

Engineering Publications

Purpose

The purpose of this document is to outline the processes by which Sydney Trains Engineering Publications are created, amended, maintained and used.

For further information on the management, review and withdrawal of Engineering Publications please refer to [PR A 00242 Engineering Technical Document Development and Management](#) published on the Engineering System Integrity Intranet site.

Scope

This document applies to the following processes:

- creation, amendment, maintenance and removal of Engineering Publications; these publications are owned by the Engineering System Integrity division
- use of Engineering Publications
- monitoring and review of Engineering Publications.

This document applies to Sydney Trains employees and contractors carrying out engineering and asset management activities for or on behalf of Sydney Trains.

Process description

1. Engineering Publications

The term 'Engineering Publications' is used to cover the suite of Sydney Trains documents which provides requirements, parameters, measures and guidelines for governance and administration of engineering/technical control over Sydney Trains' assets. This documentation suite consists of:

- engineering standards;
- engineering specifications;
- engineering manuals;
- engineering procedures;
- Engineering Instructions;
- Engineering Advices; and
- Technical Maintenance Plans and Service Schedules.

Refer to Table 1 in Appendix A for the set of Engineering Publications that perform a number of different functions within Sydney Trains.

Engineering Publications facilitate an integrated approach to safety, performance and integrity of the rail network through the implementation of standards and processes for design, construction and maintenance of railway assets. Sydney Trains employees and engaged contractors that are designing, constructing, manufacturing, installing, maintaining and disposing of railway assets must comply with these Engineering Publications.

1.1 Establish and maintain Engineering Publications

The **Deputy Executive Director Engineering System Integrity** will make sure the development, review and amendment of engineering publications follows a defined consultative process with the following phases:

- identify change request
- apply Safety Change Management process
- consult stakeholders
- assess training needs
- obtain approval and authorisation
- publish document.

1.1.1 Identify change request

Requests for changes to Engineering Publications may arise from:

- business decisions to adopt new technologies
- industry best practice
- new or altered railway assets
- legislation changes or changes to applicable external Standards (e.g. International, National or Transport Standards).
- gaps identified by audits or incident investigations
- changes to the operating environment.

1.1.2 Safety Change Management

The Engineering Technical Publications Manager will refer to [SMS-07-SP-3067 System Safety Management of Change](#) for guidance on the process to manage changes to engineering publications, including the introduction of new publications.

1.1.3 Consult stakeholders

The Engineering Technical Publications Manager will conduct the consultation process in accordance with [SMS-10-OP-3092 Consultation and Issue Resolution](#). The consultation process must take into account both the business and safety impacts of the change and appropriate stakeholders (internal and external) must be consulted as required by the safety change management process.

1.1.4 Assess training needs

The owner of the technical content (e.g. a Professional Head) will undertake a Training Needs Analysis to determine the training impact of the proposed change.

When the training needs are understood, the owner of the technical content will provide applicable information to TfNSW Learning and Development for implementation.

TfNSW Learning and Development will coordinate the resources to allow for workers to be trained to safely perform their role (refer to [SMS-11-OP-3011 Training and Competence](#)).

1.1.5 Obtain approval and authorisation

Formal approval of technical content by the owner of the publication is required. Authorisation by the Engineering Technical Publications Manager to issue the revised publication for use is also required.

1.2 Make Publications available

The **Deputy Executive Director Engineering System Integrity** is responsible for making sure the Engineering Publications are available for workers and contractors to access.

Engineering Publications shall be published on the Sydney Trains intranet so that current, up-to-date material is available to workers and contractors applying Sydney Trains Engineering Publications.

Line Managers shall make sure workers and contractors are instructed about changes to Engineering Publications.



Electronic versions of documents downloaded and locally printed are considered outside Sydney Trains' control process and are therefore 'uncontrolled copies'. Uncontrolled copies are not recognised as valid for use by Sydney Trains.

1.3 Use Publications

Engineering Publications apply across all phases of the engineering process and asset lifecycle management (refer [SMS-12-SP-3064 Asset Lifecycle Management](#)).

Deputy Executive Directors (Level 3 Managers) of all Directorates will make sure all Sydney Trains workers and contractors (e.g. designers and maintenance suppliers) involved in designing, constructing, manufacturing, supplying, installing, operating, maintaining, modifying and disposing of assets under the control of Sydney Trains apply appropriate engineering standards to their work whether they be Sydney Trains or Industry Standards (e.g. AMB).

Line Managers will make sure Sydney Trains workers and contractors are:

- aware of and trained in the applicable Engineering Publications
- informed of changes to Engineering Publications, where required.

1.4 Monitor and review Publications

The **Deputy Executive Director Engineering System Integrity** will make sure Engineering Publications are created, amended, maintained and removed as necessary.

The Engineering Technical Publications Manager or Level 4 ESI Managers will initiate a review of Engineering Publications in the following circumstances:

- when there is an identified need for change (refer to section 1.1)
- at least once every five (5) years from the last review date.

The Engineering Technical Publications Manager will, in accordance with [SMS-09-OP-3021 Records Management](#), maintain:

- records of changes to existing Engineering Publications and records of creation of new Publications
- consultation records
- technical content sign-offs.

Responsibilities

Role	Responsibilities
Deputy Executive Director Engineering System Integrity	<ul style="list-style-type: none"> • Make sure Engineering Publications are created, amended, maintained and reviewed as necessary. • Make sure current up-to-date Sydney Trains Engineering Publications are available to workers and contractors carrying out engineering and maintenance activities for or on behalf of Sydney Trains.
Engineering Technical Publications Manager	<ul style="list-style-type: none"> • Facilitate the safety change, consultation and approval processes when establishing and/or amending Engineering Publications. • Review Engineering Publications every five (5) years or earlier, as required. • Authorise Engineering Publications for use following formal approval from the relevant Level 4 ESI Manager (document owner).
Deputy Executive Directors (Level 3 Managers) – All Directorates	<ul style="list-style-type: none"> • Make sure all Sydney Trains workers and contractors (e.g. designers and maintenance suppliers) involved in designing, constructing, manufacturing, supplying, installing, operating, maintaining and disposing of assets under the control of Sydney Trains apply appropriate engineering standards to their work whether they be Sydney Trains or Industry Standards (i.e. AMB).
Level 4 ESI Managers or Document owners	<ul style="list-style-type: none"> • Identify the training needs associated with new and/or amended Engineering Publications. • Approve the technical content of Engineering Publications.
Line Managers	<ul style="list-style-type: none"> • Make sure workers are briefed of/trained in Engineering Publications. • Make sure workers are instructed about changes to Engineering Publications.

Further information

[PR A 00242 Engineering Technical Document Development and Management](#)

[SMS-04-SP-3064 Asset Lifecycle Management](#)

[SMS-10-OP-3092 Consultation and Issue Resolution](#)

[SMS-07-SP- 3067 System Safety Management of Change](#)

[SMS-07-SP-3089 Manage Operational Safety Risk](#)

[SMS-09-SP-3021 Records Management](#)

[SMS-07-GD-3084 Hazard Identification and Safety Risk Assessment](#)

[SMS-11-OP-3011 Training and Competence](#)

Document control

Document custodian: Engineering Technical Publications Manager

Document approver: Deputy Executive Director Engineering System Integrity

Version history

Version	Effective Date	Change notes
1.0	1/07/2013	First release of Sydney Trains SMS
2.0	30/04/2019	Update to: <ul style="list-style-type: none"> • position and team titles • Appendix A • Include reference to PR A 00242
2.1	21/12/2022	<ul style="list-style-type: none"> • Three-year review cycle changed to five years in line with <i>TS 00001:1.0 Standards development and Change Management</i> and PR A 00242 • Asset Standards Authority (ASA) references updated to Asset Management Branch (AMB) • Appendix updated with current ESI Engineering Technical Document Hierarchy as per PR A 00242

Appendix 1: Engineering Publications and Functions

Level 1: Primary

Primary documents may define the "why we do something" by describing and communicating the 'strategic priorities of the organisation', as well as defining the 'professional and ethical expectations for all employees'. They may also define the "what we are going to do" by articulating the technical 'business rules' which govern what should happen by identifying minimum operating requirements in a prescriptive manner.

The requirements in Primary documents are mandatory.

Document type	Description
Policy	High level directions set by Sydney Trains (or TfNSW) that reflect the core values, direction and vision of the organisation
TfNSW Standards	<p>Network engineering standards are documents detailing the requirements to ensure assets, products, services and systems for the NSW rail network are safe, reliable and perform as intended. Standards set the parameters within which assets can be built or altered, taking into account the physical, functional and performance characteristics of assets and their components.</p> <p>Sydney Trains may also be engaged to develop, or as the Technical Subject Matter Expert (SME) for standards on behalf of the AMB.</p>
Engineering Standard	<p>A document that sets design and performance requirements for a system or asset type and provides measurable or quantifiable characteristics (parameters) or criteria against which an asset must be designed, built and maintained.</p> <p>The requirements in an engineering standard is mandatory.</p> <p>Standards are aimed at designers, constructors, asset managers, maintainers, manufacturers, operators and suppliers.</p> <p>To mitigate the risk of Sydney Trains' Standards becoming over prescriptive the proposal for the introduction of a new standard must justify why Sydney Trains needs to work at a higher level than the Standard at the next level up, whether this is a TfNSW Standard or directly to a higher level Standard.</p> <p>A Sydney Trains Standard may be more prescriptive than an TfNSW Standard but still must meet the minimum requirements of that Standard. Engineering standards shall provide functional and design requirements, performance criteria, physical characteristics, approved configurations, applications and operational or design limitations, damage limits and repair criteria.</p> <p>The application of Sydney Trains Standards with particular projects is a contractual issue defined prior to the contract being awarded.</p> <p>Note: Sydney Trains will develop and publish standards for its own use, in complying with industry-level standards set by the AMB in TfNSW.</p>
Interface Agreements	<p>A document considered when the requirements, inputs or outputs from one system or subsystem, directly impacts on or is dependent upon the requirements of another.</p> <p>Interface agreements may occur within a single rail discipline or may be across one or more discipline boundaries. Interfaces occur between hardware, firmware, software, the operating environment and the operator.</p> <p>The requirements in an interface agreement is mandatory.</p>
Engineering Plan	<p>A document created to articulate and achieve long term business goals and objectives. They contain a defined set of objectives, actions, time frames, performance measures and deliverables.</p> <p>The requirements in an engineering plan is mandatory.</p>
Engineering Rule	<p>A document that provides high-level overview of the minimum requirements to perform duties.</p> <p>The requirements in an engineering rule is mandatory.</p>

Document type	Description
Engineering Specification	<p>A document that provides acceptance criteria for engineering products or services. Engineering specifications document the characteristics of products or services that meet the requirements of engineering standards. One or more engineering standards may be associated with an engineering specification.</p> <p>Specifications are aimed at construction contractors, manufacturers and suppliers. The requirements in an engineering specification is mandatory.</p>

Level 2: Secondary

Secondary Documents define the "how we do something" and will generally be specific to specific business functions or areas.

The requirements in Secondary documents may be mandatory.

Document type	Description
Engineering Manual	<p>A document that provides procedures for the installation, operation, inspection and maintenance of assets, including competency requirements, management requirements and maintenance limits and responses.</p> <p>Any requirements from engineering standards are repeated or referenced in the manual. These include maintenance and equipment manuals and are closely associated with technical maintenance plans. Service schedules may also be included in engineering manuals.</p> <p>Engineering manuals are aimed at persons undertaking the activity in the field. The requirements in an engineering manual is mandatory.</p>
Engineering Procedure	<p>A document that provides a sequence of activities that must be followed to correctly perform an engineering task.</p> <p>The requirements in an engineering procedure is mandatory.</p>
Engineering Local Instruction	<p>Substation Local Instructions are documents developed and issued for each System Substation (Switching Substations, Traction Substations, Sectioning Huts and Distribution Substations). They provide specific details such as location layout, access, equipment installed at the particular location and, where appropriate, information regarding maintenance.</p> <p>Equipment Local Instructions form part of the Substation Local Instructions and may refer to standalone equipment (e.g. field switches), and describe the Electrical Equipment and their operation. They are used by Authorised Personnel to safely operate equipment.</p> <p>Refer to PR E 72008 Substation Local Instructions and Electrical Equipment Local Instructions Development Process.</p> <p>The requirements in an engineering local instruction is mandatory.</p>
Engineering Guideline	<p>A document that provides advice or recommendations related to engineering standards.</p> <p>Engineering guidelines can offer suggestions on the implementation of engineering procedures or standards.</p> <p>Guidelines are intended for educational purposes and are not mandatory.</p>

Level 3: Tertiary (including supporting tools)

Tertiary Documents are supporting tools or documents which relate to or assist the implementation of the Primary and Secondary documents.

The requirements in Tertiary documents may be mandatory.

Document type	Description
Engineering Register	A document that compiles an aggregation of data pertaining to a particular subject area. Registers captures data that can assist in decision making.
Engineering Report	A document that communicates information that is compiled as a result of research and analysis of data and of issues.
Engineering Instruction (EI)	A document that provides urgent engineering information. The requirements in an engineering instruction is mandatory. Engineering instructions have a defined life. They can be used to provide interim changes to engineering standards, manuals and specifications until more extensive updates to these documents are promulgated. Engineering Instructions can be standalone documents or appended to Primary or Secondary documents.
Engineering Advice (EA)	A temporary document that provides engineering advice for interim use, until (a) the information is no longer current, and the advice is withdrawn, or (b) the information is incorporated in the relevant engineering standard or other engineering document, and the advice is withdrawn. The requirements provided in an engineering advice is guidance and is not mandatory. Engineering Advices can be standalone documents or appended to Primary or Secondary documents.
Operational Instruction (OI)	A document that provides urgent operational information. The requirements in an operational instruction is mandatory. Operational instructions have a defined life. They can be used to provide interim changes to engineering standards, manuals and specifications until more extensive updates to these documents are promulgated. Operational Instructions are currently utilised by ESI Signalling and Control Systems to provide guidance to Area Controllers (Signal Box Operations) and Control Systems Operations (Network Maintenance). Operational Instructions can be standalone documents or appended to Primary or Secondary documents.
Operational Advice (OA)	A temporary document that provides operational advice for interim use, until the information is no longer current, and the advice is withdrawn. Operational Advices are currently utilised by ESI Signalling and Control Systems to provide guidance to Area Controllers (Signal Box Operations) and Control Systems Operations (Network Maintenance). The requirements provided in an operational advice is guidance and is not mandatory. Operational Advices can be standalone documents or appended to Primary or Secondary documents.
Ancillary Engineering Documents e.g. Checklists, Forms, Templates	Documents that supports or provides the means to implement a process described in another document.