Professional Engineer in the State of Tennessee. Mr. Walker has been with the U.S. Army Corps of Engineers, Nashville District since 2001, serving 11 years in the Civil-Structural Section as a Civil Engineer, before assuming his current position as the Project Manager for the Chickamauga Lock Replacement project.

Presenter:

Britt Henderson, PE, U.S. Army Corps of Engineers, Nashville District, Civil Engineer

Biographical Sketch:

Britt Henderson holds both Bachelor of Science degree in Civil Engineering from Tennessee Technological University and a Master of Science degree in Civil Engineering from the University of Tennessee. Mr. Henderson is a registered Professional Engineer in the State of Tennessee. Mr. Henderson has been with the U.S. Army Corps of Engineers, Nashville District since 2001, serving in the Civil-Structural Section as a Civil Engineer. Currently, Mr. Henderson is serving as the Technical Lead for the Chickamauga Lock Replacement Project.

Presenter:

Daniel Moore, PE, Tennessee Valley Authority, Dam Safety Structures Group, Civil Engineer

Biographical Sketch:

Daniel Moore holds a Bachelor of Science degree in Civil Engineering from Tennessee Technological University. Mr. Moore is a registered Professional Engineer in the States of Tennessee and North Carolina. He spent several years in the land development industry prior to coming to TVA in 2010. After spending several years at TVA working as a Nuclear Systems Engineer and a Preoperational Startup Engineer for Watts Bar Nuclear Unit 2, Mr. Moore transitioned into his current role as a Civil Engineer in TVA's Dam Safety Group.

Superior Drainage – Stay on Volume

Stay on Volume is a design aspect of many projects within the City of Chattanooga. We want to show options and opportunities for products and designs that will enhance have better maintenance, better isolation of infiltration areas, and a better aesthetic look for projects by utilizing Super Pervious Pavers and Manufactured Underground Detention Systems.

3 Learning Objectives:

- Talk about Long-Term Maintenance
- Discuss new products to Capture Stay On Volume
- Discuss Incorporating Larger Storm Events into Design

Presenter:

Marty Mason – Superior Drainage Products, Inc.
Marketing and Technical Sales

Biographical Sketch:

Marty has a Bachelors of Science from Tennessee Technological University in Civil and Environmental Engineering and over 13 years of experience working with the Civil Engineering Community in East Tennessee in the Stormwater Market. With over 30 years of researching products, design support, field installations, and cost evaluations, Superior Drainage Products has been the leader in Stormwater Quality, Conveyance, and Detention for Chattanooga and East Tennessee.

TVA & All Their Dam Concrete

The construction of Chickamauga Dam started in January 1936 and was opened in January 1940. Cracking was first observed in the 1950s, and problems started arising in the 1960. It has since been discovered the Chickamauga Dam and Lock suffer from Alkali Aggregate Reaction. This reaction forms a gel that will swell in the presence of water. This presentation will highlight the construction and management of AAR at Chickamauga.

Presenter:

Ben Byard, PhD, P.E., TVA Bridge Program Manager, UTC Adjunct Professor

Biographical Sketch:

Ben Byard earned his Civil Engineering bachelors and masters degrees from Tennessee Technological University and his PhD from Auburn University. He has worked for the Tennessee Valley Authority-TVA, for 4 years. He is currently a bridge program manager and was previously a senior engineer in the Dam Safety group. In addition, he is an Adjunct Professor of Civil Engineering at UTC, and he is the practitioner advisor for the UTC ASCE student chapter. He served as the Treasurer of the ASCE Chattanooga branch for 5 years and has recently been elected to the Vice-President role. Ben is a voting member of ACI committee 231-Properties of Concrete at Early Ages, and ACI committee 213-Lightweight Concrete

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TVA and Cellular Cofferdams on Rock: A Historical View

Cellular cofferdams are an important component for both temporary and permanent works in marine construction. In the construction of the original system of dams for the Tennessee Valley, TVA pioneered both design and construction methods for cellular cofferdams used to build the dams "in the dry." These methods actually were developed before Karl Terzaghi developed similar ones independently. In this presentation an overview of the original system and the cofferdams used to build it are given, along with an overview of both the theory and the implementation of TVA's engineering and construction accomplishments.

Top 3 Learning Objectives:

- An overview of the original system of TVA dams and the cellular cofferdams used to build them.
- A brief overview of the design methodology used for these cofferdams.
- A discussion of the relation of both design and construction methods then used to current practice.

Presenter:

Don C. Warrington, P.E., UTC, Adjunct Professor

Biographical Sketch:

Don Warrington is currently an Adjunct Professor at the University of Tennessee at Chattanooga, teaching Soil Mechanics, Foundations and Fluid Mechanics Laboratory. He was principal in the Vulcan Iron Works for many years and still does design consulting on the pile driving equipment. He received his B.S.M.E. from Texas A&M, M.S.C.E from UTC, and PhD. in Computational Engineering from UTC last year. He is Assistant Treasurer for the ASCE Chattanooga Branch.

<Additional abstracts/updates forthcoming. Visit: branches.asce.org/chattanooga >