Authorisations

<table>
<thead>
<tr>
<th>Action</th>
<th>Name and title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared by</td>
<td>TasNetworks</td>
<td>23/12/2015</td>
</tr>
<tr>
<td>Reviewed by</td>
<td>David King&lt;br&gt;With input from Rick Stevens, Jeshua Brouwer, Frank Pontes, James Goodger</td>
<td>23/12/2015</td>
</tr>
<tr>
<td>Authorised by</td>
<td>Dominic James</td>
<td>23/12/2015</td>
</tr>
<tr>
<td>Review cycle</td>
<td>24 months</td>
<td></td>
</tr>
</tbody>
</table>

Responsibilities

This document is the responsibility of the Network Information Systems Leader, Tasmanian Networks Pty Ltd, ABN 24 167 357 299 (hereafter referred to as "TasNetworks").

Please contact the Manager Asset Strategy and Planning Department with any queries or suggestions.

- Implementation: All TasNetworks staff and contractors.
- Compliance: All group managers.

Minimum Requirements

The requirements set out in TasNetworks' documents are minimum requirements that must be complied with by all TasNetworks team members, contractors, and other consultants.

The end user is expected to implement any practices which may not be stated but which can be reasonably regarded as good practices relevant to the objective of this document.
## Record of revisions

<table>
<thead>
<tr>
<th>Section number</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sections</td>
<td>Original Transend standard revised to include the customer choice program and the inclusion of the communications and distribution business.</td>
</tr>
</tbody>
</table>
Table of contents

Authorisations .................................................................................................................. 2

Responsibilities .................................................................................................................. 2

Minimum Requirements ..................................................................................................... 2

1 General ............................................................................................................................. 6
   1.1 Purpose ....................................................................................................................... 6
   1.2 Scope .......................................................................................................................... 6
   1.3 Responsibilities and Stakeholders .......................................................................... 6
      1.3.1 Drawing Team ................................................................................................... 6
      1.3.2 Drawing Stakeholders ....................................................................................... 6
   1.4 Definitions .................................................................................................................. 7
   1.5 References .................................................................................................................. 9

2 Drawing Request ............................................................................................................. 10
   2.1 New Drawing Requests .......................................................................................... 10
   2.2 Existing Drawing Requests .................................................................................... 10
      2.2.1 Existing Drawing Issue .................................................................................... 10
      2.2.2 Project Drawings for Information .................................................................... 10
      2.2.3 Contractor Drawing Issue ................................................................................. 10
   2.3 Drawing life Cycle Process ...................................................................................... 10
      2.3.1 Drawing Identification Numbering System ...................................................... 11
      2.3.2 Drawing Revision Identification ...................................................................... 13
      2.3.3 Concept Drawings ............................................................................................ 13
      2.3.4 Design Stage ...................................................................................................... 13
      2.3.5 Superseded or Cancelled Drawings ................................................................... 14
      2.3.6 Construction and Commissioning ..................................................................... 14
      2.3.7 ‘As Installed’ Drawing Updates ....................................................................... 15
      2.3.8 Drawing Updates in EDMS .............................................................................. 15
      2.3.9 Isolated Drawing Error Rectification ................................................................ 15
      2.3.10 Simultaneous Project Drawings ....................................................................... 15
   2.4 Drawing Check and Approval .................................................................................. 15
   2.5 Drawing Issue and Distribution ................................................................................ 16
   2.6 Drawing Management System ................................................................................ 16

Appendix A – Typical Drawing Life Cycles ........................................................................ 17
1 General

1.1 Purpose

Provide all TasNetworks staff, Accredited Electrical Designers and Accredited Electrical Constructors with a drawing management standard. This standard defines the responsibilities, procedures and processes including:

- Interaction with the TasNetworks Electronic Drawing Management System (EDMS)
- Roles and responsibilities of TasNetworks staff and Sub contracted staff
- Control of drawing alteration and revision
- Authorisation of drawing changes.

1.2 Scope

This standard applies to all asset related drawings which are developed and maintained by, or on behalf of TasNetworks.

1.3 Responsibilities and Stakeholders

1.3.1 Drawing Team

The role of the TasNetworks Drawing Team is to manage the following activities:

1. Control of drawings stored in the EDMS
2. Quality control check on all drawings against the “drawing drafting standard”
3. Quality check on all drawing border inclusions.

1.3.2 Drawing Stakeholders

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Role</th>
<th>Responsibility/Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>TasNetworks</td>
<td>Asset Strategy and Performance Leader</td>
<td>Overall accountability for the integrity of all asset documentation.</td>
</tr>
<tr>
<td></td>
<td>Asset Engineer/Officers</td>
<td>Responsibility for the technical accuracy and adequacy of drawings.</td>
</tr>
<tr>
<td></td>
<td>Drawing Team</td>
<td>Responsible for archive, check-in, check-out, issuing, tracking and quality control of drawings.</td>
</tr>
<tr>
<td></td>
<td>Field staff, Project managers, Outage managers</td>
<td>Use of these drawings in the performance of their duties and reporting on any deficiencies in their content.</td>
</tr>
<tr>
<td>TasNetworks and Maintenance Contractors</td>
<td>Operation / Maintenance Contractors</td>
<td>Access to accurate drawings in the performance of their duties.</td>
</tr>
<tr>
<td>TasNetworks and AED/AEC</td>
<td>Project Managers, Design Consultants and Constructors</td>
<td>May be contractually engaged to undertake the design, production or alteration of TasNetworks drawings and control its life cycle during construction and commissioning.</td>
</tr>
<tr>
<td>AEMO</td>
<td>Australian Energy Market Operator</td>
<td>References TasNetworks drawings (to assist with the determination of direct or indirect oversight of assets) as an activity associated with maintaining the security of the national electricity network.</td>
</tr>
</tbody>
</table>
1.4 Definitions

**AEMO**: Australian Energy Market Operator

**AED**: Accredited Electrical Designer

**AEC**: Accredited Electrical Constructor

**Approved**: Authorisation of a drawing to be used on behalf of TasNetworks

**’As Installed’**: A drawing which shows equipment as currently installed. ‘As Built’ and ‘As Installed’ have the same meaning

**CAD**: Computer Aided Design. Within this standard, CAD refers to an electronic drawing provided in .dwg or .dgn format which may include an embedded .gp4 file

**Cancelled**: The status of a drawing that is no longer required to depict the arrangement or configuration of equipment which has been removed from service or made redundant. Refer to Drawing Drafting Standard for further information on drawing cancellation

**Checked**: The verification of technical adequacy and completeness of a drawing or the part of a drawing which has been altered

**Checked-in**: The status of a current drawing when it is stored in the EDMS

**Checked-out**: The status of a drawing when it checked out of the EDMS for the purpose of alteration

**Concept Definition**: The overall project concept including concept drawings

**Concept Drawing**: A drawing specifically drafted for tendering or proposal purposes and whose life is limited to the tender only

**Critical Drawings**: Drawings which are required to safely operate TasNetworks network. The list comprises of the Power Circuit One-Line Diagram (PCOLD), the Metering and Protection One-Line Diagram (MPOLD), Operational Diagram (OD), One Line Diagram (OLD), General Arrangement (GA), Wire Position Diagram (WPD), Standard Drawing (SD) and System Diagrams

**Customer**: The end user of electricity or net generator to the TasNetworks grid

**Design House**: The appointed designer whether internal to TasNetworks, contracted or subcontracted to an AED

**Drawing**: Pictorial, tabular or graphical representation of technical design. Drawings may also contain a map or a representation of geographical features

**Drawing Type**: Indicates the differing drawing characteristics including General Arrangement, Layout, Details, Assembly, Block Diagram, Schematic and Schedules

**Drawing Team**: The TasNetworks team who allocates drawing identification numbers, responsible for maintaining a register of controlled drawings and when applicable, controlling issuance of drawings

**Drawing Register**: A database which lists drawings and their current revision status, together with other metadata

**DWG**: CAD format files with a .dwg file extension used by drafters to create or modify drawings

**DGN**: CAD format files with a .dgn file extension used by drafters to create or modify drawings
drawings

**EDMS:** Electronic Drawing Management System

**GA:** General Arrangement drawing showing physical relationship between equipment within a substation, transmission line or system

**GP4:** A scanned amendable drawing image with a file extension of .gp4, which may be used in conjunction with a .dwg file

**Hybrid Drawing:** A drawing which is a combination of .dwg and .gp4 (drafted and scanned images) format

**Issue:** The transmission of drawings to personnel or organisations which includes electronic and hard copy formats

**Metadata:** Database references identifying drawings in a database

**Operational Information:** Information such as operating diagrams (MPOLD, OD, PCOLD, WPĐ) and rating sheets utilised for transmission system operation

**Original:** The status of a drawing representing the first registration of a drawing in the EDMS by TasNetworks

**PDF:** (Portable Document Format) An electronic image file of a particular type with a file extension .pdf

**Project Manager:** Any representative from any organisation who has been assigned the responsibility to manage a project and perform the role of Principal’s Representative and/or Purchaser’s Representative

**Project Management:** A layer of project management across all the project stakeholders including TasNetworks and the AED and AEC

**Redline Mark-ups:** A hard copy “construction” drawing which is marked in red ink to indicate agreed changes during construction or commissioning. These changes are subject to the check and approval process

**SCADA:** Supervisory, Control and Data Acquisition

**Superseded:** The status of a drawing that has been replaced by a new drawing. Refer to Drawing Drafting Standard for further information on superseding of drawings

**TIF:** (Tagged Image Format) An electronic image file of a particular type with a file extension .tif

**TRIM:** the EDMS for all TasNetworks drawings.
1.5 References

R357930 Drawing Drafting Standard
R280697 General Substation Requirements Standard
R358449 Site Names and Abbreviations Standard
R280718 Transmission Line and Cable Numbers Standard
R280717 Transmission Circuit Name Abbreviations Standard
R280703 Asset Identification Standard
R280754 Site Drawing Prefix Master List
R358302 Drawing Checking and Approval Authorisation Guidelines.
2 Drawing Request

The TasNetworks Project Manager shall be responsible for identifying all new project related drawings and ensuring that only those drawings which are specifically required to facilitate project design and/or construction are requested from the Drawing Team.

2.1 New Drawing Requests

All new drawing requests shall be initiated via an email request to drawings@TasNetworks.com.au. This request will indicate the location to which the new drawing relates, together with the proposed drawing title.

The requester shall indicate the likely date that the drawing(s) will be available for registration in the EDMS.

The Drawing Team shall check the EDMS to ensure that the requested drawing does not already exist and advise the requester accordingly if it does.

The Drawing Team shall register the details of the request in the TasNetworks drawing register, indicating who has made the request and the proposed completion date.

An electronic template border and new drawing number or range of numbers shall be issued, compliant with the requirements of this standard to the requester.

2.2 Existing Drawing Requests

All requests for existing drawing issue, irrespective of the purpose for which they are required, shall be directed to the Drawing Team only. (drawings@TasNetworks.com.au). Issue of the requested drawings by the Drawing Team.

2.2.1 Existing Drawing Issue

Drawings which are required for the development of a project shall be issued as CAD files. All requested drawings provided in CAD format shall be registered as ‘checked-out’ by the Drawing Team in the TasNetworks drawing register. Details indicating the recipient, project detail and the proposed date of return to the EDMS will also be maintained in the drawing register.

2.2.2 Project Drawings for Information

Drawings which are requested for information only on a project shall be issued in CAD format and shall not be altered. These drawings shall not be ‘checked-out’ of the EDMS and shall not be returned to the EDMS.

2.2.3 Contractor Drawing Issue

Drawings provided to AED’s and AEC’s who are responsible for design and/or construction shall be via a transmittal issued by the assigned TasNetworks Project Manager listing the drawings and their revision status.

When drawings pass from one project stage to another (eg from construction to commissioning) these drawings shall be managed by the contractor’s quality system.

2.3 Drawing life Cycle Process

The typical drawing life cycle flow charts are shown in the appendices as a guide for any drawing control from its initial to its closing life.
### 2.3.1 Drawing Identification Numbering System

Every drawing has a unique number made up of the following code:

**A-BBB-CCCC-DD-EEE**

<table>
<thead>
<tr>
<th>A-BBB-CCCC-DD-EEE</th>
<th>Letter Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-BBB-CCCC-DD-EEE</td>
<td>A = Drawing Group</td>
</tr>
<tr>
<td>A-BBB-CCCC-DD-EEE</td>
<td>B = Asset Location</td>
</tr>
<tr>
<td>A-BBB-CCCC-DD-EEE</td>
<td>C = Distribution Site Identification or Unique Drawing Identification</td>
</tr>
<tr>
<td>A-BBB-CCCC-DD-EEE</td>
<td>D = Drawing Type</td>
</tr>
<tr>
<td>A-BBB-CCCC-DD-EEE</td>
<td>E = Sheet Number</td>
</tr>
</tbody>
</table>

#### TasNetworks System Drawing Number Identification System

<table>
<thead>
<tr>
<th>A</th>
<th>Drawing Group</th>
<th>BBB Asset Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>Transmission and Zone</td>
<td>Transmission and Zone substation asset numbers are identified in Standard R280722</td>
</tr>
<tr>
<td>D</td>
<td>Distribution Network</td>
<td>Distribution asset numbers (refer to the first 3 characters of issued asset plate number eg T10 **** or C78 ****)</td>
</tr>
<tr>
<td>L</td>
<td>Transmission Network</td>
<td>All Transmission assets are identified in Standard R280717 and R280718</td>
</tr>
<tr>
<td>C</td>
<td>Communications Network</td>
<td>All Telecommunication assets are identified in Standard R280722</td>
</tr>
<tr>
<td>F</td>
<td>Facilities</td>
<td>All Facility assets are identified in Standard R280722</td>
</tr>
<tr>
<td>CCCC</td>
<td>Unique number ID. – Transmission and Communications</td>
<td></td>
</tr>
<tr>
<td>0001</td>
<td>Critical one line diagrams (PCOLD, OD &amp; MPOLD)</td>
<td></td>
</tr>
<tr>
<td>0002</td>
<td>Communications Sites</td>
<td></td>
</tr>
<tr>
<td>0008</td>
<td>Site General Arrangements and sections</td>
<td></td>
</tr>
<tr>
<td>0100-8999</td>
<td>General Detail Drawings</td>
<td></td>
</tr>
<tr>
<td>9000-9999</td>
<td>‘Concept’ Drawing</td>
<td></td>
</tr>
<tr>
<td>DD</td>
<td>Drawing Type</td>
<td></td>
</tr>
<tr>
<td>DI</td>
<td>Drawing Index or General Notes</td>
<td></td>
</tr>
<tr>
<td>BD</td>
<td>Block Diagram</td>
<td></td>
</tr>
<tr>
<td>SH</td>
<td>Schematic Diagram</td>
<td></td>
</tr>
<tr>
<td>WD</td>
<td>Wiring Diagram</td>
<td></td>
</tr>
<tr>
<td>AS</td>
<td>Assembly and Steelwork Details</td>
<td></td>
</tr>
</tbody>
</table>

#### Distribution Site Identification

<table>
<thead>
<tr>
<th>CCCC</th>
<th>Distribution Site Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001-9999</td>
<td>Distribution System Site Identifier (refer to the last 4 characters of issued asset plate number eg T** 1019)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DD</th>
<th>Drawing Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>OL</td>
<td>One Line Diagram</td>
</tr>
<tr>
<td>GA</td>
<td>General Arrangement</td>
</tr>
<tr>
<td>LY</td>
<td>Layout</td>
</tr>
<tr>
<td>RP</td>
<td>Route Plan</td>
</tr>
<tr>
<td>RU</td>
<td>Telecommunication and RTU Drawing</td>
</tr>
</tbody>
</table>
### DD Drawing Type (continued)

<table>
<thead>
<tr>
<th>DD</th>
<th>Drawing Type (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS</td>
<td>Schedule</td>
</tr>
<tr>
<td>MD</td>
<td>Makers Drawing</td>
</tr>
<tr>
<td>FO</td>
<td>Makers Folder or Manual</td>
</tr>
<tr>
<td>SD</td>
<td>Standard Drawing</td>
</tr>
</tbody>
</table>

#### DD Special Drawing Types for Communications use only

<table>
<thead>
<tr>
<th>DD</th>
<th>Special Drawing Types for Communications use only</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>AC One Line Diagram</td>
</tr>
<tr>
<td>BL</td>
<td>Bayface Layout</td>
</tr>
<tr>
<td>CP</td>
<td>Charger Alarms and Programming Details</td>
</tr>
<tr>
<td>DS</td>
<td>Detail Survey</td>
</tr>
<tr>
<td>EL</td>
<td>Earthing Layout</td>
</tr>
<tr>
<td>RL</td>
<td>Equipment Room Layout</td>
</tr>
<tr>
<td>KL</td>
<td>Krone Termination Layout</td>
</tr>
<tr>
<td>SL</td>
<td>Site Layout</td>
</tr>
</tbody>
</table>

#### EEE Sheet Number

<table>
<thead>
<tr>
<th>EEE</th>
<th>Sheet Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>First Sheet</td>
</tr>
<tr>
<td>002</td>
<td>Second Sheet</td>
</tr>
<tr>
<td>003</td>
<td>Third Sheet (etc. continued as required)</td>
</tr>
</tbody>
</table>

### System Sheet Numbering

TasNetworks’s requirement for sheet numbering is that one specific drawing number may incorporate several sheet numbers provided that each sheet is of a related drawing type. An example of the acceptable use of sheet numbers is shown below for a distribution system:

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Sheet No.</th>
<th>Drawing Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-T10-3010-OL</td>
<td>-001</td>
<td>One Line Diagram</td>
</tr>
<tr>
<td>D-T10-3010-LY</td>
<td>-002</td>
<td>Substation Layout.</td>
</tr>
<tr>
<td>D-T10-3010-LY</td>
<td>-003</td>
<td>Substation Earthing Layout</td>
</tr>
<tr>
<td>D-T10-3010-GA</td>
<td>-004</td>
<td>Switchgear General Assembly</td>
</tr>
<tr>
<td>D-T10-3010-LY</td>
<td>-005</td>
<td>Substation Lighting Layout</td>
</tr>
<tr>
<td>D-T10-3010-AS</td>
<td>-006</td>
<td>Concrete Base Assembly and Steelwork Details</td>
</tr>
</tbody>
</table>

Acceptable use of sheet numbers is shown below for a typical Transmission protection panel:

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Sheet No.</th>
<th>Drawing Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-131-0100-DI</td>
<td>-001</td>
<td>No. 1 Panel Drawing Index.</td>
</tr>
<tr>
<td>Z-131-0100-SH</td>
<td>-003</td>
<td>No. 1 Panel Schematic</td>
</tr>
<tr>
<td>Z-131-0100-SH</td>
<td>-004</td>
<td>No. 1 Panel Schematic</td>
</tr>
<tr>
<td>Z-131-0100-WD</td>
<td>-005</td>
<td>No. 1 Panel Wiring Diagram</td>
</tr>
<tr>
<td>Z-131-0100-WD</td>
<td>-006</td>
<td>No. 1 Panel Wiring Diagram</td>
</tr>
</tbody>
</table>
2.3.2 Drawing Revision Identification

All new drawings will be identified with a drawing number, once a drawing has been entered into the EDMS any subsequent check-out which is to be modified will be revised using the table below:

<table>
<thead>
<tr>
<th>Project Phase</th>
<th>New Drawing</th>
<th>Existing (issued ‘As Installed’ eg Rev C) Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Concept’ Drawing</td>
<td>$.1</td>
<td></td>
</tr>
<tr>
<td>‘Concept Drawing Revision’</td>
<td>$.2 etc</td>
<td></td>
</tr>
<tr>
<td>‘Design’ Drawing fully approved and ready for “construction” process</td>
<td>$.1</td>
<td>C.1</td>
</tr>
<tr>
<td>‘Design’ Drawing Revision as part of the design or during construction</td>
<td>$.2</td>
<td>C.2</td>
</tr>
<tr>
<td>‘As Installed’</td>
<td>A</td>
<td>D</td>
</tr>
<tr>
<td>Superseded or Cancelled</td>
<td></td>
<td>D</td>
</tr>
</tbody>
</table>

2.3.3 Concept Drawings

Concept drawings are generally for tendering or proposals; the following is the life cycle process of a Concept Drawing:

1. Drawings on which TasNetworks shall design a conceptual definition may be copied from the current “As Installed” drawings residing in EDMS. These drawings shall not be checked-out of the EDMS
2. The copy shall have all previous alteration boxes and approvals removed and shall become a new drawing. Where no existing ‘As Installed’ drawings are available, a new drawing shall be developed for the project definition. All project conceptual definition drawings shall be numbered with a drawing number using the function grouping series described in section 2.3
3. Project conceptual definition drawings once checked and approved shall be checked-in to the EDMS complete with the “Information” border mark before issue for tender or suchlike. Subsequent revisions shall follow the revision process in section 2.3.

2.3.4 Design Stage

The project drawing register shall maintain the current revision of all project drawings during the design and construction process:

1. Current ‘As Installed’ drawings issued for alteration will be checked out and issued to the TasNetworks Project Manager from the EDMS via the Drawing Team
2. New drawings templates shall be provided during the design phase of the project
3. All new or modified drawings shall be revised as defined in section 2.3.2
4. All design drawings submitted to TasNetworks by an AED for final approval will bear a drafted, designed, checked and approval signature
5. All design drawings by TasNetworks will bear a drafted, designed, checked and approval signature
6. All design drawings will bear a “design” border mark
7. On receipt of submitted design drawings, the Drawing Team shall check all new drawings for conformity to TasNetworks Drafting Standard. Non-compliant drawing shall have non-compliances identified and be returned with compliance actions.

8. If no further actions are required to meet TasNetworks drawings and drafting standards then all AED provided drawings may be sent to the appointed TasNetworks approver.

9. Upon final TasNetworks approval of drawings from an AED, all drawings and schedules shall be checked into the EDMS complete with the remaining TasNetworks drafting check and approval signatures where they will sit until requested for construction.

10. Checked-out drawings not required for modification will simply be released/checked back into EDMS on their original revision.

2.3.5 Superseded or Cancelled Drawings

Any superseded or cancelled drawings shall be revised to the next revision with a brief description and a border mark on the drawing to reflect this. The superseded drawing will have its replacement drawing referenced.

2.3.6 Construction and Commissioning

The construction and commissioning drawing management process is as follows:

1. Following the design approval process and the request for construction EDMS check-out, drawings will be border marked “construction” and the construction sign off block shall be inserted by the project design house and issued for construction.

2. Once factory acceptance testing and construction is complete, the drawings will bear all the agreed “as constructed” legible redline modifications and the appropriate representative ink sign off in the construction sign off block. All construction drawings will bear a construction block ink signature regardless of whether changes were made to the particular drawing which then completes the drawing package hand over obligation. This complete set of red line drawings will be fit for drafter tracing or the subsequent site acceptance testing or commissioning team use.

3. Once site acceptance testing or commissioning is complete the commissioning representative will add any further redline changes to the drawing package and sign the construction sign off block in the appropriate place.

4. All clear redline mark ups will reflect any and all changes from site works. A single change affecting several drawings will be reflected on all the affected drawing to the quality of the provided construction drawing.

5. Once all the redline changes and signatures have been applied the drawings shall be fit for tracer drafting, design house sign off and final TasNetworks approval.
2.3.7 ‘As Installed’ Drawing Updates

The fully signed redline drawing package as a project deliverable shall be drafted, checked and approved by the AED against the agreed changes and any other minor changes made. The X.1 design revision block shall be deleted and replaced by a revision block with the next letter revision. TasNetworks shall finally approve all drawings against the changes on a copy of the red line drawings before final check-in to the EDMS. The revision block will contain the term “As Installed” along with the revision description relating to the project changes. The border mark will be changed from “construction” to “As Installed”.

2.3.8 Drawing Updates in EDMS

Following formal drawing approval, electronic CAD drawings which are “as installed”, superseded or cancelled shall be issued to the Drawing Team with a drawing transmittal who shall then update the drawing register and check-in the drawings to the EDMS.

Any redline drawings with ink signatures will reside with the TasNetworks project manager and filed electronically in the project folder as a historical record.

2.3.9 Isolated Drawing Error Rectification

Errors identified within existing drawings of an isolated nature (e.g. a “typo” or other obvious mistake) and not such that may change the design in any measure shall preferably be redlined on a hard copy of the current ‘As Installed’ revision of the drawing. The drawing will then be signed and dated by the author plus a check signature from either a manager or associate employee. The mark-up is then emailed to the Drawing Team. Drawing errors identified that may change the design will proceed as a revision by the Drawing Team.

2.3.10 Simultaneous Project Drawings

The implementation of simultaneous projects on the same site using the same source drawings is not a preferred TasNetworks option and shall be by exception only. However, when the need for a multi-project occurs, the Project Manager(s) shall liaise with the Drawing Team in obtaining permission to issue the necessary drawings to another AED. The Drawing Team shall track the status of the subject drawings, the organisation to which they are issued and agree the arrangements and timescale for the subsequent third party work ‘As Installed’ drawings to be made available to other end users.

2.4 Drawing Check and Approval

The process for new or modified drawing checks and approvals is summarised as follows:

a. Drawings altered or created by TasNetworks as a result of the design process shall be signed as checked and approved by TasNetworks
b. Drawings altered or created by a third party AED with a contractual responsibility for detailed design shall be signed as checked and approved by the responsible contractor. This drawing once AED approved will require a further TasNetworks approval signature

c. The TasNetworks signature block on new drawing border are for TasNetworks signatures only, AED’s will only use the signature spaces in the revision blocks
d. The document “Drawing Checking and Approval Authorisation Guidelines” details this TasNetworks process and staff with such authority for checking and approval of any drawing within TasNetworks.

2.5 Drawing Issue and Distribution

TasNetworks drawings shall only be considered controlled when viewed electronically within the EDMS. Printed copies shall be uncontrolled at all times.

2.6 Drawing Management System

TasNetworks electronic “as installed” or standard drawings reside in the EDMS system called SCOPE and managed by the Drawing Team.
### Appendix A – Typical Drawing Life Cycles

#### Typical Drawing Life Cycle – Concept Drawings

<table>
<thead>
<tr>
<th>TasNetworks Drawing Team</th>
<th>TasNetworks Design House</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release CAD drawings (not checked out) Or new template borders</td>
<td></td>
</tr>
<tr>
<td>Identify Drawings Required for Project Definition</td>
<td></td>
</tr>
<tr>
<td>Draft Concept Drawing(s) border marked “Information” and remove all revision history (Dwg No Series 9000)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Yes**
- Draft Concept Drawing(s) border marked “Information” and remove all revision history (Dwg No Series 9000)
- Drawings checked and approved

**No**
- Drawings approved

**Entering drawings into Trim**

- Drawing ready for tender package or other evaluation

**Release CAD drawings**

- (not checked out)
- Or new template borders

**No**

- drawings checked and approved

**Drawings approved**

- Drawings checked and approved
Typical Drawing Life Cycle – Design Drawings

TasNetworks

Identify & Request Existing Drawings Required for Project Alteration

Design Management

Check out “As Installed” drawings in CAD Format or Issue Template Borders for new drawings if requested

Design Process Management

Checked and Approved?

Yes

Notify Project Manager that drawings are ready for approval

AED Design House?

Yes

Return all signed project drawings to the Drawing Team inclusive of:
- Revised electronic CAD drawings complete with all signatures
- Record of TasNetworks Approval
- Non revised electronic CAD drawings
- Electronic CAD Cancelled or Superseded drawings
- Revised Schedules

No

Yes

Enter Drawings Into TRIM

TasNetworks

Design House

Project Design and Drafting Process drawing marked ‘construction’

No

Yes

TasNetworks Approved?

No

Yes

Design Process Management

Design Process Management

AED Design House?
Typical Drawing Life Cycle – Construction Drawings

TasNetworks Design House Construction Management TasNetworks Drawing Team

Check out drawings and issue as the project requires

Yes

Identify & Request Drawings for Construction

Yes

Construction Process Management

No

Design Change Required for Approval

No

Construction Complete?

Yes

Complete redline drawing process and sign construction block

drawing package complete

Yes

Issue for commissioning or drafter tracing

No

Design Change Approved?

Yes

No

TasNetworks Approved?

Yes
Typical Drawing Life Cycle – Commissioning and As Installed Drawings

1. Redline drawing package from construction phase
2. Commissioning Process Management
3. Design Change Required for Approval
4. Commissioning Complete?
   - Yes
   - No
5. Complete redline drawings post commissioning and sign them with all signatures
6. Return all revised CAD drawings to the Drawing Team complete with all signatures
7. Enter "As installed" drawings into TRIM
Appendix B - Example of a TasNetworks Approved 'Construction' Drawing

CAUTION: Printed document is uncontrolled.
Appendix C - Example of a TasNetworks Approved 'As Installed' Drawing

CAUTION: Printed document is uncontrolled.
Appendix D - Example of TasNetworks Construction 'Redline-Markup'

CAUTION: Printed document is uncontrolled.
Appendix F - Example of a Contractor Approved 'As Installed' Drawing

CAUTION: Printed document is uncontrolled.

[Diagram of an electrical circuit, labeled 'Example Substation 220kV T/L Circuit Breaker IBPCU A199C DC Schematic'].

15/01/2016

AS INSTALLED

TasNetworks PTY. LTD.

A-99-0101-SH-001

Rev. B

Page 25 of 25