

**Project Status Report: CEEEn-2016CPST-005: Power Transmission Foundation Design**

**Team Members: McKay Harper, Todd Weichers, Daniel Pope**

**Date: 03/31/2017**

**1) Summary of technical/non-technical challenges encountered**

- The pile array design and layout for the monopole tower foundation presented us with a challenge. Extra time was needed to find the optimal array design than originally expected.
- Detailing the rebar design for the pile caps proved to be challenging with some learning required to figure out how to create the detail in CAD.
- John Jensen, who joined our group in February continued to have health concerns that prevented him from participating in the project.

**2) Team approaches/resolutions to overcome challenges**

- The GROUP computer program was used to test different pile layouts. It was proposed to perform hand calculations on paper to determine pile bearing and factors of safety since students did not completely understand how to use full functionality of the GROUP program.
- Ideas were proposed to redesign the rebar layout for the pile caps to make it easier to detail and still maintain the integrity of the structures.
- Capstone advisors were contacted in regards to the situation with John Jensen.

**3) Status of challenge resolutions & potential project impacts**

- Hand calculations for pile bearing and factor of safety were successful in determining the pile layout for the monopole foundation.
- Rebar design was successful altered to allow for easier detailing with CAD and to maintain structural integrity.
- John Jensen was removed from the capstone project team due to health concerns.

**4) Project Status & Summary**

- Foundation design is complete for the lattice tower structure.
- Foundation design is complete for the monopole tower structure.
- Compiling and writing of the final report has begun, including considerations for constructability and access to the construction sites.
- It is expected that full project completion will be achieved by April 10<sup>th</sup>, 2017.