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Alfred Benesch & Company

MATC Internship Report

Summer of 2018

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This summer I was given the opportunity to intern at Alfred Benesch & Company as a member of the Geotechnical Group for the Lincoln Division. I was assigned to work in the materials laboratory, which fortunately I had prior experience with as a lab intern for the City of Lincoln. After about a week on the job, I quickly learned just how different a private sector firm is from a public sector. At the City of Lincoln, they primarily worked on road construction projects, whereas at a multi-discipline engineering firm like Benesch, the projects are more customer based, offering a wider variety of civil design projects.

I spent most of my time this summer working in the lab. The first couple of weeks started slow as the other intern and I got accustomed to how everything operates around the lab. As I became more familiar with the day-to-day tasks, I was able to start working more on my own. This allowed the other intern and I to split up the work, helping the lab become more efficient. At Benesch, we perform a variety of tests on materials, such as aggregate, asphalt, concrete, and soils. Every morning at work typically began by breaking concrete cylinders and beams for compressive and flexural strength. That was about as routine as the job ever got, since everything else was based upon what tests were requested by the engineers to run. The variability in the daily tasks was one of the aspects I enjoyed the most about working for a private firm, since it kept me on my toes.

This internship taught me valuable knowledge and skills that I will utilize going forward, one of which being organizational skills. Soil samples would come into the lab on a daily basis from various job sites, so it was important for us to develop a system to log the samples and determine what tests needed to be ran on them. Some of the more

common tests that I would perform on the soils were density and moisture of Shelby tubes, plasticity index, sand contents, standard proctor curves, and sieve analysis. Each test would provide the engineers valuable information for design and inspection purposes. It was a rewarding feeling knowing that the work I was doing had a direct impact on projects in the real world.

Although I spent most of my time in the lab, I was still able to go out in the field on job sites several times this summer. Almost every time I went out in the field, I was able to experience something that I had never done or seen before. The first time that I was sent out on a project was to help perform a geotechnical analysis for a future brewery, in the basement of an old dairy house in the Haymarket. My coworker and I had to hand drill three-inch diameter metal tubes, ten feet into the ground for lab testing on the soil to determine its characteristics. The working conditions in this basement were less than ideal, which stressed the importance of being prepared for any situation when working in the field. The next time that I got sent out to drill Shelby tubes was for the Lincoln South Beltway project. This time the work was performed in a corn field, and instead of hand drilling these tubes, they used a Geoprobe machine that could drill up to depths of 100 feet if needed. Before this internship, I had never seen anything like it before, which made it a worthwhile experience.

A couple of times this summer I got sent out in the field to assist a surveyor for the Beltway project. Our task was to stake out the locations that would get drilled for a geotechnical analysis. If there is anything that I learned from working as a surveyor, it is that you never know what conditions you will be getting yourself into. In just two days on the job, I had to walk through a marsh, bean fields, and 12-foot tall corn fields. Walking

through the corn fields in the blistering hot heat reminded me of my detasseling days, only this time I was not as prepared. The most memorable experience I had surveying was staking locations on a site of a farm in a cattle bullpen. Seeing the bulls surround and even lick my surveying partner was kind of frightening, to be honest, but somehow he remained calm and was able to finish his job.

Another task that I got assigned to do was drive down to Manhattan, Kansas and transfer their concrete compression machine to the Benesch office in Grand Island. This trip gave me the opportunity to see two other Benesch offices, which is something I had not anticipated I would get to do this summer.

Towards the end of the summer I got sent out to a concrete pour in Milford. This is where I got to make concrete cylinders, which I had been testing all summer. The strength of these cylinders are important because they ultimately determine if the concrete is strong enough to support the desired load. If the concrete cylinders do not meet the specified strength after 28 days, then the next step is usually to core the existing concrete. I was fortunate enough to get the opportunity this summer to help drill cores for a box culvert project. After the core sample has been collected, it is taken back to the lab to test the strength of the concrete. The results of the coring will typically determine whether the work in the field needs to be redone, which can be a costly mistake.

This summer at Benesch has been an extremely rewarding experience. Not only have I gained a tremendous amount of technical knowledge, but I have also learned valuable lessons that I will carry with me in my professional career. One of my favorite features about working at a private firm like Benesch is the family culture that is instilled.

Growing up, I was always told to choose a career that I am passionate about, but what they didn't tell me was how important it is to have good people around you. A positive culture at work not only enhances teamwork and collaboration, but also helps increase motivation and satisfaction on the job. With that being said, I would like to thank the employees at Benesch for making me feel welcome from day one. I am very grateful for the opportunity that MATC and Benesch gave me this summer for allowing me to see the geotechnical side of civil engineering.