

OXFORD-TUAM 11KV SWITCHBOARD UPGRADE

WHAT I LEARNT AS AN INTERN

Presented by Emma Lloyd



Presentation Overview

A brief outline

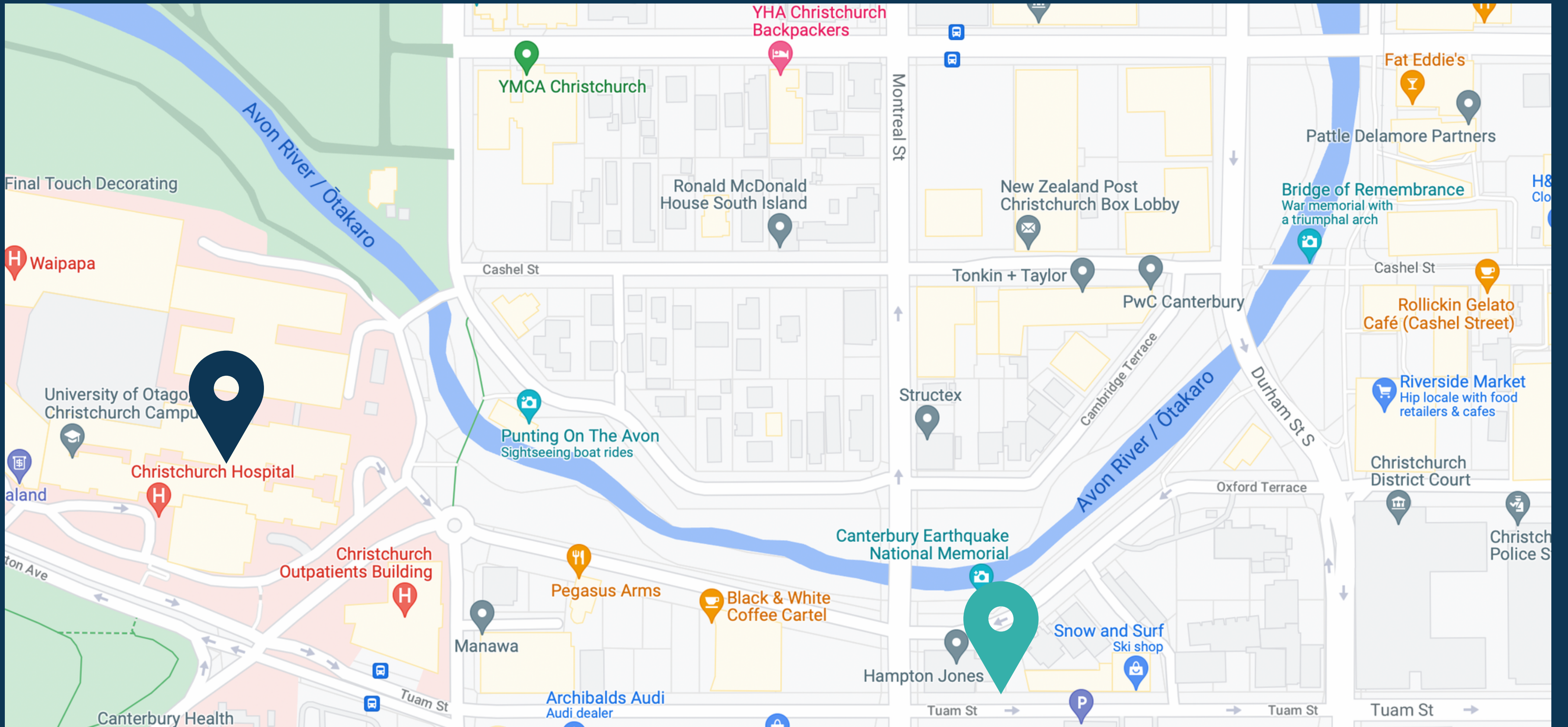
Oxford-Tuam overview (what needed to be done)

My role in the project

Why this job was important to me

Why this type of work is important for young engineers





Oxford-Tuam at a glance

- Two local 20/40MVA transformers
- Indoor bulk oil switchboard consisting of:
 - Four 11kV busbars
 - Four incomers
 - Sixteen feeders
 - Four bus-sections
- Electromechanical and microprocessor controlled relays



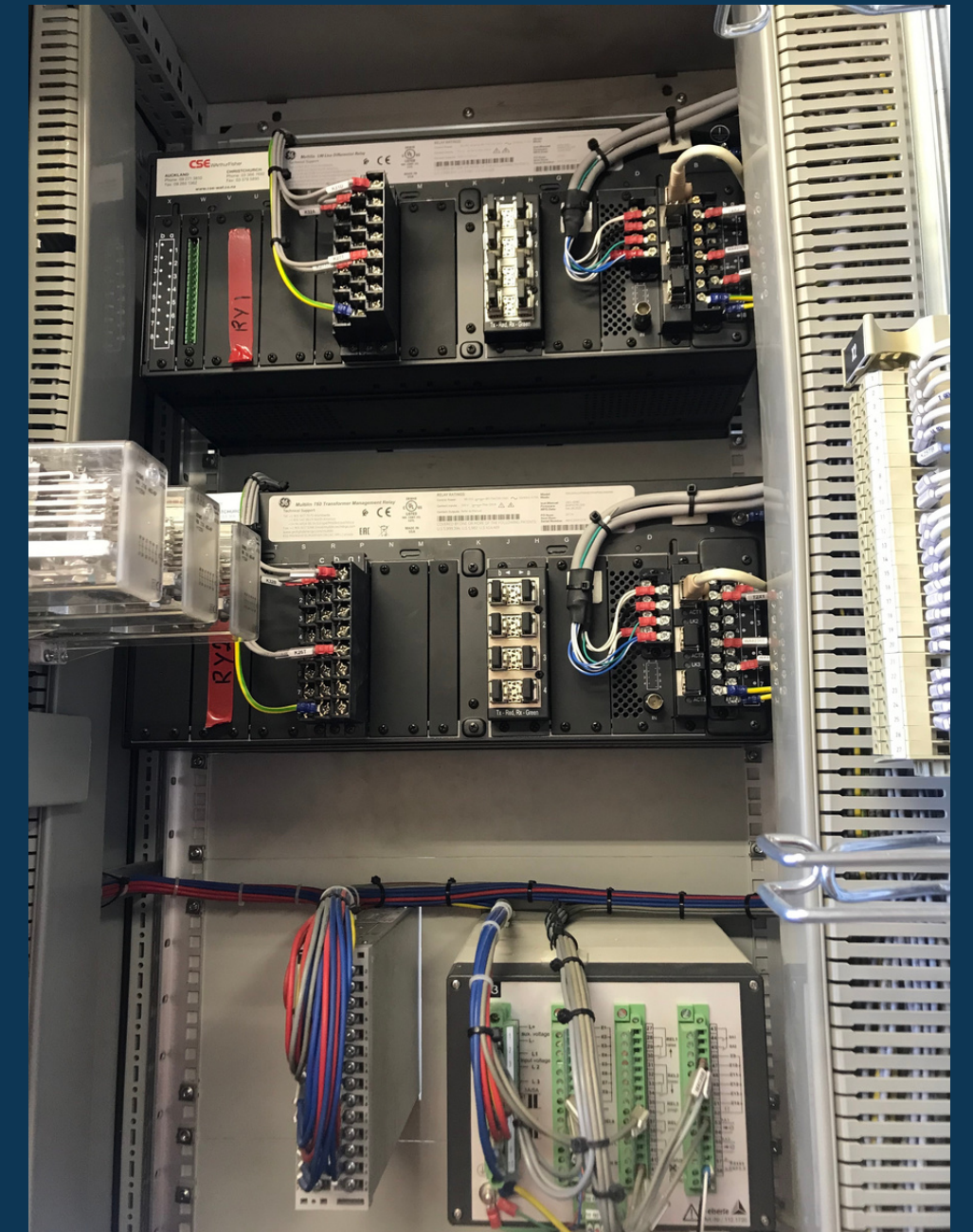
Some Design Considerations

- Switchboard transformer supply
- Floor modifications for new 11kV switchgear
- GE platform primary and back-up protection
- SEL protection arc flash platform (SEL-751)
- Replacement of existing DC distribution



Protection upgrade using IEC-61850-9-2

- A modern protection communications protocol
- Allows relays to communicate digitally, eliminating hard-wired signals
- Orion at the forefront of implementing this technology in New Zealand
- Provides a strong foundation for future, protection.

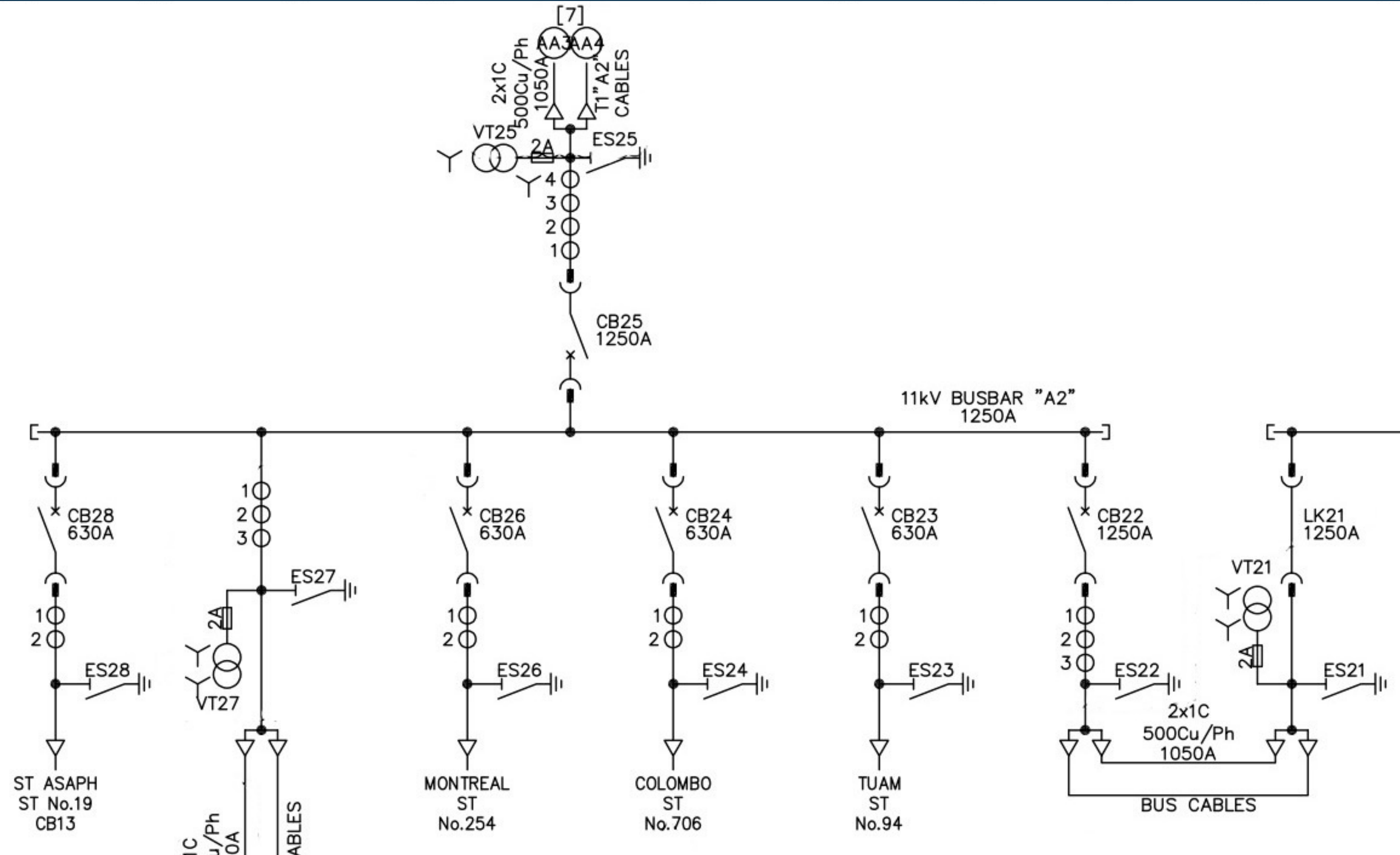


Staging and Constructability

- Connetics design AND construction
- Multi-stage design
- Consideration of two-storeys



My Input to the project



Project progress to date

- Design completion early 2021
- Ongoing construction 2021-2022
- Overview of what has been completed





**Is this too much
responsibility for
interns?**



**Is there too much to
learn?**

Meaningful work creates meaningful internships!



JOB PRIDE AND
PURPOSE



PRACTICAL STUDY
APPLICATION



INDUSTRY
DEVELOPMENT



Purpose

- Real work creates real consequences
- Real work creates real learning opportunities
- Job satisfaction from your work being physically created
- The opportunity to learn in industry



Practical application

GIVING STUDY MEANING IN INDUSTRY

- Application of theory
- Refine and further understand material
- Makes learning new skills easier





Industry Development

- Encourage the next generation of power engineers
- Develop industry - tertiary institution relationships
- Allow students to develop useful industry skills.





**Final
Thoughts**





**THANK YOU FOR YOUR TIME
AND ACKNOWLEDGMENTS**

