



# LDDI Bridges

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**LDDI Bridges** is a publication of Virginia Tech's Land Development Design Initiative

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**Virginia Tech**  
The Via Department of  
Civil and  
Environmental  
Engineering



Spring greetings from Virginia Tech. This message to you is undoubtedly the most unique, if not challenging, that I've written in the eleven-year history of this newsletter. I certainly don't need to tell you that we're all operating in largely uncharted waters, and that numerous challenges lie ahead for all of us. As you have likely heard by now, on Wednesday, March 11<sup>th</sup>, in response to the expanding COVID-19 pandemic, Virginia Tech made the decision to migrate all courses to an online format for the remainder of the spring 2020 semester. Further, all university-sponsored events have been canceled through at least April 30<sup>th</sup>. The impact of these decisions on LDDI courses and the activities of the Sustainable Land Development Club (SLDC) is significant. As always, my outreach to you through this newsletter seeks to keep you informed of LDDI happenings, both on and off campus. My specific focus in this edition is to inform you of how LDDI intends to navigate the challenges ahead.

I believe it is important to acknowledge the human impact of the difficult decisions made by our administration. For freshmen, what should have been the concluding semester of a memory-filled first year of college came to an abrupt, unceremonious halt. For seniors, the impact is in many ways even worse as they're denied their last few weeks in Blacksburg and all that typically entails – ASCE competitions, Relay For Life, The Big Event and, of course, downtown outings, cookouts, and other social gatherings with friends. As our Interim Department Head, Mark Widdowson, recently communicated to CEE faculty, "A resumption of classes has the potential benefit of stability which cannot be overstated. Faculty should be mindful of our important and unique role in support of our students and in helping others navigate this crisis." Instructors of all ongoing LDDI courses – myself, Kevin Young, Claire White, and the Town of Blacksburg's Matt Stolte, recognize this important role, and we are committed to maintaining the quality instruction for which LDDI is known, while also making every effort to provide a sense of normalcy for our students.

Effective with the resumption of classes on March 23<sup>rd</sup>, all LDDI courses will move entirely to an online format. For CEE 3274 (Intro to Land Development), this entails Kevin and Claire coordinating to pre-record video lectures of all remaining course content. Similarly, homework, and even exams, will be converted to a means of online delivery, with office hours being held using Zoom meeting technology. In CEE 4274 (Land Development Design), I will also be recording lectures; however, CEE 4274 presents the added challenge of managing collaboration between student design teams and their professional mentors. Virginia Tech students have access to their own personal Zoom account, and we are actively working to help them effectively use this and other resources for remote collaboration. In CEE 4254 (Municipal Engineering), Kevin and I are working closely with Matt to assist him with both the recording lectures, as well as coordinating with numerous guest speakers to deliver their materials to students remotely. Collectively, we are embracing this challenge as an opportunity, and are committed to providing the best student experience possible under difficult circumstances.

Outside of the classroom, all scheduled LDDI events and activities are canceled until further notice. This includes our spring General Meeting in Charlotte, originally scheduled for April 3<sup>rd</sup>. Pending future developments, and the direction of health officials, this meeting may be rescheduled to a date in the summer. The SLDC has also canceled all remaining spring semester events. Many of you are also likely wondering about Virginia Tech's third annual Giving Day. This event, originally scheduled for March 18<sup>th</sup>, has now been postponed until September 9<sup>th</sup>. Our advisory board has been working hard behind the scenes to make this year's Giving Day even more impactful for the LDDI program. We look forward to sharing more with you as the new date approaches.

In closing, I want to send each of you best wishes as you face your own personal and professional challenges in the days and weeks ahead. We all know that the Virginia Tech community is strong, and I have no doubt that we will rise up together to face and overcome the challenges ahead. Go Hokies!

Dr. Randy Dymond, PE, VT LDDI Coordinator



*With locations across the U.S. and PE licenses in 45 states, Bowman has been able to facilitate CGC/RLC's ambitious response to the nation's aging population and growing need for retirement community facilities.*

## **Bowman Provides Nationwide Expertise to Country's Leading Retirement Community Builder**

*edited by Kelly Shayne Young*

Cameron General Contractors (CGC) and its sister company Resort Lifestyle Communities (RLC) develop 130-unit, three-story retirement community buildings throughout the U.S. Currently operating 33 communities, with another 15 under construction and more than 30 in a pre-construction development stage, CGC/RLC are the nation's leading builder in the booming age-restricted, senior living market sector. It is the company's goal to open one new community per month for the next decade, a goal Bowman helps to accomplish every day.

Since 2016, Bowman has provided nationwide civil, survey, transportation, environmental, and water/wastewater support to design, plan, and permit the construction of RLC facilities. With offices located in all corners of the U.S. and with Professional Engineer licenses in 45 U.S. states, Bowman helps CGC cover every market, from Florida to Oregon and Arizona to Connecticut.

Goochland, Raleigh, Greensboro, Williamsburg, and Chesterfield are nearby communities where developments are underway or under construction.

Specialty site design accommodates additional ADA features, walking paths and trails, and community-centered amenities. Stormwater management design focuses on retaining each community's natural resources like creeks and wetlands, treating these as amenities for residents to enjoy. Master planning within larger communities focuses on designing shared spaces and infrastructure to allow interactivity and connections between mixed uses.

CGC's aggressive growth plan allows Bowman to move quickly from initial due diligence and conceptual design stages, to full-scale civil design development, and finally construction permitting and management. Bowman's dedication to providing all aspects of client-focused development brings CGC's multi-million-dollar investments to fruition.



*To address future overcrowding in Arlington's middle schools, a new secondary school building, The Heights, was constructed to house the existing HB Woodlawn and Stratford academic programs.*

## **GORDON Lends Extensive Services to the Heights School Building in Arlington, VA**

*edited by Kelly Shayne Young*

GORDON provided civil engineering, surveying, and landscape architecture design services for the development and construction of a new secondary school building to house the existing Arlington Public Schools HB Woodlawn and Stratford academic programs, totaling approximately 775 seats on the Wilson School site. The development included an outdoor public recreation field, four individual roof terraces that function as additional outdoor recreation space and outdoor learning spaces, a multi-faceted stormwater management approach, and other amenities.

The complex stormwater solution utilized an underground stormwater detention system, a cistern and rainwater harvesting system for reuse in indoor plumbing and for the cooling towers, and multiple green roof systems on each of the four building roof terraces and the penthouse roof.

Due to the density of the site, creative solutions were required to address open space, recreation spaces, and landscaping. The roof terrace hardscape and landscape spaces were utilized to meet tree planting and replacement requirements. The school's outdoor space was designed to be an extension of the adjacent planned Rosslyn

Highlands Park improvement project (also a GORDON project). GORDON also designed the outdoor recreation field including sports lighting and fencing, and provided landscape architecture design services for the front entry plaza, pocket park, interior courtyards, rooftop terraces, athletic field and sports lighting, and streetscape. The design featured ultra-modern finishes to compliment the style of the proposed architecture of the building.

The project included significant utility relocation, underground electrical vault designs, and phased demolition plans. The utility relocations were coordinated closely with the adjacent commercial development such that relocations for the entire street could occur at the same time, minimizing traffic impacts and costs. A re-design of adjacent 18<sup>th</sup> Street was necessary to allow for bus circulation and access.

The Heights School's location on a dense redevelopment site presented numerous challenges that required significant team coordination and value engineering to deliver the project within budget and prior to the start of the 2019 school year, all while maintaining the desired modern aesthetic and innovative design.

## Who We Are: Kyle Bollinger– Kimley-Horn Practice Builder

Each issue of *LDDI Bridges* focuses on Advisory Board members who make LDDI happen.

Kyle serves as a practice builder in Kimley-Horn's Reston, VA office and is a member of LDDI's Advisory Board.

### What is your specialty within the land development industry?

I consider myself a jack-of-all-trades but enjoy site layout and planning, stormwater management, grading, and taking projects through construction that I am working on.

### What attracts you to land development?

I value creative problem solving and seeing design ideas come to life. I take pride in my work and watching others enjoy the great projects land development brings to communities.

### Please mention the highlights of your career?

I've been a part of many great project teams over the past few years at Kimley-Horn. A few of the most exciting projects are helping to bring a Loudoun United, USL professional soccer team to Loudoun County; new elementary schools in the City of Alexandria; and planning/engineering for a resort casino with ski slopes and a renaissance faire.

### What motivated you to become involved with LDDI?

I wanted to support the program that gave me a jump start in the land development field after graduating. Helping to mentor students and young professionals in the industry is something that really motivates me.

### What do you think are the strengths of this program?

Giving students real-world project experience from start to finish is an invaluable tool. LDDI students are able to hit the ground running immediately after graduation.

### Can you please share your personal hobbies and/or interests?

I love baseball. I coach my son's little league team and still play in a fast pitch men's adult league.

### Could you please share something unique about you?

Growing up in a military family I've had the pleasure to live in many places around the world, including both Hawaii and Guam.



*"The skills students learn through the LDDI program not only prepare them for the workforce after graduation, but they also strengthen and enhance the land development industry as a whole." - Kyle Bollinger, Kimley-Horn Practice Builder*

## Concrete Pipe & Precast Announces New and Improved Stormwater Management System - Retain-It

*edited by Kelly Shayne Young*

Concrete Pipe and Precast, LLC (CP&P) has introduced a new high-capacity underground stormwater management system called Retain-It. Retain-It is a modular underground stormwater detention/retention system that optimizes storage while maintaining a small footprint. It manages detention, retention, infiltration, and treatment of stormwater in a single integrated system. Manufactured from precast concrete, these modules can be designed for various loading conditions and depths of fill. This modular solution provides for rapid implementation with installation times as low as 3 to 5 minutes per unit.

With the increased value of land and the nuisances of providing and maintaining ponds, underground products are becoming more popular. Retain-It allows for more storage volume per square foot while also giving the owner peace of mind by using a concrete structure.

This pre-engineered solution is designed and manufactured to meet a true H-20

loading capacity. Its reduced module size allows for more jobsite flexibility and takes advantage of existing equipment for handling. Because it is made of precast concrete, the load-carrying capacity does not rely on the strength and quality of the surrounding backfill materials or a structural stone zone of support. This reduces footprint and overall system costs.

Technical support personnel are onsite for every installation. This expertise provided by CP&P allows for high-quality and cost-effective installation and project coordination. CP&P also offers storm system component bundling, ensuring a turn-key solution.

On Thursday April 23<sup>rd</sup>, CP&P will have Retain-It available for viewing at the company's "On Campus Product Demonstration" behind Goodwin Hall at Virginia Tech. Please come by in the afternoon to learn more, meet with CP&P professionals, and walk away with some swag.



*Concrete Pipe & Precast's new stormwater detention/retention system, Retain-It, optimizes storage while maintaining a small footprint.*

**Thank you to our  
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and municipal  
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## **LDDI Bridges** March 2020

### **Course Focus - CEE 4284 Advanced Land Development Design**

*by Kevin Young*

In recent editions of this newsletter, we've highlighted several of the courses comprising the LDDI curriculum, including Introduction to Land Development Design (CEE 3274), Land Development Design (CEE 4274), and Sustainable Land Development (CEE 4254). In this issue, we're excited to tell you a bit about what is perhaps LDDI's most unique course offering – Advanced Land Development Design (CEE 4284).



*Students visit an active construction site as part of a CEE 4284 field trip.*

Since its first offering to students in 2007, Advanced Land Development has been taught during the spring semester of alternating years, and was last taught during the spring 2019 semester. The course is unique in the CEE curriculum in that it is taught by teams of professional engineers from LDDI sponsoring firms. The course is also unique in that it meets on Friday nights and Saturday mornings, rather than in a more traditional Monday/Wednesday/Friday or Tuesday/Thursday academic format. This arrangement is necessary to accommodate the schedules of the industry professionals serving as course instructors, many of whom travel from Northern Virginia, Richmond, and the Hampton Roads regions of the state. Note that the class does not meet every Friday night and Saturday morning of the semester. Throughout the years, the course has featured instructors from Balzer & Associates, Bohler Engineering, Draper Aden Associates, and Kimley-Horn & Associates. When CEE 4284 was first developed, the course focused on site grading and ADA requirements, storm sewer design and basin routing, and erosion and sediment control. Students are now being introduced to many of these topics in CEE 3274 and again, in the context of a design project, in CEE 4274 (which serves as a pre- or co-requisite for CEE 4284). Through the growth and evolution of the LDDI curriculum, CEE 4284 now permits coverage of more advanced land development topics beyond those covered in other LDDI courses. These topics include, but are not limited to:

- Site Selection, due diligence, and land entitlements
- The Virginia Runoff Reduction Method
- Design-build and non-traditional project delivery methods
- Infill development and development challenges in urban environments
- Public Private Partnerships and other unique project types

Kimley Horn Senior Vice President, Randy Royal, has been a course instructor since its first offering, and states, "Teaching the advanced land development course since its inception has really been enjoyable for me. You get the best of the best students, and mentoring/teaching them as they are about ready to go into their careers has been very rewarding. Having some of them communicate with me after they are working (as one of them did recently) to tell me that I was the reason for them continuing on into land development as a career is quite an ego booster! I am also very proud to be a part of the landmark LDDI program, continuing and growing with lots of support from VT grads and the engineering community in general."

It takes a hard-working, dedicated student to give up their Friday evenings and Saturday mornings to take a challenging 4000 level engineering course, but for those willing to make the sacrifice the reward is substantial. 2017 LDDI graduate, and current Project Engineer with J2 Engineers, Alex Wells, states of his time as a student in the course, "The advanced land development course was a great way to gain a deeper understanding of the overall land development process from professionals in the field with real world experience and examples. As a senior at the time, this class was a great opportunity for me and other students to meet professionals from many different companies in a small group setting. This exposure to potential employers during class was invaluable when exploring offers and making final job decisions."

Advanced Land Development will next be offered during the spring 2021 semester.