1.1 **GENERAL**

1.2 Related Technical Requirements

   .1 *Division 26 through 33*

1.3 Coordination Requirements

   .1 SFU Facilities

1.4 Power

   .1 The main incoming electrical service is dual 64 kV fed overhead up the east side of Burnaby Mountain to a main substation. Two 20 mVA transformers step this down to 12 kV. Three sets of dual 12 kV underground feeders run from the substation to three receiving substations (Transportation Centre, Saywell Hall and TASC1). From there the 12 kV main and transfer feeder daisy chain from building to building using junction boxes to tap off.

   .2 Each building has a 12 kV substation fed from the main and transfer feeder through load breaks and 12 kV main breakers. Most building substations use EPE supplied equipment so the architecture and equipment is standardized across the campus. Over time, most of the original 12 kV oil breakers have been upgraded to more reliable vacuum breakers.

   .3 The step down transformers are cast coil, a longer lifetime variation of the dry type units. Transformers mostly step down to 480 Volts which is the standard building distribution level. There is virtually no 347/600 V distribution at SFU Burnaby. Some transformers step down to 120/208 V directly.

   There is a capital plan to pro-actively replace substation transformers in the 6 or 7 oldest buildings with new units due to the fact that they exceed their rated lifetime.

1.5 Power Metering

   .1 Each building substation has a meter installed to measure the total building electrical parameters. This metering is used for monitoring power and detecting anomalies, as well as sending data to a central server to measure power consumption. These meters are connected through Facilities fibre via IP and Modbus to the server. Meters and server are all supplied by Schneider as the approved metering vendor. Refer to *Division 20, Section 20 00 06 Meters*, and *Division 26, Section 26 27 13 Metering* for full details.

   .2 Submeters are installed on request by tenants, as well as revenue certified meters for external tenants that are billed for their consumption. They must also be Schneider products. Meters also monitor the status of the 12 kV breakers in each building substation. This allows building power status to be monitored at the Electrical shop metering workstation.

1.6 SFU Standard Forms

   .1 The following standard forms apply to all utilities for this project, as applicable:

      .1 Clearance Permits.
      .2 Test and Work Permits.

***END OF SECTION***