



***OCCUPATIONAL, HEALTH  
AND  
SAFETY  
MANAGEMENT  
SYSTEM***



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# 1. INTRODUCTION

## 1.1. Overview

This Occupational, Health and Safety Management System sets the minimum compliance, risk and safety standards for Electrical Work conducted on behalf of Lightning Electrical Services.

The Occupational, Health and Safety Management System applies to all Electrical Workers.

Electrical Workers includes the following groups:

- Lightning Electrical Services employees who are licensed Electrical Workers
- Supervisors and Managers of licensed Electrical Workers
- Electrical Contractors
- All other Electrical licence holders conducting Electrical Work on behalf of Lightning Electrical Services.

## 1.2. Purpose

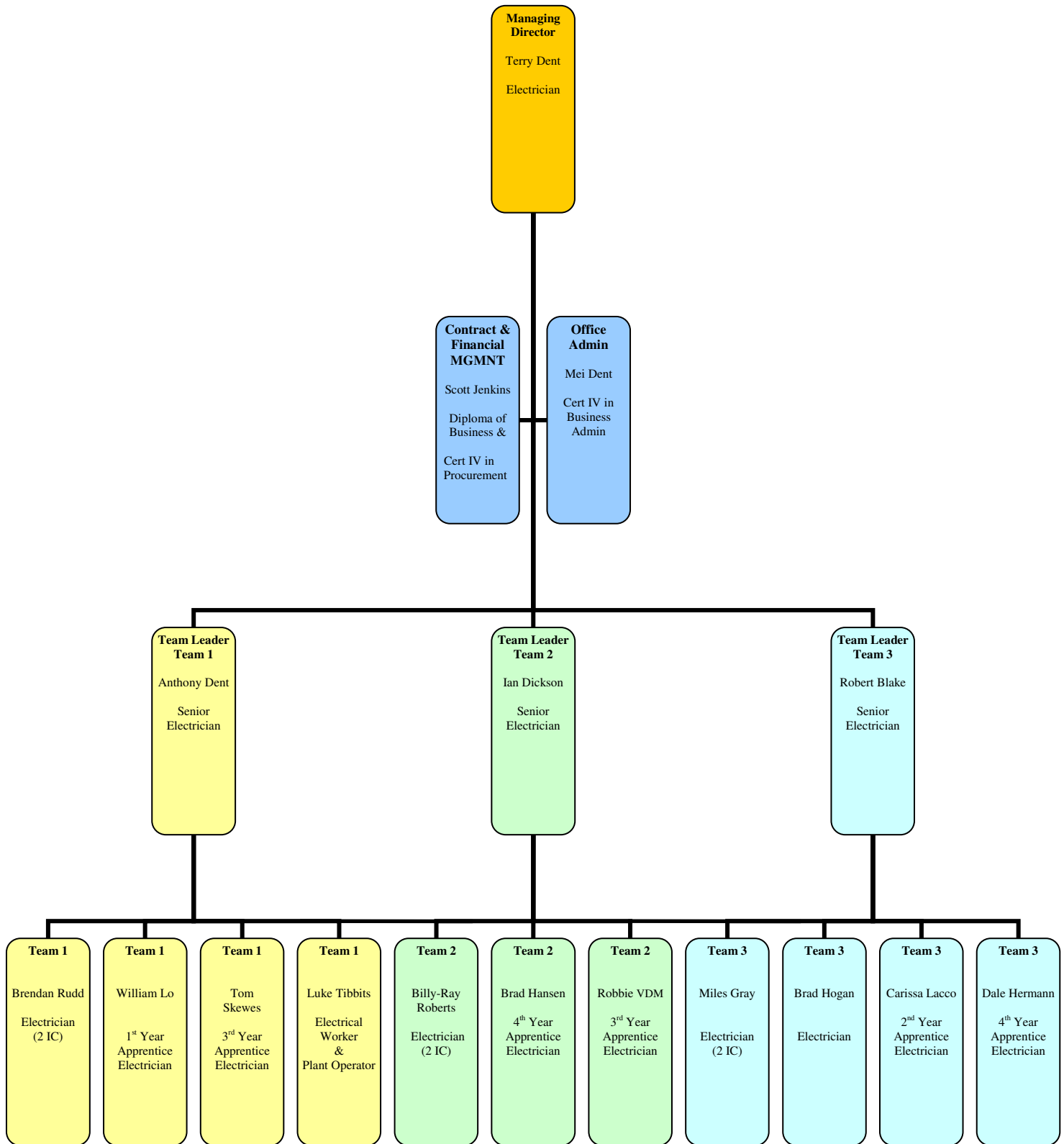
The purpose of the Occupational, Health, and Safety & Environment Management System is to ensure the safety of Electrical Workers, clients, the public and to minimise the potential harm to human health and property when working with electricity.

## 1.3. *Lightning Electrical Services' Commitment to Electrical Safety*

Lightning Electrical Services is committed to:

- Strictly adhering to all legislative requirements and national Standards
- Using only Electrical Workers who hold relevant and current licences and who are competent in carrying out Works
- Maintaining the competency and skill of Electrical Workers at a high level
- Maintaining a safe environment when Electrical Work is being conducted
- Ensuring that Electrical Workers have appropriate electrical safety equipment and resources to work safely
- Ensuring that all work is tested and electrically safe
- Monitoring and evaluating the work of Electrical Workers to ensure compliance with Lightning Electrical Services standards and procedures
- Auditing the Occupational, Health and Safety Management System to ensure continuous improvement

## 2. ORGANISATIONAL CHART



### 3. LEGAL REQUIREMENTS

#### 3.1. Standards

All Electrical Work shall be carried out in accordance with the respective State's or Territory's legislative requirements, in compliance to Australian Standard AS/NZS 3000: 2007 and any other relevant standards.

Electrical installations or electrical equipment will not be connected to supply with any known defect.

#### 3.2. Legislation

Lightning Electrical Services will fulfil their obligation under the following Northern Territory's electrical safety legislation:

| State              | Legislation   |
|--------------------|---|
| Northern Territory | <ul style="list-style-type: none"><li>• Electrical Workers and Contractors Act</li><li>• Electrical Workers and Contractors Regulation</li><li>• Electricity Reform Act</li><li>• Electricity Reform (Safety and Technical) Regulations</li><li>• Work Health Administration Act 2011</li><li>• Work Health &amp; Safety (National Uniform Legislation) Implementation Act 2011</li></ul> |

Electrical Workers will fulfil their obligations under the Territory's current electrical safety legislation by:

- Complying with Lightning Electrical Services instructions and ensuring that all Electrical Work is electrically safe.
- Only performing Electrical Work within the scope of their relevant Electrical Worker's licence.
- Using Personal Protective Equipment (PPE), instruments, tools and safety equipment to complete all work in a safe manner and in compliance with legislative requirements.
- Adopting a "test before touch" approach and treating all conductors and equipment as live until proven otherwise.
- Not wilfully interfering or misusing anything that may create an unsafe situation for themselves and others.

#### 3.3. Reference documents

All Electrical Workers must have ready access to the Territory's Electrical Legislations, Codes of Practice and Australian Standards.

The relevant Australian Standards are but not limited to:

- AS3000 - Electrical installations (Australian and New Zealand wiring rules)
- AS3003 - Electrical installations - patient areas of hospitals, medical and dental practices
- AS3006 - Adequate electrical installations in domestic premises
- AS3008 - Electrical installations - selection of cables
- AS3010 - Electrical installations - Generating Sets
- AS3012 - Electrical installations - construction and demolition sites
- AS3017 - Electrical installations - testing and inspection guidelines
- AS3100 - Approval and test specification - General requirements for electrical equipment
- AS3760 - In-service safety inspection and testing of electrical equipment
- AS3820 - Essential safety requirements for low voltage electrical equipment
- AS4836 - Safe work on low voltage electrical Installations

### 3.4. Codes of Practice

| State              | Code of Practice                |
|--------------------|---------------------------------|
| Northern Territory | Work Safe NT, Electrical Safety |

### 3.5. Requirements for Electrical Workers

#### CLASSIFICATIONS OF ELECTRICAL LICENCES

| Licence Type   | Licensed Tasks   |
|--|--|
| <b>Test and Tag</b>  | <p>In most States, this licence is issued to people who are deemed qualified after completing a task specific “Test and Tag” short course.</p> <p>This allows for testing and tagging of portable electrical appliances only and not for maintenance or repairs. In some states, this is not a licensed qualification but a qualification for competent people who can test and tag portable electrical appliances.</p> <p>Generally, these people are not qualified or licensed to carry out electrical maintenance or repairs.</p> |
| <b>Restricted Class</b>                                    | <p>Issued to, for example, air conditioning and refrigeration mechanics, mechanical fitters and plumbers.</p> <p>People issued with a Restricted Class Licences can only undertake Electrical Work associated with their specified trade.</p> <p>This work is generally disconnect and reconnect only.</p>   |
| <b>A Class/ A Grade / Unrestricted Electrician Licence</b> | <p>This is an open class electrical licence issued to trade qualified Electrical Workers who can generally complete all facets of electrical wiring, installation, repairs and maintenance.</p> <p>This allows the Electrical Worker to carry out electrical installation work without supervision.</p> <p>This licence holder may be able to perform the task of Technical Nominee for the employer as required for a Contractor’s Licence.</p>   |

**The Electrical Supervisor must, as a minimum, have an equivalent or a higher class of licence to those people that they supervise.**

*Example: A restricted class Electrical Worker must not be the Electrical Supervisor of an electrician.*

All site safety management plans are, where applicable, to include a list of the Electrical Supervisors.

The Electrical Supervisor is to ensure that Electrical Workers in their charge are performing their duties in a safe manner.

It is the responsibility of the Electrical Supervisor to ensure that all Electrical Workers in their charge comply with the Occupational, Health and Safety Management System by ensuring that:

- Electrical Workers are licensed and competent to carry out their allocated duties.
- All work is carried out in an Electrically Safe manner and that the work site is safe for all persons and documented.
- Work complies with the appropriate standards, and the correct electrical tests have been performed and documented.

## 4. ELECTRICAL SAFETY

### 4.1. *Induction*

All Electrical Workers must have completed the Lightning Electrical Services induction program prior to commencement of employment.

### 4.2. *Safe System of Work*

All Electrical Workers on Lightning Electrical Services worksites will adhere to:

- The Lightning Electrical Services OHS Management System
- Territory Electrical Legislative requirements and Codes of Practice
- Australian Standards.

This is to minimise potentially fatal risks whilst exposed to or using electrical equipment relevant to the work being carried out.

### 4.3. *Adherence to OH&S Policy*

All Electrical Workers must comply with the **Lightning Electrical Services Occupational Health, Safety and Environment (OH&S) Policy**

In order to achieve this Lightning Electrical Services will:

- Develop an Occupational, Health & Safety Management Plan which incorporates an Electrical Safe System of Work.
- Provide appropriate training to ensure all work is electrically safe.
- Ensure appropriate electrical supervision of all Electrical Workers. This will be achieved by ensuring each Electrical Worker has a nominated Electrical Supervisor for their Electrical Work.
- Ensure all tools and safety equipment are regularly tested and examined to enable all work to be completed in a safe manner.
- Provide and instruct Electrical Workers in the correct use and maintenance of Personal Protective Equipment (PPE).
- Report all notifiable electrical incidents to the relevant electrical safety authority.

#### **4.4. Basic Electrical Safety Principle**

A person engaging or preparing to engage in work on or near electricity infrastructure or an electrical installation must treat exposed conductors as live until they are –

- Isolated from all sources of electricity supply and proven to be de-energized
- If they are high voltage conductors – earthed.

#### **4.5. Incident Reporting**

When an Incident occurs, the following process shall be followed:

- The person involved in the Incident reports it to their Supervisor.
- If an incident occurs with a Contractor or Sub-contractor's Electrical Worker, the relevant Lightning Electrical Services Supervisor must be notified to manage the process.
- The Supervisor notifies their Manager.
- The Manager notifies the local Lightning Electrical Services Safety Advisor and reports the Incident to Lightning Electrical Services Administration for Reporting and Investigation.
- The Safety Advisor reports the Incident to the relevant regulatory authority.

All Incidents must be reported to Lightning Electrical Services Administration to record in the Safety Register:

A qualified medical practitioner must treat any person who receives an electrical shock of any magnitude.

The injured person shall be accompanied at all times to the medical practitioner, by a Workplace First Aid Officer when available or the injured person's Manager or their representative.

An electric shock shall be reported to the Electrical Worker's Manager immediately and, where applicable, the area isolated as far as practicable, and the relevant authority notified via the local Safety Advisor for investigation and reporting.

#### **4.6. Risk Assessments**

All Electrical Workers associated with and who perform Electrical Work shall be provided with Risk Assessment and Job Safety Analysis (JSA) training.

A Risk Assessment is to be conducted for all planned and repair jobs and projects. This is a mandatory OH&S legislative requirement.

The Risk Assessment may identify the need for Job Safety Analysis (JSA) or Safe Work Method Statement (SWMS) for specific tasks. An existing SWMS may be used, but must be reviewed to ensure it is appropriate for the task. Where there is no formal SWMS available that is appropriate for the Electrical Work being undertaken, a JSA is to be undertaken to identify the basic logical sequence of the tasks, associated hazards, level of risk, and appropriate control measures to be implemented prior to commencement of work, and is to be monitored for effectiveness.

The Risk Assessment and JSA process is to be conducted in accordance with:

- Australian Standard AS4836 Safe Working on Low Voltage Electrical Installations



#### **4.7. Personal Protective Equipment**

Lightning Electrical Services will ensure that appropriate Personal Protective Equipment (PPE) is selected, issued, used and maintained in accordance with current State or Territory workplace safety legislation and Australian Standards.

Contractors and Sub-Contractors are to ensure their Electrical Workers have the appropriate Personal Protective Equipment (PPE) for the task performed and that the PPE is used and maintained in accordance with current State's or Territory's workplace safety legislation and Australian Standards. PPE for Electrical Workers will at all times include a full length uniform made of 100% cotton or flame resistant material with no metal components.

It is the responsibility of every Electrical Worker to regularly examine their PPE to ensure it is in a satisfactory condition so that their work tasks can be safely completed.

#### **4.8. Electrical Safety Equipment and Instrumentation**

It is the responsibility of every Electrical Worker to regularly examine all items of Electrical Safety Equipment they are using to ensure the equipment is within the 'in-test' date and is in an electrically safe condition for the work being carried out.

Audits will be conducted every six months to ensure safety equipment is being used appropriately, is in an electrically safe condition and complies with current State or Territory electrical safety legislation.

On each occasion before an Electrical Safety Equipment is used, it shall be visually inspected for any damage or defect to ensure that it is in a safe condition.

The due date for recalibration/retest must be checked to ensure currency.

If the equipment has any defect or is out of calibration/ test date it shall be withdrawn from service, tagged as faulty and not used until it is repaired and/or re-calibrated/ tested.

It is the responsibility of every Electrical Worker to ensure that the equipment used shall have the appropriate function, range, and accuracy for the work and condition.

Categories are:

- **Installation Category 3:** Relates to the distribution level, main switchboards etc. This category of instrument may be used on a sub/board or a main switchboard that is not supplied directly from a transformer.
- **Installation Category 4:** Relates to the primary supply level and this is the only category of instrument that is to be used to identify voltage on a main switchboard supplied directly by a transformer. Electricians that are required to work on or test package subs or overhead service supplies, right through to the Main Switchboard, must use Category 4-type test equipment.

Electrical Instrumentation that is used for compliance testing, i.e., Certificates of Test (CoT) or Certificates of Compliance (CoC) must be tested and calibrated six monthly, and the next test date marked on each item with records of calibration kept for seven years.

Electrical Instrumentation that is used for testing components or equipment where the results must be accurate must also be tested and calibrated six monthly, and the next test date marked on each item with records of calibration kept for seven years.

Electrical Instrumentation that is used simply for checking of electrical presence need not be calibrated six monthly, but must be checked for correct operation before, during and after isolation.

Audits must be conducted every six months to ensure electrical safety instrumentation is being used appropriately, are in an electrically safe condition and comply with current State or Territory electrical safety legislation.

#### 4.9. Safety in Customer's Installations

If an unsafe situation is discovered in a customer's installation, the following process is to be taken:

| Defect   | Action   |
|--|--|
| <b>Repair Defect</b>   | Discussion will be held with the customer to repair/rectify the defect.  |
| <b>Disconnect Defect</b>   | If the customer will not agree to repair the defect, the customer is to be advised that the defect must be disconnected.   |
| <b>Temporary Repair of Defect (Ensure Repair is Electrically Safe)</b> | If the customer does not agree to disconnection an attempt will be made to obtain permission to carry out temporary repairs to make safe.  |
| <b>Report Defect</b>   | <p>If this cannot be achieved the Electrical Safety Office and/or the electrical supply authority is to be advised immediately.</p> <p>The name of the person to whom the report was given will be recorded including the time and date of the report.</p> |
| <b>Document Defect (Disconnection or Repair or Report)</b>             | If the defect is disconnected or temporary repairs made, an <b>Electrical defect report</b> is to be completed and handed to the customer stating that permanent repairs are required.   |
| <b>Electrical Supervisor Notification</b>                              | The Electrical Supervisor must be notified and appropriate action to be taken to ensure the defect is left electrically safe or the defect is reported.  |
| <b>Electrical Work Defective</b>                                       | If defective Electrical Work is discovered, an <b>Electrical defect report</b> will be completed and forwarded to the relevant Territory electrical safety body and or electrical supply authority.  |

## 5. AUTHORISATIONS AND APPROVALS

### 5.1. *Request to Electrical Supply Authority*

Prescribed forms such as metering changes, connections and disconnections of supply from the electrical supply authority shall be complied with as per relevant State's or Territory's legislative requirements and forwarded to the distributor whenever an initial connection or metering change is required.

### 5.2. *Defects Reported By the Relevant State or Territory Electrical Safety Body*

Improvement or Prohibition Notices issued by the State's or Territory's electrical safety regulatory authority shall be rectified as soon as practicable, or as specified in the Notice.

Defect reports issued by the State's or Territory's electrical safety regulatory authority or a network distributor shall be actioned according to the respective State's or Territory's legislative requirements.

### 5.3. *Implicit Approval*

Implicit Approval must comply with relevant State's or Territory's legislative requirements.

It is understood that upon receipt of a job request, either verbal or written, provided the instruction is documented on a Job Docket and the site contact is named with contact details, it will be implied the Person in Control (normally the owner) of the Electrical Installation or Electrical Equipment, has authorised the Electrical Work to be performed.

All contracts will address the specific requirement of Approval to Perform Electrical Work with the approval of the Person in Control of the Electrical Installation or Electrical Equipment.

Where the Person in Control does not allow their Implicit Approval then contractual arrangements with designated procedures must be written and approved.

### 5.4. *Live Work*

Live Electrical Work must only be carried out in exceptional circumstances and only upon one of the following conditions:

- It is necessary in the interest of safety, whether or not electrical safety, for the work to be performed while the electrical equipment (which is the subject of electrical work) is energized;
- A supply of electricity is necessary for the proper performance of the electrical work;
- There is no reasonable alternative to performing the electrical work by live work;
- It must be emphasized that only upon the above conditions is Live Work permitted.

As such, it should never be assumed that Implicit Approval is given for electrical work that is live work, with the exception of Testing or Fault Finding.

Testing or Fault Finding can be done following the completion of a Risk Assessment process to ensure that the Testing or Fault Finding task is safe to proceed with.

In all cases, the Person in Control must be notified, be fully aware that the work is being performed, and sign off their authorisation, prior to the work being completed on the **Live Electrical Work Permit**.

The Live Electrical Work Permit must also be signed and approved by the Lightning Electrical Services Manager and the respective state electrical nominee/endorsee prior to the work being completed.

If there is no authorisation, there must be no Electrical Work whereby Live Work is performed.

### **5.5. High Voltage Work**

Only suitably competent and licensed Electrical Workers in accordance with the Territory's legislation and regulations are to carry out High Voltage work.

Attendance records for High Voltage switching or maintenance training shall be maintained for seven years. Refresher training shall be completed at least every two years.

All High Voltage switching, testing and certification is to be carried out with complete consultation and under the control of the relevant High Voltage System Controller.

All High Voltage connect or reconnection to a source of supply must be carried out in accordance with the Territory's legislative requirements and under the control of the relevant High Voltage System Controller.

### **5.6. Hazardous Locations**

Only suitably trained and licensed personnel in accordance with respective State's or Territory's legislation and regulations are to carry out Hazardous Location Electrical Work.

All Hazardous Location Electrical Work for connect or reconnection to a source of supply shall be in accordance to the respective Territory's legislative requirement.

### **5.7. Working in the Vicinity of Overhead or Underground Services**

All Electrical Work in the vicinity of electrical services, whether overhead or underground, must comply with the Territory's legislative requirements including permits and/or exclusions zones/approach limits.

The Electrical Worker must complete a written Risk Assessment before any excavation or Elevated Work Platform (EWP) works are to proceed.

With regard to excavation works, the Risk Assessment must include information from appropriate sources such as "Dial Before You Dig" and Underground Service Locating Sub-Contractors. This information shall include the following:

- What underground electrical services are at or near excavation works.
- Location of electrical services.
- Type and depth of services.
- Whether it is live, i.e. energised.

That the above information be provided to workers working near the excavation or near the location of the electrical service.

Location information provided on plans is to be regarded as a field guide only. An electronic cable detector is to be used when locating electrical services.

Machine excavation is only permitted to a distance no closer than 300mm from a service, material within this distance from the service is to be removed by hand excavation.

The Electrical Supervisor or Electrical Contractor must sign off their approval on the Risk Assessment for the excavation or EWP works. The Risk Assessment must identify appropriate control measures to prevent any inadvertent contact with any electrical cables.

*Example: Excavation; Hand digging or the use of Suction Trucks and high-pressure water blasters. EWP; Must have a Safety Observer.*

Excavation or EWP works must never be performed within the Territory's legislative exclusion zones/approach limits of live High Voltage cables.

## **6. SUPERVISION**

### **6.1. Electrical Workers Supervision**

All Lightning Electrical Services Electrical Workers must, for all Electrical Work, report to a nominated Electrical Supervisor.

Electrical Workers will only be supervised by persons who have at least the same level of Electrical Licence.

A nominated Electrical Supervisor must be:

- A qualified and licensed Electrical Worker, or
- A qualified and licensed Electrical Worker who is already a Works Supervisor or Manager, or
- An electrical nominee or electrical endorsee (Electrical Contractors licence holder)

An electrical nominee or electrical endorsee is a person who is an open class, licensed Electrical Worker who is also the nominee for the company's Electrical Contractor License.

*Example: A site Licensed Electrician who is issued Electrical Work by a Supervisor or Manager who is not electrically licensed, must have a nominated Electrical Supervisor to report to. The Electrical Supervisor must be electrically qualified and the Electrical Worker will report to this person for their Electrical Work, if required. This is for general electrical compliance reasons and to ensure that every Electrical Worker has a qualified person to discuss their Electrical Work with if need be.*

The Electrical Supervisor assists in ensuring that legislative electrical compliance obligations are being met by Lightning Electrical Services.

Compliance obligations include:

- A clear and concise description of the work completed on Job Dockets and Certificates of Test/Compliance (where applicable).
- The site address, including the building number, floor number and the room number.
- The circuit number and current rating of the protection device.
- That a task specific Risk Assessment is attached dated and signed.
- Where appropriate that compliance testing has been completed and a Certificate of Compliance has been issued.
- That compliance test results are attached to the Certificate of Compliance as proof of testing.

- Mandatory tests can include earth continuity, insulation resistance, polarity, RCD testing and correct circuit connections.

## **6.2. Contractor Supervision**

Lightning Electrical Services Contract Managers/Supervisors, Project Managers/Supervisors, Site Supervisors and/or Team Leaders must not directly supervise Electrical Contractors for Electrical Work (i.e. whether it complies with Australian Standards and the Electrical Safety Legislation) unless they have the necessary and appropriate qualification as an electrical supervisor.

Lightning Electrical Services Managers/Supervisors, Project Managers/Supervisors, Site Supervisors and/or Team Leaders who manage or administrate Electrical Contractors, but are not appropriately qualified as an Electrical Supervisor, are to ensure that all Lightning Electrical Services Electrical Contractors in their charge comply with the Lightning Electrical Services Occupational, Health & Safety Management System.

- The Electrical Contractor and their Electrical Workers are familiar with, and comply with, all aspects of the Occupational, Health and Safety Management System to ensure they are competent to carry out Electrical Work in the required manner including all required documentation. This is to be achieved via annual Occupational, Health and Safety Management System refresher training.
- The Electrical Contractor verifies through documented and signed Inspection and Test Plans (ITP's) that all Electrical Work is carried out in an Electrically Safe manner.
- The Electrical Contractor verifies that all work, undertaken by their company and any subcontract staff in their employ, complies with the Territory legislative requirements and Australian Standards and that the correct electrical tests have been performed, documented and signed.

## **6.3. Apprentice Supervision**

Lightning Electrical Services will comply with all current Territory electrical safety legislation requirements for the training and supervision of Apprentices.

All Apprentices, regardless of standard of training or trade, must be under the direct control of a nominated Electrical Supervisor or nominated Electrical Worker whilst performing Electrical Work. Direct control means knowledge of the person, where they are and what activity they are doing.

The name of both the Apprentice and the nominated Electrical Supervisor or nominated Electrical Worker will be documented on the Job Docket or Job Sheet.

State and Territory electrical safety legislation makes reference to Apprentice supervision. This, together with National Supervision Policy Guideline for Electro-technology Apprenticeships forms the basis of the supervision requirements for Lightning Electrical Services Apprentices.

### **Apprentices Year 1 and 2**

Year 1 and 2 Apprentices must have direct supervision. These Apprentices are to be under the direct supervision of a person who is authorised to do the Electrical Work. Refer (Section 42B 1(a), NT Electrical Workers and Contractors Act 2002) and (Direct supervision means at all times on a direct and constant basis, Qld Code of Practice Electrical Work, Electrical Safety Act 2002)

The Electrical Supervisor or Nominated Electrical Worker must decide and instruct the Apprentice for the safe completion of electrical work. The Apprentice must not make these decisions.

## **Apprentices Years 3 and 4**

Year 3 and 4 Apprentices in the context they are being trained to be a Tradesperson must have appropriate site supervision and the Electrical Supervisor must make the decisions having regards to:

- The type of Electrical Work performed
- The adequacy of the Apprentice's training
- The competency of the Apprentice

Refer (Section 42B (b) NT Electrical Workers and Contractors Act 2002)

The Electrical Supervisor or Nominated Electrical Worker in all cases must make the decisions on the competency of the person performing electrical works.

Instructions should not be relayed to an Apprentice through a third party who is not the Electrical Supervisor or Nominated Electrical Worker.

*Example: An instruction is never to be issued in passing on a message.*

## **7. QUALITY CONTROL**

### ***7.1. Testing of Electrical Work***

All Electrical Work will be tested to ensure it complies with legislative requirements and is electrically safe. Electrical testing must be in accordance with Section 8 of Australian Standards AS/NZS 3000 - Wiring Rules and AS/NZS 3017 - Electrical Installations -Testing Guidelines.

### ***7.2. Site Inspection before Leaving***

Before leaving the site a visual inspection must be conducted to ensure all cables have been correctly terminated and the installation and/or equipment and ancillaries is electrically safe.

All completed Electrical Work must comply with relevant standards and be in accordance with the customer's requirements.

### ***7.3. Certificate of Test/Compliance***

The Certificate of Test/Compliance must be issued to the customer and/or the electrical supply authority following all Electrical Work.

The Certificate of Test/Compliance must be issued in accordance with Territory legislative requirements.

### ***7.4. Standards Audit***

Audits will be conducted on a regular basis to ensure that the Electrical Work completed has been conducted in accordance with all relevant legislative and Australian Standards requirements.

The relevant Electrical Supervisor, Contract or Project Managers/Supervisors, Site Supervisor and or Team Leaders will be responsible to ensure Occupational; Health & Safety Management System compliance audits are conducted. Completed Occupational, Health and Safety Management System audit forms will be retained in the site Lightning Electrical Services contract file for a period of at least seven years.

The auditor must be a person who is electrically qualified, competent to assess the accuracy and relevance of company procedures and is familiar with electrical safety requirements.

The auditor will understand the responsibilities of electrical contractors in accordance with current Territory electrical safety legislation.

### **7.5. Control of Documents**

All recommended changes to the Occupational, Health and Safety Management System and associated documentation will be reviewed through consultation with appropriately qualified personnel.

Any change to procedures, amendments to manuals or new documents will be issued to relevant Electrical Workers. Electrical Workers will be required to remove redundant documents from their manuals at this time. Discussions on changes will be held and minuted at staff meetings. A record of all documents issued to each person will be maintained.

A signature from the Electrical Worker will be required for the issue of PPE, standards and any other significant documents.

This record will be maintained in the Electrical Worker's personnel record file.

### **7.6. Control of Records**

The following documents will be retained for seven years:

- Certificate of test/compliance issued to the customer and or electrical supply authority
- Record of tests on testing instruments
- Record of tests on safety equipment
- Safety, Competency and Procedure Audit Schedule
- Training records

## **8. WORKING LIVE**

All Electrical Workers must comply with the following Live Work procedures.

Live Electrical Work is only to be carried out in exceptional circumstances; such that a break in supply to isolate the relevant parts of the installation for the particular work proposed will endanger the safety and health of users of the installation, or that a supply of electricity is necessary for the proper performance of electrical work, or is not possible in practice.

In all these exceptional circumstances, a written case must be prepared to justify Live Electrical Work to be carried out. Live Electrical Work, excluding testing, fault finding and commissioning, must be undertaken in the presence of a safety observer who is competent to perform the particular task involved and is competent in electrical rescue and cardio-pulmonary resuscitation. Live Electrical Work for testing, fault finding and commissioning, may still require a safety observer pending outcome of application of risk control measures in accordance to Australian Standard AS 4836 Section 3.



### **8.1. Risk Assessments**

A task specific Risk Assessment must be completed prior to commencement of any Live Work.

Any Electrical Work, which is by definition Live Work, including testing, fault finding, installation, repairs or maintenance to electrical cables or components must only occur following a written Risk Assessment and the implementation of appropriate control measures as outlined in Australian Standard AS 4836 Section 3.1.

### **8.2. Live Work Permits**

All Live Work, other than testing and fault finding, performed by Electrical Workers will be in accordance with the **Live Electrical Work Permit** and that the permit must be completed before the work commences.

The owner/customer, the relevant Lightning Electrical Services Manager and the respective Territory's electrical nominee/endorsee must acknowledge their approval for the Live Work on the Live Electrical Work Permit prior to the task being commenced.

A customer who requires Live Work to be carried out, with the exception of testing or fault-finding, will be required to sign an acknowledgment on the Live Electrical Work Permit. This must state they are aware of the responsibilities of Live Work and there is no reasonable alternative.

Important Note: Additional cost and/or commercial convenience is not accepted as a reason for Live Work.

### **8.3. Live Work Method**

Access to Energised terminals for the purpose of Live Work will be permitted only when:

- A Risk Assessment is conducted and completed
- Test equipment complies with Australian Standard AS 61010.1
- The appropriate test equipment is tested and is within 'in-test' date
- The appropriate PPE and Electrical Safety Equipment is used and is within 'in-test' date
- No hand tools or power tools are used
- There is no direct contact with, or movement of, Energised conductors
- The isolation point of the relevant electrical supply has been clearly identified and is able to be reached and operated quickly without any need to negotiate or remove obstacles
- The work area is clear of obstruction so as to enable entry and exit quickly and safely
- Unauthorised persons are prevented from entering work area by signage and barriers

## **9. GENERAL PROCEDURES**

### **9.1. Lock and Tag**

To ensure the safety of Electrical Workers, our clients and the public, isolation points are to be identified prior to commencing the work, and will be isolated, Locked and Tagged in accordance with relevant State or Territory legislative requirements and Australian Standard AS 4836.

Lightning Electrical Services Electrical Contractors must also have their own Lockout Kit. It must be supplied by the Electrical Contractor to their Electrical Workers and be suitable and effective to be able to lock out electrical equipment.

Electrical equipment requiring work to be performed must be isolated from all sources of supply either by opening switches, removing fuses or switching circuit breakers. Appropriate warning tags and lockout devices must also be placed at points of switching, isolation or disconnection.

To safeguard against inadvertent reconnection by others after being absent from the immediate work areas, checks and tests must be carried out to ensure that electrical equipment being worked on is still isolated.

- All tags must be checked and removed by approved signatories.
- No one must remove a tag belonging to another person.
- The person who has placed the tag on in the first instance has exclusive authority to remove the tag.

Only in very extreme circumstances can another person remove a tag, and in this case, it may only be removed by the Supervisor or Contract Manager or at their direction, and only after it has been deemed safe to do so.

When removal of "Danger Do Not Operate" tags for electrical equipment under repair, maintenance or decommissioning is required; the electrical equipment must be isolated from supply and appropriate tests made to ensure the equipment is de-energised. An "Out of Service" tag is placed at the Isolation Point.

### **9.2. Test and Tag**

All portable electrical equipment and safety switches or Residual Current Devices (RCD's) requiring testing to ensure the item is electrically safe must be fitted with a Test Tag that complies with Australian Standard AS 3760 and complies with current State or Territory electrical safety legislation.

All Lightning Electrical Services used portable electrical equipment will be Tested and Tagged. This is irrespective of Territory electrical safety legislation that states Testing and Tagging of portable electrical equipment protected by safety switches in some circumstances is not required. If the Lightning Electrical Services requirement is greater than territory legislation, then the Lightning Electrical Services standard will be maintained.

The minimum qualification permissible by Lightning Electrical Services to perform Testing and Tagging of portable electrical equipment is the Test and Tag Course, available through TAFE or an equivalent, where a person has been assessed as competent and deemed qualified to perform the task. This qualification allows for Testing and Tagging of portable electrical appliances only, but not maintenance or repairs.

Maintenance or repairs to portable electrical equipment will only be completed by licensed Electrical Workers.

## 10. ELECTRICAL WORKER RECORDS

### 10.1. *Electrical Employees*

An employee file will be maintained for each Electrical Employee. The file will contain documentation of their nominated **Electrical Supervisor**.

- Personal contact details
- Copies of current certificates of competencies (licences)
- Copies of relevant technical or other certificates
- Copy of current drivers licence
- insurance details if vehicle is supplied via “car allowance”
- recruitment process
- Details and documented evidence of any relevant courses (internal and external) completed
- Associated training records, including induction declarations and assessments
- Copies of any significant defects, listed on the distributor’s inspection report, which can be attributed to the person
- Record of issued documentation, test equipment, PPE, and electrical tool list
- Details of any disciplinary action

*The above details will also be retained for any casual or contract technical staff.*

### 10.2. *Electrical Contractors/Subcontractors*

Details will be maintained on all Electrical Contractors. The file will contain:

- A contractor pre approval qualification
- Sub contractor personal contact details as per the Lightning Electrical Services Agreement
- Copies of certificates of competencies (licences)
- Copies of certificates of currency for relevant insurances
- Copies of relevant technical or other certificates
- Copy of current drivers licence if applicable
- Details of any relevant courses completed and all associated training records, including induction declarations and assessments
- Copies of contract performance assessments
- Copies of any significant defects, listed on the distributor’s inspection report, which can be attributed to the Contractor
- Record of issued documentation, test equipment, PPE and electrical tool list

- Details of any disciplinary action or corrective action reports

## **11. ELECTRICAL EMPLOYEE TRAINING AND ASSESSMENT**

### ***11.1. Occupational, Health and Safety Management System Training***

- Occupational, Health and Safety training is provided annually to all Electrical Workers directly employed by Lightning Electrical Services. They will be required to complete an annual Occupational, Health and Safety Management System compliance questionnaire “Occupational, Health and Safety Participant Questionnaire” or its equivalent.
- Occupational, Health and Safety Management System training is required for Lightning Electrical Services Supervisors and Managers who have Electrical Workers or Electrical Contractors reporting to them.
- Electrical Contractors are required to attend Occupational, Health, and Safety & Environment Management System training prior to commencement and/or are required to demonstrate compliance with the Occupational, Health & Safety Management System. They will be required to complete an annual Occupational, Health and Safety Management System compliance questionnaire “Occupational, Health and Safety Management System Participant Questionnaire” or its equivalent.

### ***11.2. Training Assessments***

Electrical Employee training requirements will be assessed annually. The minimum training required will be annual refresher of the Occupational, Health & Safety Management System.

Internal and external training will be made available to Electrical Employees to improve technical competencies and as required by any legislative changes.

### ***11.3. Competency Audits***

Audits on new employees must be conducted once a month for the first three months. Existing employees should be audited at least annually with records being maintained for seven years. More frequent audits will be conducted if the performance of a particular Electrical Worker is considered unsatisfactory.

When non-conformances are identified they will be immediately discussed, documented with the relevant person and appropriately actioned.

Persons with their own electrical contractors licence but working under the control of the Lightning Electrical Services contractor’s licence will be included in the audit program.

Action plans are to be developed where deficiencies are identified through the audit process.

## 12. DEFINITIONS

| TERM                         | DEFINITION  |
|------------------------------|---|
| <b>Approval</b>              | Agreement is reached whether verbal or written and must be documented.  |
| <b>Competent</b>             | Having acquired through training, and qualifications, experience or a combination of these, the knowledge and skills to correctly perform the task required. (AS/NZS 4836, Section 1.5.3)   |
| <b>Electrical Supervisor</b> | An agreed and nominated licensed Electrical Worker. This person assists in ensuring that the legislative electrical compliance obligations are being met by Lightning Electrical Services.  |
| <b>Electrical Worker</b>     | A person engaged in the installation, maintenance, repair, alteration, testing or fault finding on electrical equipment, including the supervision of such work. (AS/NZS 4836, Section 1.5.8)   |
| <b>Electrically Safe</b>     | <ul style="list-style-type: none"> <li>• For a person or property, that the person or property is free from electrical risk;</li> <li>• For electrical equipment or an electrical installation, that all persons and property are free from electrical risk from the equipment or installation;</li> <li>• For the way electrical equipment, an electrical installation or the works of an electricity entity are operated or used, that all persons and property are free from electrical risk from the operation or use of the equipment, installation or works;</li> <li>• For the way electrical work is performed, that all persons are free from electrical risk from the performance of the work;</li> <li>• For the way a business or undertaking is conducted, that all persons are free from electrical risk from the conduct of the business or undertaking; and</li> <li>• For the way electrical equipment or an electrical installation is installed or repaired, that all persons are free from electrical risk from the installing or repairing of the equipment or installation</li> </ul> |
| <b>Energised</b>             | Connected to a source of electrical supply or subject to hazardous induced or capacitive voltages. (AS/NZS 4836, Section 1.5.9)   |

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| <b>Exposed Conductors</b> | Electrical conductors and parts, the approach to which is not prevented by a barrier or rigid material in good order or by insulation that is adequate for the voltage concerned and that is in sound condition. (AS/NZS 4836, Section 1.5.11)   |
| <b>Fault Finding</b>      | <p>The process of making measurements or 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. (AS/NZS 4836, Section 1.5.12)</p> <p><i>Examples:</i></p> <p>1) <i>Tracing a fault on a refrigeration control circuit</i></p> <p>2) <i>Tracing a fault on a motor or an appliance</i></p>   |
| <b>High Voltage</b>       | Voltage that exceeds 1000 volts AC or 1500 volts DC. (AS 4836).  |
| <b>Incident</b>           | An actual or an apparently imminent occurrence of an event that endangers or threatens to endanger the safety or health of any person, or destroys or damages or threatens to destroy or damage any property, or any other event or alarm that results in a response by the reporting authority.   |
| <b>Live Work</b>          | <p>Electrical work performed in circumstances in which some or all of the electrical equipment the subject of the Electrical Work is energised.</p> <p>This includes testing; however, a safety observer is not required for testing, unless a risk assessment finds that one is required.</p> <p>Live work includes:</p> <p>Testing, tightening live or energised terminals, tracing cables through a live switchboard, vacuuming a switchboard, component removal or replacement or drilling a hole into a live or energised switchboard.</p> <p>The following are examples of Live Work</p> <ul style="list-style-type: none"> <li>• Testing components of a television set that's switched on to carry out a repair</li> <li>• Testing to ensure correct connections (including polarity)</li> <li>• Tightening the terminals of live circuit breakers</li> <li>• Pulling cables into or through a switchboard where there is exposure to live terminals and or energised conductors.</li> </ul> |

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| <b>On or Near</b>                          | <p>Proximity to exposed energised conductors where there is possibility of either of the following coming within 500 mm (or other approved distance, exclusions zones) of the energised exposed conductors, whether deliberate, accidental or inadvertent:</p> <ul style="list-style-type: none"> <li>• A person's body.</li> <li>• Any object, which a person may be carrying or touching during the course of the work that is not designed for use on energised conductors operating at that voltage. (AS/NZS 4836, Section 1.5.20)</li> </ul> |
| <b>Personal Protective Equipment (PPE)</b> | <p>Safety clothing and equipment for specified circumstances or areas, where the nature of the work involved or the conditions under which people are working, requires its wearing or use for their personal protection to minimise risk.</p>  |
| <b>Safe System of Work</b>                 | <p>For Live Work on a low voltage electrical Installation, includes, but is not limited to a system of work that complies with the provisions of AS/NZS 4836 (Safe Working on Low Voltage Electrical Installations) about ensuring the safety of persons while performing Live Work.</p>  |

## Safety Observer

In relation to observing for the performance of Electrical Work means a person, specifically assigned the responsibility of observing and warning against unsafe approach to equipment, exposed energised conductors and other potential hazards; (AS/NZS 4836, Section 1.5.22)

Who is competent to help, and is suitably trained in the work, and has an understanding of the Electrical Work being performed.

Whose competency to help, training and understanding of the Electrical Work performed has been assessed by an approved trainer within the last six months.

Who is competent to rescue the person performing the Electrical Work and to provide resuscitation.

Whose competence for rescue and resuscitation has been assessed in the last six months.

Having an approved low-voltage rescue kit, that includes gloves and rescue crook that is in current test date range, at all times throughout the observation.

Who must not be employed to perform any other task or be distracted during the observation.

*Example 1: Installation Category 4:*

*Relates to the primary supply voltage on a main switchboard supplied by a transformer.*

*An Electrical Worker performing testing or fault finding in this category must have a Safety Observer who will be a duly qualified and licensed Electrician.*

*Example 2: All other installation categories:*

*An Electrical Worker performing testing or fault finding in all other situations where the cable size is greater than 16mm<sup>2</sup> and the immediate protection device is rated above 80 amps must have a Safety Observer who is a duly qualified and licensed Electrical Worker.*

*Example 3: Emergency*

*An Electrical Worker performing Electrical Work in an emergency situation must without exception, have a Safety Observer who is a duly qualified and licensed Electrical Worker, when:*

- *A 'state of Emergency' exists as declared by State or Federal Government e.g. severe storms or cyclones.*
- *A hospital, aged care facility or like facility, where it is imperative that the electrical supply either to the installation or electrical equipment must be urgently restored (within 1-2 hours), the Supply authority supply of electricity is cut – Brown Outs or Black Outs and/or Emergency Back-up generation plant has failed.*
- *A domestic or commercial installation during a power outage where there is the possibility of a temporary emergency generator being connected and there exists a possibility of back-feeding.*



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| <b>Testing</b> | The use of logical methodology or test instruments, or test equipment by a competent person. (AS/NZS 4836, Section 1.5.25)<br><br><i>Examples:</i><br><br>1) <i>Installation testing</i><br><br>2) <i>Testing for presence of voltage at main switch.</i> |
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