



## *Welcome from the Department Head*

Mississippi State's Civil and Environmental Engineering Department proactively uses teaching, research, and service to educate baccalaureate, masters, and doctoral students. We feel the first, best calling of our students is to become Professional Engineers by becoming competent, dynamic, and ethical engineers of the future. This E-newsletter is our effort to share a snippet of a few of the achievements we have made during this higher education journey.

### **ASCE Hosts Green Tailgate for Homecoming Game**

The Mississippi State University Chapter of American Society of Civil Engineering will be hosting a Green Tailgate this year for the Homecoming Game. The game will be played against the University of Kentucky Wildcats on October 21st. ASCE previously hosted a green tailgate last year, and are hoping to improve upon the experience.

The main focus of the tailgate will be a 20-foot wind turbine, raised an additional five feet from last year to help catch more wind. The turbine needs at least 6mph winds in order to generate any current, but with at least 25mph winds, which may be likely since the homecoming game is later in the fall season, the turbine can produce up to 400w. In addition to the wind turbine, there will also be a poly-crystalline solar panel. Both will be used to charge up the battery bank and run equipment such as lights, phone chargers, radio, and other tailgating devices.

The ASCE members are still working on improving their set-up before the important game day. One thing they are working towards is acquiring a pure sine converter in order to run an HD TV, so that ASCE members, students, alumni, and guests can watch the game right from the tailgating tent.

ASCE will also be selling raffle tickets at the tailgate for a homemade Mississippi State University corn hole game, built by the current ASCE officers. Tickets are on sale at the tailgate for \$3 each, or two for \$5, and the drawing will be made at halftime. You do not have to be present to win. Proceeds from the raffle will go towards the chapter, helping buy supplies for the Steel Bridge, Concrete Canoe, and Surveying teams, as well as further improving their set up for future green tailgates.

If you're interested in learning more about their environmentally-friendly approach to tailgating, feel free to drop in on the tent, eat some good food, and help them cheer on the Bulldogs!

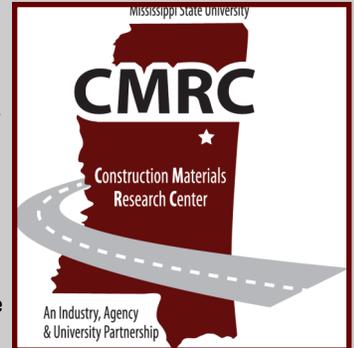


**Please make sure to read the next issue of our E-Newsletter for information about the Civil and Environmental Engineering Department's planned new construction of the Richard A. Rula Engineering Building.**



**CMRC Endowment Increase Campaign**

The Construction Materials Research Center (CMRC) is part of the Civil and Environmental Engineering (CEE) Department of the Bagley College of Engineering (BCoE). Starting in June 2015, a campaign began to increase CMRC's endowment. The increased revenues from the endowment would expand CMRC's research activities, increase graduate student support, and augment the resources available to the Materials & Construction Industries Chair. The 4 1/2 year campaign timeline coincides with a university wide fundraising campaign titled "Infinite Impact-The Mississippi State University Campaign" that began in October of 2013 and continues into 2020.



Planning for the CMRC endowment campaign began well before June of 2015, and was preceded by a fundraising campaign from 1998 to 2003 that formed CMRC where 29 entities made financial contributions. As of the date of this newsletter, the campaign is approximately half finished and 18 pledges have been made ranging from \$500 to \$250,000 each, and there are several additional companies considering making pledges of financial support. Thus far, Ergon Asphalt & Emulsions has made the lead financial pledge to the campaign. To date, the campaign has increased the number of contributors to CMRC's endowment from 29 to 37, and seems well on the way to meet or even exceed fundraising goals. Those who have pledged to the campaign are: APAC Mississippi, B&B Concrete, Burns Cooley Dennis, CTS Cement, Dickerson & Bowen, Dunn Roadbuilders, Edw. C. Levy Co, Ergon Asphalt & Emulsions, Forterra Pipe & Precast, Hammett Gravel, Headwaters Construction Materials, Key Constructors, the Mississippi Asphalt Pavement Association, the Mississippi Concrete Association, Sunbelt Sealing, The Blain Companies, Mr. Bill Waters, and Mr. & Mrs. Randy & Malinda Battey.



Above: CMRC Director (Isaac L. Howard) speaking to alumni and supporters at the Infinite Impact campaign launch event in 2013 (below).

**Congratulations to CEE Students Tom Paduch and Laura Wilson on their academic achievements.**

The Civil and Environmental Engineering Department would like to congratulate two of our students on their recent academic achievements, Tom Paduch and Laura Wilson.

Tom Paduch (top photo, right) was recently awarded the Bruce Tucker Memorial Scholarship. This scholarship was created in honor of Mr. Bruce Tucker, who was the Manager of the Mississippi Valley Flood Control Branch of the Associated General Contractors of America for 20 years. He was well-known for his service to the Associated General Contractors of America, which was a benefit to many. The scholarship is awarded to students who are pursuing a career in the construction industry and demonstrate academic excellence. This marks the fourth time that a civil engineering student and Mississippi State University has received the Bruce Tucker Memorial Scholarship.



Laura Wilson (bottom photo, right) was awarded one of the two scholarships sponsored by the MS Chapter of the Air and Waste Management Association. The scholarship was awarded to her as a student attending a graduate environmental program at a Mississippi university. This award is part of the 2017 Southern Section A&WMA Scholarships to assist graduate students pursuing careers in air and water pollution control and hazardous waste management, and was presented at the 2017 Southern Section Annual Meeting and Conference, held September 20-22 in Nashville, TN. Laura was selected by the scholarship committee based on her impressive background, contributions to the environmental profession and her bright future.



**Engineers Without Borders Completes Five-Year Project to Bring Water to Over Seven Thousand People in Southern Zambia**

In August, the Mississippi State student chapter of Engineers Without Borders completed a five-year project to bring sustainable supplies of clean water to the residents in the Simwatachela Chiefdom of southern Zambia. This agrarian area receives little or no rain for eight months of the year and historically relied on shallow hand-dug wells or micro-reservoirs for water. Most of these water supplies quickly became contaminated with bacteria and sediment resulting in a host of adverse health effects. The alternative was for the children to be tasked with walking to remoted clean supplies often requiring day-long trips on a daily basis, eliminating the possibility of going to school.

This fifth trip was tasked with evaluating well functionality, community success at maintaining and repairing pumps, and affirming water quality and quantity of wells has remained acceptable. The team met with community “borehole committee” representatives to assess changes the wells had made in the quality of life for those served, and to determine changes in the community. Lastly, the team assessed the condition of the pump, concrete pad, fence, and adjacent land use.

The data collected indicated that over 7,000 people have direct access to one of the nine wells constructed by the chapter. The Zambian government has placed teachers at two schools because of the water supply that is now available and the teachers reported that the children are in school, spending more time in class and less time having to get water. The community representatives indicated that intestinal disease is largely a thing of the past. The team observed numerous gardens, a significant number of cattle and goats, and the people appear healthier.

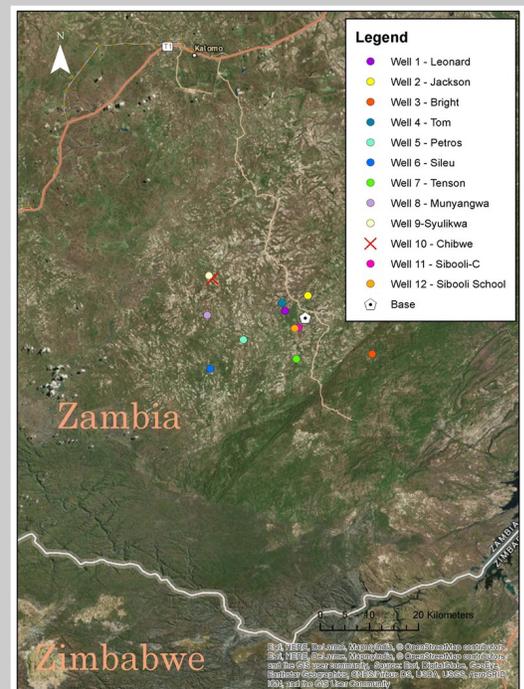
The water quality and quantity remains high, with the water quality testing finding no significant chemical or biological issues and well pumping rates of between 4.3 and 6.5 gallons per minute. Only one of nine wells has issues with slow recharge. The wells are being maintained by the borehole committees with a few having had repairs and all but one having routine preventative maintenance evident. During the visits, the team presented operation and maintenance manuals to all of the committees and reviewed the procedures with representatives present.

The team remains hopeful of an opportunity to return and continue this work in the future, but for now they have completed the obligation made to those in the area and those providing support. Funding was derived by contributions from individuals, Bagley College of Engineering, Department of Civil and Environmental Engineering, Starkville Rotary Club, and EWB grants from Penetron and AIChE.



Top image: The MSU EWB Student Chapter 2017 Zambian Water Project Visit Team

Bottom image: EWB students Phong Ly (left) and Awbrey Foster test water quality of a well sample.





### Interview with Our Graduates: John Green

Get to know our graduate students who are finishing their degrees! We will be interviewing one of our upcoming graduates for each newsletter. This month we're interviewing John Green, a MS student.

**When do you graduate?**

I'm planning on graduating this December 2017.

**What is your dissertation?**

The title of my thesis is Advanced Solutions to Multimodal Intersection Queue Management. The ultimate goal of my research is to optimize the existing signal timing plan of a given intersection based on current vehicular queue patterns. By using various means of software to study existing traffic conditions and queue lengths, I hope to develop methods to reduce the overall congestion and delay during peak hour conditions.

**Do you have any plans lined up for after graduation?**

I am currently working at Kimley-Horn and Associates in Fort Worth, Texas as a Transportation Analyst while finishing my thesis remotely.

**What made you first interested in engineering?**

When I was in high school, I knew I wanted to do something related to mathematics and possibly building design, but I wasn't too keen on the drawing or artistry that comes with architecture. This led me to civil engineering, which I originally entered with the intention of going into structural design. Through classes and internships, however, I realized that I gravitated to the problem solving aspects of transportation and traffic engineering much more.

**Where would you like to see yourself in 5-10 years?**

In 5-10 years, I see myself continuing to work in consulting, using everything I've learned over the years to help my co-workers in the engineering field to make roadway systems as efficient as possible, while also helping aspiring students who are interested in this underrated field to strive for more in terms of growth and learning.



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