
EE/CprE/Se 491 WEEKLY REPORT 10

November 25, 2018- November 30, 2018

Group Number : sdmay19-17

Project Title: Substation Design

Client: Burns & McDonnell

Advisor: Craig Rupp

Team Members:

Jacob Heiller- Controls Engineer

Rebecca Franzen- Studies Engineer

Connor Mislivec- Quality Control Specialist

Riley O'Donnell- Administrator

Tom Kelly- Project Manager

Wilson Pietruszewski- AutoCAD Engineer

Weekly Summary:

This week we spent our time finalizing and perfecting the three deliverables that we had due November 30. These deliverables were the grounding design, the physical design, and the lightning protection design. For the grounding design, the biggest task we completed was ensuring that the plan view and the grounding design matched. We had to change a few things such as taking conductors out that were under the control building and adding more ground rods around the transformer. After our design was modified, we then had to update the grounding report to incorporate those changes. For the physical design, we spent a majority of the time modifying the plan view and elevations views based on comments from Burns and McDonnell. After this, our client then asked us to perform a quality check on the submittal package similar to the process that they would go through before submitting the full package. For the lightning study, we spent most our time on the lightning study report. We first had to determine what information was necessary to include in the report and then we had to write the report. When these three deliverables were all finished, we uploaded them to a google drive to submit to our client, Burns and McDonnell.

Past Week Accomplishments:

- Finalized grounding study and report-Riley and Rebecca
 - Obtained final plan view of Cyclone Substation
 - Backchecked grounding design to ensure design matches plan view drawings

- Reviewed grounding report to ensure screenshots were updated and language was precise and accurate
- Reviewed and checked calculations performed in the grounding report from IEEE 80
- Uploaded finalized grounding report to google drive for submittal
- Finalized physical design- Wilson and Jake
 - Modified plan view and elevation view based on comments from Burns and McDonnell
 - Performed a quality check on physical drawings to ensure drawings and accurate and client standards have been met
 - Reviewed bill of materials and add to plan view drawing
 - Created pdf versions of all dwg drawings and add them to the google drive for submittal
- Finalized lightning protection- Tom and Connor
 - Performed calculations to determine sizes of lightning masts
 - Determined what information needs to be incorporated into a lightning study report
 - Reviewed example lightning protection reports given to the group by Burns and McDonnell
 - Made revisions based on client feedback
 - Created lightning study report for Cyclone Substation outlining all assumptions and conclusions
 - Added lightning protection to physical drawing
 - Put lightning protection report in google drive for submittal

Pending Issues:

- Awaiting approval from client

Individual Contributions:

Name / Role	Individual Contribution	Hours this week	Cumulative Hours
Rebecca Franzen	Finalize grounding report	9	88
Jacob Heiller	Finalize physical design	7.5	87
Tom Kelly	Finalize lightning protection	8	87
Connor Mislivec	Finalize lightning protection	8	86.5
Riley O'Donnell	Finalize grounding report	9	88

Wilson Pietruszewski	Finalize physical design	9.5	89.5
----------------------	--------------------------	-----	------

Comments and extended discussion:

Plan for coming week:

- Create a timeline for second semester work-Everyone
 - Review scope of project
 - Determine what needs to be done
 - Determine how much time each part should take
 - Discuss previous experience and knowledge of future work in the project
- Begin research on AC/DC studies -Everyone
 - Research how to determine required battery capacity
 - Review industry standards for how long a substation should be able to run on battery power if needed
- Begin research on communications within a substation
 - Research the devices that will be needed to be installed for the substation for the communications systems
 - Review previous drawings, examples, and one-line diagrams to understand how to best design a communications systems for our substation
 - Determine the location of the communication rack so that it will be easily accessible and the wiring to it will be optimized

Weekly Advisor Meeting Summary:

- This week's advisor meeting was canceled due to our advisor being out of town