St Albans Project

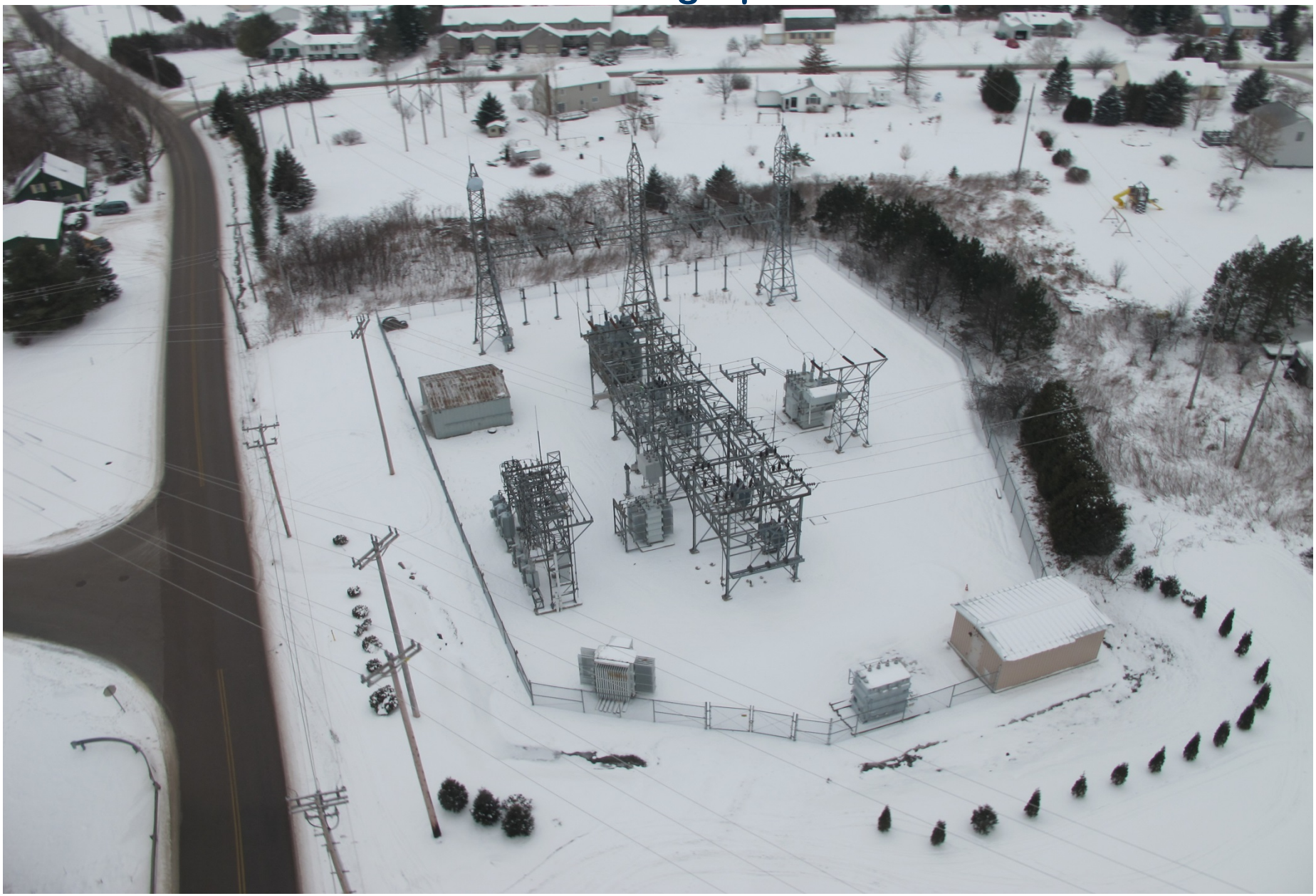
vermont electric power company

VELCO

Operating Committee

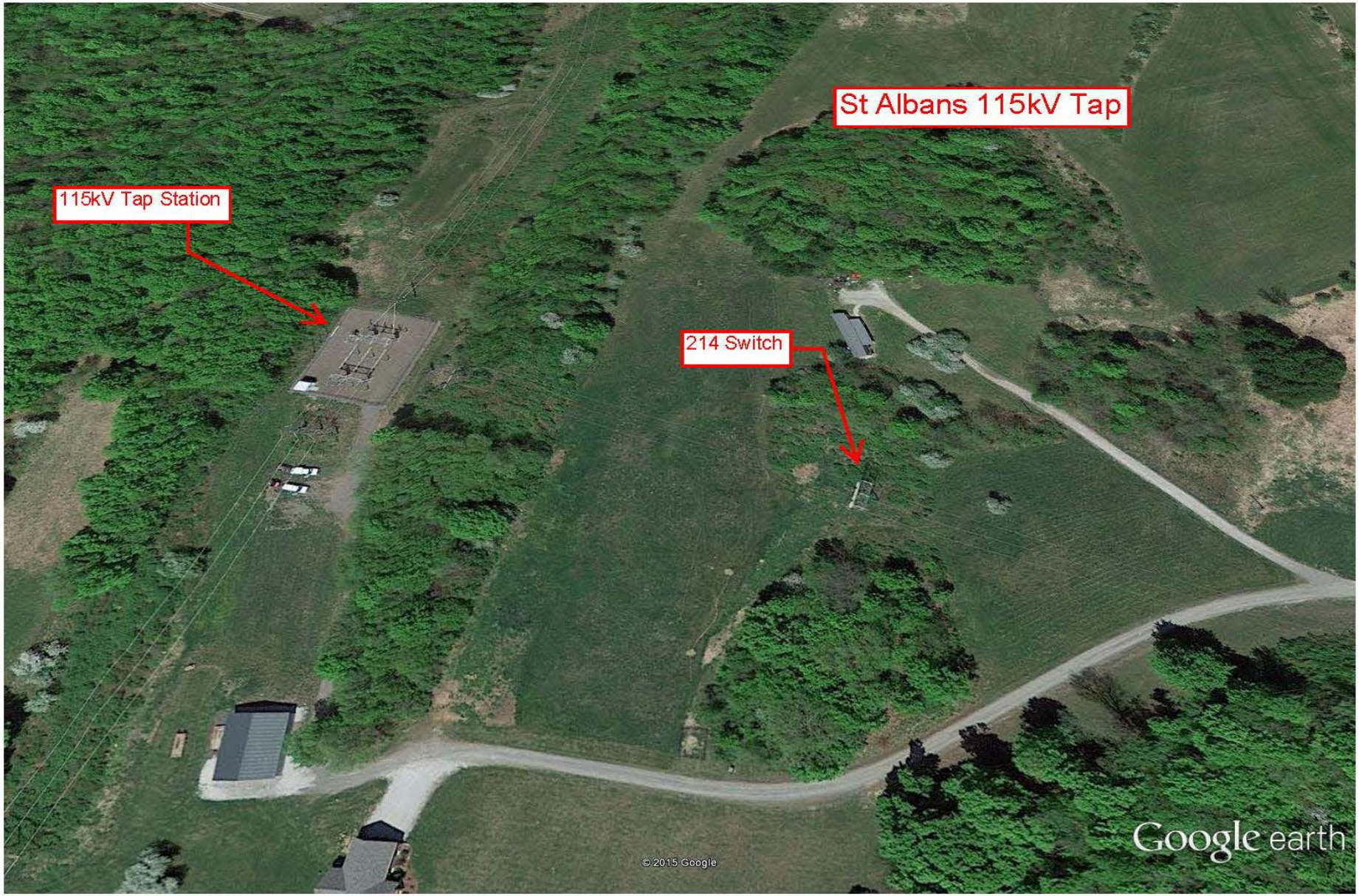
January 19, 2017

St Albans Substation – Aerial Photograph



St Albans Substation – Aerial Photograph

St Albans Tap Station – Aerial Photograph



St Albans Project – Scope of Work

Substation

- New control building
- New protection & controls
- Replace 115kV circuit switcher with 115kV breaker & disconnect
- Replace two (2) 115/34.5kV transformers with one (1) new 115/34.5kV transformer
- Install oil containment system
- Replace 34.5kV OCB with new vacuum breaker
- Install new 115kV & 34.5kV instrument voltage transformers
- New 34.5kV box structure & switches

Tap Station

- Install new steel structure & motor operated switch inside the station
- Install SCADA RTU

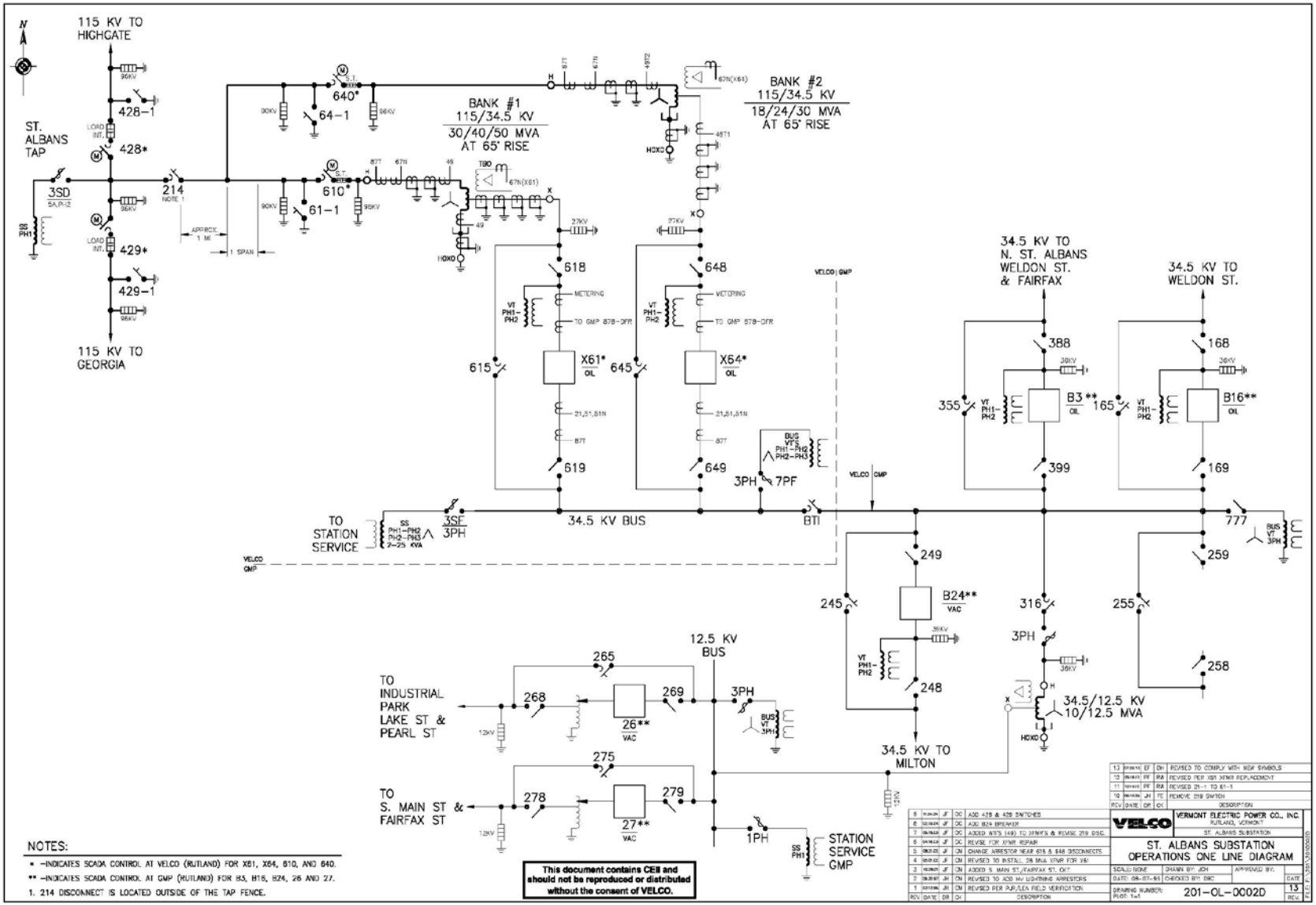
Tap Line

- Sixteen (16) structures have been evaluated as part of the Structure Condition Improvement Project (SCI). Twelve (12) structures require replacement due to condition
- Five (5) of the structures are also impacted by the work at the Substation and Tap Station
- Remove existing line switch

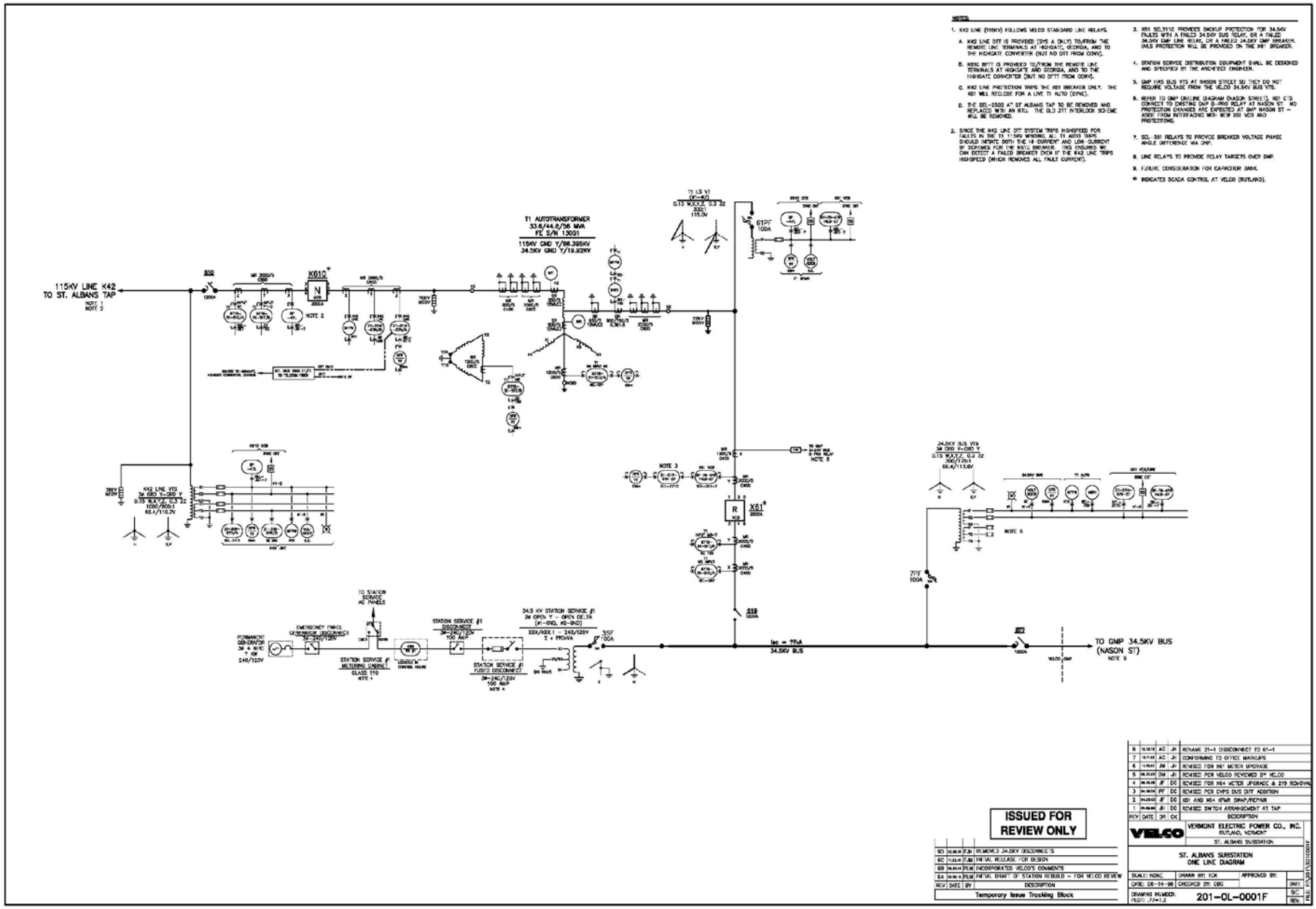
Coordination of Outages

- Outages of the K42 Line, Tap Station, Tap Line and Substation will be closely coordinated with system constraints and with Green Mountain Power

St Albans Substation – Existing Substation



St Albans Substation – Upgraded Substation



St Albans Substation – Transformer Evaluation

The St Albans area is anticipating industrial load growth in the next 2-3 years. Therefore, the existing 18/24/30 MVA and 30/40/50 MVA transformers will be replaced with a single 33.6/44.8/56 MVA transformer.

33.6/44.8/56 MVA Transformer

- Manufactured in 2013 by Fortune Electric and presently stored at New Haven Substation as a Spare.
- The transformer will meet anticipated load growth in St Albans for the foreseeable future
- A new 115/34.5kV Spare transformer will be purchased in 2018

30/40/50 MVA Transformer

- Remanufactured in 2010 by Southwest Electric and installed at St Albans in 2013
- The transformer will be installed at Essex to replace the 1963 vintage X10

18/24/30 MVA Transformer

- Manufactured in 2002 by Delta Star and installed at St Albans in 2003
- The transformer will be installed at Vergennes to replace the 1957 vintage T2

St Albans Project – Next Steps

Project Schedule

- Q1-Q4 2017 - Engineering
- Q3 2017 – PSB Filing
- Q2-Q4 2018 – Construction
- Schedules can be refined since the design engineer will be awarded in January 2017

Preliminary Project Estimate

- Substation - $4.3M
- Tap Station - $500k
- Tap Line - $300k
- Filing grade estimates can be developed since the scopes are now better defined