



Transport
Asset Standards
Authority

T MU AM 01012 ST

Standard

Engineering Document Requirements

Version 2.0

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Standard governance

Owner: Manager Asset Information, Asset Standards Authority

Authoriser: Director, Network and Asset Strategy, Asset Standards Authority

Approver: Executive Director, Asset Standards Authority on behalf of the ASA Configuration Control Board

Document history

Version	Summary of changes
1.0	First issue 15 September 2016
2.0	Second issue. Changes include updates to reference documents including digital engineering, document metadata as well as the management of asset information in support of the TfNSW Data and Information Asset Management Policy as well as minor changes to improve clarity.

Preface

The Asset Standards Authority (ASA) is a key strategic branch of Transport for NSW (TfNSW). As the network design and standards authority for NSW Transport Assets, as specified in the *ASA Charter*, the ASA identifies, selects, develops, publishes, maintains and controls a suite of requirements documents on behalf of TfNSW, the asset owner.

The ASA deploys TfNSW requirements for asset and safety assurance by creating and managing TfNSW's governance models, documents and processes. To achieve this, the ASA focuses on four primary tasks:

- publishing and managing TfNSW's process and requirements documents including TfNSW plans, standards, manuals and guides
- deploying TfNSW's Authorised Engineering Organisation (AEO) framework
- continuously improving TfNSW's Asset Management Framework
- collaborating with the Transport cluster and industry through open engagement

The AEO framework authorises engineering organisations to supply and provide asset related products and services to TfNSW. It works to assure the safety, quality and fitness for purpose of those products and services over the asset's whole-of-life. AEOs are expected to demonstrate how they have applied the requirements of ASA documents, including TfNSW plans, standards and guides, when delivering assets and related services for TfNSW.

Compliance with ASA requirements by itself is not sufficient to ensure satisfactory outcomes for NSW Transport Assets. The ASA expects that professional judgement be used by competent personnel when using ASA requirements to produce those outcomes.

About this document

Changes to this version include updates to reference documents including digital engineering, document metadata as well as the management of asset information in support of the TfNSW *Data and Information Asset Management Policy*.

This standard is a second issue.

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1. Introduction

A consistent methodology of engineering document metadata is essential for the effective identification, storage and retrieval of Transport for NSW (TfNSW) owned asset information in accordance with T MU AM 02001 ST *Asset Information and Register Requirements*.

An engineering document is a subset of asset information and includes documents related to an asset in the concept, procurement, design, construction, testing and commissioning stages of an asset, during a project and during the operation, maintenance and disposal stages of an asset over its life cycle.

This standard establishes the digital engineering document metadata requirements, submission process, and roles and responsibilities for engineering documents submitted to TfNSW throughout the asset life cycle.

2. Purpose

This standard specifies the requirements for the naming and coding of engineering documents provided throughout the asset life cycle. The document also describes the submission process and the storage of engineering documents that are not covered by T MU MD 00006 ST *Engineering Drawings and CAD Requirements* or DMS-ST-207 *Digital Engineering Standard Part 2 – Requirements* but are required to be submitted to TfNSW in accordance with T MU AM 01014 ST *Asset Information Handover Requirements*.

Benefits of this standard include the following:

- the consistent use of searchable metadata allowing asset information to be located more efficiently
- improved handover and lodgement of TfNSW owned engineering documents
- reduced risk of inadvertent change or asset information loss at project handover and across the asset life cycle
- ensuring a single repository for TfNSW owned engineering documents is maintained by all TfNSW asset data custodians

2.1. Scope

This standard establishes the engineering document metadata requirements, submission requirements and roles and responsibilities related to the engineering documents submitted to TfNSW as part of asset handovers. This standard applies during the concept, procurement, design, construction, testing and commissioning stages of an asset as defined in the asset information delivery plan (AIDP). The AIDP is defined in T MU AM 01014 ST.

These requirements also apply to the engineering documents created or updated beyond asset handover into the operation, maintenance and disposal stages of an asset.

The requirements in this document are applicable to all TfNSW assets.

This document is not applicable to the following:

- content of engineering documents which may either be specified as a separate Asset Standards Authority (ASA) standard (for example T MU AM 01003 ST *Development of Technical Maintenance Plans*) or as a requirement specified by a TfNSW asset data custodian (for example, a data collection template for an asset register)
- creation of engineering drawings and models using building information modelling (BIM) or computer-aided drafting (CAD) for TfNSW assets specified in T MU MD 00006 ST or DMS-ST-207

2.2. Application

This standard applies to TfNSW divisions, Transport cluster agencies, Authorised Engineering Organisations (AEOs) and other service providers involved in the planning, delivery, operation, maintenance and disposal of assets across the Transport Network. The requirements in this standard apply to all phases of the asset life cycle including the decommissioning and repurposing of assets.

The standard applies to asset registers, associated asset information and asset information systems used to manage assets owned by TfNSW and operated and maintained by TfNSW agencies and service providers as stewards of the asset.

The engineering document types covered by this standard are identified in Section 6.13.

3. Reference documents

The following documents are cited in the text. For dated references, only the cited edition applies. For undated references, the latest edition of the referenced document applies.

Transport for NSW standards

DMS-ST-207 Digital Engineering Standard Part 2 – Requirements

T MU AM 01003 ST Development of Technical Maintenance Plans

T MU AM 01007 TI Asset Reference Codes Register

T MU AM 01012 F1 Metadata Spreadsheet for Engineering Documents

T MU AM 01014 ST Asset Information Handover Requirements

T MU AM 02001 ST Asset Information and Register Requirements

T MU AM 02002 TI Asset Classification System

T MU MD 00006 ST Engineering Drawings and CAD Requirements

Other reference documents

Department of Finance, Services and Innovation, 2015, NSW Government Information Classification, Labelling and Handling Guidelines

4. Terms and definitions

The following terms and definitions apply in this document:

AEO Authorised Engineering Organisation

AIDP asset information delivery plan

AIM asset information model; data and information that relates to assets to a level required to support an organisation's asset management system

AIR asset information requirement; data and information requirements of the organisation in relation to the assets it is responsible for

ASA Asset Standards Authority

asset an item, thing or entity that has potential or actual value to an organisation. Physical assets usually refer to equipment, inventory and properties owned by the organisation. Physical assets are the opposite of intangible assets, which are non-physical assets such as leases, brands, digital assets, use rights, licences, intellectual property rights, reputation or agreements

asset data custodian a person accountable for managing the asset information on behalf of the data owner for the relevant life cycle stage and process within their scope

asset data steward a person responsible for managing the asset information on behalf of the data custodian

asset handover the process of transferring responsibility of an asset from one organisation to another which can involve transferring a planned, existing, new or altered asset

asset information the combined set of data (geometrical and non-geometrical) and documents (drawings, manuals, plans and certificates) required to support the management of assets over the life cycle

asset information repository a recognised physical or electronic location for the storage and management of asset information

asset register record of asset inventory considered worthy of separate identification including associated historical, condition, construction, technical and financial information about each asset

BIM building information modelling

corridor a linear zonal area (within a boundary and defined by a start and end node) that contains heavy rail, metro rail, light rail, road or maritime infrastructure assets to support the operation of transport services

document any record of information and includes:

- a. anything on which there is writing, or
- b. anything on which there are marks, figures symbols or perforations having a meaning for the person qualified to interpret them, or
- c. anything from which sounds, images or writings can be reproduced with or without the aid of anything else, or
- d. map, plan, drawing or photograph

(Evidence Act 1995)

ECMS enterprise content management system

facility a zonal area (within a precinct boundary) that contains buildings, systems, plant and associated infrastructure assets to support the operation and maintenance of transport services

HVAC heating, ventilation, and air conditioning

interchange the area where customers access and egress transport services on the public transport network and may transfer between modes or services. Interchanges have the following attributes:

- includes transport infrastructure assets attributed to the main station, wharf or stop, and other transport modes
- can have multiple areas which may not be contiguous
- there are no interchanges within interchanges, although an interchange may contain stations, wharves, stops or sub-areas where specific customer transfers occur but the whole facility is regarded as one interchange

PIM project information model; set of structured and unstructured information containers relating to the delivery phase

Note: refer to ISO 19650-1: 2018 for the definition of information containers

PIR project information requirement; specification for what, when, how and for whom information is to be produced in relation to the delivery of an asset

TfNSW Transport for NSW

Transport assets assets used for or in connection with or to facilitate the movement of persons and freight by road, rail, sea, air or other mode of transport, and includes transport infrastructure (Transport Administration Act 1988)

transport mode the means by which people and freight move from place to place. Falls into one of three basic types; land (road, rail, active), sea, and air

Transport Network the transport system (transport services and transport infrastructure) owned and operated by TfNSW, its operating agencies or private entities upon which TfNSW has power to exercise its functions as conferred by the *Transport Administration Act* or any other Act

transport services includes railway services (including heavy rail, metro rail and light rail), bus services and ferry services

transport system means the transport services and transport infrastructure of NSW for all modes of transport

5. Engineering documentation

The data and information created during the plan and acquire stages of a project is defined by the project information requirements (PIRs) and is collectively known as the project information model (PIM). This project information set of requirements is a collection of geometric (including 2D drawings and BIM models), non-geometric (non-graphical) data and any other information needed to deliver, operate and manage an asset throughout its life cycle.

Not all information generated as part of the design and construction or procurement of assets during a project is required for asset management. A subset of the PIRs is the asset information that is created during the planning and delivery of a project that is directly related to an asset or assets contained within a corridor, interchange, facility, feeder or fleet and is defined by the asset information requirements (AIRs). This information is transferred from the project to the asset information model (AIM) for use during the operations and maintenance phase.

This asset information is built up progressively during the plan and acquire stages and submitted to TfNSW at defined delivery points throughout the project to support operational readiness, leading up to and post asset handover for use in the operate and maintain stage by a Transport cluster agency or a contracted service provider.

The scope, timing and delivery of the engineering documentation containing the asset data and information (for example: asset registers, maintenance manuals, warranty records, test records, technical maintenance plans) shall be determined as part of the development of the asset information delivery plan (AIDP). The AIDP shall be developed in collaboration with all key stakeholders in accordance with T MU AM 01014 ST.

The complete set of AIRs forms the AIM as shown conceptually in Figure 1.

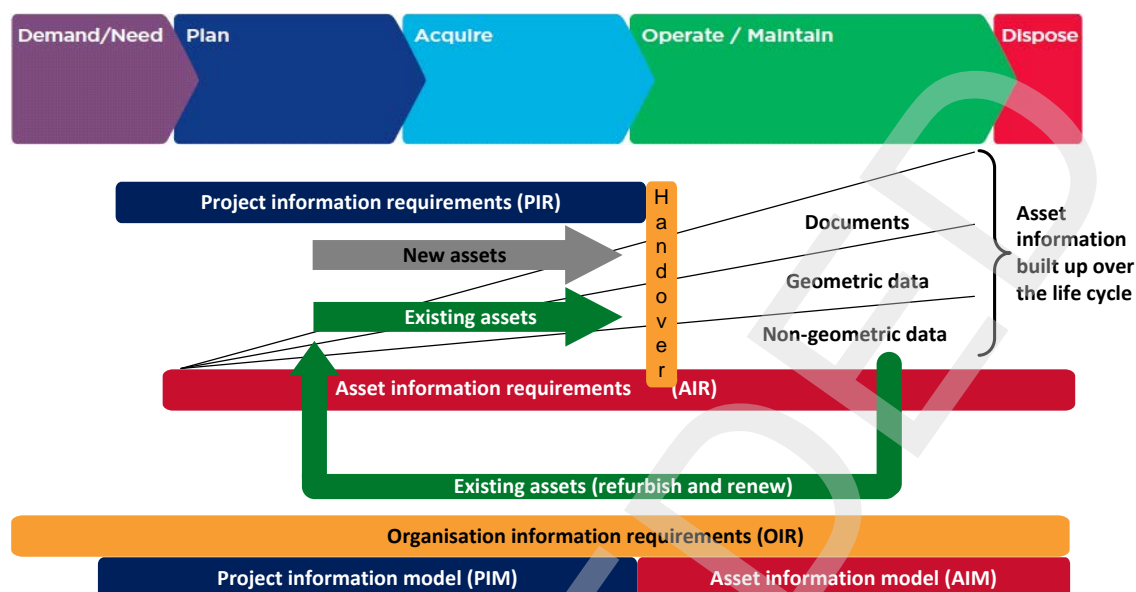


Figure 1 - Information requirements and models across the asset life cycle

Further details in relation to the AIM and associated AIRs are detailed in T MU AM 02001 ST.

Further details in relation to metadata requirements associated with the delivered engineering documentation are in Section 6 (excluding drawing and model requirements). Refer to DMS-ST-207 and T MU MD 00006 ST for drawing and model requirements.

6. Engineering document metadata

Metadata is structured information about a document that enables searching.

Table 1 lists the fields and sources of information for the metadata required for engineering documents that are not covered by T MU MD 00006 ST or DMS-ST-207 but are required to be submitted to TfNSW in accordance with T MU AM 01014 ST.

Table 1 – Metadata required for engineering documents

No.	Field name	Mandatory or optional	Format	Source of information or allowed values
1	Engineering discipline	Mandatory	Pick list	T MU AM 02002 TI Asset Classification System
2	Asset class	Mandatory	Pick list	T MU AM 02002 TI
3	Program	Optional (mandatory where applicable)	Pick list	T MU AM 01007 TI Asset Reference Codes Register
4	Document number	Mandatory	Free text	Up to 40 characters
5	Revision number	Mandatory	Free text	01 to 99
6	Network	Mandatory	Pick list	T MU AM 01007 TI

No.	Field name	Mandatory or optional	Format	Source of information or allowed values
7	Corridor	Optional (mandatory where applicable)	Pick list	T MU AM 01007 TI
8	Location	Mandatory	Pick list	T MU AM 01007 TI
9	Area	Optional	Free text	Up to 40 characters
10	Asset function	Mandatory	Pick list	T MU AM 02002 TI
11	Asset type	Optional (mandatory where applicable)	Pick list	T MU AM 02002 TI
12	Document title	Mandatory	Free text	Up to 40 characters
13	Document type	Mandatory	Pick list	T MU AM 01007 TI
14	Document subtype	Mandatory	Pick list	T MU AM 01007 TI
15	Organisation code	Mandatory	Pick list	T MU AM 01007 TI
16	Alternate document number	Optional (mandatory where applicable)	Free text	Up to 40 characters
17	Security classification	Mandatory	Pick list	In accordance with <i>NSW Government Information Classification, Labelling and Handling Guidelines</i>

Section 6.1 to Section 6.17 explain the required metadata information.

6.1. Engineering discipline

Engineering document metadata shall include an engineering discipline reference. Table 2 lists the eight engineering disciplines, as specified in T MU AM 02002 TI.

Table 2 – Engineering discipline codes and descriptions

Discipline code	Discipline description
AR	Architecture and services
CV	Civil and structures
EL	Electrical
FL	Fleet
PP	Property
SG	Signalling and control systems
TE	Technology and telecommunications
TR	Track

6.2. Asset class

Engineering document metadata shall include an asset class reference.

Assets are categorised by asset class and are associated with the following:

- corridors, interchanges, facilities and feeders and the fixed network infrastructure assets and systems within
- fleet, vehicles and plant and the mobile assets and systems within

Table 3 lists examples of asset class codes and names. The full list of unique asset class codes is available in T MU AM 02002 TI. These class codes form part of the asset classification.

Table 3 – Asset class codes and descriptions

Asset class code	Asset class description
AN	Aids to navigation
BD	Buildings and access
BR	Bridges
BU	Buses
CM	Condition monitoring systems
CN	Communications network backbone systems
CO	Corridors (road, rail and waterways)
CS	Rail control systems
DR	Corridor drainage and culverts
EB	Electrolysis and bonding
EE	Electrical substation equipment
FA	Facilities
FE	Ferries
FF	Furniture and fixtures
FN	Fencing and barriers
FP	Fixed plant
HV	High voltage distribution
IN	Interchanges (stations, stops and wharves)
LD	Land
LR	Light rail vehicles
HY	Hydraulic systems (water, sewer, drainage)
ME	Mechanical systems (heating, ventilation, and air conditioning (HVAC))
OT	Overhead and trackside traction
PE	Minor plant and equipment
PI	Audio visual information systems

Asset class code	Asset class description
PS	Security systems
SE	Rail signalling equipment
TC	Road traffic control systems
TN	Trains
TR	Track
TU	Tunnels
VT	Vertical transportation systems
WI	Wireless systems

Asset classes are directly mapped to an engineering discipline. Table 4 lists examples of asset class mapping to engineering discipline. The complete mapping is in T MU AM 02002 TI.

Table 4 – Engineering discipline to asset class mapping

Discipline code	Asset class code	Asset class description
AR	BD	Buildings and access
AR	FF	Furniture and fixtures
AR	FP	Fixed plant
AR	HY	Hydraulic systems (water, sewer, drainage)
AR	ME	Mechanical systems (HVAC)
AR	MP	Minor plant and equipment
AR	VT	Vertical transportation systems
CV	BR	Bridges
CV	DR	Corridor drainage and culverts
CV	FN	Fencing and barriers
CV	TU	Tunnels
EL	EB	Electrolysis and bonding
EL	EE	Electrical substation equipment
EL	HV	HV distribution equipment
EL	OT	Overhead and trackside traction
FL	BU	Buses
FL	FE	Ferries
FL	LR	Light rail vehicles
FL	TN	Trains
PP	CO	Corridors (road, rail and waterways)
PP	FA	Facilities
PP	IN	Interchanges (stations, stops and wharves)
PP	LD	Land

Discipline code	Asset class code	Asset class description
SG	AN	Aids to navigation
SG	CS	Rail control systems
SG	SE	Rail signalling equipment
SG	TC	Road traffic control systems
TE	CM	Condition monitoring systems
TE	CN	Communications network backbone systems
TE	PI	Audio visual information systems
TE	PS	Security systems
TE	WI	Wireless systems
TR	TR	Track

6.3. Program

The first component of the document number is a unique program code. When a new program is commenced, the program code can be requested in consultation with the TfNSW project management office. The project delivery manager shall request an approval for the use of the program code from the ASA by email to assetinformation@transport.nsw.gov.au. The ASA shall maintain a record of issued program codes and ensure duplicate program codes are not used across the network.

Engineering document metadata shall include a program code. This may not be relevant for documents created during operations and maintenance.

Table 5 lists examples of program codes. Program codes are in T MU AM 01007 TI.

Table 5 – Program codes and descriptions

Program code	Program description
DSP	Digital Systems Program
NIF	New Intercity Fleet
NLR	Newcastle Light Rail
TAP	Transport Access Program

6.4. Document number

Engineering document metadata shall include a unique identifying number. The first part shall be the program code of up to four characters, see Section 6.3. This may not be relevant for documents created during operations and maintenance. The remaining characters of the number shall be alphanumeric and allocated by the service provider to ensure uniqueness, for example, NLR-ABC123-XYZ-CV-000001. The document number shall not include a revision number or project stage.

6.5. Revision number

Engineering document metadata shall include a revision number. The first issue shall always be 01 and if the document is amended and re-issued the revision number shall be incremented to the next whole number, to a maximum of 99. The revision number shall not be used as part of the document number.

6.6. Network

Engineering document metadata shall include a network reference.

Table 6 lists examples of network codes for TfNSW. Network codes are in T MU AM 01007 TI.

Table 6 –Network codes and descriptions

Network code	Network description
HRS	Heavy rail - Sydney
HRC	Heavy rail - country
LRS	Light rail - Sydney
LRP	Light rail - Parramatta
LRN	Light rail - Newcastle
MRS	Metro rail - Sydney
MAS	Maritime - Sydney
MAR	Maritime - regional
RDS	Road - Sydney
RDR	Road - regional

6.7. Corridor

Engineering document metadata shall include an asset corridor reference where applicable.

Table 7 lists examples of corridor codes for heavy rail, light rail and metro rail. Corridor codes are in T MU AM 01007 TI.

Table 7 – Unique corridor codes

Corridor description	Corridor code	Mode
Illawarra Line	I00	Heavy rail
Main North Line	N00	Heavy rail
Sydney Inner West Line	L01	Light rail
Sydney CBD and East Line	L02	Light rail
Metro West Line	M11	Metro rail
Metro North West Line	M14	Metro rail

6.8. Location

Engineering document metadata shall include an asset location reference or a site reference.

Table 8 lists examples of location and site codes. Location and site codes are in T MU AM 01007 TI.

Table 8 – Unique location and site codes

Location or site description	Location or site code
Ashfield	ASH
Ashfield Traction Substation	ASH01
Balmain	BJM
Balmain Ship Yard	BJM01
Barangaroo	BGU
Central	CEN
Chatswood	CHW
Circular Quay	CCQ
Flemington Car Sdg Yard	FCS
Flemington Maintenance Centre	FCS01
Flemington Maintenance Centre Traction Substation	FCS02
Rozelle Bay	ROB
Randwick Yard	RWY
Randwick Maintenance Depot	RWY01
Randwick Depot Traction Substation	RWY02
Tallawong	TLA
Wentworth Park	WEP

6.9. Area

Engineering document metadata shall include an area reference. This is a free text field of up to 40 characters. The area is used by the service provider to define an area of interest for the design and delivery of the project and to provide an additional reference for documents to be identified. Examples include the following:

- tunnel package TUNL0001
- cavern package CVRN0004
- station package STAT0003

This may not be relevant for documents created during operations and maintenance.

6.10. Asset function

Engineering document metadata shall include an asset function reference. Asset function codes form part of the asset classification and are in T MU AM 02002 TI.

The following are examples of asset functions associated with both infrastructure and fleet asset complexes. Asset function codes exist for all entities, systems and products contained within the following complex types:

- infrastructure - corridors, interchanges, facilities and feeders:
 - corridors (RWAY, CWAY, WWAY, YARD)
 - interchanges (BSTP, LSTP, STAT, WHRF)
 - facilities (BDPT, HDPT, TSUB, OCCS, TSRV, WHSE)
 - feeders (CFDR, HFDR, LFDR)
- fleet - passenger fleet and non-passenger fleet, vehicles and plant:
 - passenger fleet (BUSV, FERY, LSET, MSET, TSET)
 - non-passenger fleet, vehicles and plant (CARV, TRLR, TRUC)

Functions codes shall be applied at the appropriate level, for example, complex (RWAY - rail right of way), entity (TUNL - tunnel), system (VENT - ventilation system) or product (VFAN - ventilation fan).

6.11. Asset type

Engineering document metadata shall include an asset type reference in relation to the asset function in Section 6.10 it is associated with where applicable. This refers primarily to the passenger fleet type. Asset type codes, which form part of the asset classification where applicable, are in T MU AM 02002 TI.

The following are examples of asset types associated with fleet asset complexes:

- ferries (FERY)
 - FE for the Emerald Class
- light rail vehicles (LSET)
 - LC for the CSet-Citadis
 - LU for the USet-Urbos
- metro trains (MSET)
 - MM for the MSet-Metropolis

- trains (TSET)
 - TB for the BSet-Waratah Series2
 - TD for the DSet-NIF

6.12. Document title

Engineering document metadata shall include a document title field. This is a free text field of up to 40 characters. The description shall include the document heading, as well as the document subtype, for example, operation manual, life cycle costing plan and so on.

6.13. Document type

Engineering document metadata shall include a document type. Table 9 lists examples of document types. Document type codes are in T MU AM 01007 TI. Requests for a new document type shall be made by email to assetinformation@transport.nsw.gov.au.

Table 9 – Document types

Document type code	Document type description
CER	Certificate
DRG	Drawing
MAN	Manual
MOD	Model
PLN	Plan
PRO	Procedure
REC	Record
REG	Register
RPT	Report
SCH	Schedule
SPC	Specification
STD	Standard

Drawing and model document types shall only be applied to those drawings that are not covered by T MU MD 00006 ST or DMS-ST-207 but are engineering information required to be submitted to TfNSW in accordance with T MU AM 01014 ST.

6.14. Document subtype

Engineering document metadata shall include a document subtype. Table 10 lists examples of document subtypes. Document type can cover various data elements; accordingly document subtypes shall be included. Document subtype codes are in T MU AM 01007 TI. Requests for a new document subtype shall be made by email to assetinformation@transport.nsw.gov.au.

Table 10 – Document subtypes

Document type description	Subtype description	Subtype code
Certificate	Design compliance certificate	CER01
Certificate	Construction compliance certificate	CER02
Certificate	Fire and life safety certificate	CER03
Certificate	WorkCover registration certificate	CER07
Certificate	Occupation certificate	CER08
Certificate	Practical completion certificate	CER11
Certificate	Welders certificate	CER13
Manual	Engineering manual	MAN01
Manual	Equipment manual	MAN02
Manual	Maintenance manual	MAN03
Manual	Manufacturer's manual	MAN04
Manual	Operations and maintenance manual	MAN05
Manual	Operations manual	MAN06
Manual	Supplier's manual	MAN07
Manual	Training manual	MAN08
Manual	Warranty	MAN09
Plan	Asset handover plan	PLN01
Plan	Asset information delivery plan	PLN02
Plan	Asset management plan	PLN03
Plan	Environmental plan	PLN04
Plan	Inspection and test plan	PLN05
Plan	Interface coordination plan	PLN06
Plan	Life cycle cost plan	PLN07
Plan	Technical maintenance plan	PLN12
Procedure	Fleet preparation procedure	PRO01
Procedure	Local instruction	PRO02
Procedure	Operating instruction	PRO03
Procedure	Safe work method statement	PRO04
Record	Design calculations	REC04
Record	Inspection records	REC05
Record	Interface agreement	REC06
Record	Maintenance agreement	REC07
Record	Test records	REC13
Register	Asset register	REG01
Register	Defects register	REG02

Document type description	Subtype description	Subtype code
Register	Spares register	REG08
Report	Audit report	RPT01
Report	Condition report	RPT02
Report	Design report	RPT03
Report	Environmental report	RPT04
Report	Failure mode, effects and criticality analysis (FMECA) report	RPT05
Report	Maintenance reports	RPT06
Report	Power study	RPT07
Report	Reliability, availability and maintainability (RAM) report	RPT08
Report	Safety report	RPT09
Report	Sea trial report	RPT10
Report	Survey report	RPT11
Report	Technical assessment report	RPT12
Schedule	Maintenance service schedule	SCH01
Specification	Technical specification	SPC01
Standard	Engineering standard	STD01

6.15. Organisation code

Engineering document metadata shall include the organisation code of the primary contractor or agency that created or authored the document. Organisation codes are in T MU AM 01007 T1 together with the names of organisations.

6.16. Alternate document number

Engineering document metadata shall include an alternate document number, where relevant, which is not the primary document number and shall only be required for situations where an alternative document number exists.

6.17. Security classification

Engineering document metadata shall include a security classification to identify the confidentiality requirements of the information asset with the application of suitable protective markings to ensure the document is handled appropriately. Further information about security classification are in *NSW Government Information Classification, Labelling and Handling Guidelines*. Most official information does not need increased security and may be marked unclassified or not marked which is the default position for newly created material, unless there is a specific need to protect the confidentiality of the information.

7. Document submission

All engineering documents submitted to TfNSW in accordance with T MU AM 01014 ST (not covered by T MU MD 00006 ST or DMS-ST-207) shall have the document number and revision number on the cover page of the document. Each document shall be created and provided as a separate electronic file, that is, multiple certificates, warranties and so on shall not be combined in one document.

The requirements for submitting the engineering documents are provided in Section 7.1.

7.1. Submission package

All engineering documents submitted to the TfNSW asset data custodian shall include the following:

- project information
- transmittal
- document metadata
- engineering document files

Where an enterprise content management system (ECMS) is utilised by the project these requirements may be satisfied as part of the submission and upload process in the form of project information and document metadata.

7.1.1. Project information

Any submission to TfNSW shall be accompanied by project information that identifies the program, project, the package and the corresponding design stage as relevant. The project information should include any ASA concessions and non-conformances that affect the submission requirements of the package. This project information may be provided as part of the configuration information in the ECMS or as a cover letter where an ECMS is not being used.

7.1.2. Transmittal

The transmittal shall contain a list of all the engineering document files that are submitted to a TfNSW asset information repository.

7.1.3. Document metadata

The metadata spreadsheet contains all information for the engineering documents transmitted to TfNSW. Where a project is utilising an ECMS, the ECMS is to be configured to capture this metadata on file upload. The document metadata includes 17 fields in accordance with Section 6. All fields shall be completed either by selecting an option from a drop-down menu,

entering a relevant value from an associated reference list or by typing text. An example of a metadata spreadsheet is contained in T MU AM 01012 F1 *Metadata Spreadsheet for Engineering Documents*.

Document metadata shall only be applied to those documents that are not covered by T MU MD 00006 ST or DMS-ST-207 but are engineering documents required to be submitted to TfNSW in accordance with T MU AM 01014 ST.

7.1.4. Engineering document file name

The engineering document files shall be submitted electronically using the ECMS or other agreed method such as email with their file names. The file name is typically structured with conventions set by TfNSW and the project Section 6.4.

8. Roles and responsibilities

The asset data custodian is accountable for ensuring that all TfNSW engineering documents are stored securely and managed within a single electronic asset information repository that supports the metadata requirements of this standard.

The asset data steward is responsible for ensuring that all TfNSW engineering documents submitted electronically are stored securely and managed within a single electronic asset information repository and that the relevant stakeholders are provided access and are trained in its use.