

Live Low Voltage Work Manual

IMS-WPM-00-48

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Overview

This manual covers management processes and work methodology for safely performing live low voltage work in the Tasmanian Power Distribution Network.

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1. About this Manual

1.1 Purpose

This document was developed with reference to the ENA Doc 044-2020 - Guideline for Energised Low Voltage Work due to the inherent safety risks that exist to TasNetworks' team members, the public, and equipment while working on and near TasNetworks' low voltage (LV) network. The aim is to:

- Provide a structured approach to assist TasNetworks' team members & Authorised Service Providers (ASPs) to assess and manage risk when working on or near live Low Voltage electrical equipment;
- Provide safe systems of work, as required by Work Health and Safety Act 2012 (Tas); and to;
- Support the TasNetworks' goal of reaching Zero Harm.

The instructions in this manual are mandatory requirements and **MUST** be followed when performing or planning to perform any energised low voltage work.

The **TasNetworks' Power System Safety Rules (PSSR) MUST** be applied in conjunction with this manual in addition to relevant approved manuals and/or approved practices.

This manual must be read in conjunction with the work practice for the relevant task.

1.2 Scope

This work manual is designed to stipulate the necessary processes and protocols for low voltage works that will ensure it is conducted in a manner that minimises risk to staff, contractors, the public, and the distribution network.

For the purposes of utilising this manual, Low Voltage is defined as being between 50 and 1000 volts alternating current (AC).

This manual sets out the principles to be applied and minimum safety requirements required for any work performed on overhead and underground systems, up to the customer's Point Of Supply (POS). This includes activities carried out in substations and customer installations, including tasks associated with metering equipment.

When performing a task **de-energised**, live work techniques **MUST** also be applied where applicable to mitigate the risk of inadvertent energisation from a primary source (network supply) or secondary source (such as a customer's solar installation or generator).

This manual applies to all personnel working **for or on behalf of TasNetworks** unless expressly stipulated in this manual.

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It is the responsibility of Managers, Supervisors, and the Person in Control of Work Sites to ensure relevant staff understand the requirements of this manual. All team members involved in the design, scoping, planning and conducting of energised low voltage work are responsible for understanding and complying with this manual.

All authorised live LV work team members are also responsible for ensuring that any energised low voltage work performed by apprentices is compliant with TasNetworks' [Apprentice Supervision Standard](#).

1.3 Out of Scope

This work manual does not outline every possible associated work instruction required to perform tasks on the low voltage network. Should additional direction be required, refer to:-

- 1) TasNetworks' [Intranet Work Practice Website](#).

Note: Users will require internet access.

- 2) The **Offline Document Interface (ODI) Application**. The ODI allows work practices and other relevant document to be accessed even when employees are working outside communication range.

- 3) For Authorised Service Providers (ASPs) accessing the power network to work for or on behalf of TasNetworks the Live LV Work Manual is accessible without a username or password by going to [Contractors - TasNetworks](#).

This manual does not apply to:-

- Work on or near LV electrical network apparatus which has been **isolated** and proven to be de-energised (and where required by the Network Operator earthed and/or short-circuited);
- TasNetworks or ASP employees who do not hold an Electrical Practitioners' Licence but may work in close proximity to live LV and are covered under an approved Electrical Safety Management Scheme (ESMS); and
- Work on or near live electrical apparatus with voltages exceeding Low Voltage, that is, voltages above 1000 Volts AC.
- Testing of earthing systems.
- Direct Current (DC) Systems.

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2. Qualifications, Competency and Authorisations

Persons qualified to work on or near live overhead or live underground electrical apparatus can perform live work provided that they:-

- a) Are undertaking a relevant apprenticeship and are being supervised in accordance with the [Apprentice Supervision Standard](#); **OR**
- b) Have obtained a relevant certification issued by a Registered Training Organisation, or recognised issuing body, or TasNetworks; **AND**
- c) Are undertaking work for which they have been authorised under the TasNetworks' Competency and Authorisation Matrix.

As per section 2b) above, to perform Live LV work an individual **MUST** be authorised for the task category as per the TasNetworks' Competency and Authorisation Matrix. For the avoidance of doubt, categorisation refers to the task categorisation in the Live LV Task List (section 4.3.3). Only tasks categorised as able to be performed live can be performed live.

A team member (other than an apprentice working under the apprentice supervision guidelines) may have one or all of the below authorisations. This will determine which tasks they are permitted to perform live.

- **Category 1A:** Servicing task.
Requires a Tasmanian Electrical Practitioner Licence.
- **Category 1B:** Overhead Linesman
Requires a Tasmanian Electrical Practitioner Licence (Lineworker). Note Electricians who hold the authorisation EPLUF (Electrician's Performing Linework under Fault) can also be authorised under this category.
- **Category 1C:** Underground Electrician
Ground-mounted tasks requiring a Tasmanian Electrical Practitioner Licence (Electrician).
- **Category 2:** Additional training required for authorisation.

2.1 Annual Recurring Authorisation

Live LV team members **MUST** successfully demonstrate theoretical and practical live LV work competencies on an annual basis, as determined under the TasNetworks' Competency and Authorisation Framework, to maintain their authorisation for live LV work.

If a live LV worker does not maintain their authorisation annually, they are **NOT AUTHORISED** to perform live LV work.

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3. Summary of Mandatory Requirements

Further information on each of the following requirements can be obtained by referring to the table of contents for the relevant section.

The Live LV Decision-Making Process (see section 4.3.2) **MUST** be applied to **ALL** LV work that may be performed live.

If a task can be performed live and you are performing work other than operating, testing, or visual inspection on or near exposed apparatus, then you **MUST** observe **ALL** of the safety principles as required by this manual.

3.1 Safety Observer (Summary)

a) Persons required to work on or near live low voltage-exposed conductors shall be accompanied by a Safety Observer where required under section 6.12. That person

MUST be **authorised** in the category of work being observed. Additional requirements may be listed in the relevant work practice. The Safety Observer will:-

- Be appropriately positioned to ensure Safe Approach Distances (SADs) will not be breached by plant/machinery, equipment, or persons;
- Ensure installation of adequate barriers, such as line mats, to cover all conductors and conductive material *within extended reach*, excluding the conductor/apparatus being immediately worked on (see section 6.3); and
- Be listed on the Job Risk Assessment (JRA) template.

3.2 Nominated Rescuer (Summary)

b) Ensure a **Nominated Rescuer** is present to effect a rescue within the SADs if necessary.

- A means of communicating with emergency services and the network controller **MUST** be available for the duration of the task.
- The correct rescue kit **MUST** be located close by (as required by this manual) and ready to use if required (see section 6.13).
- The Nominated Rescuer **MUST** be competent under section 6.13.3.

One person can be the Safety Observer and Nominated Rescuer if they have the required competencies.

3.3 Job Risk Assessment (Summary)

c) Conduct a **Job Risk Analysis (JRA)** and implement safety control measures for each work task. The JRA **MUST** include consideration of the hazards of working LIVE.

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3.4 Other (Summary)

- d) Earth potentials MUST be insulated (section 6.2).
- e) Live conductors not being worked on that are within extended reach MUST have temporary insulation applied (section 6.3)
- f) Insulating gloves MUST be worn with protective outers (section 6.4)
- g) Work on only one potential at a time (section 6.5)
- h) Body separation: uninsulated body parts MUST be separated from all conductors. (section 6.6)
- i) When working together, team members MUST work on the same electrical potential (section 6.12)
- j) Ensure compliance with TasNetworks' requirements, including:
 - a. PPE requirements covering LV arc flash risk within substations as per Section 4.3.3.2; and
 - b. For work tasks outside substations, the standard [PPE Procedure](#) and requirements for use of covered tools in live LV work.
- k) Comply with TasNetworks' [Apprentice Supervision Standard](#).
- l) **Apply Additional Requirements** as outlined in the relevant Safety Policies, Work Practices, and Procedures for the specific task.

If any of the rules in this manual or the requirements outlined above cannot be complied with, **STOP** and do not perform the task live.

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4. Planning For Live LV Work

4.1 General Planning Principles

When considering the application of energised LV work processes covered by this manual, team members **MUST** evaluate whether carrying out a task that is energised appropriately balances worker safety with community safety and degree of disruption.

While all reasonable measures are implemented by TasNetworks and its team members to minimise the risk when performing live work tasks, there are still inherent hazards in working on or near live electrical apparatus which can have significant consequences

Live work tasks **MUST** be planned using the live lv decision-making flowchart (section 4.3.2) to demonstrate that live work may proceed.

Team members **MUST** identify the hazards, assess the risks, control identified hazards, and maintain situational awareness throughout the work activity. The identified risks and proposed controls **MUST** be included in the JRA and communicated to all staff prior to commencing work.

Where authorised via this manual, the use of energised work practices may be carried out where multiple independent control measures are applied by competent workers with the relevant authorisation for the task. This ensures that safety risks to both network workers and members of the public are controlled, so far as is reasonably practicable.

4.2 Overarching Rule

The Live LV Decision-Making Flowchart (section 4.3.2) **MUST** be used when determining whether energised work can be performed.

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4.3 Live Low Voltage Work Decision-Making Process

The following live LV decision-making process assists in providing a consistent approach to determining when it is acceptable to conduct live work based on the risk factors of the specific task and surrounding circumstances.

4.3.1 Responsible Parties for Applying the Live LV Decision-Making Process (Planned & Fault Work Tasks)

The live LV decision-making process (section 4.3.2) is to be used for **all** low voltage work that may be performed live. Responsibility for completing questions 1 to 4 of the process is as follows:

		Responsibility for Executing the Live LV Process	
	Work Type	TasNetworks	Contractors
Planned	Planned	Work Group Coordinator (WGC)	Equivalent Roles.
	Capital Works	Site Manager	
Fault	Fault (Business Hours)	<u>De energise as primary response.</u> Approval to work live required from a Regional Customer Service & Fault Lead	
	Fault (After Hours)	<u>De energise as primary response.</u> Process to work live: Step 1) Call Standby Business Officer (SBO). Step 2) SBO seeks approval to work live from a Regional Customer Service & Fault Lead	

Planned Scenarios – Jobs planned to be performed live must include a site visit by the relevant Work Group Coordinator / Scoper with the exception of basic category 1A servicing & testing tasks.

Fault Scenarios (as referenced in the table above)

Primary position is to perform the work **de-energised**.

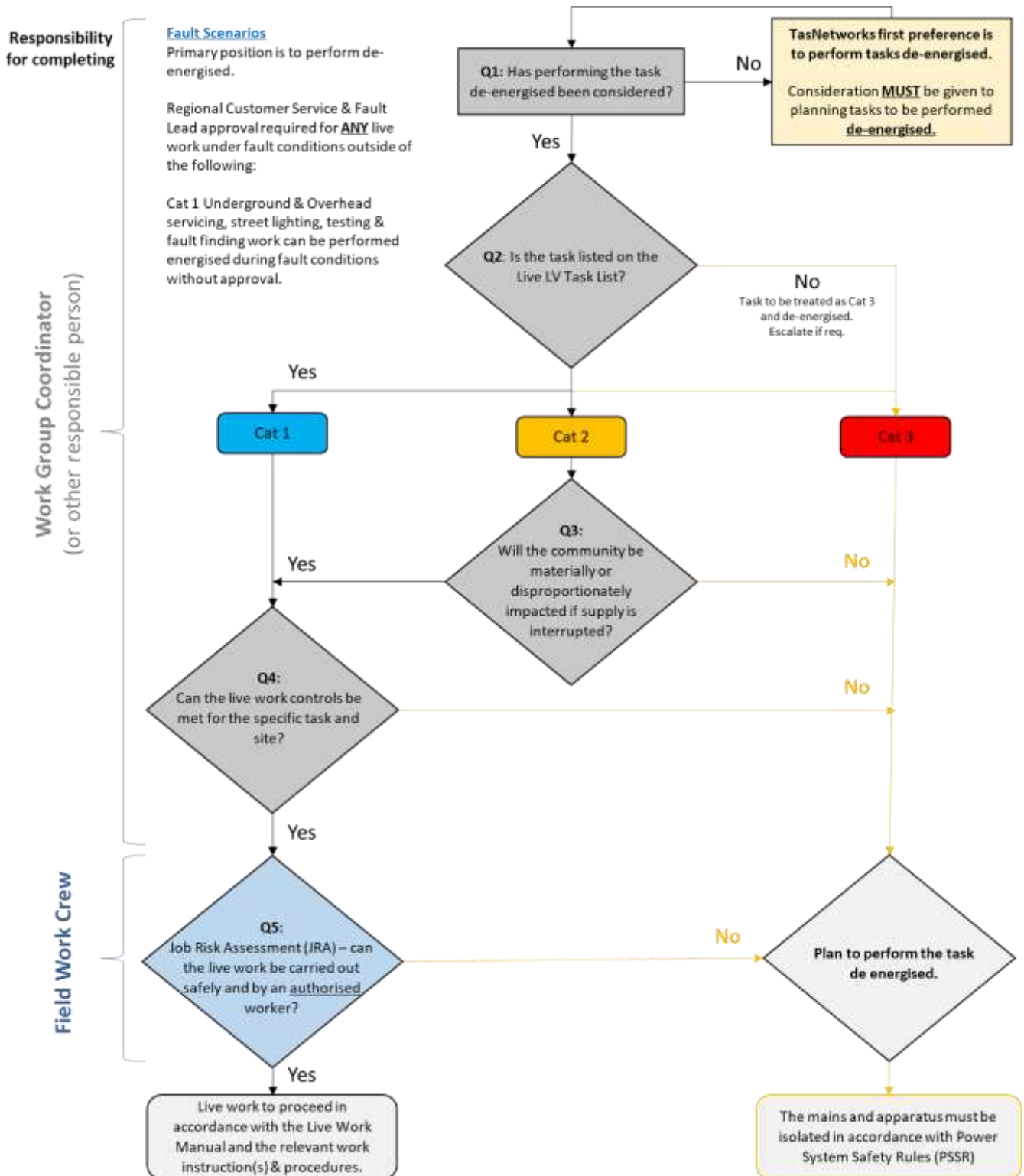
1. Mandatory Rule:

- a. Regional Customer Service & Fault Lead approval is required for live work under fault conditions with the exception of Category 1 Underground & Overhead Servicing & Street Lighting, Testing, Fault-Finding Work and replacing a non-conductive turret lid without impact damage which can be performed energised without Regional Fault Coordinator approval (for example, fault finding: testing).
- b. No exemptions to the Live LV decision-making process will be granted under fault conditions.

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4.3.2 Live LV Decision Making Process

In deciding whether electrical apparatus **MUST** be de-energised to perform the work task, the following process **MUST** be applied.



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4.3.2.1 Question 1: Has performing the task de-energised been considered?

Question Context:

Planned Works:

- TasNetworks' first preference is to perform tasks de-energised; therefore, consideration **MUST** be given to planning for tasks to be performed de-energised where feasible.
- TasNetworks position is that energised work practices can be an acceptable alternative work method where an electricity supply interruption has the potential to introduce greater or additional safety and security risks to members of the public, cause disruption to the community or where the time, cost and effort to de-energise the network is relatively disproportionate against the risk of energised work, e.g. service connections. The Work Group Coordinator or other responsible person must assess the situation to determine the potential impact of de-energisation.
- TasNetworks Live LV Work Manual has been designed to provide clarity on the types of tasks that can be considered to be performed energised and the types of tasks that **MUST** be performed de-energised or isolated.

Fault Works:

- In general, because the National Energy Customer Framework (NECF) does not apply to fault works, tasks being performed under fault conditions are to be performed de-energised or isolated.
 - See section 4.3.1 for further detail.

Assessment

- If the answer to Question 1 is **YES**, and the Work Group Coordinator or other responsible person believes the task **MUST** be performed live, then proceed to Question 2 of the Live LV Decision-Making Process.
- If the answer to Question 1 is **NO**, then the Work Group Coordinator or other responsible person can consider whether the task could be performed de-energised before proceeding past question 1.

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4.3.2.2 Question 2: Is the task listed on the Live LV Task List?

Question Context: The Work Group Coordinator MUST first check whether the task is listed on the Live LV Task List and then determine the relevant category to be assigned.

Assessment

- If the answer to Question 1 is **YES** (that is, the task is listed on the Live LV Task List), then the Work Group Coordinator or other responsible person should determine which category is assigned to the task.
- If the answer to Question 1 is **NO** (that is, the task is not listed), the Work Group Coordinator or other responsible person MUST proceed to **plan the work de-energised** or to seek an exemption.

Category 1: Proceed to Question 4 of the Live LV Decision-Making Process.

- These are tasks that have been assessed as low complexity and are authorised to be performed should the remaining criteria listed in the Live LV Decision Flowchart be satisfied.
- These tasks MUST be performed in accordance with the relevant Authorisation and work techniques outlined in this manual and alongside any task-specific work practices. A JRA MUST be completed prior to commencing any category 1 task.
- Category 1 has three classes based on the type of work for which a worker is authorised under the TasNetworks' Competency and Authorisation Matrix:
 - **1A (Servicing):** Servicing level tasks for trained and authorised personnel with a Tasmanian Electrical Practitioner Licence.
 - **1B (Line Worker):** Tasks that require a Tasmanian Electrical Practitioner Licence (Lineworker) in order to perform them. Note Electricians who hold the authorisation EPLUF (Electrician's Performing Linework under Fault) can also be authorised under this category.
 - **1C (Ground services electrician):** ground-mounted tasks requiring a Tasmanian Electrical Practitioner Licence (Electrician).

Category 2: Proceed to Question 2 of the Live LV Decision-Making Process.

- Category 2 tasks have been assessed as requiring an assessment of the impact to the community due to a potential supply interruption.
- Although these tasks can be performed live, TasNetworks has chosen to require an **additional criterion to be satisfied before authority is given to perform this work live.** The criterion: the interruption to supply MUST have a disproportionate impact on the community (see Question 2). This is in line with the *ENA Guideline for Energised Low Voltage Work ENA DOC 044-2020*.
- Category 2 tasks can only be performed by Category 2 authorised personnel.

Category 2 tasks **MUST** continue to be **performed de-energised** until personnel are category 2 authorised under the TasNetworks' Competency and Authorisation Matrix.

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Category 3: Planning for the task will require that it be performed de-energised or isolated.

- These tasks **MUST** be performed de-energised (isolated from the primary source of supply as a minimum).

Category 1 and 2 tasks may also be carried out under Access Authority conditions if it is determined by the work party during their pre-task job risk assessment or at other stages of the work planning and scheduling process that those conditions should apply.

Live LV Process Exemptions

See Section 5 for detail.

If the Work Group Coordinator or responsible person believes that the planned work should still be performed live, and the task is listed to be performed de-energised, or the task is not listed on the Live LV Task List, then the Work Group Coordinator/Planner can apply the live LV exemption process.

The live LV exemption process only applies to category 1 and category 2 tasks, but not under fault conditions (see section 5).

Any extraordinary circumstances related to **category 3** tasks can be presented to TasNetworks via a risk-based approach and will require General Manager O&CSD approval

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4.3.3 Live LV Task List

The below tasks **MUST** be performed in accordance with the relevant work practice(s) which may stipulate additional requirements.

Overhead - Live LV Task List Categories			
General - Category 1 Tasks		Category	Safety Observer Required?
1	Installing cables through live bare low voltage (HV/LV Network Cables) Conductive & Non-Conductive Poles.	Cat 1A	Yes
2	Servicing Street Lighting * Including replacing a turret lid without any impact damage (must be tested before touching)	Cat 1A	Yes
3	Testing (Overhead Tasks Above Ground Level) * Load Checks * Polarity and other mandatory testing * Voltage check and installation of voltage loggers * Testing of base low voltage conductors	Cat 1A	Yes
General - Category 1B Tasks		Category	Safety Observer Required?
4	Connect/disconnect temporary jumpers *Single Phase* // ^Three Phase^ Non-conductive pole	Cat 1B	Yes
5	Connect/disconnect temporary jumpers *Single Phase* // ^Three Phase^ Conductive pole	Cat 2	Yes
6	Install Spreaders (EWP Only)	Cat 1B	Yes
Tiger Tails & Insulation		Category	Safety Observer Required?
7	Install/remove temporary insulation (LV Mats, Hoses, Rubbers, Covers)	Cat 1A	Yes
8	Install tiger tails on service lines	Cat 1A	Yes
9	Install tiger tails on overhead bare conductors	Cat 1B	Yes
Cross Arm Replacement		Category	Safety Observer Required?
10	Cross Arm Replacement *Single Phase* Non-conductive pole * Intermediate - I/LV/1 (including side tie) * Strain - S/LV/1 * Dead end - DE/LV/1 ^Three Phase^ Non-conductive pole * Intermediate - I/LV/3 * Dead End - DE/LV/3 Note: The JRA must include reference to potential secondary points of contact that must be covered up.	Cat 1B	Yes
11	*Single Phase* Non-conductive pole * Double Pin - DP/LV/1 Conductive pole * Intermediate - I/LV/1 * Strain - S/LV/1 * Dead End - DE/LV/1 * Double Pin - DP/LV/1	Cat 2	Yes
12	^Three Phase^ Conductive pole Non Conductive pole * Double Pin - DP/LV/3 * Strain - S/LV/3	Cat 3	

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Overhead - Live LV Task List Categories				
Pole Stand or Replacement (LV)		Category	Safety Observer Required?	
13	<p><u>Pole Stand or Replacement</u></p> <p>*Single Phase*</p> <p>Non-conductive pole</p> <ul style="list-style-type: none"> * Intermediate - I/LV/1/3 * Strain - S/LV/1/3 * Dead end - DE/LV/1/3 <p>^Three Phase^</p> <p>Non-conductive pole</p> <ul style="list-style-type: none"> * Intermediate - I/LV/1/3 * Dead end - DE/LV/1/3 <p>Note: Pole install/removal can only be performed by a live line (HV) authorised Proline operator or authorised excavator (with a grab) operator. Cat 1B authorised individual can observe and apply insulation as required by the work practice.</p>	Cat 1B	Yes	
*Replacement of Fittings (Insulator, Tie, Pre-form, Wrap-on or Crimp)		Category	Safety Observer Required?	
*Replacing or Installing LV Fusible Links, Solid Links or Connectors		Category	Safety Observer Required?	
14	<p><u>*Replacement of Fittings (Insulator, Tie, Pre-form, Wrap-on or Crimp) & *Replacing or Installing LV Fusible Links, Solid Links or Connectors</u></p> <p>*Single Phase*</p> <p>Non-conductive pole</p> <ul style="list-style-type: none"> * Intermediate - I/LV/1 (including side tie) * Strain - S/LV/1 * Dead end - DE/LV/1 <p>^Three Phase^</p> <p>Non-conductive pole (excluding transformer poles)</p> <ul style="list-style-type: none"> * Intermediate - I/LV/3 * Dead End - DE/LV/3 (must not alter/change wrap-ons) * Strain - S/LV/3 (must not alter/change wrap-ons) <p>Note: The JRA must include reference to potential secondary points of contact that must be covered up.</p>	Cat 1B	Yes	
15	<p>*Single Phase*</p> <p>Non-conductive pole</p> <ul style="list-style-type: none"> * Double Pin - DP/LV/1 <p>Conductive pole</p> <ul style="list-style-type: none"> * Intermediate - I/LV/1 * Strain - S/LV/1 * Dead End - DE/LV/1 * Double Pin - DP/LV/1 	Cat 2	Yes	
16	<p>^Three Phase^</p> <p>Conductive pole</p> <p>Non Conductive pole</p> <ul style="list-style-type: none"> * Double Pin - DP/LV/3 * Transformer poles due to higher perspective fault current. 	Cat 3		
Straining Bare Conductors		Category	Safety Observer Required?	
17	<p><u>Straining Bare Conductors</u></p> <p>*Single Phase*</p> <p>Non-conductive pole</p> <ul style="list-style-type: none"> * Strain - S/LV/1 * Dead end - DE/LV/1 	Cat 1B	Yes	
18	<p>*Single Phase*</p> <p>Conductive pole</p> <ul style="list-style-type: none"> * Strain - S/LV/1 * Dead End - DE/LV/1 <p>^Three Phase^</p> <p>Non-conductive pole.</p> <ul style="list-style-type: none"> * Dead End - DE/LV/3 	Cat 2	Yes	
19	<p>^Three Phase^</p> <p>Conductive pole Non-conductive pole</p> <ul style="list-style-type: none"> * Strain - S/LV/3 	Cat 3		

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Overhead - Live LV Task List Categories			
Breaking Loops		Category	Safety Observer Required?
20	Breaking Loops *Single Phase* // ^Three Phase^ Non-conductive pole excluding open wire multi-phase T-off circuits.	Cat 1B	Yes
21	*Single Phase* // ^Three Phase^ Conductive pole.	Cat 2	Yes
Install Flying Shackles		Category	Safety Observer Required?
22	Install flying shackles	Cat 3	
ABC		Category	Safety Observer Required?
23	ABC: Installing New ABC Boxes on a pole	Cat 1A	Yes
24	ABC: Installing New ABC Conductor	Cat 1B	Yes
25	ABC: Replacing ABC Boxes on a pole	Cat 2	Yes
Category 3 Tasks - Always completed de-energised		Category	Safety Observer Required?
26	Augmentation - bare conductor (modifying a full span)	Cat 3	
27	Work on the top circuit of three-way or four-way, bare wire, multi-phase overhead constructions	Cat 3	
28	Making or breaking direct connections at the bushing on pole-mounted transformer	Cat 3	

Note: For the purposes of applying this task list, 3-phase includes 2-phase circuits.

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The below tasks **MUST** be performed in accordance with the relevant work practice(s) which may stipulate additional requirements.

Underground / Substations - Live LV Task Categories			
General - Category 1 Tasks		Category	Safety Observer Required?
29	Install/Remove temporary insulation	Cat 1C	Bare Wire (Yes) Insulated Work, XLPE et c. (JRA Dependent)
30	Servicing *Work on the line side of the customer's Point of Supply eg. service fuse. * Accessing Current Transformer (CT) for visual inspection * Re-terminate line side of existing service tail i.e. burnt out service fuse.	Cat 1C	Bare Wire (Yes) Insulated Work, XLPE et c. (JRA Dependent)
31	Testing (Ground based) * Load checks * Polarity and other mandatory testing Note: Risk Assessment to be completed to validate risk controls can be maintained.	Cat 1C	Based on risk assessment and work practice.
Cable Tasks (Cutting, Connecting)		Category	Safety Observer Required?
32	Installing cables through live bare low voltage Conductive & Non-conductive.	Cat 1C	Yes
33	Installation of new distribution mains cables into underground furniture Installation of padmount (no connections)	Cat 1C	No (unless JRA requires)
34	Connecting LV underground cable to de-energised side of switch in underground street furniture	Cat 1C	Yes
35	Inserting/removing live load ends (metering)	Cat 1C	No (unless JRA requires)
36	Minor Cable Repairs - Apply heat shrink/ Zipper shrink/End cap - Apply mastic tape - Tape up and make safe	Cat 1C	No (unless JRA requires)
37	Connect New LV UG Cable for a Subdivision i.e. bolting cables to a live component	Cat 3	
38	Separation of cables to isolate part of circuit Involves unbolting of live cables.	Cat 3	
39	Cutting live distribution cable (must be assessed on day to determine configuration) * Dead end = can be cut under live conditions. Feed in/out turret = must be de-energised	Cat 3*	
40	Cable Jointing Involving straight-through or branch joints	Cat 3	
41	Making or breaking connections of paper/lead cables	Cat 3	

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Underground / Substations - Live LV Task Categories			
42	Turret Enclosure Changeover *Non-conductive enclosures *Non conductive enclosures with a conductive base that <u>can</u> be cut away and removed.	Cat 1C	JRA Dependent
43	Turret Enclosure Changeover *Conductive enclosures or a conductive base that <u>cannot</u> be cut away and removed.	Cat 2	Yes
44	Cabinet Enclosure Change Over - Serviceable Condition (top only) Cabinet must be in a serviceable condition. If the cabinet has been damaged and is not in a serviceable condition then it must be de-energised/isolated. If there is ANY impact damage it must be de-energised/isolated.	Cat 1C	Yes
45	Cabinet Enclosure Change Over - Not in a serviceable condition (top only) If the cabinet has been damaged and is not in a serviceable condition then it must be de-energised/isolated. If there is ANY impact damage it must be de-energised/isolated.	Cat 3	
Remaining Tasks		Category	Safety Observer Required?
46	Replace ground-mounted transformer in existing substation with LV switchgear live (Transformer de-energised)	Cat 2	JRA Dependent
47	Bus Bar Modification in substations	Cat 3	
48	Bus Bar Working on live busbar.	Cat 3	
49	Replacement of columns or metal pillars (distribution pillar)	Cat 3	
50	330 KVA Generator Synchronisation Manual closing of links at the transformer incomer of a LV board and connecting/disconnecting leads to energised components.	Cat 3	
51	Any Work that Disturbs CONSAC (concentric neutral solid aluminium conductor) cable, including making or breaking connections	Cat 3	
52	Making or breaking on ground-mounted transformer direct connections Either at the bushing or line side of the main isolator	Cat 3	
53	Install / repair / replace link or connection in pillar	Cat 3	
54	Replace LV board / panel	Cat 3	
Tasks Performed in Proximity to Live Low Voltage		Category	Safety Observer Required?
55	Perform LV Pole top termination on load side of LV fuses or ABC Box (line side LIVE)	Cat 1A/1C	Yes
56	Connect new LV underground cable to de-energised side of circuit breaker in pad-mount (can only be performed live if <u>adjacent circuit breakers are isolated or insulated</u> from any inadvertent contact)	Cat 1C	Live Front Board = Yes Other = JRA dependent.
57	Connect new LV underground cable to de-energised side of circuit breaker in pad-mount (where adjacent circuit breakers or other live apparatus <u>cannot be isolated or insulated</u>)	Cat 3	

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4.3.3.1 Question 3: Will the community be materially or disproportionately affected if supply is interrupted? **Category 2 tasks only.**

Electricity is viewed by the community as an essential service. De-energising LV apparatus normally requires an interruption of electricity supply to customers. In certain scenarios, such an event can have significant safety-related consequences for the community.

Interruption to the following customers (resulting from work being performed de-energised) will be regarded as having a material or disproportionate impact on the community for the purposes of Question 3:

Planning Question	Scenario A
How many customers will be affected if the works are to be performed de-energised?	Criteria to determine if the community will be disproportionately affected (subject to risk controls being available and in place)
Commercial Customers	5 or more customers per NAO
Life Support Customers	10 or more customers per NAO
Vulnerable Customers (such as in hospitals or schools. See definition section for detail) All efforts MUST be made to consider alternative options to working live with vulnerable customers. For example: Traffic Signals: Using generators // Schools: Planning the task for out of business hours.	1 or more customer(s) per NAO
Escalate via escalation process if the above criteria are not met but it is believed the community may still be disproportionately affected by proceeding to de-energise the network for the specific task.	

Community Assessment Outcome:

- If the answer to Question 3 is **YES**, then:
 - The Work Group Coordinator or other responsible person **MUST** consider other options to complete the work de-energised that would not have a disproportionate impact on the community.
 - *For example, completing works that will affect a school on weekends or out of hours, or utilising a generator in line with TasNetworks' Generator Policy.*
 - If the community impact of de-energisation cannot be avoided with other strategies, then the Work Group Coordinator or other responsible person should proceed to Question 4.
- If the answer to Question 3 is **NO**, and the community will not be materially or disproportionately affected, then the work **MUST be performed de-energised** in accordance with the PSSR.

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- **Live LV Exemption Process:** Note that the Live LV exemption process is available should the Work Group Coordinator or other responsible person believe the community will still be disproportionately affected by the network de-energisation. See section 5 for how to apply the process.

4.3.3.2 Question 4: Can the live work controls be met for the specific task and site?

- The **Work Group Coordinator** or other responsible person **MUST** assess if the appropriate live work controls can be effectively achieved for the specific tasks given the specific circumstances of the task and conditions of the site.
- **The purpose of this question** is to ensure the risks involved in completing the task are thoroughly considered **during the design and construction planning of the task** (often many weeks in advance of the task being performed).

The Work Group Coordinator or other responsible person MUST consider the risks of performing the task(s) live in advance and determine whether the appropriate controls for the identified risks can be applied to the specific site in question.

- It is critical that consideration of personnel execution risk occurs well in advance of the day of the task. Examples of such considerations would be:
 - a) Arc Flash Risk: this requires compliance, if working within Distribution Substations, with:
 - [Arc Flash Hazard Risk Management Procedure For Distribution Substations](#);
 - [Work Practice: Arc Flash Risk Management For Distribution Substations](#); and
 - [Arc Flash Controls Look-Up Table](#) (to determine what level of PPE is to be worn per asset). This **MUST** be listed on the JRA.
 - b) Ability to apply Insulation (tight spaces etc).
 - c) Proximity to High Voltage.
 - d) Ability to access stable positions for equipment (such as EWP).
- Work Group Coordinators or other responsible persons may need to consult with live- LV work authorised team members, or other subject matter experts, as part of making this assessment.

Assessment:

- **If the answer to Question 4 is YES** (that is the Work Group Coordinator or other responsible person has assessed that the applicable live work controls can be achieved for the task), the work can be planned to be undertaken live (**noting a further on-site assessment MUST be undertaken before the live work can commence: see Question 4**).

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- If the answer to Question 4 is **NO** (that is, the Work Group Coordinator or other responsible person has assessed that the applicable live work controls cannot be achieved for the task), the work **MUST** be performed de-energised with the apparatus isolated in accordance with the Power System Safety Rules (PSSR): isolation access procedures.

4.3.3.3 Question 5: Workgroup Job Risk Assessment (JRA): can the livework be carried out safely?

Context:

- Prior to undertaking live LV work, the live LV work authorised team members intending to carry out the live work **MUST** assess if the applicable live controls can be effectively achieved and the live work be carried out safely having regard to the site conditions and circumstances at the time of the work being undertaken.
- Included in this assessment is a review that the person(s) performing the task have the skill and ability to perform the task safely.

Assessment

- If the answer to Question 5 is **YES** (that is, the team members have assessed that the live controls can be effectively achieved and the work carried out safely), the work on or near live-exposed LV and apparatus may proceed.
- If the answer to Question 5 is **NO** (that is, the team members have assessed that live controls cannot be effectively achieved), the work **MUST** be performed de-energised with the apparatus isolated in accordance with the Power System Safety Rules (PSSR). The relevant team leader must be informed.

If the tasks can be planned to be performed live, then the final decision whether to work energised or not will be made by the work party on site after completion of the pre-job hazard and risk assessment (JRA).

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5. Live LV Exemption Process

Purpose: To provide an avenue through which to seek a review of the decision provided by the Live LV Decision-Making Process. In order to seek an exemption, the [Live LV Exemption Request Form](#) (example shown in section 5.1) MUST be completed and provided to TasNetworks via the process explained in the matrix below.

Work Type	TasNetworks Exemption Requests	Contractor Exemption Requests
Planned	1) The Work Group Coordinator completes the Live LV Exemption Request Form and reviews with the Team Leader & Regional Leader. 2) The Regional Leader provides the Live LV Exemption Form to the Group Leader - Field Operations.	1) The Contractor provides the Live LV Exemption Request Form to their TasNetworks Project, Site or Contract Manager. 2) TasNetworks Project, Site or Contract Manager provides to the Minor Works Team Delivery Leader. 3) Minor Works Team Delivery Leader provides to the Group Leader – Field Operations.
Capital Works	3) Decision-Maker: • Group Leader – Field Operations in consultation with: • Leader – Safety and Wellbeing	4) Decision-Maker: • Group Leader – Field Operations in consultation with: • Leader – Safety and Wellbeing • Leader – Design & Project Delivery
Fault (Business Hours)	<u>De energise as the primary response.</u> Note: If the Live LV Decision-Making Process indicates that the task must be performed de-energised then <u>no exemptions will be granted under fault conditions.</u>	
Fault (After Hours)	Note: If a task is listed on the Live LV Task list as being able to be performed live then the TasNetworks Customer Service & Fault Lead is responsible for using the Live LV Decision-Making Process under fault conditions to determine whether the task should be performed live (as per section 4.3.1). The decision can not be made by the field team.	

- **Example:** An example of where an exemption may be required could be when the community impact criteria is not satisfied for a Category 2 task but the planning team believe the impact of de-energising will be disproportionate to the risk of performing the category 2 task. This could occur in the case of a critical manufacturing client that relies on power and does not have backup capabilities.

Fault Scenarios (as referenced in the Table above)

Primary position is to perform the work **de-energised**.

1. **Mandatory Rule:-**

- A Regional Customer Service & Fault Lead approval is required for live work under fault conditions with the exception of Category 1 Underground & Overhead Servicing & Street Lighting, Testing, Fault-Finding Work and replacing a non-conductive turret lid without impact damage which can be performed energised without Customer Service & Fault Lead approval.
- No exemptions to the Live LV decision-making process will be granted under fault conditions.

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5.1 Live LV Exemption Request Form: Example

Access the form using the following PDF link: *TBC via HSE (Contractors via Portal)*

Live LV01 - Exemption Request Form				
<small>Tasks seeking an exemption CANNOT be performed live without approval by the TasNetworks Group Leader - Field Ops. This applies to contractors also.</small>				
<p>Document Scope: This document is to be used to seek an exemption to performing a task de-energised. This will likely occur in one of two ways:</p> <p>1) The Live LV Decision Flowchart has resulted in the task being required to be performed de-energised. An exemption is sought to perform the work live. 2) The task is not listed on the current Live LV Task List and thus a decision is required on whether it can be performed live.</p>				
PROJECT DETAILS				
Company Performing Work		Work Order Number		Proposed Date of Job
Job Address				Region
Prepared By		Mobile #		Exemption Submission Date
DETAIL OF PROPOSED CHANGE (task context & details)				
<small>Mandatory Field</small>				
COMMUNITY IMPACT OF DE-ENERGISATION				
<small>Mandatory Field. Insert N/A if not applicable</small>				
Will the community be impacted by de-energisation? (circle)	YES / NO	Insert # of Vulnerable	Insert # of LSC	Insert # of Commercial
ALTERNATIVE OPTIONS TO REDUCE IMPACT OF DE-ENERGISATION				
<small>Mandatory Field</small>				
Has performing the task at a different time (weekend/after hours) or with a different method (eg. generator) been considered? <u>Provide an explanation</u>				
WHY CAN'T THE TASK BE PERFORMED DE-ENERGISED?				
<small>Mandatory Field - provide clear detail</small>				
CAN ALL MANDATORY LIVE LV REQUIREMENTS BE IMPLEMENTED?				
<small>See section 3 and section 6 - Live LV Manual for Requirements.</small>				
Identified Risks & Controls				
Potential Risk	Potential Impact		Proposed Controls	
Safe Work Method Statement (SWMS)				
If no work practice exists, a Safe Work Method Statement (SWMS) has been created, approved by the relevant Team Leader and attached to the JRA detailing how the work will be completed?			Select/Write Yes or No below:	
<small>TasNetworks Employees - See Link: Safe Work Method Statement Template (SWMS)</small>				
Work Method Additional Comments (such as an existing work practice)				
Initial Preliminary Reviewed / Approval				
Role	Name	Reviewed & Endorsed?	Date	
Responsible Team Leader <small>(for the work being completed)</small>				
Leader - Safety & Wellbeing <small>(Or delegate)</small>				
Leader - Design & Project Delivery <small>(Contractor Requests Only)</small>				
Final Mandatory Approval				
<small>(Email approval is acceptable but must be attached against the job in SAP)</small>				
Group Leader - Field Operations				

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6. Live Low Voltage Work – Safety Principles

6.1 General

The following sections outline the minimum requirements and safety principles for working on or near live low voltage.

If you are carrying out work **other than operating, testing, or visual inspection** on or near exposed apparatus then you **MUST** implement **ALL** of the following control measures.

6.2 Insulate Earth Potential

You **MUST** insulate yourself from earth potential and insulate any conductive material at earth potential that is *within extended reach*. Insulation from earth potential may be achieved by either :-

- Working from a fibreglass ladder, pole, or platform; or
 - Working from an insulated Elevated Work Platform (EWP); or
 - Working from an insulating mat that complies with AS 2978 / AS 61111:2020;
- AND
- Applying temporary insulation compliant with AS 4202 to any conductive materials at earth potential that are *within extended reach*.

6.3 Insulate all Other Conductors (within extended reach)

Purpose: Temporary insulation is applied on or around conducting apparatus, surfaces, and pipes to prevent accidental contact and provide an electrically safe cover for persons or equipment working on or in the vicinity of live low voltage.

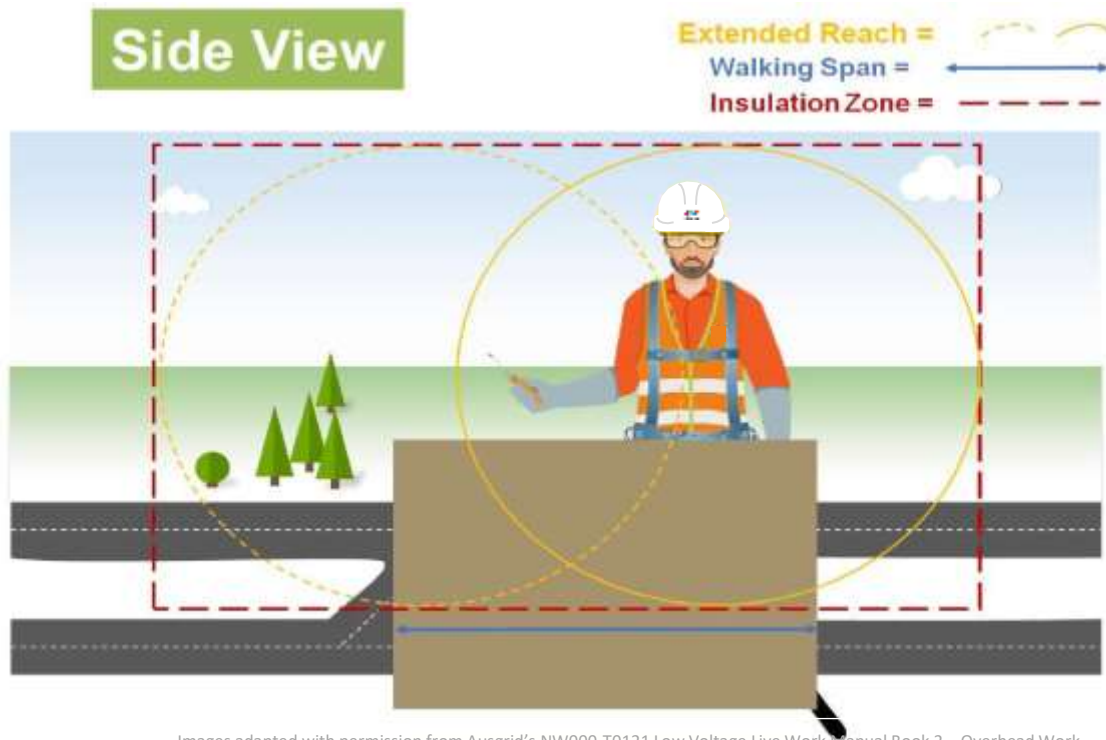
REQUIREMENT: You **MUST** apply temporary insulation to all exposed conductors that are ***within extended reach*** other than the conductor on which you are working.

See the following pages for a diagram explaining *within extended reach* in various scenarios.

1. Figure 1: **Overhead** Side view of the definition "*within extended reach*"
2. Figure 2: **Overhead** Top view of the definition "*within extended reach*"
3. Figure 3: **Underground** Top view of the definition "*within extended reach*"
4. Figure 4: **Substation** Top view of the definition "*within extended reach*"

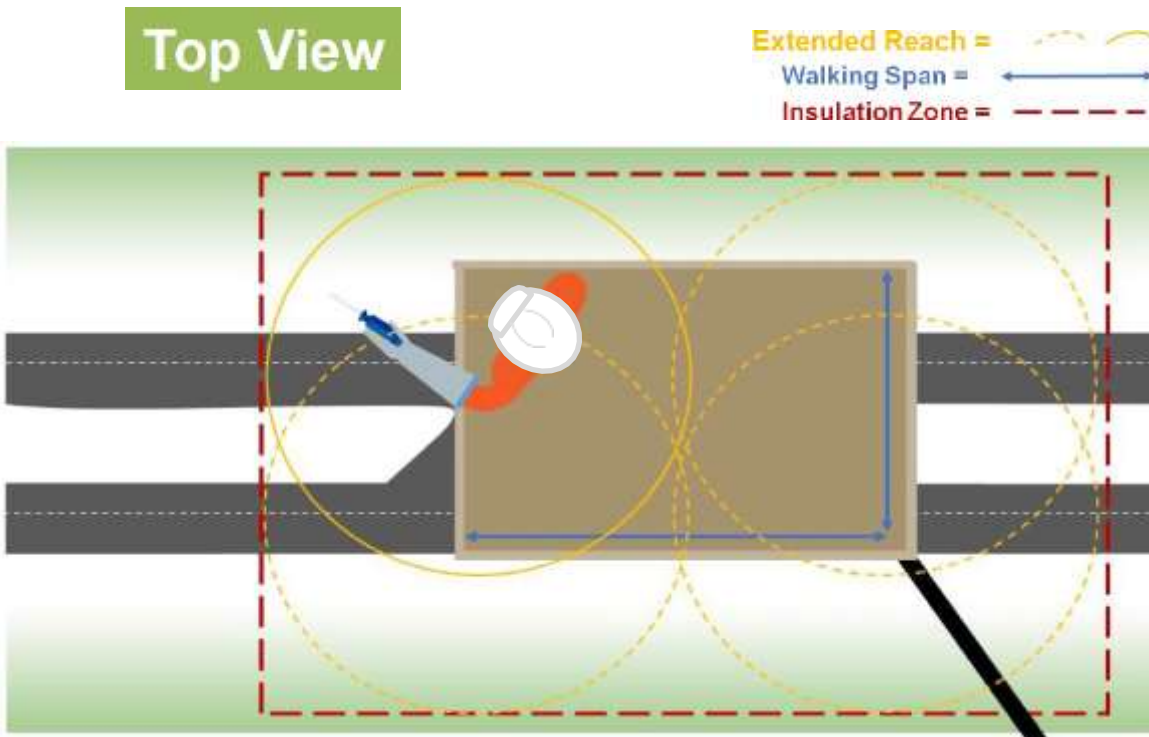
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Figure 1: **Overhead** Side view of the definition “*within extended reach*”



Images adapted with permission from Ausgrid's NW000-T0121 Low Voltage Live Work Manual Book 2 – Overhead Work

Figure 2: **Overhead** Top view of the definition “*within extended reach*”



Images adapted with thanks from Ausgrid's NW000-T0121 Low Voltage Live Work Manual Book 2 – Overhead Work

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Figure 3: **Underground** Top view of the definition “within extended reach”

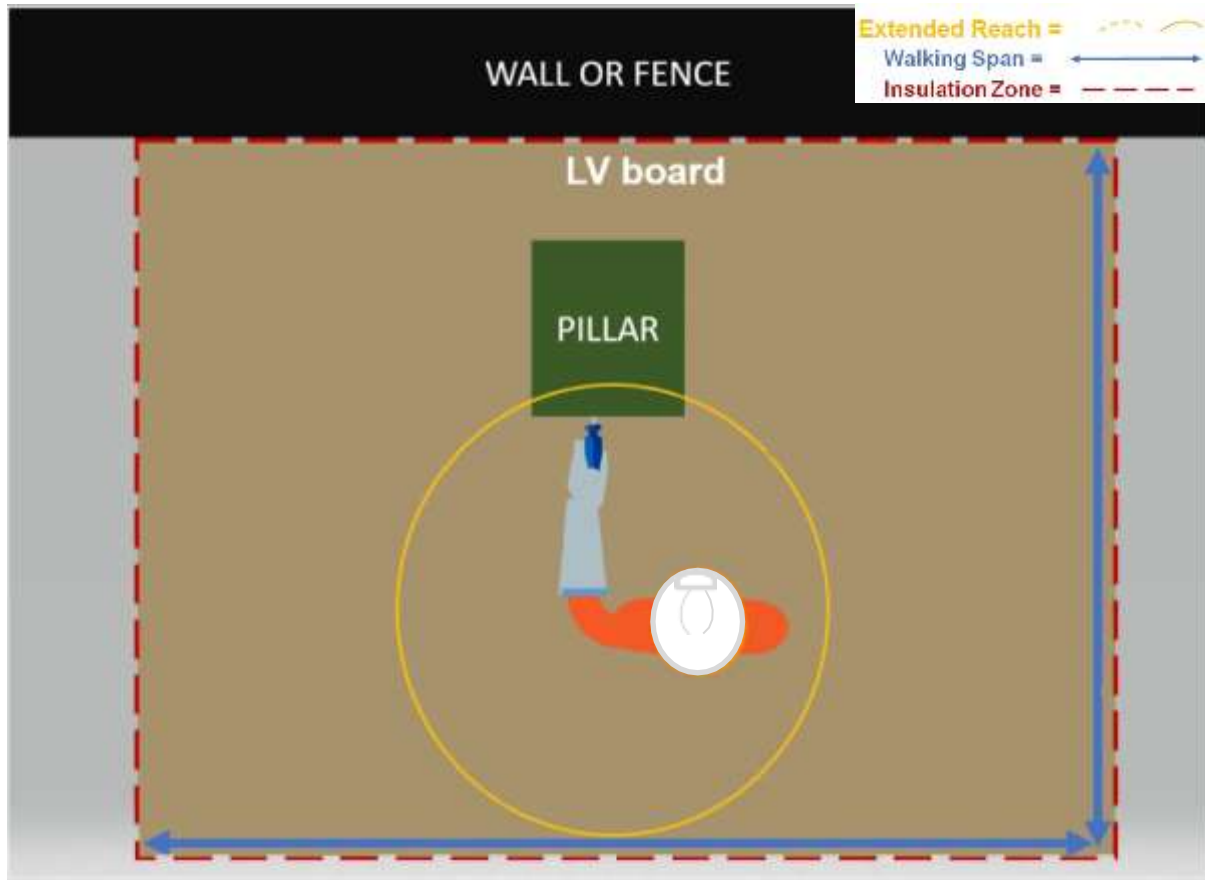
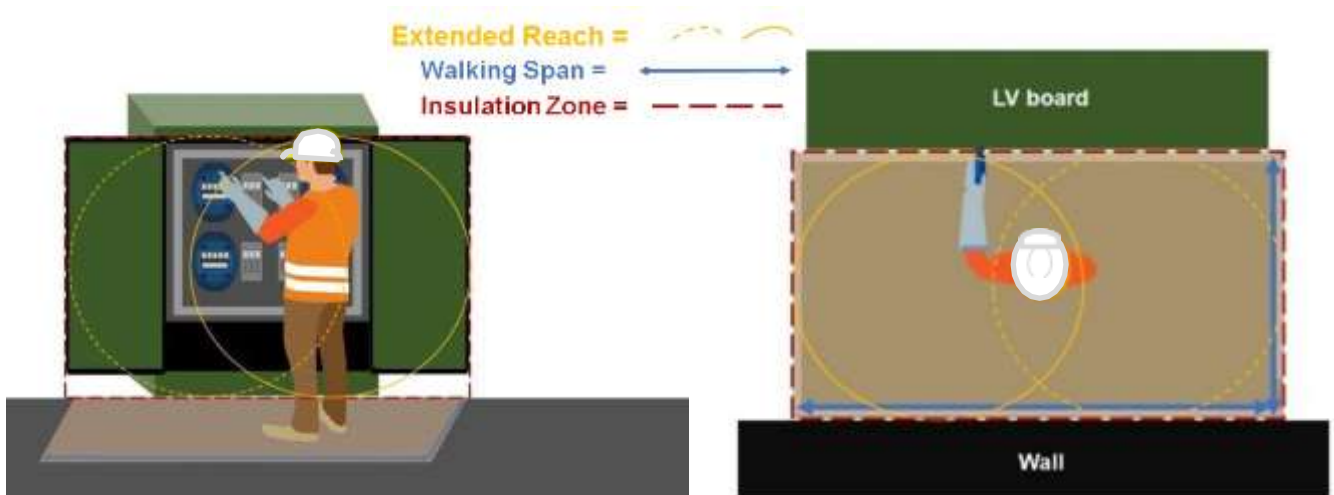


Figure 4: **Substation** Top view of the definition “within extended reach”



Images used with permission from Ausgrid's Technical Guide T0122 Low Voltage Live Work Manual Book 3 – Substation Work - Amdt 2 & Underground Work - Amdt 2

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- a) **Inspection:** Temporary insulating covers MUST comply with Australian Standard AS4202. They MUST be visually inspected before use to ensure they are in good condition.
- b) **Secured:** Any temporary insulating cover applied to exposed conductors MUST be adequately secured to prevent it being accidentally dislodged :-

- Should any accidental contact occur between a worker or any mobile plant and a temporary insulating cover, the worker MUST immediately check that the insulating cover has not been dislodged and that no electrical contact has been made or is possible due to the exposure of an uninsulated section of live low voltage mains or apparatus.

Note: Temporary insulation may need to be applied to exposed conductors beyond *extended reach* depending on the nature of the work being undertaken.

Approved Materials: There are many different types of temporary insulation materials that are approved for use on TasNetworks' network, including :-

- Pipe type covers (Tiger Tails) AS 4202
- Drapes type covers (Mats, Wraps) AS 4202
- Cable end covers AS 4202
- Insulating mats AS 2978
- Flexible PVC
- Insulator Covers
- Securing Clamps

6.4 Insulating Gloves

- a) You MUST wear a low voltage insulating glove with a protective outer glove on each hand.
- b) You may only make contact with the live exposed conductor with your insulating glove-covered hands.
- c) Note: Only one live potential can be worked on at a time (per section 6.5).

Note:

- Insulating gloves to be compliant with AS2225/IEC 60903:2020.
- **Cotton Inner Gloves:** Generally cotton inner gloves of various lengths can be worn under insulating gloves to absorb perspiration.
- **Jewellery & Accessories:** Metallic rings, watches and other jewellery MUST not be worn on hands and wrists when wearing low voltage insulating gloves as they cause mechanical damage and pose an electrical and burn hazard.

6.5 One Potential at a Time

- a) You may only work on one potential or earth at a time.

6.6 Body Separation

You MUST keep uninsulated parts of your body separated from all conductors, that is, both the exposed conductor being worked on and the adjacent conductors covered with

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temporary insulation as required to ensure no accidental/unintentional contact can be made to live apparatus.

6.6.1 Leaning Over Insulated Covers

If a task requires leaning over an energised conductor to complete safely then the conductor being leaned on **MUST** have two covers placed over it with the top cover being a **high voltage (HV) cover**.

6.7 Emergency Rescue Kit

A rescue kit appropriate for the type of work being undertaken **MUST** be readily available on the ground, accessible for immediate use to the Nominated Rescuer at each location where live work is being carried out.

6.8 Defibrillation Unit

TasNetworks require a defibrillation unit to be present and accessible whenever live low voltage work is being undertaken where 2 or more TasNetworks team members are present.

6.9 Personal Protective Equipment (PPE)

In addition to wearing low voltage insulating gloves as required in section 6.4 of this clause, you **MUST** wear the following PPE when carrying out work on or near live exposed low voltage apparatus :-

- Full length arc rated clothing
- Protective eyewear
- Safety helmet
- Safety footwear
- Safety harness / fall arrest (at heights)

Note: PPE specific to Arc Flash-related risks **MUST** be determined per asset being worked upon using the following TasNetworks' register:

1) Within distribution substations :-

- [Arc Flash Hazard Risk Management Procedure For Distribution Substations.](#)
- [Work Practice: Arc Flash Risk Management For Distribution Substations.](#)
- [Arc Flash Controls Look-Up Table](#) (to determine what level of PPE is to be worn).
- Any additional PPE requirements and insulating materials and barriers, etc. detailed in any specific work practice written for a task to be performed within a distribution substation.

2) All other tasks outside distribution substations :-

- Minimum PPE to be used in with accordance the [Personal Protective Equipment Procedure](#).

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- Any additional PPE requirements and insulating materials and barriers, etc. detailed in any specific work practice written for a task to be performed.

PPE, including arc-rated safety uniform, **MUST be inspected prior** to use to ensure that it is in a condition fit to provide adequate protection during the work being performed in accordance with Personal Protective Equipment procedure.

6.10 Covered Tools

Portable hand tools used for work on or near live exposed low voltage apparatus **MUST** be covered with appropriately-rated insulation that is in good condition, wherever reasonably practical. You **MUST** securely store tools and other conductive objects which could fall onto live exposed conductors. Objects falling from pockets are particularly hazardous.

6.11 Working Together

When working together on or near live exposed low voltage apparatus with another worker you **MUST** both work on the same electrical potential.

6.12 Safety Observer

6.12.1 General

The role of the safety observer is to observe the worker performing the live work to ensure the work is being undertaken safely with the appropriate safety controls implemented.

6.12.2 Safety Observer Requirements

- The safety observer **MUST** be authorised in the category of work being observed. Additional requirements may be listed in the relevant work practice.
 - For example: a Category 1A live LV work authorised Safety Observer is required for a Category 1A tasks being performed.
 - Potential additional requirements of a safety observer for a specific task (such as for observing cross arm replacements) will be listed in the relevant work practice.
- The safety observer **MUST** wear an approved safety observer vest and their attendance **MUST** be recorded on the Job Risk Assessment form (JRA).
- The Safety Observer **MUST** not perform any other role (such as passing tools or directing traffic) while in the role of Safety Observer other than footing a ladder and hauling handlines aloft to an aerial line worker being observed.
 - If this is required (such as working in a two-person crew) then the worker **MUST** move beyond *extended reach* of the live LV apparatus. The Safety Observer can then dis-engage as Safety Observer and assist in other tasks.
 - The Safety Observer **MUST** then be re-engaged as per section 6.13.3 before the worker can move *within extended reach* of the live apparatus.

Tasks that require a mandatory Safety Observer are listed in the Live LV Task List

(section 4.3.3)

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6.12.3 Duration

The Safety Observer **MUST** be in position in their role as Safety Observer for the entire time that the worker is *within extended reach* of live LV apparatus.

Should the task be paused for whatever reason, such as a rest break, the Safety Observer may relinquish their Safety Observer duties, but only when all team members are beyond extended reach of live apparatus **and** clear communication occurs that ensures the worker has moved out of extended reach of live apparatus.

- Work **CANNOT** re-start without the Safety Observer resuming their observer position and ensuring that all requirements of this manual are being adhered to (such as safety vest on, correct name listed on the JRA, and effective two-way communication established).

6.12.4 Communication Requirements

The safety observer **MUST** be in a position to visually monitor the work and maintain effective two-way communication with the worker throughout the duration of the task.

Effective two-way communication means clearly establishing communication when individuals are working *within extended reach* of live LV (that is, they can clearly hear each other speaking). Effective communication is also required before moving to a position within extended reach of live LV.

The safety observer may direct that work activities stop temporarily at any time. The observer's instructions **MUST** be adhered to by all. Effective communication **MUST** be maintained while someone is within extended reach of live LV apparatus.

The Safety Observer **MUST** be able to immediately stop work with verbal communication.

6.12.5 Changing the Safety Observer

The Safety Observer role can change to another person but only during a pause in work when no one is *within extended reach* of live LV apparatus.

1. The change **MUST** be listed on the JRA, including the time of the change.
2. The new Safety Observer **MUST** put on the safety observer vest (see section 6.12.7).
3. The change **MUST** be verbally communicated to, and acknowledged by, the entire work crew **before** the worker(s) can be *within extended reach* of the live LV apparatus.

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6.12.6 Number of Safety Observers Required

Overhead :-

1. **Mobile Work Platforms:** There **MUST** be a minimum of one Safety Observer per MEWP aloft being used for overhead energised work.
2. **Ladder / Pole Chair:** Where overhead low voltage energised work is being undertaken from ladders or pole platforms, a minimum of one Safety Observer is required per person. The Safety Observers **MUST** be clear on who is observing each individual energised worker aloft.

Ground-Based:

- Where ground-based energised work is being undertaken and a safety observer is required for the task, a minimum of one Safety Observer is required for each team member performing live work.

Additional Safety Observers may be required depending on the task, environment, and risk assessment conditions.

**Tasks that require a mandatory Safety Observer are listed in the Live LV Task List
(section 4.3.3)**

6.12.7 Live LV Safety Observer Vest

The Safety Observer vest **MUST** be worn by the Safety Observer at all times while performing the role of Safety Observer.

6.12.8 Working Alone or without a Safety Observer

The Live LV Task List (section 4.3.3) outlines the tasks that can be performed without a Safety Observer.

If there is uncertainty, the default position is that a Safety Observer **MUST** be used. This **MUST** be risk-assessed with the relevant Team Leader and an HSE Safety Partner (or by the relevant roles within a contractor organisation)

6.13 Nominated Rescuer

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6.13.1 Use of a Nominated Rescuer

A Nominated Rescuer **MUST** be used when working on or near energised electrical equipment in any of the following circumstances:

1. **Phase Interaction:** There is a risk of contact between conductors of differing phases and voltages.
2. **Earthing:** There is a risk of conductors coming into contact with earth conductor.
3. **Uninsulated Contact Risk (indirect):** There is a risk of uninsulated contact with individuals not involved with the task being performed.
4. **Uninsulated Contact Risk (direct):** There is a risk of uninsulated contact with exposed bus bars or open conductors.
5. **Working at Heights:** Where electrical work is performed at a fall of >2.0 m (that is, measured from bottom of worker's feet to the ground), a fall restraint is required.
6. **Other:** Where this manual, a Work Practice, Instruction, or JRA requires the use of a Nominated Rescuer.

6.13.2 Nominated Rescuer Responsibilities

The nominated rescuer **MUST**:

- a) **Be positively identified to each member of the Live Work team and nominated on the JRA.**
- b) **Be AWARE of how the work will progress and what changes need to be made to a potential rescue scenario.**
 - Such as the person has moved poles and the rescue kit will need to be moved.
- c) **Be competent to use the equipment that may be needed to effect a rescue.**
 - For instance, the rescuer MUST know how to operate the EWP controls (base) being used for the task.
- d) **Know the physical location of the job and have this on the JRA.**
 - This is so that such information can be communicated to an external party easily (such as an ambulance) with a clear address and not simply "pole 6".
- e) **Assemble Rescue Kits:**
 - Prior to commencing the live LV work, the rescuer **MUST** assemble the relevant approved rescue kits so that they can be deployed for immediate use (not stored in a vehicle, for example).
 - The Nominated Rescuer may perform other tasks provided the rescue kits can be accessed by the Nominated Rescuer within 1 minute.
 - **Pole Top Harness:** Where a pole top rescue may be required, the nominated rescuer **MUST** don the harness **prior** to the live LV team members commencing live work.

Note: The rescue equipment **MUST** be inspected prior to job commencement to ensure that all contents are present and in good condition. Damaged or out-of-date equipment **MUST** be replaced.

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f) Perform a Rescue:

- Rescuer **MUST** rescue any other person who requires it if it is safe to do so.
- In addition to the minimum PPE for the worksite, the rescuer **MUST** also have electrically-insulated gloves, rated to a minimum of 500 V, and protective outers, both part of the rescue kit.

g) Be within effective communication distance of the Safety Observer at all times while a worker is *within extended reach* of live LV.

h) Only perform other tasks if it will not affect the rescuer’s ability to perform an IMMEDIATE rescue.

- For instance, the rescuer **MUST** not be further along the road talking to another individual.

One person can be the Safety Observer and Nominated Rescuer if they have the required competencies.

6.13.3 Nominated Rescuer Qualifications

The minimum qualifications to be a Nominated Rescuer are:

7. **MUST** hold current competency in approved rescue procedures relevant for the work being undertaken. The following are the approved rescue procedures which may apply:
 - a. [Carry Out EWP and CDD Rescue.](#)
 - b. [Carry Out Pole Top Rescue.](#)
 - c. [Carry Out Substation and LV Switchboard Rescue.](#)
 - d. [Rescue From Pole Chairs and Platforms.](#)
8. Current in Cardiopulmonary Resuscitation (CPR).

6.13.4 Number Of Nominated Rescuers Required

Overhead:

9. **Mobile Work Platforms:** There **MUST** be a minimum of one Nominated Rescuer per MEWP aloft being used for overhead energised work.
10. **Ladder / Pole Chair:** Where overhead low voltage energised work is being undertaken from ladders or pole platforms, a minimum of one Nominated Rescuer is required per person. The Nominated Rescuer **MUST** be clear on which individual they will rescue in case of emergency.

Ground-Based:

11. Where ground-based energised work is being undertaken a nominated rescuer is required whenever a safety observer is required.

One person can be the Safety Observer and Nominated Rescuer if they have the required competencies.

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6.14 Site Leadership

6.14.1 Site Leader Responsibility

At all live LV work sites, one person from within the work team **MUST** be designated on the JRA as the **site leader**. The following are their responsibilities :-

1. Have sole charge of all onsite activities;
2. Ensure individual members of the work team have been designated to all of the various tasks required by the work practice, including the role of Safety Observer & Nominated Rescuer; and
3. Conduct a **work site pre-start briefing** with the work team before commencing a job,
 - a. Focusing on the contents of the JRA such as work steps, risks, controls, roles and responsibilities etc; and
 - b. Ensuring that any new individuals on the site on subsequent days are inducted into the JRA and proposed work plan.
4. Ensure the JRA has been effectively completed & communicated to the entire work team as required.
5. Conduct a de-briefing at the completion of the work to ensure that all difficulties encountered during the work are identified and communicated to the team leader as required.
6. Must have passed the Live Low Voltage Work manual theory assessment in the TasNetworks online learning management system.
7. **Note:** The site leader does not need to be authorised in the category of work being performed.

6.14.2 Work Team Responsibility

The work team **MUST** ensure that:

- They are involved in the Job Risk Assessment (JRA) development and understand its implications;
- Only authorised live LV work team members, authorised for the particular task, take part in the task;
- All insulated equipment has been thoroughly inspected prior to use; and
- All control measures outlined in the relevant work practices, techniques, and JRA are implemented,
 - Including the correct level of PPE (Cal rating) to mitigate against the risk of electric shock/arc flash.

The work team **MUST** stand down and keep clear of the apparatus in the event of the following :-

1. **Lighting (Natural/artificial)** becomes insufficient to clearly observe the immediate work area, as well as adjacent spans and structures, as appropriate to the work being carried out.
2. **An electrical storm** is observed in the vicinity of the work site:

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- See [Adverse Weather and Bushfire Response](#) procedure section 1.10.2 Working during Electrical Storms (lightning) for guidance on the distance referred to as “in the vicinity”.
- 3. **Adverse weather** or significant rain (beyond light spotting), snow or sleet in the vicinity of the work site unless:
 - a) methods and equipment are specifically designed and tested as able to be operated while wet;
 - b) effective mitigation controls can be implemented to an acceptable level to minimise the risk posed by the wet weather. These mitigation controls and the residual risk **MUST** be recorded on the JRA; or
 - c) the network controller directs otherwise.

If the job **MUST** be suspended for any reason, then the conductors, ropes and equipment **MUST** be secured.

6.15 Significant Events

Any significant incident or event (such as a safety incident, oil spill, or environmental damage) **MUST** be reported within one hour as per the [ONE HOUR RULE](#).

7. Live LV Process Ongoing Maintenance

7.1 Formal Monitoring and Evaluation

Work practices aligned to this Live LV Work Manual are subject to internal & external audits, with audit findings to be reported as part of the ongoing management review process.

7.1.1 Works Involving Contractors

Contractors working under a TasNetworks Field Operations team.

- **Responsibility for Live LV Manual Compliance**
 - Field Operations Team Leader

TasNetworks Field Operations Team and Contractor(s) working under a TasNetworks Site or Project Manager:

- **Responsibility for Live LV Manual Compliance**
 - Design & Project Delivery (Site Manager)

Contractors working under a TasNetworks Project or Site Manager:

- **Responsibility for Live LV Manual Compliance**
 - Design & Project Delivery (Site Manager)

The above three areas will be managed through a formal TasNetworks auditing program.

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External without TasNetworks Supervision:

- **Responsibility for Live LV Manual Compliance:**
 - The contractor.
 - The contractor MUST monitor compliance within their business through the use of internal audits and be able to provide records of this as required by TasNetworks.
 - The contractor understands that TasNetworks will be able to audit their work in regards to the live LV manual at any time desired by TasNetworks.

7.2 Ongoing Responsibility

The Operations & Customer Service Delivery team's Implementation Specialist is responsible for ensuring the ongoing internal reviews of the Live LV Work Manual is completed within the agreed period. The purpose of the reviews is to ensure a culture of continuous improvement is embedded in low voltage work.

7.3 Live LV Ongoing Review & Change Process

The purpose of the ongoing review and change process is to ensure a continuous improvement mindset is taken to low voltage works' planning and execution into the future.

Undertaking periodic reviews of key data (such as exemption form requests, field feedback, internal/external audit data, leadership feedback, and contractor feedback) will ensure this Live Low Voltage Work Manual maintains currency while also enabling an avenue for two-way communication with the field.

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8. Accountabilities and Responsibilities

Role	Responsibility
General Managers, Enterprise Leaders and Regional Managers	<ul style="list-style-type: none"> Support implementation of the processes and requirements outlined in this procedure as required within their respective business function. Where required, review and assess authorisation to perform live work as per the live lv decision-making process (section 4.3) Where possible, provide adequate resources (equipment and people) for team members to perform Live LV work in conformity with this manual and associated work practices. Drive compliance with this procedure as required in their respective business units.
Group Leaders / Team Leaders / Functional Leaders	<ul style="list-style-type: none"> Promote the requirements outlined in this manual in their work areas. Assess, validate, and review selected Live LV work risk assessments (JRAs) applicable to their work areas. Communicate the relevant risks and associated controls of Live LV work across their teams. Ensure personnel reporting to them are trained, authorised, and competent to perform the live LV techniques under this manual and associated work practices. Conduct monitoring and auditing of active work situations to drive conformity with the live LV techniques in this manual and associated work practices in their respective work areas.
Work Group Coordinators or other responsible person (per section 4.3.1)	<ul style="list-style-type: none"> Apply the live work decision-making process and successfully manage risks associated with live LV work in their respective work areas. Where appropriate, pre-populate JRAs with identified risks relevant to the specific task/site and proposed controls.
TasNetworks Contractor Managers	<ul style="list-style-type: none"> Require implementation of the live LV work processes within the organisations that they are responsible for on behalf of TasNetworks. Require contractors performing work on TasNetworks' assets to be aware of the requirements under this manual. Require that contractors are trained, authorised, and competent to perform the live LV techniques under this manual and associated work practices.
TasNetworks Contractors	<ul style="list-style-type: none"> Ensure this manual is fully complied with when performing live low voltage works. Ensure compliance within their business as required by section 7.1.

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<p>Employees and Contractors</p>	<ul style="list-style-type: none"> • Be aware of the requirements under the Live LV Work Manual prior to performing any Live LV work. • Ensure they are trained, authorised, and competent in the live LV task prior to performing any live LV work. • Apply all relevant rules, techniques, and controls under the Live LV Work Manual and associated work practices prior to performing Live LV work. • Stop the work if conditions are unsuitable or become unsuitable for live LV work, and report to team leader/supervisor. • Notify team leaders/supervisors of any potential hazards or risks that they identify.
<p>Procurement</p>	<ul style="list-style-type: none"> • Ensure all live LV equipment is procured in compliance with Australian standards and requirements under this manual and associated work practices. • Ensure sufficient equipment is available for team members to perform live task in compliance with this manual and associated work practices.
<p>TasNetworks Project Delivery</p>	<ul style="list-style-type: none"> • Responsible for ensuring contractors have processes in place to enable compliance with this Live LV Work Manual.
<p>Asset owners (that is, engineering group)</p>	<ul style="list-style-type: none"> • Ensure that live work principles and techniques under this manual are considered when designing and modifying assets.
<p>Safety and Wellbeing Team</p>	<ul style="list-style-type: none"> • Support the implementation of the requirements outlined in this manual.
<p>Technical Capability Team</p>	<ul style="list-style-type: none"> • Facilitate consultation with personnel, updates, and improvements to Live LV Work Manual and work practices. • Provide training and re-authorisation to perform Live LV techniques and work practices. • Develop an audit program for the auditing of Live LV work. • Conduct audits as per the audit program and report on actual work performance against the Live LV Work Manual and associated work practices.

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9. Document Control

9.1 Records

Records/documentation of training and authorisations are an essential part of live LV work.

TasNetworks' Team Members:

- It is the responsibility of TasNetworks to ensure that adequate records are kept in regard to training and certification of team members engaged in Live LV work.
- TasNetworks utilises a Learning Management System (LMS) to schedule and record Live LV training and assessment activities undertaken by team members and Tier 1 Contractors.
- TasNetworks maintains a database of all current team members and Tier 1 contractors authorised to perform Live LV work.

9.2 Document Changes, Review & Approval

Authorisation	
Issue date	15/06/2021
Authorised by	Michael Ash
Review Cycle	Every 1 year for the first 3 years. Every 2 years thereafter.

The production and issue of this manual is for electronic PDF format only. There is no formal control over issue and maintenance of hard copies.

TasNetworks will endeavour to inform users of this work manual of any revisions and updates but it is nevertheless the responsibility of users to ensure they have the **latest updated electronic version**:

1. **For TasNetworks team members**, by accessing documents via the Internal Work Practice Web Site on the ZONE intranet or the ODI App on field tough pads:

<http://hseqzone.tnad.tasnetworks.com.au/how-to/work-practices/Documents/Live%20Low%20Voltage%20Work%20Manual.pdf?Web=1>

2. **For Contractors**, by accessing the Contractor Portal on the Internet. It is publicly accessible without a username or password being required:

<https://www.tasnetworks.com.au/contractors>

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10. Glossary of terms

Term	Definition
Approved	Having relevant organisation endorsement for a specified function.
Authorised	The formal acknowledgement provided to a worker who is approved to perform specific duties or has been delegated authority to act on behalf of TasNetworks in line with the TasNetworks Competency & Authorisation Matrix.
Contact zone	One meter from any exposed live conductors.
Close Proximity	Same meaning as NEAR. See below.
Competent	Means the consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments.
Conductive Pole	Conductive poles are steel poles or steel and concrete composite with steel exposed eg. Stobie poles. For the avoidance of doubt, Titan poles are concrete and fiberglass and are less conductive than wood as such these are not classed as a conductive pole.
De-energised	Means not connected to primary source of electrical supply but not necessarily isolated from all secondary sources of supply.
Earth/Earthed/ Earthing	<p>Connected to the general mass of earth.</p> <ul style="list-style-type: none"> • If protective devices are fitted, in a manner that ensures the electrical isolation of any defective equipment through the operation of the protective devices; or • In a manner that ensures the removal of any charge.
Electrical apparatus	<ul style="list-style-type: none"> • Any equipment that is used in supplying electricity. • Any conductor that is normally alive or is intended to be connected to form part of the network. This includes conductors that have been disconnected from the network. • It also includes any other equipment that is supplied at Low Voltage or supplies Low Voltage.
Energised	Connected to a source of electrical supply or subject to hazardous induced or capacitive voltages.
Exposed conductor	Any exposed energised or potential-to-be-energised LV conductor that can be touched with a standard finger (with the finger defined as having a 12 mm diameter and 80 mm length and shall have adequate clearance). It includes electrical conductors and parts, approach to which is not prevented by a barrier of rigid material in good order or by insulation that is adequate for the voltage concerned, and that is in sound condition.
Fault finding	Carrying out tests on equipment to locate faults. It may also include the process of connecting testing instruments or devices to various parts of the equipment to determine how the equipment is operating.
Ground-mounted substations	Enclosures installed at ground level that house HV to LV Power Distribution Transformers.
Insulating barrier	<p>A barrier of insulating material designed, tested, and approved to a rated voltage. Insulated barriers may be rigid or flexible and are used as a cover for lines, insulators, cross arms, terminations, or similar equipment or to provide a barrier between the worker and earth.</p> <p>Two types of insulating barriers</p> <ul style="list-style-type: none"> • Insulating covers, governed by AS4202 – Insulating Covers for Electrical Purposes; and • Insulating mats, governed by AS2978 - Insulating mats for electrical purposes.

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Insulating cover	A pipe, blanket, drape, cover, or wrapping of insulating material applied to conducting mains, apparatus, and surfaces intended to prevent accidental contact with mains and provide an electrical-safe barrier for persons working on or near live LV conductors.
Insulating mats	A mat of insulating material intended to provide an electrical-safe barrier on which the user can stand, kneel, or be otherwise supported. Insulating mats MUST be tested at intervals not exceeding six months.
Insulating gloves	Specifically, designed safety wear, approved and tested by manufacturer to a rated voltage, and worn with approved protective gloves.
Insulated tools	Tools that have a barrier which separates the conductive components of the tool from other conducting surfaces by a dielectric (non-conducting) substance that is appropriately rated to the current that to which the tool is potentially exposed. TasNetworks does not test handheld manual tools for insulation compliance. These tools can only be considered covered (not insulated), so insulating gloves MUST be worn.
Isolated	Separated from all possible sources of electrical energy by the opening of switches, withdrawal of circuit breakers, removal of fuses, links, connections, and the like and rendered incapable of being energised unintentionally.
Job Risk Analysis (JRA)	Risk analysis tool performed prior to commencing work to identify the hazards and mitigation control measures to be implemented to allow work to be performed in a safe manner.
Jumpers/bridges	The connection of conductive objects together to ensure that they are at the same electrical potential.
Live (or Alive)	Live (or alive) means energised or subject to hazardous induced or capacitive voltages.
Live Work	Work performed on or near apparatus with an Exposed Conductor (see definition) capable of being energised without implementing the protective practice of isolating from the primary source of supply and proving that it is de-energised.
Low Voltage (LV)	Low Voltage not exceeding 1000 volts alternating current (AC), or 1500 volts direct current (DC).
LV Distribution pillar/cabinet / turret	Ground-mounted structure that houses LV underground cables and is a termination point.
Must / will / shall	Indicating a mandatory action.
Near	A reasonable possibility that a part of your body, or any moveable object you might be wearing, touching, or carrying (which is not designed for safe use on live conductors of the same or higher voltage) may come within the minimum safe working distance for live exposed conductors (that is, for an Authorised Person, within 500mm after extremity extension. See section 5.6 Safe Work Distances).
Nominated Rescuer	A worker, competent to carry out appropriate rescue and resuscitation procedures, in constant communication with the work party and located such that no delay in carrying out a required rescue will occur. See section 6.13 Nominated Rescuer for more detail. Note: The Safety Observer may fill the role of the Nominated Rescuer.
Operating work	All work involving the operation of switches, the opening or closing of links, or other connections intended for ready removal or replacement of fuses, or work proving that electrical apparatus and equipment is de-energised and the earthing and short circuiting of apparatus and equipment is complete.
Personal Protective Equipment (PPE)	Any clothing, device or appliance designed to be worn or held by an individual for protection against electrical or any other hazards.
Point of Supply	The junction point between the supply mains with the customer's consumer mains.

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Power System Safety Rules (PSSR)	The PSSR defines the requirements for access to power system infrastructure, specifying minimum approach distances.
Primary Source of Supply	All sources of supply from the distribution supply side from the location where the work will be performed.
Responsible Person	For the purposes of this manual refers to the person responsible for completing the Live LV Decision Making Process. Refer to section 4.3.1 for details.
Safe Approach Distances	The minimum separation in air from <i>exposed Electrical Apparatus</i> that shall be maintained by a person, or any object (other than insulated objects designed for contact with Live Conductors) held by or in contact with that person. As outlined in the Power System Safety Rules (PSSR).
Safety Observer	An authorised Live LV worker that is trained, competent and authorised in the category of the task being observed. Assigned the duty of observing and warning team members of unsafe approaches to electrical apparatus or other unsafe conditions. See section 6.12 Safety Observer for more detail. Note: The Safety Observer may fill the role of the Nominated Rescuer.
Secondary Source of Supply	Source of electricity supply outside the Power Distribution System, such as from a customer's solar installation or generator.
Secondary Point of Contact	Secondary points of contact are where the rest of your body (feet, legs, trunk, and head) as well as any conductive item of equipment you have on, can contact any conductor that is at a different potential to the one you have in your hand, including earth.
Servicing	Servicing is defined as the supply of conductors from the distribution mains to the customer's point of supply.
Team Members	All persons that enter a designated field work site covered by a JRA. For the avoidance of doubt, this also includes individuals who are responsible for executing the Live LV Decision-Making Process (see section 4.3.1).
Testing	Applying only approved test equipment to exposed LV, and checking connections with insulated tools.
Vulnerable Customer	A vulnerable customer includes the following categories outlined in <i>ENA Doc 044-2020 - Guideline for Energised Low Voltage Work</i> : <ol style="list-style-type: none"> 1. Medical facilities 2. Childcare or aged care facilities 3. Traffic signals on major intersections 4. Sewer or water pumping or treatment facilities 5. Communication or broadcasting facilities 6. Multi-storey residential or commercial buildings 7. Major hazard facilities 8. Law enforcement, military, critical government, incident management, or emergency services' facilities 9. Public transport facilities and infrastructure. 10. Communities subject to isolation or required to shelter in place in response to public health orders.
Within Extended Reach	Can be touched, including with equipment you are using (such as tools), while performing a normal range of movement including extremity extension without special effort. Note this includes the area that could be touched if the individual moved their position (such as within an elevated work platform). See section 6.3 for a visual diagram.
Work site	The general area associated with the complete Live LV work procedure/s. It includes the overhead line and its supporting structure, plant and equipment, and the ground area in the immediate vicinity.
Worker	As defined by the <i>Work Health and Safety Act 2012 (Tas)</i> is a person performing work in any capacity for TasNetworks and includes an employee, contractor, or sub-contractor.

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11. References

Legislation and standards that inform this manual:

- [Work Health and Safety Act 2012 \(Tas\)](#)
- [Work Health and Safety Regulations 2012 \(Tas\)](#)
- [Electricity Supply Industry Act 1995 \(Tas\)](#)
- [Tasmanian Electricity Code](#)
- [Managing electrical risks in the workplace Code of Practice](#)
- [AS/NZS 4836:2011 - Safe working on or near low-voltage electrical installations and equipment](#)
- ENA National Electricity Network Safety Code
- ENA DOC 044-2020 Guideline for Energised Low Voltage Work

Systems and documents supporting these requirements:

- [Power System Safety Rules](#)
- [Work on Low Voltage Electrical Equipment Standard – IMS-OPR-00-07](#)
- [Overhead - Line Workers Reference Handbook – Power Distribution System – IMS-WPM-13-01](#)
- [Overhead – High Voltage Live Line Work Handbook – Power Distribution System – IMS-WPM-13-02](#)
- [Personal Protective Equipment \(PPE\) – No. R0000112684](#)

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12. Version Control Register

Version	Author	Section	Approved By	Date
1.1	G Coad / J Morse	Final Draft	N/A	
1.2	G Coad / J Morse	Original Approved Version.	Endorsed – Sponsors Approved – GM, NC&MC	15 Jun 2021
1.3	G Coad / J Morse	Minor Edits & Grammatical Corrections Section 10: Glossary of Terms: Conductive Pole Section 7.3 – Ongoing Review & Change Framework <ul style="list-style-type: none"> Updated ongoing compliance RASCI (draft only) 	N/A	Aug 2021
1.4	G Coad / J Morse	Exemption Requests: Updates to the process for submitting and approving exemption requests. Section 7 - Compliance by Contractors Contractor compliance requirements	Live LV Project Sponsors	25 Aug 2021
1.5	G Coad / J Morse	Updates made to the following: Overhead Task Categorisation: <ul style="list-style-type: none"> Bonds/Jumpers Cross Arms Pole Stand/Replacement Breaking Loops Underground Task Categorisation : <ul style="list-style-type: none"> Minor Cable Repairs Cabinets & Turrets Connecting LV Underground Cable Section 1.2 In Scope Removed “or between 115 volts to 1500 volts direct current (DC).” DC is out of scope. Section 1.3 Out of Scope Added “Testing of earthing system”	Leader – Engineering (on behalf of GM NC&MC) Note: Task category changes were endorsed by the Group Leader – Field Operations (23 rd August 2021) based on Live LV Working Group recommendations.	26 Aug 2021
1.6	G Coad / J Morse after State-wide Depot Day engagements.	Minor Change: Added “Street lighting” to section 5 – what can be performed without approval under fault. Decision flowchart s4.3.2: Updated to reflect this Street Light change change. Section 4.3.3 Pole Stand/Replacement: Made it clear that pole install/removal is only to be handled by an HV authorised Proline operator but that the Live LV Cat 1B crew can observe/guide and install insulation as required on the LV. Section 6.6.1: Leaning over covers updated to be allowed only if using High Voltage cover as the second cover. Section 6.3 – Figure 3: Simplified extended reach for a turret to make it clear exactly where a ground mat is required when standing/kneeling. Section 4.3.3.2: Update to definitions of Category 1B. Previously there was a requirements that a person hold the relevant Tasmanian Electrical Practitioners Licence (Lineworker). Updated to include “or the Electrician’s	Street lighting & Pole Stand/Replacement changes approved by Leader – Engineering. Double Matting with HV mats approved by Leader – Engineering. SteerCo approved defibrillator change (s6.8) & Fault approver after hours	29 Sep 2021

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		<p>Performing Linework under Fault Authorisation (EPLUF). This enables TasNetworks personnel with a Category 1A or 1C to perform linework (Cat 1B) under fault.</p> <p>Pending Approval: s6.8: Defibrillators. Applicable to TasNetworks employees only. Contractors to make their own business decision on this point.</p> <p>Section 4.3.1: Live LV Process Flow Responsible Decision Maker (Fault – after hours)</p> <p>Updated the process for “after hours on fault”: The SBO is the first point of call to act as a triage. If approval is still required then a Regional Customer Service & Fault Lead MUST be engaged.</p>	(s4.3.1).	
1.7	Team Leader Feedback North West	<p>Section 4.2 Overarching Rule: Clarified - to make clear that the Live LV decision making process (s4.3.2) MUST be used in determining whether work can be performed live.</p> <p>Section 4.3.3:</p> <p>Task 14,15,16: Corrected mistakes and double up of tasks between categories. Aligned with cross arms as per original intention.</p> <p>Task 17/18: Removed intermediate & double pin from straining.</p> <p>Section 6.5 – Removed “live” from potential and added “earth”.</p> <p>Section 6.12.6 Number of Safety Observers Required: Made it clear that a safety observer is required per EWP aloft or worker aloft via a ladder.</p> <p>Section 1: Scope & Purpose: Wording refined to ensure clarity. No adjustment to the actual purpose or scope.</p>	<p>All minor changes or corrections of mistakes.</p> <p>No approvals required.</p>	1 st Oct 2021
1.8	Team Leader South Training Feedback	<p>s6.12.2 – Safety Observer Requirements: Amended - made it clear per original intention that the safety observer must be authorised in the category being performed and not trained in the specific task. This is because Safety Observer assessments will ensure Safety Observers understand the risks associated with the category of tasks being performed.</p> <p>s6.12.6: Ground based safety observer. Change to 1-1 for consistency across the business.</p> <p>Added s6.12.6: Number of Nominated Rescuers required to match with number of Safety Observer required.</p> <p>s4.3.3.3: Updated to make it clear that the person(s) performing the task must have the skill and ability to perform the task safely. Assessed at JRA.</p> <p>S4.3.2.1: Updated Question 1 with ENA guidelines. Clarification only with additional context as requested by Team Leaders – no approval required.</p> <p>Section 3.4: Amended summary in 6.3 for live conductors. Clarification only, no approval required.</p>	<p>s6.12.2 // s6.12.6 // s6.12.4 // s4.3.3.3</p> <p>Endorsed by the Leader Safety & Wellbeing.</p> <p>Group Leader – Field Operations.</p> <p>Leader – Engineering.</p>	8 th Oct 2021

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1.9	NW Team Leader Training	<p>6.12.2 – added that a Safety Observer can foot a ladder while in the role of safety observer.</p> <p>6.12.4 – Ground based: Nominated rescuer is required whenever a safety observer is required.</p> <p>Section 4.3.3</p> <p>Task 1 - Made it clear this can be on a conductive and non-conductive pole.</p> <p>Task 14 – included S/LV/3.</p> <p>Task 16 - Made 3 phase <u>transformer</u> poles Cat 3 due to increased risk profile caused by perspective fault current and secondary points of contact.</p>	Leader – Engineering	14 Oct 2021
2.0	Project Team	<p>s6.12.7 – Safety observer vest image removed.</p> <p>Final version for theory introduction approved.</p>	Leader - Engineering	15 Oct 2021
3.0	Project Team	<p>Updates based on points raised throughout November 2021 Live LV Manual Field Introduction pre-start meetings.</p> <p>Cover Page – update to in-field implementation date being the 27th April 2022 as approved by the Live LV SteerCo.</p> <p>s1.1 – Added clarification that “this manual must be read in conjunction with the work practice for the relevant task.”</p> <p>s2 – Clarification that an apprentice can perform live work if performing work under the apprentice supervision guidelines.</p> <p>s3.1 Safety Observer – changed wording to make consistent with the wording at s 6.12.2 that a safety observer must be authorised in the category of task being observed and that additional requirements may be listed in the relevant work practice for the task.</p> <p>s4.3.1 & s5 - under fault scenarios added that approval is not required to replace a non-conductive turret lid without impact damage.</p> <p>s5 – updated table to make it clear the Work Group Coordinator completes the live LV Exemption form.</p> <p>s4.3.3 – added - The below tasks must be performed in accordance with the relevant work practice(s).</p> <p>Task 2: Added replacing a turret lid without any impact damage (must be tested before touching)</p> <p>Tasks 4/5: Removed the word “bonds” to avoid confusion – now only referring to “jumpers”.</p> <p>Task 14: Corrected a mistake by adding I/LV/3 non-conductive as this was not included in v2.0 which was inconsistent with Task 10: which includes this as previously approved.</p> <p>Task 20: Clarified that T-off circuits are excluded from Cat 1 breaking loops to align with existing business work practices.</p> <p>Task 30: Added for clarity “connecting a generator onto overhead bare open wire”. Current practice.</p> <p>Task 42: Safety Observer changed from mandatory to JRA dependent.</p> <p>s6.12.2 - Added that a safety observer may also perform the following task while in role of safety observer: “hauling handlines aloft to an aerial line worker being observed”.</p> <p>s6.12.3 – Remove pit rescue procedure as an example given this has not been implemented yet.</p> <p>s6.14.1 – Added to site leader responsibility:</p> <p>- Must have passed the Live Low Voltage Work manual theory assessment in the TasNetworks online learning management system. The site leader does not need to be authorised in the category of work being performed.</p>	<p>Endorsed: Group Lead Field Operations</p> <p>Approved: Leader – Engineering.</p>	8 th Dec 2021

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<p>4.0</p>	<p>Project team based on field feedback from authorisation sessions.</p>	<p>Tasks 34 – Changed from “Connecting LV underground cable to <i>isolated</i> side of switch in underground street furniture” to “Connecting LV underground cable to <i>de-energised</i> side of switch in underground street furniture”. Switches that have other cables installed in the load side cannot be treated as isolated.</p> <p>Task 13 – Updated with “or authorised excavator (with grab) operator” to the note. There are some instances when a proline isn’t able to reach a site where a pole stand/replacement is being undertaken. In these instances, an excavator with a grab may be required to complete the job.</p> <p>Task 23 – Adjusted the category from 1B to 1A to accommodate servicing personnel. In some instances, Service Connections may be required to install ABC boxes for a commercial customer. 1As are authorised to install three phase services, whereas this task is essentially the same.</p> <p>Task 36 – This mentions “burnt out service fuse” – this was removed and added into task 30 as servicing. Burnt out service fuses are extremely common faults and a servicing task, and moving this particular task to servicing means that it can be completed on call if the need arises.</p> <p>Task 55 – Changed to 1A and 1C authorised to complete – this can be a servicing task. This task is not limited to distribution mains, but also to customer mains, making this a servicing task – therefore 1A may need to complete this also.</p> <p>S4.3.1 - Scoping live work – all planned jobs proposed to be live must include a site visit by the relevant scoper. Clear mandate from the CEO, Sean Mc Goldrick.</p>	<p>Endorsed: Live LV Lead Trainers, Technical Standards & Practices Team Leader.</p> <p>Approved: Leader - Engineering</p>	<p>9th May 2022</p>
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