1.1 **GENERAL**

1.2 Coordination Requirements

.1 SFU Facilities

2.1 **MATERIALS AND DESIGN REQUIREMENTS**

2.2 Performance Standards

.1 High Voltage Cable shall comply with the requirements of the most recent edition of:
  .2 CSA C68.3.

2.3 Cable Specifications

<table>
<thead>
<tr>
<th>Rated Voltage (single conductor)</th>
<th>15 KV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Gauge</td>
<td>500 kcmil</td>
</tr>
<tr>
<td>Insulation</td>
<td>220 mil ethylene-propylene (EPR) insulation (133%), suitable for continuous operation at 105°C conductor temperature, emergency conditions at 140°C and 250°C for short circuit conditions.</td>
</tr>
<tr>
<td>Shield</td>
<td>Copper tape shield</td>
</tr>
<tr>
<td>Cable Tray</td>
<td>CSA FT4 Rated</td>
</tr>
</tbody>
</table>

2.4 Applicable Manufacturers

.1 Aetna Insulated Wire Company.
.2 Phillips Cable.
.3 Prysmian Cable.
.4 Alcatel.
.5 Okonite
.6 Southwire
.7 All substitutes shall be pre-approved by SFU Facilities.

2.5 SFU Underground Duct System Consideration

.1 All cables will be pulled into underground duct systems constructed to SFU Standards.

.2 The duct system is not waterproof and the cables may be immersed in water for long periods of time.

.3 Ducts are to be constructed as per SFU Standard Drawings E2-1, E2-2 and E2-3.

2.6 Ground Wires

.1 Grounding conductors shall be installed to SFU standards and as required by the Code. Specify wire size 4/0 and 500 kCM.

2.7 High Voltage Cable Termination

.1 High voltage cable terminations shall be Elastimold #K656 BLR 600 amp series only, unless
.2 Termination cable kit shall match conductor insulation diameter for 500 kCM or 4/0 conductors.

.3 Refer to SFU Standards Drawing # E4-2.

2.8 Interruption of Services

.1 Shut down for any 12 KV circuits must be requested 4 weeks in advance of the actual shutdown date.

.2 At any time no more than one 12 KV circuit can be shut down.

2.9 Manhole Access

.1 Permission to access any utility manhole must be coordinated and approved by SFU Facilities. A Manhole Entry Permit must be approved before entry.

.2 Entry into any manhole must be made in the company of SFU Facilities.

2.10 Safety Standards

.1 All work within a utility manhole shall comply with WorkSafeBC confined space access requirements.

2.11 Labeling

.1 Feeder labels to be installed around feeders at cable heads, stress cones, manholes, pull pits, etc.

.2 Feeders revised from existing circuit arrangements shall be relabeled at all “downstream” locations such as manholes, pull pits and building switchgear.

2.12 Testing

.1 Tests to be performed using qualified personnel. Provide necessary instruments and equipment.

.2 Perform Hi-pot testing of cable at a voltage level not exceeding cable rating on the original reel at the SFU site. Failure to comply will void the factory warranty and the installation will be at the Contractor’s risk.

.3 Check phase rotation and identify each phase conductor of each feeder.

.4 Check insulation resistance after each splice and/or termination to ensure that the cable system is ready for acceptance testing.

.5 Acceptance Testing

.1 Ensure terminations and accessory equipment is disconnected including ground shields, ground wires, metallic amour and conductors not under test.

.2 SFU Facilities has the option to perform installed cable acceptance tests on all new cable installations.
.3 Review test with the Engineer before proceeding.

.4 Provide Engineer with list of test results showing location at which each test was made, circuit tested and result of each test.

.5 Remove and replace entire length if cable fails to meet the test criteria. Contractor will be responsible for the cable and installation costs to replace damaged cable.

***END OF SECTION***