Network Standard

NETWORK	Document No : NW000-S0091 Amendment No : 3 Approved By : Manager - AES Approval Date : 22/04/2020

Minor amendments approved on 14/06/2024

NW000-S0091 **NS148 OVERHEAD LINE SUPPORT, STREET LIGHT COLUMN, PIT AND PILLAR LABELLING**

ISSUE

For issue to all Ausgrid, contractor and Accredited Service Providers' staff involved with the allocation and installation of identification labels for overhead line supports, street lighting poles, pits, distribution pillars, and ancillary assets and is for reference by field, technical and engineering staff.

Ausgrid maintains a copy of this and other Network Standards together with updates and amendments on www.ausgrid.com.au.

Where this standard is issued as a controlled document replacing an earlier edition, remove and destroy the superseded document

DISCLAIMER

As Ausgrid's standards are subject to ongoing review, the information contained in this document may be amended by Ausgrid at any time. It is possible that conflict may exist between standard documents. In this event, the most recent standard shall prevail.

This document has been developed using information available from field and other sources and is suitable for most situations encountered in Ausgrid. Particular conditions, projects or localities may require special or different practices. It is the responsibility of the local manager, supervisor, assured quality contractor and the individuals involved to make sure that a safe system of work is employed and that statutory requirements are met.

Ausgrid disclaims any and all liability to any person or persons for any procedure, process or any other thing done or not done, as a result of this Standard.

All design, construction, operation, maintenance and demolition work, and the associated supply of materials and equipment, must be undertaken in accordance with and consideration of relevant legislative and regulatory requirements, latest revision of Ausgrid's Network Standards and specifications and Australian Standards. Designs and plans submitted shall be declared as fit for purpose. Where it is wished to include a variation to a Network Standard or an alternative material or equipment to that currently approved authorisation must be obtained from the Network Standard owner before incorporating a variation to a Network Standard. All designers including those authorised as Accredited Service Providers will seek approval through the approved process as outlined in NS181 Approval of Materials and Equipment and Network Standard Variations. Seeking approval will ensure Network Standards are appropriately updated and that a consistent interpretation of the legislative framework is employed.

Notes: 1. Where this Network Standard relates directly or indirectly to the preparing a design, compliance with this Network Standard does not automatically satisfy the requirements of a Designer Safety Report. The designer must comply with the provisions of the Workplace Health and Safety Regulation 2011 (NSW) - Part 6.2 (Duties of designer of structure and person who commissions construction work) which requires the designer to provide a written safety report to the person who commissioned the design. This report must be provided to Ausgrid in all instances, including where the design was commissioned by or on behalf of a person who proposes to connect premises to Ausgrid's network, and will form part of the Designer Safety Report which must also be presented to Ausgrid. Further information is provided in Network Standard (NS) 212 Integrated Support Requirements for Ausgrid Network Assets.

2. Where the procedural requirements of this document conflict with contestable project procedures, the contestable project procedures shall take precedent for the whole project or part thereof which is classified as contestable. Any external contact with Ausgrid for contestable works projects is to be made via the Ausgrid officer responsible for facilitating the contestable project. The Contestable Ausgrid officer will liaise with Ausgrid internal departments and specialists as necessary to fulfil the requirements of this standard. All other technical aspects of this document which are not procedural in nature shall apply to contestable works projects.

INTERPRETATION

In the event that any user of this Standard considers that any of its provisions is uncertain, ambiguous or otherwise in need of interpretation, the user should request Ausgrid to clarify the provision. Ausgrid's interpretation shall then apply as though it was included in the Standard and is final and binding. No correspondence will be entered into with any person disputing the meaning of the provision published in the Standard or the accuracy of Ausgrid's interpretation.

KEYPOINTS

This standard has a summary of content labelled "KEYPOINTS FOR THIS STANDARD". The inclusion or omission of items in this summary does not signify any specific importance or criticality to the items described. It is meant to simply provide the reader with a quick assessment of some of the major issues addressed by the standard. To fully appreciate the content and the requirements of the standard it must be read in its entirety.

AMENDMENTS TO THIS STANDARD

Where there are changes to this standard from the previously approved version, any previous shading is removed and the newly affected paragraphs are shaded with a grey background. Where the document changes exceed 25% of the document content, any grey background in the document is to be removed and the following words should be shown below the title block on the right hand side of the page in bold and italic, for example, Supersedes – document details (for example, "Supersedes Document Type (Category) Document No. Amendment No.

KEY POINTS OF THIS STANDARD

Scope and Risks Addressed

This standard is limited to scope identified below and provides controls for associated risks as listed below:

- ☐ Applies to all Ausgrid owned poles (including those supporting substation and other major separately labelled equipment), street lighting columns, pits, pillars, waterway crossing sign supports, and lightning masts
- ☐ Overhead line supports owned by other authorities (excluding Telstra common use poles) and supporting Ausgrid distribution mains or street lighting shall be labelled in the same manner
- ☐ Does not apply to labelling of private poles, Ausgrid substations, street light control points or other pole mounted equipment

Where to for more information?

Clause 2.0

Responsibilities and Numbering

Allocation and installation of asset identification numbers:

- ☐ Responsibilities
- ☐ Numbering system
- ☐ Ausgrid's integrated information Management System (SAP)

Where to for more information?

Clause 3.0, 4.0, 7.0

Tools and Forms

Clause 4.0 and SAP

Labelling System and Installation

Labelling System and Installation requirements:

- ☐ Former labelling system
- ☐ New labelling system
- ☐ Label installation procedures

Where to for more information?

Clause 5.0, 6.0, 8.0

Tools and Forms

Annexure A and NS181

Network Standard
NS148
Overhead Line and Street Lighting Supports, Pits, and Pillar Labelling

Contents

1.0 PURPOSE

This Network Standard specifies the requirements and procedure for allocating and installing identification numbers on overhead line supports, street lighting columns, pits, and pillars and ancillary assets in Ausgrid's supply area.

2.0 SCOPE

This Network Standard applies to all Ausgrid-owned overhead line supports (including rural subsidy scheme poles in the Singleton, Cessnock and Maitland local government areas), street lighting columns, pits, pillars, waterway crossing sign supports, and lightning masts.

Overhead line supports owned by other authorities (excluding Telstra common use poles) and supporting Ausgrid distribution mains or street lighting shall be labelled in the same manner as Ausgrid-owned poles.

This Network Standard does not apply to the labelling of private poles (customer pole "A", etc), or to the labelling of Ausgrid mains and apparatus (substations, transformers, circuit breakers, switches, links, fuses, feeders, street light control points, or any pole mounted equipment, etc) the labelling of which is covered in NS158 Labelling of Mains and Apparatus.

3.0 RESPONSIBILITIES

3.1 Allocating asset identification numbers

3.1.1 New or relocated assets (Ausgrid capital and operations work)

Ausgrid's relevant Senior Portfolio Manager is responsible for allocating identification numbers for assets installed or relocated (refer to Clause 7) in accordance with capital or operations work carried out by Ausgrid.

3.1.2 New or relocated assets (contestable work)

Ausgrid's relevant Customer Connections Manager is responsible for the allocation of identification numbers for assets that are to be installed or relocated (refer to Clause 7) by Accredited Service Providers (ASPs).

3.2 Installing asset identification numbers

Identification number labels must be sourced and installed by Ausgrid employees, contractors or ASPs at the construction phase of a project as prescribed in the notification/work plan. The materials used, and method of installation, must meet the requirements of this Network Standard.

4.0 NUMBERING SYSTEM

The numbering system used to identify Ausgrid's overhead line supports, street lighting columns, pits, low voltage pillars, lightning masts and waterway crossing signs, is a seven-character identifier. The first two characters or prefix, indicate the map area containing the asset and the remaining 5 numerals indicate the number of the asset within the map area.

For all Ausgrid regions except Hunter and Newcastle, the first two characters of the identifier are alpha characters (e.g. MO for Mosman), which corresponds to the New South Wales Mapping Authority grid.

Hunter and Newcastle regions also use a two-character map identifier; however it does not correspond to the New South Wales Mapping Authority grid. Instead the Hunter and Newcastle map numbering system is a sequential grid similar to that shown below.

1A	2A	etc to	8A	9A	AA	BA	CA	DA	etc to …	PA	QA
1B											QB
1C											QC
1D											
etc											
etc											
etc											
1X											QX
1Y											QY
1Z		etc to …	8Z	9Z	AZ	BZ	CZ	DZ	etc to …	P-Z	QZ

Some of the map sections in this grid are not used in practice as they fall outside the extremities of the Hunter and Newcastle regions however, this grid represents the theoretical limit of the area used in the Hunter and Newcastle.

When the numbering systems of Sydney and Newcastle were amalgamated, some map area identifiers were duplicated. To overcome this, the Newcastle/Hunter map sections were renamed with an unused two letter abbreviation that, where possible, reflected the geographic area that it covered (e.g. for the Singleton area, the 'DO' prefix was changed to 'SI'). These changes have been reflected in SAP (Poles & Pillars) and GIS.

5.0 FORMER LABELLING SYSTEMS

The identification labels referred to in this Network Standard must be distinguished from the additional labels that might be installed on many poles to identify street lighting, underslung links, air-break switches, and other equipment – refer instead to NS158 Labelling of Mains and Apparatus for details of labelling these. Throughout Ausgrid a variety of label types have been used to identify overhead line supports, street lighting poles, and distribution pillars.

The Central Coast area, for example, used engraved aluminium labels with no colouring of the lettering as shown in Figure 5.1.

Figure 5.1 - Labels used in the Central Coast area

The Chatswood, Hornsby and Dee Why areas were originally labelled using a 1 to 99,999 number sequence. These labels are engraved natural aluminium with black lettering as shown in Figure 5.2. An additional two-character label indicating the map area prefix was added at a later date to provide a full seven-digit identifier as required under the new numbering system.

Figure 5.2 - Two labels used to identify a pole

The next generation of identification label, based on the new numbering system, was introduced across Ausgrid to provide a consistent labelling system. These engraved seven-character labels consist of natural aluminium characters on a dark bronze (anodised aluminium) background as shown in Figure 5.3.

Figure 5.3 - Engraved 7-character pole identification label

The characters are 30mm high, with label dimensions of 150mm long, 50mm wide, and 0.8mm thick. A 6mm by 2mm slot is punched 5mm from each end of the label to facilitate nailing or screw fixing, or to allow straps to be used to secure the label.

The majority of Ausgrid poles are currently fitted with this type of label.

6.0 CURRENT LABELLING SYSTEM

For all new and replacement (refer to note in Clause 7) identification numbers, individual character type labels shall be used. Three identification label sizes and colour schemes may be used depending on the application.

(a) 25mm slide in character labels shall be used to identify overhead line supports, street lighting poles, pits, pillars, and lightning masts in city and suburban locations. The labels consist of seven individual aluminium characters that slide into a rectangular aluminium holder to facilitate field assembly. Each character is embossed black on a natural aluminium background as shown in Figure 6.1. Labels shall generally be installed horizontally.

Figure 6.1 - 25mm individual character type labels

(b) 50mm slide in character labels shall be chiefly used to identify waterway crossing sign supports and where required, overhead line supports in rural areas, where labels may need to be read from a greater distance than normal. The labels consist of seven individual aluminium characters that slide into a rectangular aluminium holder to facilitate field assembly. Each character is embossed black on a yellow background as shown in Figure 6.2. Labels shall generally be installed horizontally.

Figure 6.2 - 50mm individual character type labels & holder

(c) 50mm individual zincalume character labels may be installed in a vertical-horizontal arrangement, as shown in Figure 6.3, in situations where horizontal space is limited, and the use of the 25mm or 50mm slide-in labels in not practicable.

Note: Alternative labelling methods may be adopted in circumstances where slide in character labels do not afford sufficient security against removal or vandalism, however these must be approved by Ausgrid in accordance with NS181.

Figure 6.3 - 50mm individual zincalume character type labels

The currently approved character labels are as follows:

- 25mm slide-in aluminium embossed black on silver character labels and holders - Almetek H400 'E-Z Tags' (refer to Annexure A – Item 1).
- 50mm slide-in aluminium embossed black on yellow characters and holders - Almetek TR22 (refer to Annexure A – Item 2).
- 50mm zincalume black on yellow characters – Road Management Solutions (or similar) (refer to Annexure A – Item 3).

Depending on the pole type, the Almetek H400 and TR22 holders can be nailed, screwed or adhered into position, or strapped using approved stainless-steel band clamps (i.e. cable tie).

Note: The top and bottom of each end of the holder must be tightly crimped to ensure that the characters are securely held in place and not easily removed by vandals.

7.0 ALLOCATING NUMBERS

Identification numbers for pits, overhead line supports and structures, street lighting columns, distribution pillars, waterway crossing signs, and lightning masts, shall be raised in Ausgrid's asset management system SAP Plant Maintenance.

Note: New identification numbers need only be raised for replaced assets if they are relocated further than five metres from the original position, otherwise the original numbering shall apply.

During the planning phase of a project, Ausgrid shall raise the identification numbers and issue them with the Notification Plan. For replacement or relocation work not requiring a Notification Plan, the person responsible for the work shall raise the new identification numbers (where required) in SAP and issue them to the party carrying out the work.

Where work is to be carried out by an Accredited Service Provider (ASP), Ausgrid shall raise identification numbers at the Design Information stage of the project and issue the numbers to the ASP/3 who must include them in the contestable design plan.

8.0 LABEL INSTALLATION

8.1 Overview

Identification labels shall be positioned so as to be readable when viewing the overhead line support, street lighting column or pillar from the most common line of approach. Where an overhead line support, street lighting column or pillar is positioned alongside a roadway, the identification label shall be positioned approximately as shown in Figure 8.1 below, where practicable.

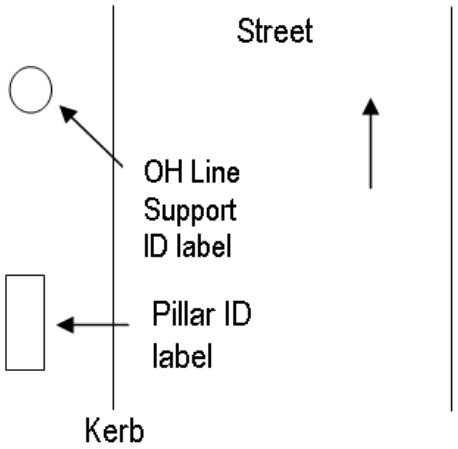

Figure 8.1 – OH line support and pillar label positioning

8.2 Timber Poles

Identification labels shall be secured to timber poles using appropriately sized nails or screws as shown in Figure 8.2.

Figure 8.2 - Example of a slide-in character label on a timber pole

The recommended nails are 40mm x 2.8mm galvanised clouts (refer to Annexure A – Item 12); however, the length and strength of the required nail for a particular pole depend on timber density, moisture content, thickness of the sapwood band (if present), the presence of fungal decay in the sapwood and the species of timber.

A range of nails around this size should be available so the most suitable size can be chosen. All nails and screws for fixing identification labels must be galvanised, irrespective of size. Where a nail proves overly easy to drive in, it will probably not provide adequate fixing over the life of the pole and a longer nail or screw should be used.

Should the surface of the pole be in poor condition because of rotting sapwood, the sapwood must be removed so a good fixing can be obtained, or alternatively, a stainless-steel cable tie may be used to secure the character holder to the pole. Cable ties must go around the pole only and not over any attachments or cables, such as underground to overhead connections (UGOHs) or earth cables. The minimum sized cable tie for this purpose is 6.35mm wide.

Where it is not practicable to install the slide-in characters and holders, 50mm individual zincalume character labels may be used. These shall be secured to timber poles using appropriately sized nails or screws.

The identification label shall be mounted at least 2.4 metres above ground, but no higher than 3.0 metres above the ground. If the label is replacing one that has been vandalised it is even more important that the replacement be mounted higher on the pole.

8.3 Concrete, steel and composite poles and steel columns

Character holders shall be secured to small diameter concrete, steel and composite poles and steel columns using a stainless-steel cable tie as shown in Figure 8.3. These cable ties are available in the following standard lengths: 201mm, 360mm, 520mm and 680mm (refer to Annexure A – Item 4). A heavy-duty range is also available in the following lengths: 838mm and 1000mm. Shorter lengths may be joined together where it is economical to use two shorter length ties rather than a single longer tie.

Character holders must be installed at a minimum of 2.4 metres above ground line, but no higher than 3.0 metres above ground line, to minimise vandalism and avoid the possibility of injury from contact with a sharp edge. The tie must be pulled tight and excess length cable tie shall be trimmed as shown in Figure 8.4 so as not to present a hazard.

Figure 8.3 - Identification label on steel street lighting column

Figure 8.4 - Trim excess length cable tie flush with joiner

Character holders shall be secured to large diameter concrete, steel and composite poles and steel columns using 3M Scotch-Weld acrylic adhesive or equivalent (Refer to Annexure A – Item 5). Similarly, where it is not practicable to install the character holders, 50mm individual zincalume character labels shall be secured to the poles using 3M Scotch-Weld acrylic adhesive or equivalent.

Figure 8.5 – Acrylic Adhesive Applied

Before installing the label, bend it to the shape of the pole and remove any oils or residues from the surface of the pole using Isopropyl Alcohol and a clean cloth. Next, apply the adhesive to the back of each label in a zigzag fashion as shown in Figure 8.5 to achieve a satisfactory bond between surfaces. Upon fixing, the label should be held in place with a Velcro strap or adhesive tape for approximately 10 minutes while the adhesive sets.

8.4 Pillars

8.4.1 Introduction

The following pillars are used by Ausgrid:

- Polypropylene Plastic Pillars.
- Fibreglass Pillars.
- Rectangular Steel Pillars.
- Round Cover Pillars.

The above pillars require identification labels.

Identification labels for pillars shall be 25mm slide-in aluminium embossed black on silver character labels and holders (refer to Annexure A – Item 1). These shall be fixed to Ausgrid pillar housings using double-sided acrylic foam tape (Refer to Annexure A – Item 6).

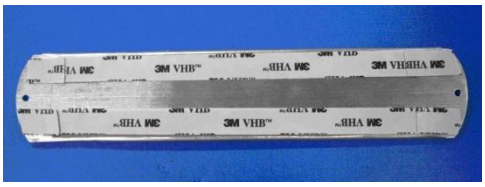

Figure 8 6 – Double-sided acrylic foam tape applied on the back of the aluminium holder

The bonding force of the adhesive takes approximately one week to reach its full design strength, however it will tend to further increase with age.

The double-sided acrylic foam tape must be used with 3M Tape Primer 94 (Adhesion Promoter) (refer Annexure A – Item 7) when attaching character holders to polypropylene pillars.

8.4.2 Polypropylene plastic pillars

WARNING
The labelling of polypropylene/Fibreglass low voltage pillars must be carried out without making penetrations in the housing. This will avoid any contact with live conductors inside the pillar. Care must be taken when attaching labels to ensure no sharp edges are exposed that may cause injury to someone brushing against the pillar.

Identification labels shall be fixed to low voltage polypropylene pillar housings using double-sided acrylic foam tape (See Clause 8.4.1) as follows:

Figure 8.7 - Identification label on a polypropylene plastic pillar

1. Using a file, round off the identification labels corners to remove any sharp points.
2. Clean the area on the pillar, and back of the character holder, using Isopropyl Alcohol (refer Annexure A - Item 10) and a clean cloth. The cleaner shall be sprayed onto the area of the pillar or holder to be cleaned, and a clean face of cloth used to wipe across the area sprayed. It must be wiped ONCE ONLY and in one direction.
3. Turn the cloth to expose a new clean face, or use a new cloth, and wipe once more in the same direction as previously wiped. Repeat this step if necessary, depending on how much cleaning liquid remains on the surface. It may be necessary to respray the area and repeat the wiping procedure if the surface is particularly dirty.
4. When the pillar area is completely dry, apply 3M Tape Primer 94 to the area of the pillar where the character holder is to be fixed.
5. Wait five minutes for the primer to dry.
6. Cut off two 150mm long strips of adhesive tape and stick to the upper and lower long edges of the back of the character holder.

7. After the primer has dried, peel the backing paper from the foam tape and place the character holder against the pillar and press firmly and evenly along the upper and lower edges of the holder.

   Note: Care should be exercised when placing the character holder because once stuck, it will be very difficult to remove.

8. If it is necessary to remove and reapply the character holder, it can be forcibly peeled off, but the area will need to be cleaned and re-primed.

8.4.3 Fibreglass pillars

Fibreglass pillars shall be labelled in a similar manner to polypropylene pillars (See Clause 8.4.2). Where the fibreglass has degraded so the surface is flaking and powdery, no adhesive will bond to that surface. In this instance it will be necessary to replace the pillar housing with a new one.

8.4.4 Rectangular steel pillars

Identification labels shall be attached to rectangular steel pillars using double-sided acrylic foam tape (See Clause 8.4.1). The installation procedure is the same as for polypropylene pillar housings (See Clause 8.4.2), except that no primer is necessary. The steel surface must be sound and clean for the adhesive tape to attach successfully.

8.4.5 Round cover pillars

Identification labels shall be attached to round cover pillars, using double-sided acrylic foam tape (See Clause 8.4.1) as detailed below.

CAUTION
Cable ties must not be used because of potential injury from sharp protruding edges.

WARNING
Certain Ausgrid round cover pillars have exposed live links and or terminations. The removal of round covers from live pillars must only be carried out by Ausgrid in accordance with NS199 Safe Electrical Working on Low Voltage Assets.

8.4.5.1 Polyethylene plastic round cover pillar

Figure 8.8 - Polyethylene plastic round cover pillar

Note: Rounded corners and no raised edges on the label.

Follow the label installation procedures given below for pillars with round polyethylene plastic covers.

1. Bend the character holder around the pillar first to obtain a natural curve in the holder. Then bend either end of the aluminium holder to ensure they are not raised when applied on the pillar.

2. Clean the area on the pillar where the identification label is to be mounted, and the back of the character holder, using Isopropyl Alcohol and a clean cloth. The cleaner shall be sprayed onto the area of the pillar or holder to be cleaned, and a clean face of cloth used to wipe across the area sprayed. It must be wiped ONCE ONLY and in one direction.

3. Turn the cloth to expose a new clean face, or use a new cloth, and wipe once more in the same direction as previously wiped. Repeat this step if necessary, depending on how much cleaning liquid remains on the surface. It may be necessary to respray the area and repeat the wiping procedure if the surface is particularly dirty.

4. When the pillar area is completely dry, apply 3M Tape Primer 94 to the area of the pillar where the holder is to be fixed.

5. Wait five minutes for the primer to dry.

6. Cut off two strips of double-sided acrylic foam tape and stick to the upper and lower long edges (to the whole length) of the back of the character holder.

Figure 8.9 – Double-side acrylic foam tape applied on the back of the curved character holder

7. After the primer has dried, peel the backing paper from the foam tape and place the character holder against the pillar and press firmly and evenly along the upper and lower edges of the holder.

Note: Care should be exercised when placing the holder because once stuck, it will be very difficult to remove.

8. If it is necessary to remove and reapply the holder, the holder can be forcibly peeled off, but the area will need to be cleaned and re-primed.

8.4.5.2 Steel round cover pillar

Figure 8.10 - Steel round cover pillar

Note: Rounded corners and no raised edges on the label.

Follow the label installation procedures given below for pillars with round steel covers:

1. Bend the character holder around the pillar first, to obtain a natural curve in the holder. Then bend either end of the holder to ensure they are not raised when applied on the pillar.

2. Abrade lightly with Scotch-Brite Maroon Hand Pad (3M product no. 7447 - refer Annexure A, item 11) on the pillar where the identification label is to be mounted.

3. Clean the area on the pillar where the identification label is to be mounted, and back of the character holder, using Isopropyl Alcohol and clean cloth. The cleaner shall be sprayed onto the area of the pillar or holder to be cleaned, and a clean face of cloth used to wipe across the area sprayed. It must be wiped ONCE ONLY and in one direction.

4. Turn the cloth to expose a new clean face, or use a new cloth, and wipe once more in the same direction as previously wiped.
5. Wait for the pillar area is to be completely dry.
6. Cut off two strips of double-sided acrylic foam tape and stick to the upper and lower long edges (to the whole length) of the back of the character holder. (as shown in Figure 8.9).
7. Peel the backing paper from the foam tape and place the character holder against the pillar and press firmly and evenly along the upper and lower edges of the holder.

Note: Care should be exercised when placing the holder because once stuck, it will be very difficult to remove.

8. If it is necessary to remove and reapply the holder, the holder can be forcibly peeled off, but the area will need to be cleaned.

8.5 Pits

Pits shall be fitted with 25mm slide-in aluminium embossed black on silver character labels and holders (refer to Annexure A – Item 1). These shall be positioned on the south wall of the pit opening, just below the pit lid. If there is a ladder in the pit, and it is not located on the southern wall, then the label shall be placed on the wall immediately behind the ladder. In cases where a pit has multiple openings, the label must be placed at the southern-most opening only.

Identification labels shall be attached using 3M Scotch-Weld acrylic adhesive or equivalent (refer to Annexure A – Item 5). The area of the wall upon which the label will be installed must be clean and free of oil and other residues. An even layer of the adhesive shall first be applied to the back of the label in a zigzag fashion as shown in Figure 8.11. Next, position the label in the appropriate location and press firmly into place. Finally, apply two strips of heavy-duty adhesive tape over the label as shown in Figure 8.12, to provide additional support while the adhesive sets (approximately 10 minutes).

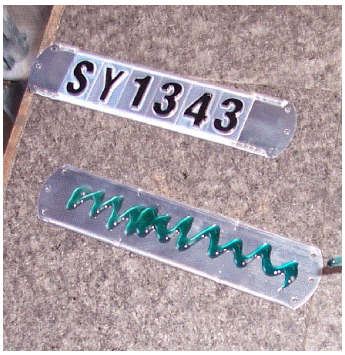

Figure 8.11 - Application of adhesive

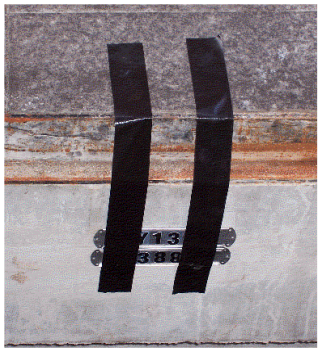

Figure 8.12 - Attached label in-situ

8.6 Transmission / Sub-Transmission: Steel towers, Steel poles, Concrete poles, and Timber poles

Timber poles:

The labelling principles are as outlined in this clause. All labels shall be secured to timber poles using appropriately sized nails or screws as depicted in Figure 8.2.

The recommended nails are 40mm x 2.8mm galvanised clouts (Refer to Annexure A – Item 12); however, the length and strength of the required nail for a particular pole depend on timber density, moisture content, thickness of the sapwood band (if present), the presence of fungal decay in the sapwood and the species of timber.

The most suitable sized nail for the task shall be chosen from the available range. All nails and screws for fixing identification labels must be galvanised, irrespective of size. Where a nail proves overly easy to drive in, it will not provide adequate fixing over the life of the pole and a longer nail or screw should be used.

Should the surface of the pole be in poor condition because of rotting sapwood, the sapwood must be removed so a good fixing can be obtained, or alternatively, a stainless-steel cable tie may be used to secure the character holder to the pole.

Other structures:

Identification labels for structures shall be installed using character holders (Refer to Annexure A – Item 1). Character holders shall be secured to these structures using 3M Scotch-Weld acrylic adhesive or equivalent (Refer to Annexure A – Item 5).

The area upon which the label will be installed must be clean and free of oil and other residues (Refer to Annexure A – Item 10 & 11). An even layer of the adhesive shall first be applied to the back of the label in a zigzag fashion as shown in Figure 8.13. Next, position the label in the appropriate location and press firmly into place. Finally, apply two strips of heavy-duty adhesive tape over the label as shown in Figure 8.13, to provide additional support while the adhesive sets (approximately 10 minutes).

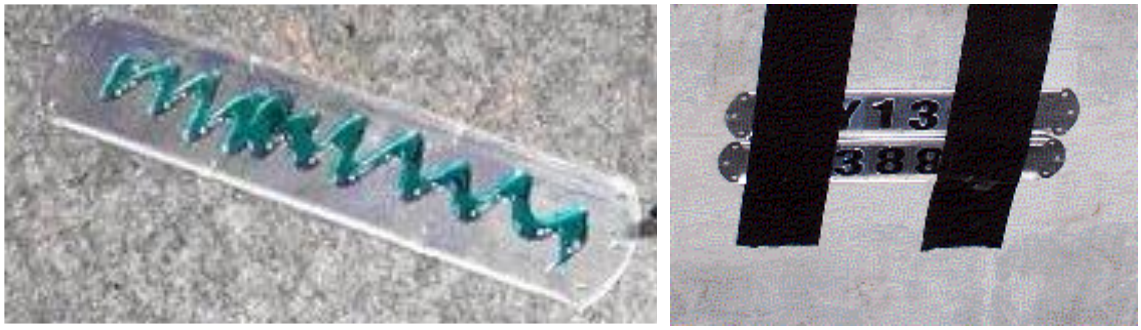

Figure 8.13

Feeder and structure identification labels (e.g. **FDR 912 3B**) shall be the individual 50mm x 80mm zincalume black on yellow character labels (refer to Annexure A – Item 3). These shall be attached using 3M Scotch-Weld acrylic adhesive or equivalent (refer to Annexure A – Item 5). The installation procedure is the same as that outline earlier in this clause for the character holders.

A. On a single feeder pole: character holders, feeder, and structure identifiers shall be installed at a minimum of 2.4 metres above ground line, but no higher than 3.0 metres above ground line, to minimise vandalism and avoid the possibility of injury from contact with a sharp edge. An example is shown in Figure 8.14. See point D below for special circumstances.

B. On a dual feeder pole: character holders and structure identifiers shall be installed at a minimum of 2.4 metres above ground line, but no higher than 3.0 metres above ground line, to minimise vandalism and avoid the possibility of injury from contact with a sharp edge. These shall be installed on the longitudinal axis of the pole (parallel with OH line). Each feeder identifier shall be installed on the respective transverse axis of the pole (feeder side). An example is shown in Figure 8.15.

C. On a multiple pole structure supporting a single feeder: refer to scenario A above and note that each pole needs to have a sequentially increasing structure identifier.

D. **When a dual feeder pole or tower is replaced with two poles:** refer to scenario A above and note that an A or B suffix is added to the structure identifier. For example, FDR 284 / 912 Tower 3 is replaced with **FDR 284** Pole **3A** and **FDR 912** Pole **3B**. The lower feeder identifier receives the suffix of A for its structure identifier. An example is shown in Figure 8.16.

E. **On dual feeder towers:** character holders shall be attached to the overhead span side of the climbing leg to be easily read. Labels shall be installed at 300mm below the anti-climb device (e.g. barbed wire). The feeder identifier shall start 100mm below the character holder and the structure identifier shall start 100mm below the feeder identifier. The prefix letter T shall be added to the structure identifier. An example is shown in Figure 8.17.

F. **On single feeder towers:** refer to scenario E above and note that same feeder and structure identifier needs to be installed on each side of the tower.

Figure 8.14 – Single Feeder Pole

Figure 8.15 – Dual Feeder Pole

Figure 8.16 – Dual Feeder Pole or Tower Replaced with Two Poles

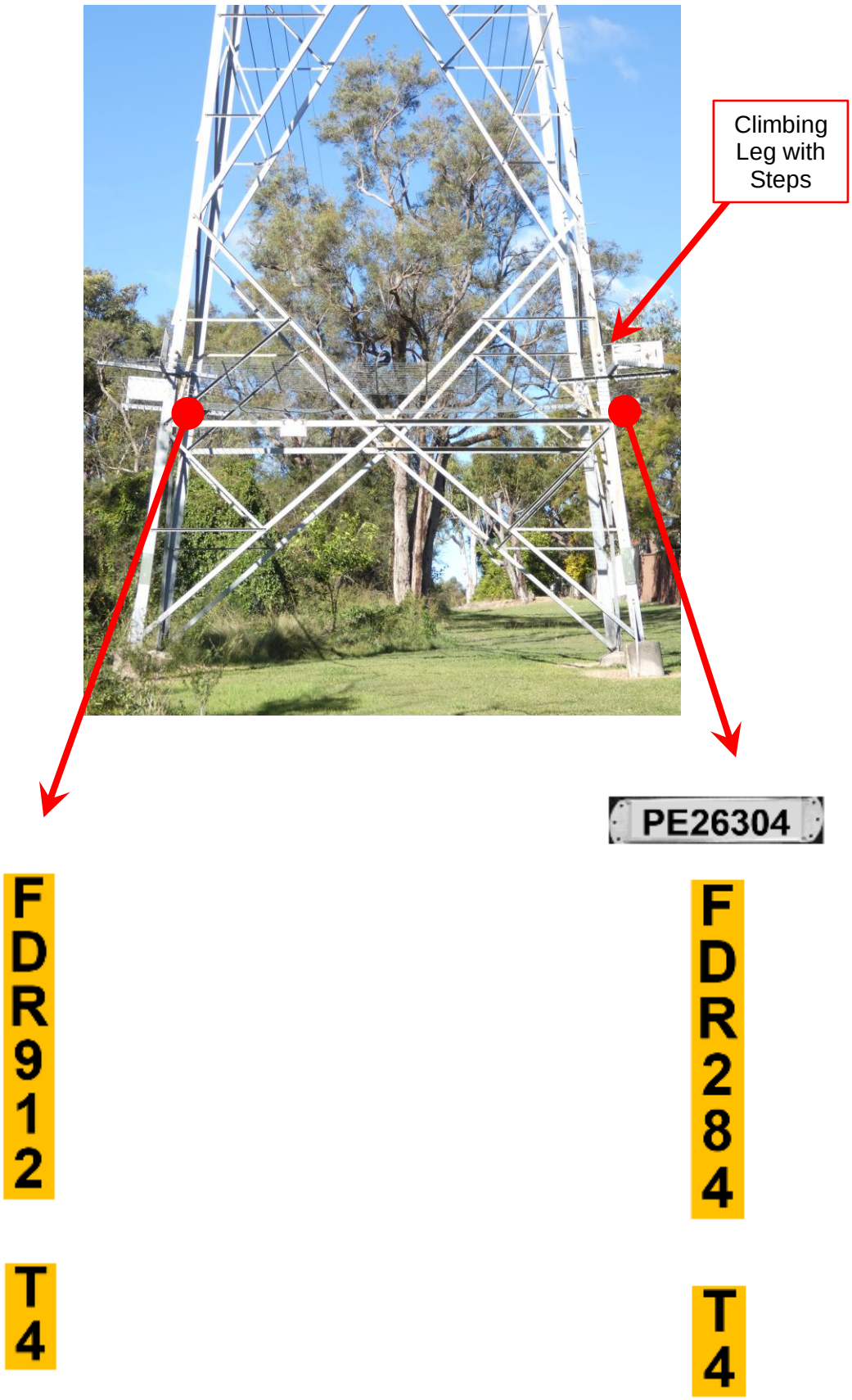

Figure 8.17 – Dual Feeder Tower

8.7 Waterway crossing sign supports

Waterway crossing sign supports shall be fitted with 50mm slide-in aluminium embossed black on yellow characters and holders. These identification labels shall be positioned at the bottom edge of the sign near the support. The labels shall be attached in the same manner as steel pillars, covered in Clause 8.4.4.

8.8 Lightning masts

Lightning masts shall be labelled in the same manner as steel lighting columns covered in Clause 8.3. However, the label positioning requirements for steel columns do not apply to lightning masts, as they are not accessible by the general public. Therefore, the identification label may be secured to the mast at the point of best visibility.

9.0 RELATED DOCUMENTS

9.1 General

All work covered in this document shall conform to all relevant Legislation, Standards, Codes of Practice and Network Standards. Current Network Standards are available on Ausgrid's Internet site at www.ausgrid.com.au.

9.2 Ausgrid documents

- Bush Fire Risk Management Plan
- Company Form (Governance) - Network Technical Document Endorsement and Approval
- Company Procedure (Governance) - Network Technical Document Endorsement and Approval
- Company Procedure (Network) – Network Standards Compliance
- Company Procedure (Network) - Production / Review of Engineering Technical Documents within Document repository
- Customer Installation Safety Plan
- Electrical Safety Rules
- Electricity Network Safety Management System Manual
- NS100 Field Recording of Network Assets
- NS102 Working on Poles with Mobile Phone Transmitter Installations
- NS104 Specification for Network Project Design Plans
- NS119 Public Lighting Design and Construction
- NS146 Inspection Procedure for Working on Poles
- NS158 Labelling of Mains and Apparatus
- NS181 Approval of Materials and Equipment and Network Standard Variations
- NS199 Safe Electrical Working on Low Voltage Assets
- NS212 Integrated Support Requirements for Ausgrid Network Assets
- NS268 Specification for Design and Construction of Waterway Crossings
- Public Electrical Safety Awareness Plan
- Public Lighting Management Plan
- Tree Safety Management Plan

9.3 Other standards and documents

- ENA Doc 001-2008 National Electricity Network Safety Code

9.4 Acts and regulations

- Electricity Supply (General) Regulation 2014 (NSW)
- Electricity Supply (Safety and Network Management) Regulation 2014 (NSW)
- Work Health and Safety Act 2011 (NSW)
- Work Health and Safety Regulation 2017 (NSW)

10.0 DEFINITIONS

Refer to NS001 Glossary of Terms.

11.0 RECORDKEEPING

The table below identifies the types of records relating to the process, their storage location and retention period.

Table 1 – Recordkeeping

Type of Record	Storage Location	Retention Period*
Approved copy of the Network Standard	Document repository Network sub process Standard – Company	Unlimited
Draft Copies of the Network Standard during amendment/creation	Records management system Work Folder for Network Standards (HPRM ref. 2014/21250/316)	Unlimited
Working documents (emails, memos, impact assessment reports, etc.)	Records management system Work Folder for Network Standards (HPRM ref. 2014/21250/316)	Unlimited

* The following retention periods are subject to change eg if the records are required for legal matters or legislative changes. Before disposal, retention periods should be checked and authorised by the Records Manager.

12.0 AUTHORITIES AND RESPONSIBILITIES

For this Network Standard the authorities and responsibilities of Ausgrid employees and managers in relation to content, management and document control of this Network Standard can be obtained from the Company Procedure (Network) – Production / Review of Engineering Technical Documents within Document repository. The responsibilities of persons for the design or construction work detailed in this Network Standard are identified throughout this standard in the context of the requirements to which they apply.

13.0 DOCUMENT CONTROL

Content Coordinator : Head of Asset Engineering Policy & Standards

Distribution Coordinator : Manager Network Standards & Electrical Safety

Annexure A – Approved Materials

Only approved materials and equipment may be used in the construction of infrastructure which ultimately forms part of Ausgrid's electrical network. These approved materials and equipment are detailed in Ausgrid's Approved Material List (AML). Ausgrid will consider adding alternative materials and equipment to the AML in accordance with NS181 - Approval of Materials & Equipment and Network Standard Variations.

Where approved materials and equipment are held as stock in Ausgrid's stores system, ASPs may purchase them from Ausgrid. All enquiries and requests for quotations should be directed by email to aspsales@ausgrid.com.au.

Alternatively, ASPs may obtain approved materials and equipment items as listed in the AML from other sources in accordance with NS181.

All materials used on Ausgrid's network must be new.

The following table lists the approved materials for work carried out in this standard along with some known suppliers.

Table A1 - Approved Materials

Item	Approved Product	Approved Manufacturer	Supplier	Supplier Material No.	Ausgrid Stockcode
1	Almetek H400 E-Z Tags – 25mm Aluminium Embossed Black on Silver individual slide in character tags and holders:	Almetek		-	-
	Holder: TH7A		J B Blackwoods & Son Pty Ltd	05456871	178355
	'A': H400A			05456378	178383
	'B': H400B			05456395	178384
	'C': H400C			05456412	178385
	'D': H400D			05456429	178386
	'E': H400E			05456446	178387
	'F': H400F			05456463	178388
	'G': H400G			05456480	178389
	'H': H400H			05456497	178390
	'I': H400I			01021912	178391
	'J': H400J			05456548	178392
	'K': H400K			05456565	178393
	'L': H400L			05456582	178394
	'M': H400M			05456599	178395
	'N': H400N			05456616	178396
	'O': H400O			05456633	178397
	'P': H400P			05456650	178398
	'Q': H400Q			05456667	178399
	'R': H400R			05456684	178400
	'S': H400S			05456735	178401
	'T': H400T			05456769	178402
	'U': H400U			05456786	178403
	'V': H400V			05456803	178404

	'W': H400W			01021929	182383
	'X': H400X			05456820	178405
	'Y': H400Y			05456837	178406
	'Z': H400Z			05456854	178407
	'0': H4000			01021963	182386
	'1': H4001			05456514	182384
	'2': H4002			05456259	178356
	'3': H4003			05456276	178357
	'4': H4004			05456293	178358
	'5': H4005			05456310	178359
	'6': H4006			05456327	178360
	'7': H4007			05456344	178381
	'8': H4008			05456361	178382
	'9': H4009			01021946	182385
2	Almetek TR22 50mm Aluminium Embossed Black on Yellow individual slide in character tags and holders			-	-
	Holder: PH2H07A				
	'A': TR22A				
	'B': TR22B				
	'C': TR22C				
	'D': TR22D				
	'E': TR22E				
	'F': TR22F				
	'G: TR22G'				
	'H': TR22H				
	'I': TR22I				
	'J': TR22J				
	'K': TR22K				
	'L': TR22L				
	'M': TR22M				
	'N': TR22N				
	'O': TR22O				
	'P': TR22P				
	'Q': TR22Q				
	'R': TR22R				
	'S': TR22S				
	'T': TR22T				
	'U': TR22U				
	'V': TR22V				
	'W': TR22W				
	'X': TR22X				
	'Y': TR22Y				
	'Z': TR22Z				
	'0': TR220	Almetek	Haman Industries Pty Ltd		

	'1': TR221				
	'2': TR222				
	'3': TR223				
	'4': TR224				
	'5': TR225				
	'6': TR226				
	'7': TR227				
	'8': TR228				
	'9': TR229				
3	50mm x 80mm zincalume black on yellow individual character tags (nail/screw-on):	Road Management Solutions		-	-
	'A'		J B Blackwoods & Son Pty Ltd	02341706	H8121
	'B'			02341689	H8139
	'C'			02341672	H8147
	'D'			02341655	H8155
	'E'			02341638	H8163
	'F'			02341621	H8171
	'G'			02341604	H8189
	'H'			02341587	H8058
	'I'			02451322	H8066
	'J'			02341570	H8197
	'K'			02341553	H8202
	'L'			02341536	H8210
	'M'			02341519	H8228
	'N'			02341502	H8236
	'O' or '0'			02341315	H8074
	'P'			02341485	H8244
	'Q'			02341468	H8252
	'R'			02341451	H8260
	'S'			02341434	H8278
	'T'			02341417	H8286
	'U'			02341400	H8082
	'V'			02341383	H8090
	'W'			02341366	H8105
	'X'			02341349	H8113
	'Y'			02341332	H8294
	'Z'			07943597	H8309
	'1'			02341298	H7971
	'2'			02341281	H7989
	'3'			02341264	H7997
	'4'			02341247	H8008
	'5'			02341230	H8016
	'6' or '9'			02341213	H8024

	'7'			02341196	H8032
	'8'			02341179	H8040
4	Stainless-steel band clamps (minimum 6.35mm wide)	Utilux, Cabac and Band-It		Sizes to suit	N/A
5	3M – Scotch-Weld DP810 acrylic adhesive, 48.5mL (3M product No. 62329814362)	3M	J B Blackwoods & Son Pty Ltd	00689286	N/A
6	3M - VHB Tape RP16 12mm x 32.9m double-sided acrylic foam tape (3M product no. AT019300816) MUST be used with 3M Tape Primer 94:	3M	J B Blackwoods & Son Pty Ltd	01014483	N/A
			WRS Orora	3RP160012	
			Embossing & Tape Supplies	3M Primer 94	
7	3M Tape Primer 94 (Adhesion Promoter). (3M Product nos: 0.66mL ampule: AT010594672 0.27kg can: 70016054788 0.96kg can: 70016054770 3.47kg can: 70016054762)	3M	WRS Orora	3039435-3	N/A
			Embossing & Tape Supplies	RP16	
8	Aluminium Mounting Block Assembly for Smart Poles	Southern Fasteners		N/A	N/A
9	'U'-drive screws – 4G x ¼" 304 stainless-steel	Brighton Best, Southern Fasteners	J B Blackwoods & Son Pty Ltd	00642226	N/A
10	Isopropyl Alcohol (4 Litres) (other quantities also available)	Balchan, Diggers	J B Blackwoods & Son Pty Ltd	04094119 03613748	N/A
11	Scotch-Brite™ Hand Pad 7447, 150mm x 230mm (3M product no. XE006000006)	3M	J B Blackwoods & Son Pty Ltd	03127599	N/A
12	40mm x 2.8mm galvanised clouts	Otter, Able Cooke	J B Blackwoods & Son Pty Ltd	00643654	175723