1. PURPOSE AND SCOPE
The purpose of this Standard Work Practice (SWP) is to standardise and prescribe the method for the commissioning of low voltage underground cable installations.

2. STAFFING RESOURCES
Technical Service Person (Electrical Fitter Mechanic or Cable Jointer) and a Competent Assistant.
Safety Observer where required.

Required Training and Certificates

<table>
<thead>
<tr>
<th>Regulatory Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Code</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>2120</td>
</tr>
<tr>
<td>2130</td>
</tr>
<tr>
<td>2140</td>
</tr>
<tr>
<td>3131</td>
</tr>
<tr>
<td>4491</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Code</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>4365</td>
</tr>
<tr>
<td>3071</td>
</tr>
<tr>
<td>3070</td>
</tr>
<tr>
<td>T0405</td>
</tr>
<tr>
<td>4480</td>
</tr>
</tbody>
</table>

3. DOCUMENTATION

- **CS000501F115.** Daily/Task Risk Management Plan
- **ES000901R102.** Health and Safety Risk Control Guide
- **SP0405R01.** Field Test LV Underground Cable Installations Job Safety Analysis
- **SP0405R02.** Commissioning LV Underground Cable Installations SWP SP0405 - Field instruction
- **SP0405C01.** LV Cable Commissioning Test Report
- **SP0405C03.** LV Cable Inspection and Test Plan
- **P53.** Operate the Network Enterprise Process
- **P53K55.** Manage Low Voltage Switching for De-Energised Access on the Network Procedure
- **SP0203R04.** Working at Heights – Elevated Work Platform Safe Work Method Statement
- Code of Practice Electrical Work Electrical Safety Act 2002
- Work Health and Safety Regulations 2011 (QLD) Division 3 Excavations
- Underground Construction Manual
- Electrical Safety Regulation 2002 Section 12, 14(2)

4. KEY TOOLS AND EQUIPMENT
Insulating gloves applicable to task, work gloves, safety headwear where gravitational hazards exist, safety eyewear and footwear, high visibility clothing, protective clothing, hearing protection, and sun protection.
Pole top rescue kit LV Rescue Kit (where required).
5. TASK STEPS

5.1. Carry out an on site risk assessment

Prior to performing this activity any hazards associated with
prerequisite tasks at the worksite shall be identified and assessed
with appropriate control measures implemented and documented in
accordance with Daily/Task Risk Management Plan CS000501F115
and using reference document Health and Safety Risk Control Guide
ES000901R102.

If any risks cannot be managed or reduced to an acceptable level,
do not proceed with the task and seek assistance from your
Supervisor.

5.2. Preliminary steps

As per constructed drawing supplied to work crew with construction
folder.

Ensure test equipment is suitable for task. Confirm all test
equipment is within current test date, calibrated and operational.

Select all required test equipment for performing earthing resistance,
continuity and insulation resistance, voltage, phase rotation and
polarity tests.
Confirm LV cables to be tested are isolated from all sources of supply and tagged, and locked where provision is made, in accordance with LV isolation requirements. Ensure all members of working party sign on and understand requirements of LV Isolation Section of Daily/Task WH&S Plan.

Ensure class 00 gloves, and insulated mats are used while working on or near exposed live parts. Ensure insulated tools are used while working on or near exposed live parts.

Comply with Working at Heights – Elevated Work Platform SP0203R04 Safe Work Method Statement when working aloft.

Ensure ground based persons are clear of drop zone while work is performed aloft.

**5.4. Prove mechanical and electrical integrity of LV cable installations**

Confirm by sample (at intervals no greater than 6 pillars apart) that cable terminations at pillars and poles are tight and phase colours correct.

Disconnect all Multiple Earth Neutral connections of cable section under test.

Remove street light fuses and disconnect associated neutrals at street light poles.

Remove any other loads that may be connected to the cable section.

Perform **continuity test** between each phase and neutral conductor combinations with a bridge connected between applicable conductors at cable end and confirm similar resistance values between tests (i.e. A-B, B-C, A-C, N) – a maximum variation of 10% between readings. Ensure all Tee off sections off the feeder also have a continuity test performed.

Perform the **Insulation Resistance** test by applying 1.0kV between phase to phase and phase to neutral (e.g. A-B+C+N+E, B-A+C+N+E, C-A+B+N+E, N-A+B+C+E) for LV cables until a steady value is achieved (minimum allowable resistance on new cables is 100MΩ, minimum allowable resistance prior to energisation of aged cables is 1MΩ) and record readings.

For cables metallic sheaths, disconnect all earth leads/MEN links and test the **Sheath Integrity** by applying 1.0kV between the Metallic Sheathing (Msh) and Earth. Record values as measured. Measured value of 10MΩ or greater is acceptable.

Conduct earth resistance tests at MEN points and record results.

Energise Cable And Confirm Polarity.

Remove DNOB from LV cable isolation points.

Replace fuse cartridges and close.

At the last pillar of each circuit and at sample locations (at intervals no greater than 6 pillars apart):

- Check polarity and record (Phase to phase, phase to neutral, phase to independent earth).
- Check phase rotation.
- Phase out to other supply across existing LV open point (where applicable).

Reconnect all Multiple Earth Neutral connections of cable section under test.

Conduct polarity tests at street lights and reconnect streetlight neutrals.

Confirm all neutral and MEN conductors are reinstated after polarity tests.

**5.5. Final checks**

Ensure all final tests have been carried out and completed works have been built to the design plan / construction standards.
Check that the cabinet / padmount is locked, or the pillar lid is replaced and securely bolted down, where work has been carried in these areas.

Make the site electrically and mechanically safe and tidy the area before leaving.

Update all records relevant to the work undertaken.