
EE/CprE/SE 492 BIWEEKLY REPORT 09

02/22/2021 – 03/01/2021

Group number: SDMAY21-04

Project title: 138kV Cyclone Substation Design

Client &/Advisor: Burns & McDonnell

Team Members/Role: Chandler Cox (Meeting Facilitator), Owen Swanberg (Scribe), Zachary Lewis (Report Manager), Aladdin Adam (QA/Qc Manager), Mohammad Habib (Report Manager), Joseph Miller (Head Engineer)

Bi-Weekly Summary

We met with Burns & McDonnell on 02/22/2021 to discuss questions we had regarding the schematics we are making. After getting clarification from Burns & McDonnell we were able to make significant progress in the schematic designs. To date we have finished the AC - current transformer schematics and have begun work on the CCVT AC schematics as well as the DC schematics for the breakers and transformers. Progress on the Grounding study has been made as well, there is some data missing that we are requesting from the client so that we can make further progress.

Past week accomplishments

- Chandler Cox – Developed an AC scheme for breaker 2 and assisted in drawing the final versions in AutoCAD for the other breakers and transformer CTs.
- Owen Swanberg - Developed an AC scheme for breaker 1 and assisted in drawing the final versions in AutoCAD.
- Zachary Lewis – Developed an AC scheme for breaker 4 and assisted in drawing the final versions in AutoCAD.
- Aladdin Adam – Worked on grounding study.
- Mohammad Habib – Worked on grounding study.
- Joseph Miller – Developed an AC scheme for breaker 3 and the transformer and assisted in drawing the final versions in AutoCAD. Began work on DC schematics for breaker 3.

Screenshots of Completed Work

The following screenshots depict the schematic diagrams we have developed for the breaker and transformer CTs. These are instrumental in determining the proper wiring of the substation relay panels

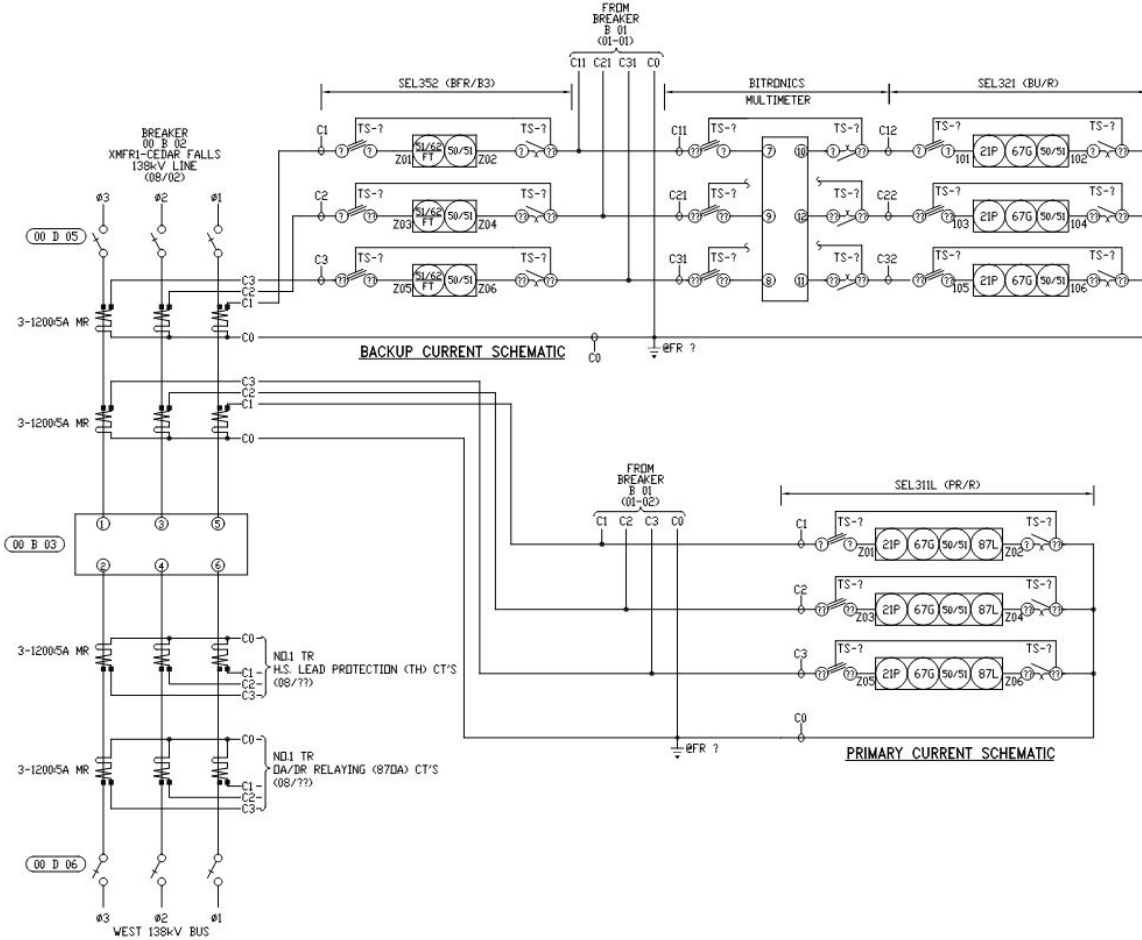


Figure: Breaker 3 AC relaying schematic

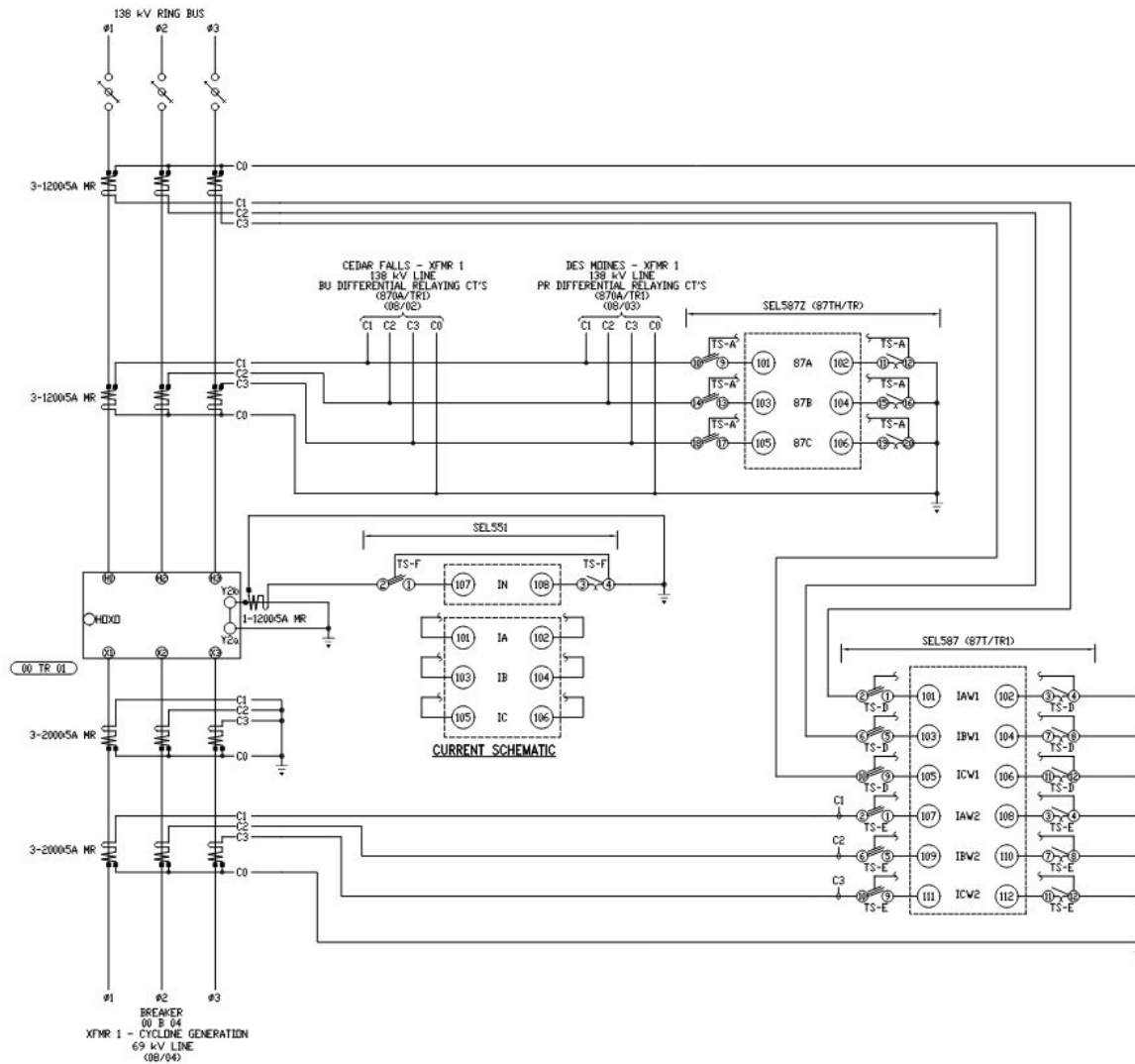


Figure: Transformer AC relaying schematic

Pending issues

We need to discuss with Burns & McDonnell the following items:

- We are in need of additional data for the grounding study such as soil resistivity

We need to work on the following issues within the team:

- Learn breaker logic with normally open and normally closed contacts
- Develop a plan to tackle the DC schematics

Individual contributions

Name	Individual Contributions	Hours this week	Semester Hours
Chandler Cox	Schematics	8	25
Owen Swanberg	Schematics	9	25
Zachary Lewis	Schematics	7	22
Aladdin Adam	Grounding Study	10	17
Mohammad Habib	Grounding Study	10	25
Joseph Miller	Schematics	9	27

Plans for the upcoming week

- Chandler Cox – Work on DC schemes for breaker 2
- Owen Swanberg – Work on AC schemes for Des Moines
- Zachary Lewis – Work on AC schemes for Cedar Falls
- Aladdin Adam – Continue to work on grounding study
- Mohammad Habib – Continue to work on grounding study
- Joseph Miller – Finish DC scheme for breaker 3 and begin work on a different DC scheme