



Internship at The Whiting-Turner Contracting Company

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Service Site

- **Site Name:** The Whiting-Turner Contracting Company offices at the WuXi STA construction site
- **Address:** 1091 Industrial Dr, Middletown, DE 19709
- **Supervisor:** Frank Morris
- **Mission:** The Whiting-Turner Contracting Company is a construction contracting company. They were awarded the construction contract to build a campus for WuXi STA – a pharmaceutical research, development, and manufacturing company – in Middletown, Delaware.

Issues Confronting Site

During my internship, the site was in a phase of construction for some buildings, and pre-construction for other buildings. The scale of the project required extensive pre-construction project management work from Whiting-Turner, including writing scopes of work (SOWs), listing specifications, organizing bid packages to be sent out, reaching out to potential subcontractors, acquiring competitive bids for packages of work, comparing bids, and awarding contracts while staying within budget. My focus of work was to help with these tasks, specifically for trades under the Mechanical, Engineering, Plumbing (MEP) umbrella.

Activities

Day to Day

I helped to manage mechanical, electrical, and plumbing trades during the preconstruction phase. I wrote scopes of work and handled relations with subcontractors to receive competitive bids, making use of software like Procore and Autodesk BuildingConnected. I scrutinized bids to identify noncompliance with scopes of work (SOWs) or specifications and addressed them during descoping meetings. I compared bids to select the most cost-effective choice. I attended daily standup meetings to understand how the work of other trades was progressing, and to address any consequences that may impact the trades I was helping to manage. For trades that were in the construction phase, I walked the construction site to ensure subcontractors were following proper safety protocols. I did quality checks to ensure subcontractor work aligned with the designated SOWs and specifications.

Intern Group Project

All interns were put into groups and worked together to put together a competitive bid and compelling presentation to convince pretend-clients and their shareholders that our contracting company was the one to get the job done. I learned about estimating pre-construction costs and identifying what trades need to be involved on a renovation project depending on the particular requirements of the site.

Touring Sites

Touring different construction sites was my favorite part of the internship. It was fascinating to see how construction and design varies depending on the project and its context. For example, I toured an eBay warehouse designed to be extremely secure and keep its contents at appropriate storage conditions. I saw the construction of a school in Newark situated between existing city buildings, where special care had to be taken to be non-disruptive to the surrounding city. Another site was on the University of Delaware campus, where rooms were designed to prevent electromagnetic and other interference from hindering experiments.

Future Work

From this internship, there are several takeaways that I will carry with me throughout my professional career. It was an exercise in quickly grasping new software and using them to manage vast amounts of information. I learned the importance of project management, the importance of low-amplitude high-frequency communication, and how to manage a tight schedule while minimizing contingencies.

From where my work left off, subcontractors will continue to be awarded work packages, schedules will be created, and construction work within the Mechanical, Engineering, Plumbing trades will begin in new buildings.



Rendering of the entire campus.

Image from the Delaware Business Times
(<https://delawarebusinesstimes.com/news/wuxi-land-deal/>).

Impact

Working under the guidance of my supervisor, I was able to reduce the workload taken on by full-time project managers by writing scopes of work and handling a majority of communication with potential subcontractors. I made the descoping process smoother by identifying noncompliance prior to meetings, organizing information during descoping meetings, and communicating with potential subcontractors to rectify noncompliance. I compared bids to select a subcontractor that was ideal for this specific site.

Coming into this project with little knowledge in the construction space, I learned a lot about how construction works. I understood the timeline of a project. A client proposes a build, contracting companies bid for the project by showing their capabilities and previous work in relevant spaces, and the bid is awarded by the client. Then, pre-construction begins.

In pre-construction, the contracting company allocates the work of the project into trades. For large projects, each division typically has its own project manager, and the project manager splits the divisions into packages. An example of this could be a MEP division, where packages include fire protection, boilers, building electrical, site electrical, piping, and more. The contracting company defines clear SOWs per package, along with specifications designated by the engineers or other parties. These SOWs and specifications are sent out to other companies that may be interested in taking on a package of work. Those companies submit bids that outline exactly what work they will complete, along with any modifications to the SOWs or specifications. This may involve different warranties, delivery methods, spare parts, timelines, startup assistance, equipment storage policies, owner witness tests, performance testing, overtime costs, and more. The construction management company then does descoping reviews, which consists of a meeting with each bidder discussing their noncompliance to the SOWs or specifications, along with costs. After reviewing all candidates and weighing benefits and costs between companies carefully, the construction contracting company will award the bid to the package to the subcontracted company. From here, detailed work scheduling can begin.

Construction contracting companies are often the interface between the client, who presents their needs, the architects, who realize the client's vision into designs, and engineers, who design building systems such as HVAC. Construction contracting companies work to keep all players – especially the client – satisfied, which is highly contingent on meeting deadlines and staying within budget. This requires nimble project management skills and understanding of different disciplines within construction. It is critical to construct a project timeline with minimal contingencies in order to keep the project moving even when there are unexpected holdups.

A project manager must understand how their division can impact other divisions to prevent time spent waiting. This is absolutely the most important thing that I learned from my internship, and I will carry this knowledge forward with me through school projects, campus engineering clubs, and my future career.

This internship helped to narrow my career interests and taught me the importance of project management.

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