Network Standard

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NW000-S0126 NS245 TELECOMMUNICATIONS APPROVED LIST OF MATERIALS

ISSUE

For issue to all Ausgrid and Accredited Service Providers' staff involved with the design and installation of telecommunications cables in Ausgrid premises, 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Where this standard is issued as a controlled document replacing an earlier edition, remove and destroy the superseded document.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 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 submitted shall be declared as fit for purpose. Where the designer wishes to include a variation to a network standard or an alternative material or equipment to that currently approved the designer must obtain authorisation from the Network Standard owner before incorporating a variation to a Network Standard in a design.

External 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. 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:

- ☐ Materials approved for application to Ausgrid's telecommunications infrastructure.
- ☐ Record keeping associated with materials selection and use.

Where to for more information?

Section 2-7

Material Sourcing Methodology

This section identifies the approved methods of sourcing materials:

- ☐ Through Ausgrid stores
- ☐ Via wholesale / retail purchase

Where to for more information?

Section 5

Tools and Forms

Materials List

This section lists the materials approved for application to Ausgrid's telecommunications infrastructure.

Where to for more information?

Section 6

Tools and Forms

Recordkeeping

This section states the recordkeeping requirements related to materials selection.

Where to for more information?

Section 7

Tools and Forms

Annexure A, B Sample Compliance Checklists

Network Standard
NS245
Telecommunications Approved List of Materials

Contents

1.0 PURPOSE

The purpose of this document is to define the approved materials for Ausgrid's telecommunications network. Its intended audience is all staff who are directly or indirectly involved in any or all life cycle stages of Ausgrid's telecommunications network, including from conceptual planning, through all stages to decommissioning and disposal and including persons involved with the procurement and storage of spare parts.

All local instructions must be made to comply with this standard and its related NS documents and drawings as referred to and available on Ausgrid's TDMS, Balin and internet sites.

It is the responsibility of all Ausgrid staff, contractors, alliance partners and related support mechanisms who are involved with Ausgrid's telecommunications network, to apply this standard at all times.

2.0 SCOPE

This Network Standard lists the approved materials which are specific to the Ausgrid telecommunications network. Materials specific to other applications including but not limited to power infrastructure and building construction fall outside the scope of this standard. This standard does not define processes including but not limited to how to install, replace, repair, commission or decommission. This standard does not define who is approved to install each item.

This standard also specifies which materials are regarded by Ausgrid as 'Mandatory', versus those which are 'Negotiable'. In this standard, all materials that are not denoted as 'Mandatory' are regarded as 'Negotiable'. Refer to the Definitions section of this document for further clarification of 'Mandatory' and 'Negotiable' (Section 4).

Procurement of items referred in NS243 under the "Monopoly Works" section will be performed by Ausgrid and supplied to the installer.

3.0 REFERENCES

3.1 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.

3.2 Ausgrid documents

- Be Safe Procedure 14 – Purchasing of Goods
- Company Form (Governance) - Network Document Endorsement and Approval
- Company Procedure (Governance) - Network Document Endorsement and Approval
- Company Procedure (Network) - Production / Review of Network Standards
- Electrical Safety Rules
- Electricity Network Safety Management System Manual
- NS174 Environmental Procedures
- NS181 Approval of Materials and Equipment and Network Standard Variations
- NS203 Telecommunications Network: Master Policy Document
- NS212 Integrated Support Requirements for Ausgrid Network Assets
- NS243 Roles, Responsibilities, Training Requirements, Auditing and Quality Assurance Acceptance
- Procurement Policy and Procurement Process Manual
- TS-5070 Handling and Transport of Cable Drums

3.3 Other standards and documents

- Code of Practice – Managing the Risks of Plant in the Workplace
- ENA Doc 001-2008 National Electricity Network Safety Code

3.4 Acts and regulations

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

3.5 Product information and training

Manufacturers supplying new hardware and equipment to Ausgrid are expected to provide appropriate training for the product being supplied. Refer to NS243 regarding training requirements.

Manufacturers Equipment Manuals are available on Ausgrid's Balin web-site. This web portal is available only on Ausgrid's internal network.

4.0 DEFINITIONS

Accredited Service Provider (ASP)	An individual or entity accredited by the NSW Department of Industry, Division of Resources and Energy, in accordance with the Electricity Supply (Safety and Network Management) Regulation 2014 (NSW).
Business Management System (BMS)	An Ausgrid internal integrated policy and procedure framework that contains the approved version of documents.
Community engagement	Community engagement is Ausgrid's process of establishing, building and maintaining productive relationships with the community. It covers the process of informing and consulting with the community and wherever possible empowering and involving the community in decision making.
Document control	Ausgrid employees who work with printed copies of document must check the BMS regularly to monitor version control. Documents are considered "UNCONTROLLED IF PRINTED", as indicated in the footer.
Network Standard	A document, including Network Planning Standards, that describes the Company's minimum requirements for planning, design, construction, maintenance, technical specification, environmental, property and metering activities on the distribution and transmission network. These documents are stored in the Network Category of the BMS repository.
Project Officer	Employees who manage the production, amendment or review of network standards as directed by section managers.
Mandatory	"Mandatory" in this Network Standard denotes that substitution of the respective materials is not allowed.
Negotiable	"Negotiable" in this Network Standard denotes that substitution of the respective materials is conditional and by application.
Review date	The review date displayed in the header of the document is the future date for review of a document. The default period is three years from the date of approval however a review may be mandated at any time where a need is identified. Potential needs for a review include changes in legislation, organisational changes, restructures, occurrence of an incident or changes in technology or work practice and/or identification of efficiency improvements.
RITI	**R**eceive **I**nspect and **T**est **I**nstruction are quality control guidelines associated with the receipt of materials at Ausgrid's stores
UGOH	Underground to Overhead transition

5.0 MATERIALS SELECTION

The approved materials list of this document is intended to standardise materials selection across all of Ausgrid, and therefore facilitate predictability of network performance and maintainability. All procurement of telecommunications materials must be in compliance with this standard and Ausgrid's Be Safe Procedure 14.

Refer to Ausgrid's Balin website for Ausgrid's Procurement Policy and Procurement Process Manual.

Materials selected as listed in this standard and associated drawings which have a SAP number identifier, must be ordered through Ausgrid's stores system. The ordering of stock through Ausgrid's stores ensures the materials selected have passed Ausgrid's equipment trials, are approved for use, are compliant with Ausgrid's standards, are listed in Ausgrid's maintenance program, and shall not be subject to scrutiny under the compliance audit process (refer NS243) so long as installation is in accordance with the manufacturer's instructions and Ausgrid's standards.

Contact the Warehouse and Distribution Manager to order telecommunications materials through Ausgrid's stores system. The stores may be collected from the Central Warehouse located at 33 Kangoo Road Somersby, or other depots as specified by Ausgrid.

Ausgrid's inventory accounting system for materials is SAP. Ausgrid personnel are to order materials through SAP for all materials identified in the SAP system.

Some Ausgrid telecommunications materials are subject to period contract conditions with Ausgrid. These items are identified in this standard, and must be ordered in compliance with the period contract. Order of materials outside the period contract is not permitted, unless written approval to do so has been given by the Communications Engineering Manager.

Substitution of materials deemed 'mandatory' in this standard is not permitted. External contractors may request these materials to be supplied by Ausgrid.

Materials that are not identified in Ausgrid's SAP system, not subject to period contract conditions and not deemed 'mandatory' in this standard, may be ordered through reputable manufacturers or suppliers, so long as the materials selection meets the criteria of all applicable Ausgrid and industry standards, application of the materials does not degrade or cause risks to Ausgrid's telecommunications network in any way, and the materials are connectable to Ausgrid's infrastructure without the need for additional couplings or interfaces. In particular, materials procurement in this category shall comply with NS181.

The selection and application of materials by Design and / or Construction crews must comply with Ausgrid Electrical Safety Rules as well as Work Health and Safety Act 2011 and associated Regulation, Be Safe Procedure 14, NS174 and all relevant laws, rules, regulations and guides for environmental impact assessment.

6.0 EQUIPMENT HANDLING AND LOGISTICS

Telecommunications materials must be handled with care, stored and transported as per the manufacturer's recommendation as well as the following conditions:

- Pits and pit lids must be stored on pallets in an area not prone to flooding.
- UGFO cable is not UV stabilised, therefor must be stored indoors in an area that is not exposed to UV rays.
- Returned spare or excess stock including but not limited to whole or partial cable drums must be reported to Ausgrid's stores, and stored in accordance with the direction given by Ausgrid stores.
- Items listed in clauses 7.6 to 7.10 and associated drawings must be transported and stored in an enclosed space out of the weather.
- Manufacturer's minimum bend radius for all cables including patch leads must not be compromised during handling, transportation and storage.
- Refer to Ausgrid's TS-5070 for cable drum handling and transport.
- Electronic telecommunications equipment must be transported and stored in a clean enclosed space out of the weather, and free of the effects of humidity and moisture.

7.0 MATERIALS LIST

The materials list in this section details the main items applicable to Ausgrid's telecommunications network. If materials are required in addition to this standard, or if substitution of materials listed in this standard is required, then the reader must apply for variation to the standard in accordance with the sample checklist in Annexure A.

At the time this standard was written, the minimum functional performance criteria for all hardware had not yet been defined. It is expected that the next revision of this standard be released within 6 months of the publishing of this standard and include minimum functional performance criteria. If functional performance criteria is required prior to the publishing of the next revision of this standard, then the reader should refer this to the Ausgrid Communications Engineering Manager.

Field listed in the tables of this section containing "TBA" shall be filled-in with the correct information and published in the subsequent revision of this standard.

Note: Use of the supplier identified in the "Approved Manufacturer" column is not mandatory unless otherwise stipulated in this standard.

7.1 Optical fibre cable

Ausgrid have optical fibre cable supplied through a period contract with the manufacturers listed below. The materials listed below are **mandatory** unless otherwise approved by the Communications Engineering Manager. In all cases Ausgrid prefer to utilise existing spare cable stock prior to ordering new supplies.

Contact Ausgrid stores for ordering the cables listed below.

Table 1

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	60 SM ADSS - 150m span, Standard	ADSS	TAIHAN	TBA	6021002
2	60 SM ADSS - 150m span, Option 1	ADSS	TAIHAN	TBA	6021003
3	60 SM ADSS - 150m span, Option 2	ADSS	TAIHAN	TBA	6021004
4	60 SM ADSS - 400m span, Standard	ADSS	TAIHAN	TBA	6021005
5	60 SM ADSS - 400m span, Option 1	ADSS	TAIHAN	TBA	6021006
6	60 SM ADSS - 400m span, Option 2	ADSS	TAIHAN	TBA	6021007
7	60 SM UGFO - 60 fibre, Underground, Standard	UGFO	TAIHAN	TBA	6021008
8	60 SM UGFO -60 fibre, Underground, Option 1	UGFO	TAIHAN	TBA	6021009
9	60 OPGW - OPGW 60 Optical fibres, fault capacity 150kA²s (Conventional stranding)	OPGW	SFPOC	TBA	6022305
10	60 OPGW - OPGW 60 Optical fibres, fault capacity 150kA²s (Compacted stranding)	OPGW	SFPOC	TBA	6022303
11	60 OPGW - OPGW 60 Optical fibres, fault capacity 200kA²s (conventional stranding)	OPGW	SFPOC	TBA	6022304
12	60 OPGW - OPGW 60 Optical fibres, fault capacity 200kA²s (Compacted stranding)	OPGW	SFPOC	TBA	6022448

7.2 Aerial accessories

Following items assist in aerial installation.

Table 2

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	Dampers - Spiral Vibration Dampers	OPGW	PLP	TBA	TBA
2	Grease for OPGW	OPGW	SFPOC	TBA	TBA

Materials and part numbers for aerial installation accessories additional to this standard are listed on Ausgrid standard construction drawings series 234569 to 234590, as well as drawings 235705 and 235546. Materials accessories pertaining to OPGW installation are detailed in the appropriate aerial HV feeder standards and associated drawings.

7.3 UGOH accessories

Table 3

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	LV Services UGOH - Cable Cover 60mm ID 3300mm Long dwg 93090	Cable Cover	TBA	TBA	**77990**

Materials and part numbers for tower UGOH installations additional to this standard are listed on Ausgrid standard construction drawing 185404. UGOH transitions of optical fibre cable co-located with a HV feeder have materials listed in the associated HV feeder standard and associated drawings.

7.4 Conduit and accessories

Table 4

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	**25 mm** Conduit - Rigid Medium Duty Electrical Grey	UGOH / microwave internal	TBA	TBA	TBA
2	**25 mm** Bend Sweep 90 deg radius 150 mm Heavy Duty Electrical Orange	UGOH / microwave internal	TBA	TBA	TBA
3	**32 mm** Conduit - Rigid Medium Duty Electrical Grey	UGOH / microwave internal	TBA	TBA	TBA
4	**32 mm** Bend Sweep 90 deg radius 312 mm Heavy Duty Electrical Orange	UGOH / microwave internal	TBA	TBA	TBA
5	**32 mm** Bend Sweep 45 deg radius 312 mm Heavy Duty Electrical Orange	UGOH / microwave internal	TBA	TBA	TBA
6	**50 mm** Conduit - Rigid Heavy Duty Electrical Orange 4m lengths	UGOH/Riser	TBA	TBA	**78022**
7	**50 mm** to 20mm Reducing Couplings Orange	UGOH/Riser	TBA	TBA	TBA
8	**50 mm** Bend Sweep 45 deg radius 320mm Heavy Duty Electrical Orange	UGOH/Riser	TBA	TBA	TBA
9	**50 mm** Bend Sweep 90 deg radius 320mm Heavy Duty Electrical Orange	UGOH/Riser	TBA	TBA	**52415**
10	**50 mm** Bend Sweep 90 deg radius 1.2m Heavy Duty Electrical Orange	UGOH/Riser	TBA	TBA	**179941**
11	**50 mm** Bend Sweep 45 deg radius 1.2m Heavy Duty Electrical Orange	UGOH/Riser	TBA	TBA	**179832**
12	**50 mm** Bend Sweep 45 deg radius 300mm Heavy Duty Electrical Orange	UGOH/Riser	TBA	TBA	**181755**
13	**50 mm** Bend Sweep 22.5 deg radius 300mm Heavy Duty Electrical Orange	UGOH/Riser	TBA	TBA	**181756**
14	**50 mm** Bend Sweep 11.25 deg radius 300mm Heavy Duty Electrical Orange	UGOH/Riser	TBA	TBA	**181757**
15	**50 mm** bell mouth for use on 50mm orange HD	UGOH/Riser	TBA	TBA	**180004**
16	**50 mm** Coupling Slip conduit HD orange	UGOH/Riser	TBA	TBA	**179831**
17	**50 mm** Cap	UGOH/Riser	TBA	TBA	TBA
18	**63 mm** Conduit - Rigid Heavy Duty Electrical Orange 4m length	Underground	TBA	TBA	**181361**
19	**63 mm** Bend Sweep 30 deg radius 6m Heavy Duty Electrical Orange Class 6	Underground	TBA	TBA	**181388**
20	**63 mm** Bend Sweep 15 deg radius 6m Heavy Duty Electrical Orange	Underground	TBA	TBA	**181389**
21	**63 mm** Bend Sweep 22.5 deg radius 1.2 m Heavy Duty Electrical Orange	Underground	TBA	TBA	**182445**
22	**63 mm** Bend Sweep 45 deg radius 1.2 m Heavy Duty Electrical Orange	Underground	TBA	TBA	**182446**
23	**63 mm** Bend Sweep 90 deg radius 1.2 m Heavy Duty Electrical Orange	Underground	TBA	TBA	**182448**
24	**63 mm** bell mouth for use on 50mm orange HD	Underground	TBA	TBA	**182449**
25	**63 mm** Couple	Underground	TBA	TBA	TBA

26	**63 mm** End Cap	Underground	TBA	TBA	**182450**
27	**80 mm** Conduit - Rigid Heavy Duty Electrical Orange	Underground	TBA	TBA	TBA
28	**80 mm** Bend 90 deg Electrical Orange	Underground	TBA	TBA	TBA
29	**80 mm** Bend 45 deg Electrical Orange	Underground	TBA	TBA	TBA
30	**80 mm** Couple	Underground	TBA	TBA	TBA
31	**25mm** Flexible- Electrical Corrugated Medium Duty Grey	UGOH / microwave internal	TBA	TBA	TBA
32	**32mm** Flexible- Electrical Corrugated Medium Duty Grey	UGOH / microwave internal	TBA	TBA	TBA

7.5 Pits

Table 5

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	J8 concrete pit with removable base and military style lockable lid	Underground	Coreworks or BVCI	TBA	TBA
2	J8 concrete pit with fixed base and military style lockable lid	Underground	Coreworks or BVCI	TBA	TBA

7.6 Splice enclosures and accessories

Table 6

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	Splice Enclosure - 4 Port Entry - FIBERGUARD 500 c/w 3 X 12/24F TRAYS	ADSS / UGFO	PLP	FG500-312	TBA
2	Splice Enclosure - 5 Port Entry - FIBERGUARD 650 c/w 2 X 48F TRAYS	ADSS / UGFO	PLP	FG500-312	TBA
3	Splice Enclosure - 5 Port Entry - FIBERGUARD 650 c/w 2 X 48F TRAYS, PM BKT	ADSS / UGFO	PLP	FG650-248	TBA
4	Splice Enclosure - 5 Port Entry - FIBERGUARD 650 c/w 3 X 48F TRAYS	ADSS / UGFO	PLP	FG650-248-P	TBA
5	Splice Enclosure - 5 Port Entry - FIBERGUARD 650 c/w 3 X 48F TRAYS, PM BKT	ADSS / UGFO	PLP	FG650-348	TBA
6	Splice Enclosure - 7 Port Entry - FIBERGUARD 800 10 X 48 FIBRE TRAYS	ADSS / UGFO	PLP	FG650-348-P	TBA
7	Splice Tray - SLIDE-N-LOCK 12/24F TRAY	ADSS / UGFO	PLP	FG-T12	TBA
8	Splice Tray - SLIDE-N-LOCK 36/48F TRAY	ADSS / UGFO	PLP	FG-T48	TBA
9	Grommet - DROP PORT KIT 1 HOLE GROM 3 SIZES	ADSS / UGFO	PLP	FG-DNA	TBA
10	Grommet - DROP PORT KIT 2 HOLE GROMMET 7-12mm	ADSS / UGFO	PLP	FG-DNA-2	TBA
11	Grommet - EXPRESS KIT and 1 HOLE GROM 3 SIZES	ADSS / UGFO	PLP	FG-ENA	TBA
12	Splice Enclosure - 3 Port Entry - Coyote 500 c/w 3 X 12/120F TRAYS	OPGW	PLP	TBA	TBA

7.7 Cabinets

Table 7

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	Cabinet Wall Enclosure 2 panel -310 x 90 x 250[mm]	Internal	AFC	FEW-MOD-12-C	TBA
2	Cabinet Wall Enclosure 4 panel -410 x 90 x 300[mm]	Internal	AFC	FEW-MOD-24-C	TBA
3	Cabinet Wall Enclosure 6 panel -460 x 85 x 492[mm]	Internal	AFC	FEW-MOD-36-C	TBA
4	Splice Cassette Kit	Internal	AFC	TBA	TBA
5	Street Cabinet –FDH / FDA –Two door type 900 x 850 x 370 [mm]	External	PLP	TBA	TBA

Materials and part numbers for cabinet chassis and internals additional to this standard are listed on Ausgrid standard drawings 221165 and 221193.

7.8 Patch leads

Table 8

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	Patch Lead SM [OS1] Simplex	Patch Lead	AFC	SCA-FC 1F SM PATCH LEAD 1M	TBA
2	Patch Lead SM [OS1] Simplex	Patch Lead	AFC	SCA-LC 1F SM PATCH LEAD 1M	TBA
3	Patch Lead SM [OS1] Simplex	Patch Lead	AFC	SCA-SC 1F SM PATCH LEAD 1M	TBA
4	Patch Lead SM [OS1] Simplex	Patch Lead	AFC	SCA-SCA 1F SM PATCH LEAD 1M	TBA
5	Patch Lead SM [OS1] Simplex	Patch Lead	AFC	SCA-ST 1F SM PATCH LEAD 1M	TBA
6	Patch Lead SM [OS1] Duplex	Patch Lead	AFC	SCA-FC 2F SM PATCH LEAD 1M	TBA
7	Patch Lead SM [OS1] Duplex	Patch Lead	AFC	SCA-LC 2F SM PATCH LEAD 1M	TBA
8	Patch Lead SM [OS1] Duplex	Patch Lead	AFC	SCA-MTRJ 2F SM PATCH LEAD 1M	TBA
9	Patch Lead SM [OS1] Duplex	Patch Lead	AFC	SCA-SC 2F SM PATCH LEAD 1M	TBA
10	Patch Lead SM [OS1] Duplex	Patch Lead	AFC	SCA-SCA 2F SM PATCH LEAD 1M	TBA
11	Patch Lead SM [OS1] Duplex	Patch Lead	AFC	SCA-ST 2F SM PATCH LEAD 1M	TBA
12	Patch Lead MM [OM3] Simplex	Patch Lead	AFC	LC-FC 1F OM3 PATCH LEAD 1M	TBA
13	Patch Lead MM [OM3] Simplex	Patch Lead	AFC	LC-LC 1F OM3 PATCH LEAD 1M	TBA
14	Patch Lead MM [OM3] Simplex	Patch Lead	AFC	LC-SC 1F OM3 PATCH LEAD 1M	TBA
15	Patch Lead MM [OM3] Simplex	Patch Lead	AFC	LC-ST 1F OM3 PATCH LEAD 1M	TBA
16	Patch Lead MM [OM3] Simplex	Patch Lead	AFC	ST-FC 1F OM3 PATCH LEAD 1M	TBA
17	Patch Lead MM [OM3] Simplex	Patch Lead	AFC	ST-SC 1F OM3 PATCH LEAD 1M	TBA
18	Patch Lead MM [OM3] Simplex	Patch Lead	AFC	ST-ST 1F OM3 PATCH LEAD 1M	TBA

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
19	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	LC-FC 2F OM3 PATCH LEAD 1M	TBA
20	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	LC-LC 2F OM3 PATCH LEAD 1M	TBA
21	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	LC-MTRJ 2F OM3 PATCH LEAD 1M	TBA
22	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	LC-SC 2F OM3 PATCH LEAD 1M	TBA
23	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	LC-ST 2F OM3 PATCH LEAD 1M	TBA
24	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	ST-FC 2F OM3 PATCH LEAD 1M	TBA
25	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	ST-MTRJ 2F OM3 PATCH LEAD 1M	TBA
26	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	ST-SC 2F OM3 PATCH LEAD 1M	TBA
27	Patch Lead MM [OM3] Duplex	Patch Lead	AFC	ST-ST 2F OM3 PATCH LEAD 1M	TBA
28	Patch Lead SM [OS1] 2 Fibre	Patch Lead	AFC	SCA-FC 2F SM RISER LEAD 5M	TBA
29	Patch Lead SM [OS1] 2 Fibre	Patch Lead	AFC	SCA-LC 2F SM RISER LEAD 5M	TBA
30	Patch Lead SM [OS1] 2 Fibre	Patch Lead	AFC	SCA-MTRJ 2F SM RISER LEAD 5M	TBA
31	Patch Lead SM [OS1] 2 Fibre	Patch Lead	AFC	SCA-SC 2F SM RISER LEAD 5M	TBA
32	Patch Lead SM [OS1] 2 Fibre	Patch Lead	AFC	SCA-SCA 2F SM RISER LEAD 5M	TBA
33	Patch Lead SM [OS1] 2 Fibre	Patch Lead	AFC	SCA-ST 2F SM RISER LEAD 5M	TBA
34	Patch Lead SM [OS1] 12 Fibre	Patch Lead	AFC	SCA-FC 12F SM RISER LEAD 5M	TBA
35	Patch Lead SM [OS1] 12 Fibre	Patch Lead	AFC	SCA-LC 12F SM RISER LEAD 5M	TBA
36	Patch Lead SM [OS1] 12 Fibre	Patch Lead	AFC	SCA-MTRJ 12F SM RISER LEAD 5M	TBA
37	Patch Lead SM [OS1] 12 Fibre	Patch Lead	AFC	SCA-SC 12F SM RISER LEAD 5M	TBA
38	Patch Lead SM [OS1] 12 Fibre	Patch Lead	AFC	SCA-SCA 12F SM RISER LEAD 5M	TBA
39	Patch Lead SM [OS1] 12 Fibre	Patch Lead	AFC	SCA-ST 12F SM RISER LEAD 5M	TBA
40	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	LC-FC 2F OM3 RISER LEAD 5M	TBA
41	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	LC-LC 2F OM3 RISER LEAD 5M	TBA
42	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	LC-MTRJ 2F OM3 RISER LEAD 5M	TBA
43	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	LC-SC 2F OM3 RISER LEAD 5M	TBA
44	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	LC-ST 2F OM3 RISER LEAD 5M	TBA
45	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	ST-FC 2F OM3 RISER LEAD 5M	TBA
46	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	ST-MTRJ 2F OM3 RISER LEAD 5M	TBA

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
47	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	ST-SC 2F OM3 RISER LEAD 5M	TBA
48	Patch Lead MM [OM3] 2 Fibre	Patch Lead	AFC	ST-ST 2F OM3 RISER LEAD 5M	TBA
49	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	LC-FC 12F OM3 RISER LEAD 5M	TBA
50	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	LC-LC 12F OM3 RISER LEAD 5M	TBA
51	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	LC-MTRJ 12F OM3 RISER LEAD 5M	TBA
52	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	LC-SC 12F OM3 RISER LEAD 5M	TBA
53	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	LC-ST 12F OM3 RISER LEAD 5M	TBA
54	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	ST-FC 12F OM3 RISER LEAD 5M	TBA
55	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	ST-MTRJ 12F OM3 RISER LEAD 5M	TBA
56	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	ST-SC 12F OM3 RISER LEAD 5M	TBA
57	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	ST-ST 12F OM3 RISER LEAD 5M	TBA
58	Patch Lead MM [OM3] 12 Fibre	Patch Lead	AFC	MTPF 12F 50UM OM3 X-OVER LEAD 5M	TBA
59	Self-laminating vinyl label	Patch label	Brady	62351 (PTL-104-427)	TBA

7.9 Panel accessories

Table 9

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	MTP DIN Rail Enclosure	TBA	AFC	MTPM-LCD 24F 50um OM3 LOADED DIN ENCLOSURE	TBA
2	MTP DIN Rail Enclosure	TBA	AFC	MTPM-LCD 24F 50um OM3 LOADED CASSETTE-ANGLED LEFT	TBA
3	MTP DIN Rail Enclosure	TBA	AFC	MTPM-LCD 24F 50um OM3 LOADED CASSETTE-ANGLED RIGHT	TBA
4	Loaded Enclosures	TBA	AFC	1RU 24F MM ST SLIDING ENCLOSURE	TBA
5	Loaded Enclosures	TBA	AFC	1RU 24F SCD OM1 LOADED S ENCLOSURE	TBA
6	Loaded Enclosures	TBA	AFC	1RU 24F SCA SM LOADED S ENCLOSURE	TBA
7	Loaded Enclosures	TBA	AFC	1RU 12F LC MM LOADED SLIDING ENCLOSURE	TBA
8	Loaded Enclosures	TBA	AFC	3RU 60F SCA SM LOADED MOD-S ENCLOSURE	TBA
9	Loaded Enclosures	TBA	AFC	3RU ST OM1 LOADED WB ENCLOSURE - 70 DEG	TBA
10	Loaded Enclosures	TBA	AFC	3RU 48F SCA/ST SM/OM1 LOADED 70 DEGREE WB ENCLOS	TBA
11	Loaded Enclosures	TBA	AFC	3RU ST/SCA OM1/SM LOADED WB 70 DEG ENCLOSURE	TBA
12	Loaded Enclosures	TBA	AFC	3RU ST/SCA OM1/SM LOADED WB 70 DEG ENCLOSURE	TBA
13	Loaded Enclosures	TBA	AFC	3RU 36F SCA SM LOADED WB 70 DEG ENCLOSURE	TBA
14	Loaded Enclosures	TBA	AFC	3RU 36F SCA SM LOADED WB 70 DEG ENCLOSURE	TBA
15	Loaded Enclosures	TBA	AFC	3RU 192F LC OM3 and MTP LOADED 70 DEGREE WB ENCL V2	TBA
16	Loaded Enclosures	TBA	AFC	3RU 60F SCA SM/ ST/MM LOADED WB 70DEG ENCLOSURE	TBA
17	Loaded Enclosures	TBA	AFC	3RU 60F SCA CM / ST MM LOADED 70 DEG WB ENCLOSURE	TBA
18	Loaded Enclosures	TBA	AFC	3RU 48F SCA SM 96F LC OM3 LOADED WB 70 DEG ENCL	TBA
19	Loaded Enclosures	TBA	AFC	3RU 192F LC OM3 and MTP LOADED 70 DEGREE WB ENCL V1	TBA
20	Loaded Enclosures	TBA	AFC	3RU 84F SCA SM LOADED WB ENCLOSURE	TBA
21	Loaded Enclosures	TBA	AFC	3RU 96F SCA SM LOADED WB ENCLOSURE - 70DEG	TBA
22	Loaded Enclosures	TBA	AFC	3RU 48F SCA SM 96F LC OM3 LOADED WB 70 DEG ENCL	TBA
23	Loaded Enclosures	TBA	AFC	1RU 48F LCD OM3 LOADED WB ENCLOSURE	TBA
24	Enclosure Components	TBA	AFC	1RU 2 PANEL MODULAR SLIDING ENCLOSURE	TBA
25	Enclosure Components	TBA	AFC	1RU SLIDING STORAGE TRAY	TBA
26	Enclosure Components	TBA	AFC	3RU 8 PANEL MODULAR SLIDING ENCLOSURE	TBA
27	Enclosure Components	TBA	AFC	3RU 8 PANEL MOD WINGBACK ENCL - 70 DEG ANGLED BACK	TBA

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
28	Enclosure Components	TBA	AFC	BLANK PANEL	TBA
29	Enclosure Components	TBA	AFC	MULTI-ENCLOSURE INTERFACE KIT, 2 WAY SPLIT - 1M	TBA
30	Enclosure Components	TBA	AFC	SC/LCD 6P PANEL 1-6HP ANGLED LEFT	TBA
31	Enclosure Components	TBA	AFC	SC/LCD 6P PANEL 1-6HP ANGLED RIGHT	TBA
32	Enclosure Components	TBA	AFC	SC/LCD 12P PANEL 1-12HP ANGLED LEFT	TBA
33	Enclosure Components	TBA	AFC	SCA SM LOADED 12P ANGLED LEFT PANEL RED	TBA
34	Enclosure Components	TBA	AFC	SC/LCD 12P PANEL 1-12HP ANGLED LEFT RED	TBA
35	Enclosure Components	TBA	AFC	SCA SM LOADED 12P ANGLED LEFT PANEL RED	TBA
36	Enclosure Components	TBA	AFC	SC/LCD 12P PANEL 1-12HP ANGLED RIGHT	TBA
37	Enclosure Components	TBA	AFC	SCA SM LOADED 12P ANGLED RIGHT PANEL RED	TBA
38	Enclosure Components	TBA	AFC	SC/LCD 12P PANEL 1-12HP ANGLED RIGHT RED	TBA
39	Enclosure Components	TBA	AFC	SCA SM LOADED 12P ANGLED RIGHT PANEL RED	TBA
40	Enclosure Components	TBA	AFC	ST 12P PANEL 1-12 ANGLED LEFT LOADED ST MM	TBA
41	Enclosure Components	TBA	AFC	ST 12P PANEL 1-12HP ANGLED LEFT RED	TBA
42	Enclosure Components	TBA	AFC	ST 12P PANEL 1-12 ANGLED LEFT LOADED PANEL RED	TBA
43	Enclosure Components	TBA	AFC	ST 12P PANEL 1-12 ANGLED RIGHT MM LOADED	TBA
44	Enclosure Components	TBA	AFC	ST 12P PANEL 1-12HP ANGLED RIGHT RED	TBA
45	Enclosure Components	TBA	AFC	ST 12P PANEL 1-12 ANGLED RIGHT MM PANEL RED	TBA
46	Enclosure Components	TBA	AFC	2 PANEL COMPACT MODULAR WALL ENCLOSURE	TBA
47	Enclosure Components	TBA	AFC	LC MM CERAMIC SLEEVE DUPLEX ADAPTER AQUA R/FLANGE	TBA
48	Enclosure Components	TBA	AFC	LC MM CERAMIC SLEEVE DUPLEX ADAPTER BEIGE R/FLANGE	TBA
49	Enclosure Components	TBA	AFC	SCA 9um 2M PIGTAILS, COL 900um 12PK	TBA
50	Enclosure Components	TBA	AFC	LC OM3 50um 2M PIGTAILS, COL 900um 12PK	TBA
51	Enclosure Components	TBA	AFC	SCA SM SIMPLEX ADAPTER GREEN R/FLANGE	TBA
52	Enclosure Components	TBA	AFC	SPLICE CASSETTE LARGE MOUNTING SHELF	TBA
53	Enclosure Components	TBA	AFC	SPLICE CASSETTE KIT WITH HD COMB FOR 12/24 SPLICES	TBA
54	Enclosure Components	TBA	AFC	SPLICE CASSETTE KIT WITH HD COMB FOR 24/48 SPLICES	TBA
55	Enclosure Components	TBA	AFC	SPLICE CASSETTE KIT WITH HD COMB FOR 60/120 SPLICE	TBA
56	Enclosure Components	TBA	AFC	SPLICE PROTECTOR H/S 2.55mm X 45mm - 100PACK	TBA
57	Enclosure Components	TBA	AFC	SPLICE PROTECTOR H/S 2.55mm X 62mm - 12PACK	TBA

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
58	Enclosure Components	TBA	AFC	SPLICE PROTECTOR H/S 2.55mm X 62mm - 100PACK	TBA
59	Enclosure Components	TBA	AFC	ST SM SIMPLEX ADAPTER METAL BODY DD HOLE STYLE	TBA
60	Enclosure Components	TBA	AFC	ST MM SIMPLEX ADAPTER METAL BODY DD HOLE STYLE	TBA

Materials and part numbers for panel accessories additional to this standard are listed on Ausgrid standard drawings 221165 and 221193.

7.10 Attenuators

Table 20

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	Attenuators	TBA	AFC	SCA SM ATTENUATOR 10dB MALE-FEMALE	TBA
2	Attenuators	TBA	AFC	SCA SM ATTENUATOR 15dB MALE-FEMALE	TBA
3	Attenuators	TBA	AFC	SCA SM ATTENUATOR 20dB MALE-FEMALE	TBA
4	Attenuators	TBA	AFC	SCA SM ATTENUATOR 25dB MALE-FEMALE	TBA
5	Attenuators	TBA	AFC	ST SM ATTENUATOR 5dB MALE-FEMALE	TBA
6	Attenuators	TBA	AFC	ST SM ATTENUATOR 20B MALE-FEMALE	TBA

7.11 Asset location and identification

Table 11

Item	Description	Application	Approved Manufacturer	Part Number	SAP Number
1	Orange HDPE omni-directional frequency based marker devices (pre-set to the Telecommunications frequency) with no internal fluid	Trench	Tempo	TBA	TBA
2	Orange HDPE frequency based marker disk set to the telecommunications frequency	Buried pit lid	Tempo	TBA	TBA
3	Protection Fibre marker tape with conductive trace wire – non-adhesive – refer drawing 212401.	Trench	Vinidex	TBA	TBA
4	Protection Fibre marker tape – non-adhesive and with no conductive wire – refer drawing 212401	Trench	Vinidex	TBA	TBA
5	2.5mm² conductive marker wire	Haul	Boddingtons	TBA	TBA
6	Adhesive marker tape with no conductive wire – refer drawing 212401.	Basement and void	Boddingtons	TBA	TBA

8.0 RECORDKEEPING

Records of all telecommunications materials designed and constructed for each project must be stored with the project.

A copy of the checklist in Annexure A must be completed by Design and Construction for each project and stored with the project.

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

Table 12 – Recordkeeping

Type of Record	Storage Location	Retention Period*
Approved copy of the network standard	BMS Network sub process Standard – Company	Unlimited
Draft Copies of the network standard during amendment/creation	TRIM Work Folder for Network Standards (Trim ref. 2014/21250/12)	Unlimited
Working documents (emails, memos, impact assessment reports, etc.)	TRIM Work Folder for Network Standards (Trim ref. 2014/21250/12	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.

9.0 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 Network Standards. 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.

10.0 DOCUMENT CONTROL

Content Coordinator : Manager Secondary Systems

Distribution Coordinator : Engineering Information and Services Manager

Annexure A – Design Compliance Checklist

This section is used to identify design compliance checks that when applied to the work associated with this Network Standard will satisfy an audit process to establish that the requirements of the standard have been followed. Where non-compliance is the result of specific site conditions or design decisions this needs to be identified in the “variations to standard materials and/or Network Standards” section of the forms. Should additional information be available to document non-compliance decisions, these can be attached to the checklist forms. The checklist and any attached explanatory notes should be saved in the project document repository.

Network Standard Design Checklist Form

NS245 Telecommunications: Approved List of Materials

Project Identification:	
Prepared by: <Name & Position Title>	Date:

This checklist is for internal Ausgrid use only and does not apply to ASPs or contractors who have specific compliance requirements in relation to Contestable project works. The checklist is unique for each network standard and is available within BALIN and the BMS as a separate form that can be amended as required, completed and saved in TRIM with the other project documentation.

This section is used to identify compliance checks that when applied to the work associated with this Network Standard will satisfy an audit process to establish that the requirements of the standard have been followed. It is expected that applicable items would normally be checked as Comply (Yes) as non-compliance is generally not tolerated.

Where non-compliance is the result of specific site conditions or design decisions this needs to be identified in the notes section of the form for each non-compliance and approval sought from an appropriately authorised Ausgrid manager responsible for design approval per NS261 Compliance Framework for Network Standards.

Should additional information be available to document non-compliance decisions, these can be attached to the checklist form. The checklist and any attached explanatory notes should be saved in the project document repository.

Item	Description	Refer Clause	Completed/ Actioned
	Scope		
	This Network Standard lists the approved materials which are specific to the Ausgrid telecommunications network.		
	Design Requirements		
1.	Design specifies the selection and application of materials that will comply with Ausgrid Electrical Safety Rules as well as WHS Act 2011 and associated Regulation	5	Yes/No/NA
2.	Materials selected and/or sourced by Design are in compliance with Be Safe Procedure 14, NS174 and all relevant laws, rules, regulations and guides for environmental impact assessment	5	Yes/No/NA
3.	Design sources all materials from Ausgrid stores	5	Yes/No/NA
4.	Design selects materials in compliance with sections 5 and 7 of this standard	5 and 7	Yes/No/NA
5.	Design documents all telecommunications materials selected for the project	8	Yes/No/NA

All checklist items marked '×' above shall be referenced and submitted for approval in the below variation table along with supporting documentation, prior to design release.

Design variations to standard materials and/or Network Standards	Signature
Cross reference to checklist and explanation of non-conformance	Name:_____ Title:_____ Signature:_____ Date:_____
Cross reference to checklist and explanation of non-conformance	Name:_____ Title:_____ Signature:_____ Date:_____
Cross reference to checklist and explanation of non-conformance	Name:_____ Title:_____ Signature:_____ Date:_____

Design variations to NS245 must be submitted to Ausgrid's Senior Engineer responsible for Telecommunications Area Planning for approval and signature prior to construction release.

Design checklist verified and approved by:_____

Signature:_____ Date:_____

Annexure B – Construction Compliance Checklist

This section is used to identify construction compliance checks that when applied to the work associated with this Network Standard will satisfy an audit process to establish that the requirements of the standard have been followed. Where non-compliance is the result of specific site conditions or design decisions this needs to be identified in the “variations to standard materials and/or Network Standards” section of the forms. Should additional information be available to document non-compliance decisions, these can be attached to the checklist forms. The checklist and any attached explanatory notes should be saved in the project document repository.

Network Standard Construction Checklist Form

NS245 Telecommunications: Approved List of Materials

Project Identification:	
Prepared by: <Name & Position Title>	Date:

This checklist is for internal Ausgrid use only and does not apply to ASPs or contractors who have specific compliance requirements in relation to Contestable project works. The checklist is unique for each network standard and is available within BALIN and the BMS as a separate form that can be amended as required, completed and saved in TRIM with the other project documentation.

This section is used to identify compliance checks that when applied to the work associated with this Network Standard will satisfy an audit process to establish that the requirements of the standard have been followed. It is expected that applicable items would normally be checked as Comply (Yes) as non-compliance is generally not tolerated.

Where non-compliance is the result of specific site conditions or design decisions this needs to be identified in the notes section of the form for each non-compliance and approval sought from an appropriately authorised Ausgrid manager responsible for design approval per NS261 Compliance Framework for Network Standards.

Should additional information be available to document non-compliance decisions, these can be attached to the checklist form. The checklist and any attached explanatory notes should be saved in the project document repository.

Item	Description	Refer Clause	Completed/ Actioned
	Scope		
	This Network Standard lists the approved materials which are specific to the Ausgrid telecommunications network.		
	Construction Requirements		
1.	Construction specifies the selection and application of materials that will comply with Ausgrid Electrical Safety Rules as well as WHS Act 2011 and associated Regulation	5	Yes/No/NA
2.	Materials selected and/or sourced by Construction are in compliance with Be Safe Procedure 14, NS174 and all relevant laws, rules, regulations and guides for environmental impact assessment	5	Yes/No/NA
3.	Construction sources all materials from Ausgrid stores	5	Yes/No/NA
4.	Construction selects materials in compliance with sections 5 and 7 of NS245	5 and 7	Yes/No/NA
5.	Materials are handled, transported and stored according to the manufacturer's direction and this standard.	6	Yes/No/NA
6.	Construction documents all telecommunications materials selected for the project	8	Yes/No/NA

All checklist items marked '×' above shall be referenced and submitted for approval in the below variation table along with supporting documentation, prior to design release.

Construction variations to standard materials and/or Network Standards	Signature
Cross reference to checklist and explanation of non-conformance	Name:_____ Title:_____ Signature:_____ Date:_____
Cross reference to checklist and explanation of non-conformance	Name:_____ Title:_____ Signature:_____ Date:_____
Cross reference to checklist and explanation of non-conformance	Name:_____ Title:_____ Signature:_____ Date:_____

Construct variations to NS245 must be submitted to Ausgrid's Senior Engineer responsible for Telecommunications Area Planning for approval and signature prior to construction commencement.

Construction checklist verified and approved by:_____

Signature:_____ Date:_____