



LDDI Bridges

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LDDI Bridges
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Environmental
Engineering



Early fall greetings from Virginia Tech, where we just completed the first month of the semester. While this semester is unlike any preceding it, in many important ways, things are business as usual for LDDI. Students in our senior design course are actively working with their professional mentors. Students in LDDI's junior-level course are becoming conversational in the language of the land development industry, while taking their first steps into the design capabilities of Civil 3D and other industry tools. And, students in our Sustainable Land Development course are exploring various rating systems, including LEED-ND, while enjoying the perspective of guest speakers discussing broader topics of sustainable design. Outside of the classroom, the Sustainable Land Development Club remains one of the most active student organizations in CEE, holding biweekly general body meetings. On September 30th, LDDI will host the first of three Industry Professionals Panels this semester, and on October 13th, we look forward to holding our Career Night Mixer on the eve of the CEE Career Fair. Earlier this month, we hosted the first LDDI brown bag lunch session, where Claire, the student club president, and I delivered a brief program update before providing an open Q&A and discussion forum. While these events may be necessarily virtual for the time being, we are committed to continuing the unique partnership between Virginia Tech CEE and the land development industry for which LDDI is known. I hope you'll enjoy this most recent edition of our newsletter and, as always, I welcome your ideas for improving the program.

Kevin D. Young, PE, M. ASCE, VT LDDI Coordinator

LDDI, Inc. Hosts 6th Annual Golf Tournament

On Thursday, September 24th, LDDI, Inc. hosted the sixth annual Land Development Professionals Golf Tournament at the Potomac Shores Golf Club in Dumfries, VA. LDDI, Inc. is an IRS-recognized 501(c)(3) non-profit organization whose purpose is to help financially support the goals and mission of the broader LDDI program. The golf tournament is LDDI's single biggest individual annual fundraiser, and this year's event featured 19 corporate sponsors and 87 golfers, setting a new event fundraising record. Jim Bishoff (J2 Engineers) and Sue Wolford (Pennoni) served as the primary event organizers, and LDDI sincerely thanks them, as well as everyone who contributed their time and energy to making the event a success. We also thank all of the corporate sponsors and event participants. We hope you enjoyed a great day on the course, and look forward to seeing you at next year's tournament!



Jim Bishoff (J2 Engineers) presents the Men's Longest Drive award to Jim Clark (Advanced Drainage Systems).



LDDI graduate Laura Hall (Pennoni) shows off her Closest to the Pin award.



ATCS is providing numerous services in support of transforming the former Behnke's Nursery into a mixed-use development.

ATCS to Transform Abandoned Tree Nursery into Mixed-Use Development

Reimagining an abandoned, decrepit tree nursery in Beltsville, MD is one of ATCS, PLC's latest endeavors. Located along the heavily trafficked, commercial Route 1 corridor, the complex 12-acre site's redevelopment is being managed by Lanna (Putney) Clement, PE (Virginia Tech, LDDI, 2014).

Bordered by established residential communities, CSX rail tracks, and a 100-year floodplain, analysis and design were completed to integrate the entirely impervious, defunct nursery into its surrounding landscape. Coordination with the Maryland State Highway Administration and area utility companies early in the design process were key to fleshing out critical infrastructure improvements needed to support the redevelopment. Concept designs considered included warehouse space, townhouses, apartments, a grocery store, and big box retail pads. Because of the site's proximity to both residential and commercial uses and major arterials, a mixed-use development was selected for best assimilating with the surrounding land uses.

The final master plan completed in early 2020 includes 80 townhouses, six commercial

pad sites, a multimodal trail, 100-year compensatory stormwater management, a floodwall, dynamic landscaping, and public amenity spaces. The commercial pad sites are strategically located along the Route 1 corridor to provide noise buffering for the residential uses while still providing close-access to transportation thoroughfares and amenities for the future residents. A floodwall was designed to reduce the onsite impact of the 100-year floodplain and provide mitigation for downstream flooding issues. In addition to design efforts, ATCS also provided community engagement services and hosted community meetings with neighboring Homeowner's Associations and civic groups. From these meetings, ATCS was able to collaboratively work with residents to obtain community buy-in for the project.

On designing the project, Clement said, "Creative engineering was critical to addressing the numerous constraints of this site while optimizing the land value for our client and improving the property for the community." The first phase of the project is slated to begin construction in Fall 2021.



Edens Land is providing services to the new Nichols Village residential community in Durham, NC.

Edens Land Aids in the Development of Nichols Village

Edens Land recently filed a rezoning request for Nichols Village, an 89-unit rental community to be located near the very popular Brier Creek area in Durham, NC. The concept for Nichols Village was developed in an effort to provide an alternate to the traditional for-sale, national builder product that has historically dominated the market. While national builders focus primarily on the home itself, Edens Land prioritizes the neighborhood as a whole by incorporating various design, environmental, and social aspects within the community. Edens Land Communities offer residents the opportunity to live in a welcoming and engaging environment, with the following features being standard in every development:

- Community Greenhouse
- Solar Power
- Pedestrian Oriented Design
- 10% Affordable Housing
- Varied Product Mix
- Continuing Education / Tutoring
- Art & Music Classes
- 8' Multi-Purpose Trail
- Oversized Stormwater Ponds
- Dog Park

Construction is planned to begin Summer 2021 with the first unit occupancy slated for later that year.

LDDI Graduates in the Industry: Diana Doan

McAdams Designer II

Shortly after earning her B.S. in Civil Engineering from Virginia Tech in 2018, Diana Doan began her professional career with McAdams, a design, planning, and engineering firm with offices in North Carolina and Texas. The Northern Virginia native currently serves as a Designer II in the firm's Charlotte, NC office.

During her time at Virginia Tech, Diana took advantage of several LDDI course offerings, namely Introduction to Land Development, Sustainable Land Development, and Land Development Design. "These classes really helped me understand what land development is and gave me skills needed in a real land development job," says Doan. "The skills, real life applications and methods, the various types of calculations, and something even as simple as terminology like defining a right-of-way, easement, or catch basin, have all helped me tremendously within my current job. Nearly everything that I have learned through all of my LDDI classes have been applicable in some way while working at McAdams."

Since joining McAdams, Diana has embraced the challenge of transitioning

from student to practitioner, honing her management and organizational skills and learning how to communicate with different audiences, be it clients or coworkers. "I like to do my due diligence on each project, which can include looking into the zoning ordinance, land development design manual of the jurisdiction, and reviewing other related projects," explains Doan. "This also includes asking questions of my coworkers who have more experience than I have." Diana has been exposed to a variety of residential and commercial projects over the past two years, and one in particular holds a special spot on her growing resume. "The client for a project I briefly worked on, the Villas, let us name the roads throughout the development. There is now a road in Concord, NC named 'Doan Drive!'"

Like many graduates, Diana misses the close-knit Hokie community at Virginia Tech, as well as the football games and top-ranked campus dining options. However, her connection to Virginia Tech remains strong, and she will even be a mentor for CEE-4274, a course in which she enrolled a mere two years ago!



"The LDDI program provides its students with an amazing curriculum and incredible opportunities for career development. Employers know that LDDI students will be able to apply their knowledge and design skills from the moment they graduate."
- Diana Doan, McAdams Designer II

ADS Selected for Stormwater Control at Expanding Volvo Plant

A leading designer and manufacturer of stormwater management products, ADS is currently providing its services to the expansion of Volvo's New River Valley plant in Dublin, VA, which produces all Volvo trucks sold in North America. The \$400 million project spans more than 35 acres.

The stormwater management system consists of four beds of ADS StormTech® underground detention chambers to handle 330,000 cubic feet of storage. More than 1,700 StormTech MC-4500 chambers were utilized for both water quantity and quality. For the removal of total suspended solids (TSS), a StormTech Isolator® Row was incorporated into each unit. Three ADS BaySaver® Barracuda® units (S4, S6, & S8) and one 3K ADS BaySaver BaySeparator® water quality unit were placed upstream for additional treatment.

Because mostly in-fill material was used and there were concerns of seepage, the engineer specified 30 EA – ADS Nyloplast®

PVC curb/drop inlets and 9,000 LF of ADS N-12® corrugated high-density polyethylene (HDPE) pipe with water tight connections.

"The stormwater system installation at Volvo proved to be challenging because of the sheer size of the four systems being constructed," stated Jeremy Hendrick of Sowers Construction. "However, with a great quality product from ADS and superior support in the field, we were able to complete the StormTech system installation within a timely manner. This is a successful project that Sowers Construction is proud of and will showcase."

"The StormTech system combined with the Barracuda is a great combination that addresses stormwater quantity and quality on all sizes of projects," explained Bill Shelton, P.E., vice president of ZMM Architects & Engineers. "The StormTech online design tool, specifications, details, and knowledgeable engineering staff made this one of the easiest and cleanest systems to design."



ADS products lend to successful stormwater system design at expanding Volvo plant.

**Thank you to our
corporate sponsors
and municipal
members!**

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▪ *Bohler Engineering*
▪ *Bowman Consulting*
▪ *Concrete Pipe and Precast, LLC* ▪ *Pennoni Associates, Inc.*

PLATINUM

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SILVER

Colman Engineering, PLC
▪ *Eden & Associates* ▪ *Mattern & Craig* ▪ *Ramey Kemp & Associates*
▪ *Wetland Studies*

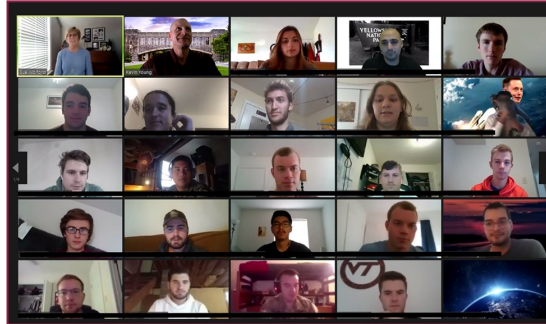
MUNICIPAL

Fairfax County

LDDI Bridges September 2020

Fall 2020 Curriculum Update

This fall semester finds three LDDI course offerings available to Virginia Tech CEE students: CEE 3274, Introduction to Land Development Design; CEE 4264, Sustainable Land Development; and CEE 4274, Land Development Design. These courses remain incredibly popular in the CEE curriculum, this perhaps best highlighted by the single section of CEE 3274 boasting an enrollment of 92 students. CEE 4274 is at the full capacity permitted for any designated CEE design course (40 students), and CEE 4264 is also at its maximum capacity of 54 students. All courses feature the frequent student-practitioner engagement for which LDDI is uniquely known and recognized.



The fall offering of **CEE 3274** is fully virtual, with course instructor Kevin Young delivering content in both asynchronous and synchronous formats. The pre-recording and asynchronous delivery of some of the course's lecture material has allowed Kevin to arrange for no fewer than ten industry professionals to deliver live guest lectures to students, via Zoom, during the class' scheduled meeting times. Rather than introducing new subject matter to the course, these talks build and expand upon the foundational course material delivered by Kevin. This also marks the inaugural semester for the 3274 student mentoring program. Roughly one-third of enrolled students are participating in this voluntary program that connects students with practitioners for career advice and professional development.

Susan Wolford, PLA, AICP, ENV SP, LEED Green Associate 



- BLS Landscape Architecture – Penn State University
- MBA – University of Phoenix
- Registered Landscape Architect – VA, NC
- Certified Land Planner
- Envision Sustainability Professional
- LEED Green Associates

- Regional Vice President at Pennoni
- Chair of LDDI Advisory Board
- Instructor for Engineers & Surveyors Institute

LDDI Advisory Board Chair Sue Wolford delivers a guest lecture to the Intro to Land Development class.

Following the retirement of long-time course instructor Dr. Randy Dymond, LDDI Assistant Coordinator Claire White makes her debut this semester in

CEE 4264. Like CEE 3274, the virtual modality of the course finds Claire delivering material asynchronously and synchronously, and also hosting many guest speakers from the industry. These speakers include representatives from LDDI sponsoring firms, but also include the diverse perspectives of speakers from the Institute for Sustainable Infrastructure, the Town of Blacksburg, and other Virginia Tech faculty. For students physically in Blacksburg, Meredith Jones (Eden & Associates) will continue the course's tradition of hosting a field trip at Blacksburg development, The Village at Tom's Creek.

CEE 4274 features mentors from ten LDDI sponsoring firms working closely with teams of students on a semester-long design project, completed across five Learning Modules. These mentors "visited" class via Zoom during the second week of the semester, at which time they met their student teams and acquainted them with their project site and development goals. Since then, students and mentors have collaborated at mutually agreed upon times, while Kevin delivers traditional course instruction, virtually in real time, during the course's scheduled meeting times. Kevin was also able to request a larger classroom than is typically allocated for the course, allowing the opportunity for some, limited and physically-distanced, design project collaboration. Those wishing to attend the course's final presentations on December 11th, via Zoom, are invited to email Kevin.