

Sydney Trains



Engineering System Integrity
Engineering Manual
Signalling and Control Systems

MN S 41412

Process for Signalling and Control Systems Personnel – Authorisations and Licensing

Version 2.0

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Document control

Version	Date	Author/Prin. Eng.	Summary of change
1.0	8 March 2019	Mark Albrecht	Update from RailCorp TMG A1412 v 2.5 format and additional authorisations, licenses and updated and new forms.
		Eric Pace	Rewrite of Section 12 Certificate of Competency. Updated samples COC in appendix. Merged reassessment process from old TMGA 1413. Minor edits.
2.0	24 February 2022	David Mulley	General updates incl EI S 20-11 New sections for Training and Assessment Principals; Removal and Reinstatement of balises by disciplines other than Signalling. License process for apprentices and IW bulk recruitment programs. Removal of Cable locating authorisations

Summary of changes from previous version

Summary of change	Section
New section Training and Assessment Principals	5
Removal and Reinstatement of balises by disciplines other than Signalling (EI S 20-11)	9.5
Update to include licensing process for apprentices and IW bulk recruitment programs	10
Remove cable locating authorisations. (Moving to a multi-discipline CoC)	All

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1 Introduction

The Asset Management Branch (AMB) is accountable for the production and management of standards for use with Transport for NSW (TfNSW). Sydney Trains is accountable for the processes that govern the integrity of defined elements of Rail infrastructure. This includes not only the physical condition of the infrastructure but also the integrity of the installation and maintenance and construction activities that affect, or potentially affect, its continuing integrity.

To ensure integrity of the design, configuration, installation and maintenance processes it is necessary to have competent people working to standards that meet safety and reliability requirements. Candidates are required to follow this procedure to demonstrate competency to work on the Sydney Trains network. Candidates are required to produce and maintain a log book (also known as work experience log) of prior works completed on Sydney Trains and other networks.

Rail Safety National Law (NSW) and AS 4292.1 requires signalling personnel to be trained in a competency system based on appropriate nationally endorsed industry training packages and are competent to perform the work they are allocated.

Licences and Authorisations have been implemented by Sydney Trains to confirm that Rail Safety Workers working on the Sydney Trains network apply the necessary domain specific Network Rules and Procedures and the Sydney Trains Signalling Safeworking Procedures which incorporates the extra training that is required by Sydney Trains as a rail transport operator in complying with the Rail Safety National Law (NSW) Section 117 (5).

The courses that are specified in this document are listed so the candidate can obtain the domain knowledge required to work on Sydney Trains infrastructure.

There is no National Competency Training Package for Signal Engineers (Field) and Control Systems, a technical component has been added in addition to the Signalling Safeworking requirements as described in Section 10.

All Authorised and Licensed personnel require a Permit to Work (*PR S 41419 Authority to Work on Sydney Trains Signalling Infrastructure – Permit to Work*).

2 Scope

The scope of this document and the associated capability requirements matrix details the process and requirements to achieve a Sydney Trains Licence or Authorisation. Licencing and Authorisations applies to all rail safety workers (employees and contractors) that work on the Sydney Trains Network signalling infrastructure.

3 Purpose

The purpose of this document is to detail the processes required for signals and control system personnel to obtain and maintain Authorisations or Licences to enable them to have the generic competencies, domain knowledge, product knowledge, behavioural competencies and skills to work on the Sydney Trains Network.

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4 Reference documents

AS 4292.1 Railway safety management Part 1: General requirements

MN S 41412 CL01 Capability Requirements Matrix

PR S 41419 Authority to Work on Sydney Trains Signalling Infrastructure – Permit to Work

PR S 43002 Work Safely in a Live Signal Location (SCP02)

RG S 41415 Signalling Personnel – Licensing and Authorisation Status

5 Training and Assessment Principals

Training Requirements

The signalling training requirements align with the current Learning and Development process and can be obtained from the TfNSW intranet page:

- Trainers must hold a current *TAE40116 Certificate IV in Training and Assessment*.
- Trainers must hold a Current Sydney Trains issued signalling authorisation or license in the material being delivered.
- Trainers must be approved by the Professional Head Signalling & Control Systems and listed in *RG S 41415 Signalling Personnel – Licensing and Authorisation Status*.

Note:

To train a course that leads to the issue of a national unit of competency, the trainer must hold the relevant national unit. For example, to train Sydney Trains apprentices the trainer must hold UEE41211 Certificate IV in Electrical – Rail Signalling.

Assessment Requirements

The following is the minimum requirements to assess competence for Sydney Trains authorisations or licenses:

- Two assessors must be present for each assessment.
- Assessors must hold a *TAE40116 Certificate IV in Training and Assessment*, or the following subset of competencies.
 - TAEASS401 Plan assessment activities and processes
 - TAEASS402 Assess competence
 - TAEASS403 Participate in assessment validation.
- Assessors must be approved by the Professional Head Signalling & Control Systems and listed in *RG S 41415 Signalling Personnel – Licensing and Authorisation Status*.

Note:

To assess a competency that leads to the issue of a national unit of competency one of the assessors must hold the relevant national unit. For example, to workplace assess Sydney Trains apprentices one of the assessors must hold UEE41211 Certificate IV in Electrical – Rail Signalling.

Emerging Technology Assessments

The aim of this section is to enable the utilisation of equipment suppliers to provide technical SME support to Sydney Trains for competency assessments while Sydney Trains upskills its own workforce:

- Where new equipment is being installed the technical SME will typically not be readily available from within Sydney Trains.
- Where Sydney Trains does not hold technical SME capability for a type of equipment and this needs to be outsourced, usually from the equipment supplier.
- The specific skillset for the technical SME needs to be determined by the assessment team.
- Sydney Trains and the equipment supplier will jointly discuss the nomination of an SME for use in competency assessments.
- The nominated individual will be asked to supply relevant evidence to justify their SME nomination. This includes:
 - Work experience as recorded and certified in log books.
 - Training undertaken.
 - Recommendation or other supporting documentation from a credible source.
- The nominated individual will provide the relevant evidence and supporting documentation to the Professional Head of Sydney Trains Signalling and Control Systems.
- The Professional Head will carry out an assessment of the provided documentation in consultation with Engineering Competency to determine if the individual meets the requirements of being an SME. Sydney Trains may ask for further evidence in support.

If the individual is deemed as a suitable SME by the Professional Head this will be recorded (including the particular skillset) and kept within the Signalling and Control Systems business unit.

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6 Terms and definitions

The following definitions apply in this document

ARA	Australasian Railway Association
Australian Qualifications Framework (AQF)	Defines all nationally recognised and endorsed qualifications across three levels of education and training – schools, vocational education and training and universities.
Australian Quality Training Framework (AQTF)	Is the set of nationally agreed quality assurance arrangements and standards which are applied to: <ul style="list-style-type: none">• Registered Training Organisations (RTOs) which deliver training and assessment services.• State and Territory Registering and Course Accrediting Bodies – which for example, register RTOs.
Assessment of competence	the process of checking and confirming the ability to carry out specific work activities and/or functions based on evidence that shows a person can carry out such work safely and to the requirements.
ARA	Australasian Railway Association
Capability Requirements Matrix	Is a detailed table outlining the minimum accepted Prerequisites, Training, Competency and Behavioural requirements that an applicant must hold to be considered for a Licence or Authorisation? The Capability Requirements Matrix (MN S 41412 CL01) is a separate table referenced by this manual.
Certificate of Competency (CoC)	Summarises the holder's level of assessed proficiency and capacity to manage risks associated with Sydney Trains domain environment.
Competency	Is the ability (knowledge, skills and attitudes) to perform tasks and duties to the standard expected in employment. Competency focuses on what is expected of an employee in the workplace rather than on the learning process and embodies the ability to transfer and apply skills and knowledge to new situations and environments.
Computer Based Interlocking (CBI)	Refers to an interlocking that is processor based such as SSI, Microlok and Westrace.
Competency Based Training (CBT)	Focuses on the skills and knowledge that an individual has rather than on how or where they attained them. There are many pathways to achieving such competence, including workplace experience, training and a combination of the two.
Control Systems (CS)	Refers to non-vital systems and data associated with control of the signalling system.
Electrical Trades Certificate	<i>Certificate III in Electro Technology and Certificate of Proficiency or UEE4211 Certificate IV in Electrical – Rail Signalling</i> or a statement of equivalence by the Office of Fair Trading using the website tool (https://www.dese.gov.au/skills-and-training/skills-recognition) that aligns the licenses between the states.
FAT	Factory Acceptance Test
FQT	Formal Qualification Test

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Identification Card	Can be either a Rail Safety Work Card (Gold Card) or a Rail Industry Card.
Interface Wiring	Means wiring on/in a live item of signalling equipment, cabling, rack, relay and circuitry, but not the termination of that wiring on working equipment.

Note:

Additional cable installation into a piece of working signalling equipment (e.g. a points machine) must be treated as interface wiring.

IRSE	Institution of Railway Signal Engineers is a professional institution for those engaged in or associated with railway signalling and telecommunications, train control, traffic management and allied professions
Licence to Practice (Sydney Trains Signals or Control Systems Licence)	A relevant licence to work on the Sydney Trains operational signalling system in accordance with Signalling Safeworking Procedures is issued to a person who has been trained and assessed as competent and has satisfactorily passed the Sydney Trains "Licence to Practice" board examination. Relevant persons are listed within the Register <i>RG S 41415 Signals and Control Systems Personnel – Licensing and Authorisation Status</i> .
Mechanical Trades Certificate	<i>TLI30220 Certificate III in Mechanical Rail Signalling or from a Certificate III Metal & Engineering MEM05</i> for an Interlocking Fitter or a statement of equivalence by the <i>Office of Fair Trading</i> using the website tool (https://www.dese.gov.au/skills-and-training/skills-recognition) that aligns the licenses between the states.
OPQ	Occupational Personality Questionnaire is a behavioural competency assessment in which the process is documented in sections B of the relevant competency assessment procedures e.g. PR S 43002.
MIRSE	The grade of Member in the Institution of Railway Signal Engineers (refer to IRSE)
Permit to Work	Is an authority to conduct signalling activities on the Sydney Trains Network that a person is permitted to undertake in a particular location or project and the equipment types upon which those activities may be performed.
Proficiency Level 0, 1, 2 or 3	Levels are provided to demonstrate an individual's ability with a certain task/subject as documented on their specific CoC. Levels are ranked from lowest (0) to highest (3). The higher the number generally means the more responsibility and less supervision an individual requires.
Rail Industry Worker Card	Is an Identification card for contractors that is issued by ARA provider listing the Safeworking and Technical competencies that the person has gained?
Rail Safety Worker Card (Gold Card)	Is an Identification card for Sydney Trains employees that is issued by TfNSW listing the Safeworking and Technical competencies that the person has gained?

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Relevant Tertiary Qualification

- **Signals (S)** Professional Engineer who holds a minimum of:
 - Bachelor's Degree in Electrical Engineering (or statement of equivalence by Engineers Australia) or
 - Grad Diploma in Rail Signalling & Telecommunications (or statement of equivalence by Engineers Australia), or an IRSE corporate membership (MIRSE or higher), or a Bachelor's Degree in Engineering (or statement of equivalence by Engineers Australia), with completion of the following electrical units of study (or statement of equivalence by Engineers Australia):
 - Introduction to electrical engineering – fundamentals
 - Basic electrical logic systems
 - PLC's and microprocessors
 - Basic data communication networks
 - Analogue electronics (including problem solving in DC and low voltage AC circuits)
- **Control Systems (CS)** Professional who holds a minimum of a Bachelor's Degree in Engineering, Computing Science, Software Engineering or Information Technology or statement of equivalence by Engineers Australia.
- Where the tertiary qualification is not currently defined defer to the Professional Head Signalling & Control Systems

SAT

Site Acceptance Test

Self-Assessment

Is the process for an individual to review their own experience, knowledge and understanding within the confines of their role description against set requirements as defined by Sydney Trains?

Signal Location

In the context of authorisations means Relay rooms, Walk in locations, Apparatus cupboards and Signalling equipment outside of a Relay room, Walk in location and Apparatus cupboard e.g. points, signals, trainstops, level crossing mechanisms etc.

Signalling (S&CS)

Within this document the term 'signalling' shall encompass any work associated with both Signals and Control Systems.

Signalling Authorised Person

Is a person who is competent to perform defined signalling work activities as described within this document and authorised by the issue of a Certificate of Competency. Restricted to activities on non-operational equipment or systems.

Signals (S)

Refers to vital and some non-vital systems used to control the signalling infrastructure.

Skills Recognition

Refers to competence that can be currently demonstrated which may have been achieved through a prior learning, usually involving a combination of training courses and work experiences.

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Standalone new work	Is referred to new signalling works which are not commissioned and which are located on an isolated rack in a live location or in a location that is not a live signalling location.
Telecommunications Trades Certificate	<i>Certificate III or Certificate IV</i> – In a relevant Telecommunication, Information Technology, Software Engineering, Robotics qualification from the integrated Telecommunication training package or a statement of equivalence by the <i>Office of Fair Trading</i> using the website tool (https://www.dese.gov.au/skills-and-training/skills-recognition) that aligns the licenses between the states.
Training Package	Is an integrated set of nationally endorsed competency standards, assessment guidelines and qualifications. It may also include optional non-endorsed components such as learning strategies, assessment resources and capability development materials.

A Training Package is made up of three parts:

- **Units of Competency:** which define the skills and knowledge required for competent performance in the workplace.
- **Qualifications Framework:** which groups individual units together and describes what a person has to do to achieve a level of qualification.
- **Assessment Guidelines:** which set out the industry's preferred approach to assessment, including specific advice on the qualifications needed by assessors, the design of the assessment processes and the conduct of assessment.

Training Packages are developed by Industry Skills Councils to meet the training needs of occupations within an industry or group of industries.

Qualifications are achieved by attaining competencies selected from designated Training Packages.

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7 Capability Requirements Matrix MN S 41412 CL01

This manual must be read in conjunction with the *MN S 41412 CL01 Capability Requirements Matrix*.

The Matrix defines the minimum mandatory requirements that an individual must meet to be awarded a specific Licence or Authorisation. Ticks (✓) denote the specific Prerequisites, Training Courses, Competencies and Behavioural Capabilities required to be met by an applicant.

The required Licence or Authorisation is shown horizontally on the Matrix, the training, competency and behavioural competency requirements needed to be met to attain that licence or authorisation are detailed vertically. The Matrix can be readily used to carry out a gap analysis (refer to Section 15 Capability Gap Analysis) between differing authorisations and licenses.

Refer to Figure 1 and Figure 2 regarding the possible pathways for Licencing or Authorisations.

Note:

Some categories of Licence or Authorisation may require the completion of additional separate competency(s).

8 Functions and Roles Requiring a Licence or Authorisation

Personnel who perform the following signalling functions are required to hold the appropriate Signalling Licence or Signalling Authorisation:

- Certification and testing of new or altered Signalling works (as detailed in Inspection and Testing of Signalling MN S 47110).
- Disconnection and decommissioning of Signalling equipment or systems.
- Signalling maintenance activities, including fault finding and like for like renewals.
- Interfering with live signalling systems (as detailed in the Signalling Safeworking Procedures MN S 40000).
- Managing Signalling Safeworking activities and matters.
- Carry out an inspection or work safely in a live signalling location.
- Perform signal sighting.
- Training and assessment of licenced or authorised signalling personnel.

Additionally signal personal must only perform signalling related functions in accordance with the limits identified on the certificate of competency associated with the licence or authorisation they hold.

Supervisors and human resource personnel should take into account the licencing and competency requirements outlined in this procedure when developing position descriptions and essential job requirements.

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8.1 Roles and Positions

The table below identifies what licence and authorisations are required for specific Sydney Trains signal roles/positions.

LICENCE/AUTHORISATION	ROLE/POSITIONS
Signal Engineer (Field) (ADI01)	Principal Engineers
	Signals Engineering Manager
	Regional Signals Engineer
	Senior Asset Engineer Sigs & Ctrl System
	Senior Signalling Integrity Engineer
	Senior Project Engineer
	Senior Signals Engineer
	Commissioning Engineer
	Commissioning Managers
Control Systems Engineer (ADI02)	Systems Integrations Senior Specialist
	Systems Integrations & Commissioning Manager
	Test and Commissioning Manager
	Project Delivery Manager
	Control Systems Maintenance Engineer
Signal Electrician (ASI01)	Infrastructure Worker Signals Electrical
	Team Leader Signals
	Work Group Leader Signals Electrical
	Asset Assurance Inspector Signalling
	Team Manager Signals
	ICON Infrastructure Controller Signals
	Trainer Signals
Control Systems Technician (ASI02)	Control Systems Technician
Signals Mechanical (ASI05)	Infrastructure Worker Signals Mechanical
	Work Group Leader Signals Mechanical
	Team Manager Signals Mechanical
	Team Leader Signals Mechanical
	Signal Sectioner
	Assistant Signal Sectioner
	Leading Interlocking Fitter
	Interlocking Fitter

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LICENCE/AUTHORISATION	ROLE/POSITIONS
Signals Ancillary (ASI06)	Rail Bond Welder
	Airline Fitter
	Locksmith
Signalling Authorised Person (ASI07)	Signalling Electrical Installer
	Signals Mechanical Installer
	Signalling Assistant Tester
	Signalling Circuit Tester
	Signalling Circuit Function Tester
	Signalling Tester in Charge
	Program, Test & Commission of LX Monitors
	Signalling Telemetry Technician
	Set to Work, Test and Certification of Track Circuits
	Set to Work, Test and Certification of Point Mechanisms
	Set to Work, Test and Certification of Train Stops
	Set to Work, Test and Certification of Signals
	Set to Work, Test and Certification of Power Supplies
	ETCS Level 1 Limited Supervision Trackside Certifier
	ETCS On-Board Integration Tester
ETCS System Certifier	
ETCS Design Integration Certifier	
Signalling Authorised Person (ASI07) Other personnel that are also required to hold a Signalling Authorisation	Carry out an Inspection in a live Signal Location
	Work Safely in a live Signalling Location
Signals Designer Authorised Person (ASI08)	Technical Specialist
	Documentation Manager
	Senior Signal Design Engineer
	Documentation Engineer
	Signal Design Engineer
Control Systems Designer Authorised Person (ASI09)	Control Systems Software Designer
	Control Systems Infrastructure Designer
	Control Systems Configuration Designer
	Control Systems FAT/FQT

Table 1: Roles Requiring a Signalling Licence or Authorisations

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9 Signalling Authorisations

Signalling Authorisations are issued to personnel, who are not issued with a Signalling Licence, but are authorised to carry out work activities defined as outlined in the following sections.

Refer to Capability Requirements Matrix MN S 41412 CL01 for the minimum Prerequisites, Training, Competency and Behavioural requirements.

Application Requirements

Unlicensed persons seeking a Signalling Authorisation must:

- a. Complete the application for Signalling Licence/Authorisation Form (included in Appendix and the internet).
- b. Complete the Technical self-assessment titled “Survey of Engineering Competencies” (refer document MN S 41412 Appendix A) for the relevant authorisation, which captures a candidate’s own assessment of their qualifications, experience and competency. (except for Carry out an Inspection in a Live Signal Location and Signal Mechanical Installer Authorisations)
- c. Complete the Behavioural competency OPQ self-assessment (as required in the Capability Requirements Matrix)
- d. Provide:
 - i. A request for which authorisation/s is required and in the case of Set to Work, Test and Certification of Track Circuit Authorisation stating the type/s of track circuits for which authorisation is sought.
 - ii. Proof of appropriate qualifications for Inspection and Work Safely in a Live Signal Location Authorisations or an Electrical Trades Certificate or Relevant Tertiary Qualification for the other Authorisations.
 - iii. Details in their Logbooks of relevant signalling work experience and training applicable to the authorisation being sought (except for Carry Out an Inspection in a Live Signal Location Authorisations)
 - iv. Contact details of previous relevant supervisors. Statements of experience should include supervisor’s verification signatures where available.
 - v. Proof of satisfactory completion of the prerequisite training courses as described below.
- e. For:
 - i. Sydney Trains applicants send the application and supporting documentation to their controlling Licensed Engineer. The controlling Licensed Engineer will review the information and if approved, provide the employee with a Certificate of Competency and send a copy of the Certificate of Competency to the Principal Engineer Signalling Integrity so that the applicant's name is registered in RG S 41415 as a “Signalling Authorised Person”.
 - ii. Non Sydney Trains applicants send the application and supporting documentation directly to the Principal Engineer Signalling Integrity. The Principal Engineer Signalling Integrity will review the information and if approved, provide the employee with a Certificate of Competency and register their name in RG S 41415 as a “Signalling Authorised Person”.

The competency assessment will be conducted as detailed in the relevant Competency Assessment Procedure e.g. *PR S 43002 Work Safely in a Live Signal Location*. This following section describes the process needed to gain the following Authorisations.

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9.1 Carry out an Inspection in a Live Signal Location Authorisation

This Authorisation entitles personnel to carry out inspections of live signalling environments as outlined below:

- Pre work inspections for future work (estimations, planning activities etc.) of any type of equipment within the location.
- Inspections and maintenance of equipment other than signalling (fire protection, air conditioning, communication, stores etc.)

Entry Qualification Requirements

- Appropriate qualification relevant to the work.

See also detailed requirements for this authorisation in *MN S 41412 CL01 Capability Requirements Matrix*.

9.2 Work Safely in a Live Signal Location Authorisation

This Authorisation entitles personnel to work safely in a live signalling environment as outlined below:

- Installation and removal of equipment other than signalling (fire protection, air conditioning, communication, control systems, cable searches etc.).
- Installation and removal of signalling equipment not connected to working equipment.
- Carry out construction signalling work in a live signal location provided the work is standalone new work.
- Carry out other signalling activities including disconnect or connect to the signalling system provided that they are directly supervised by a suitably licensed signalling person. (Ref PR S 40001)

Entry Authorisation Requirements:

- Nil.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.3 Signalling Electrical Installer Authorisation

This Authorisation entitles Signalling Electrical personnel to work in a live signalling environment as outlined below:

- Carry out interface wiring in a live signal location but not the termination of new wiring on working equipment.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - Electrical Trades Certificate, or
 - Relevant Tertiary Qualification.

Entry Authorisation Requirement:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

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Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.4 Signals Mechanical Installer Authorisation

This Authorisation entitles Signals Mechanical personnel to work in a live signals environment as outlined below:

- Carry out the signals installation of mechanical signals equipment, which includes the set up and adjustment but not the certification of the equipment.

Note:

Certification of new signals equipment must be as Sydney Trains Licensed Signal Engineer (Field).

Entry Qualification Requirements:

- Entry requirements as per *TLI30220 Certificate III in Mechanical Rail Signalling*.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.5 Removal and Installation of Balises by Disciplines other than Signalling Authorisation

This Authorisation entitles the Removal and Installation of balises by Disciplines other than Signalling and with all of the following Criteria meet:

- Persons conducting the work shall be authorised in RG S 41415 and hold a valid Signalling Permit to Work.
- The removal and reinstatement shall be conducted in accordance with an approved Signalling Support Package (PR S 47118).
- Any late changes to scope not captured by the signalling works packages must be reviewed, approved and updated into the signalling works instruction(s) by the identified licensed signalling person (Package lead) in the package.
- Only fixed, linked balises may be removed and reinstated (i.e. controlled and unlinked balises are specifically excluded).
- Any works that affect the position of a sleeper with an attached balise shall only be reinstated by a licensed signalling person.
- Once all balises are reinstated assurance shall be given to the identified licensed signalling person using the work instruction(s).

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- The balise reinstatement shall be certified by a licensed signal electrician using the following criteria:
 - All tasks are complete for all identified balises.
 - The work instruction is signed as complete by the authorised person.
 - A comparison of the balises identified on the work instruction(s) to the scope of works to ensure all balises in scope have been reinstated and no unauthorised balises have been affected.
 - Once above 3 steps are completed the identified licensed signalling person shall complete the licensed persons work instruction from the specific signalling works package.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - *Certificate II Rail Infrastructure* assessed in the following Technical Competency Requirements (MN C 10001 Table 1) is required to perform the "balise removal and reinstalment activity":
 - Remove and Install Sleepers, or
 - Remove and Install sleeper plates, pads and insulators, or
 - Rebore and regauge sleepers, or
 - Remove and Install Track Plates, pads and insulators, or
 - Remove and Install Turnout bearers, or
 - Relevant Tertiary Qualification in Civil Engineering or similar.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.6 Signalling Assistant Tester Authorisation

This Authorisation entitles Signalling Assistant Tester personnel to work in a live signalling environment as outlined below:

- To assist the lead Tester in carrying out defined inspection and testing activities on new or altered signalling works in conjunction with *PR S 47111 Inspection and Testing o Signalling: Roles, Responsibilities and Authorities* Table 1 - Minimum Licensing or Authorisation requirements for suitably experienced personnel implementing New and Altered Works.
- All testing work is carried out under the direction and supervision of the lead tester responsible.
- The work may be conducted as interface wiring or as standalone new work.

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Entry Qualification Requirements (refer to Section 6)

- Either:
 - Electrical Trades Certificate
OR
 - Relevant Tertiary Qualification
OR
 - Design Checking Competencies in Signal Design
OR
 - IRSE Licence 1.3.150 – Signalling Test Assistant.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.7 Signalling Circuit Tester Authorisation

This Authorisation entitles Signalling Circuit Tester personnel to work in a live signalling environment as outlined below:

- Carry out inspection and testing of new or altered signalling works in accordance with an Inspection and Test Plan provided by others and in conjunction with *PR S 47111 Inspection and Testing of Signalling: Roles, Responsibilities and Authorities* Table 1 - Minimum Licensing or Authorisation requirements for suitably experienced personnel implementing New and Altered Works.
- The work may include leading a small team of Signalling Assistant Testers and/or Signalling Circuit Testers.
- The work may be conducted as interface wiring or as standalone new work.

Note:

This unit does not include verification that the system interlocking functions in compliance with design, or validation of the design to specifications and signalling principles.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - Electrical Trades Certificate, or
 - Relevant Tertiary Qualification.
- And either:
 - Minimum of Signal Electrician Work Group Leader (or supervisor equivalent), or
 - Demonstrated experience as a Signalling Assistant Tester and either:
 - Signalling Electrical Installer Authorisations, or
 - Design Checking Competencies in Signal Design, or
 - Demonstrated experience of the use of *IRSE Licence 1.3.155 – Signalling Verification Tester*.

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Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.8 Signalling Circuit Function Tester Authorisation

This Authorisation entitles Signalling Circuit Function Tester personnel to work in a live signalling environment as outlined below:

- Carry out inspection and testing of new or altered signalling works in accordance with an Inspection and Test Plan provided by others and in conjunction with *PR S 47111 Inspection and Testing of Signalling: Roles, Responsibilities and Authorities* Table 1 - Minimum Licensing or Authorisation requirements for suitably experienced personnel implementing New and Altered Works.
- The work may include leading a small team of Signalling Assistant Testers and/or Signalling Circuit Testers.
- The work may be conducted as interface wiring or as standalone new work.

Note:

This unit does not include verification that the system interlocking functions in compliance with design, or validation of the design to specifications and signalling principles.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - Electrical Trades Certificate, or
 - Relevant Tertiary Qualification
- And demonstrated experience in either:
 - Signalling Circuit Tester Authorisation, or
 - IRSE License 1.3.170 – Signalling Functional Tester.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.9 Signalling Tester in Charge Authorisation

This Authorisation entitles Signalling Tester in Charge personnel to work in a live signalling environment as outlined below:

- Lead, manage and direct defined inspection and testing activities on new or altered signalling works under the direction of the Commissioning Engineer.
- Be responsible for directing, controlling and ensuring that all the inspection and testing plans, procedures, activities and tasks required by the inspection and test plan are competently and correctly completed and recorded.

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Note:

The role is defined after consultation with the Commissioning Engineer and is responsible for ensuring that all inspection and testing tasks have been correctly carried out and documented so that the Commissioning Engineer has sufficient evidence to sign off the safety assurance of completed works and certify that the systems and equipment have been properly installed using effective quality system processes and have undergone and passed all tests and inspections necessary to ensure safe and reliable operation.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - Electrical Trades Certificate, or
 - Relevant Tertiary Qualification.
- And demonstrated experience in either:
 - Signalling Circuit Function Tester Authorisation, or
 - IRSE License 1.3.190 Tester in Charge.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

Licensing Board Requirements:

- This Authorisation is not required to sit the Licensing Board as described in Section 11 if the applicant has progressed from the Circuit Function Tester Authorisation.

9.10 Set to Work, Test and Certification of Track Circuit Authorisation

This Authorisation covers the application of knowledge required to lead a team in setting to work, certifying safe for normal operation, a newly installed track circuit. The work includes clearing of any previous track circuit equipment and connections, completion of previously installed new connections and track bonding (but not including installation of new wiring), inspection of new equipment and installation, powering-up, setting of final operating parameters, completion of functional checks and recording of as-commissioned settings and values.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - Minimum of Signal Electrician Work Group Leader (or supervisor equivalent), or
 - Relevant Tertiary Qualification.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

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9.11 Signalling Telemetry Technician Authorisation

This Authorisation entitles Signalling personnel to work in a live signalling environment as outlined below:

- Carry out defined installation, testing and set to work activities on telemetry systems.

Entry Qualification Requirements (refer to Section 6):

- Relevant Tertiary Qualification.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.12 Signals Design Authorisation

The following Authorisations are based on design of Signals systems only:

9.12.1 Signals Designer

This Authorisation entitles Signals Design personnel to work in a live signalling environment as outlined below:

- Carry out defined signals design and testing activities on signals system software, data or equipment.

Entry Qualification Requirements:

- To be advised.

Training Requirements:

- To be advised.

9.13 Control Systems Design Authorisations

The following Authorisations are based on design of Control Systems only:

9.13.1 Control Systems Software Designer

This Authorisation entitles Control Systems personnel to work in a live signalling environment as outlined below:

- Carry out defined control system design and testing activities on control system software, data or equipment.

Entry Qualification Requirements:

- To be advised.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

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9.13.2 Control Systems Infrastructure Designer

This Authorisation entitles Control Systems personnel to work in a live signalling environment as outlined below:

- Carry out defined control system design, installation and testing activities on control system equipment associated with the deployment of new or altered signalling infrastructure.

Entry Qualification Requirements:

- To be advised.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.13.3 Control Systems Configuration Designer

This Authorisation entitles Control Systems personnel to work in a live signalling environment as outlined below:

- Carry out defined control systems data configuration works associated with the deployment of new or altered signalling infrastructure.

Entry Qualification Requirements:

- To be advised.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

9.13.4 Control Systems FAT/FQT Authorisation

This Authorisation entitles signalling personnel to work in a live signalling environment as outlined below:

- Carry out defined testing procedures works associated with the deployment of new or altered signalling infrastructure.

Entry Qualification Requirements:

- To be advised.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

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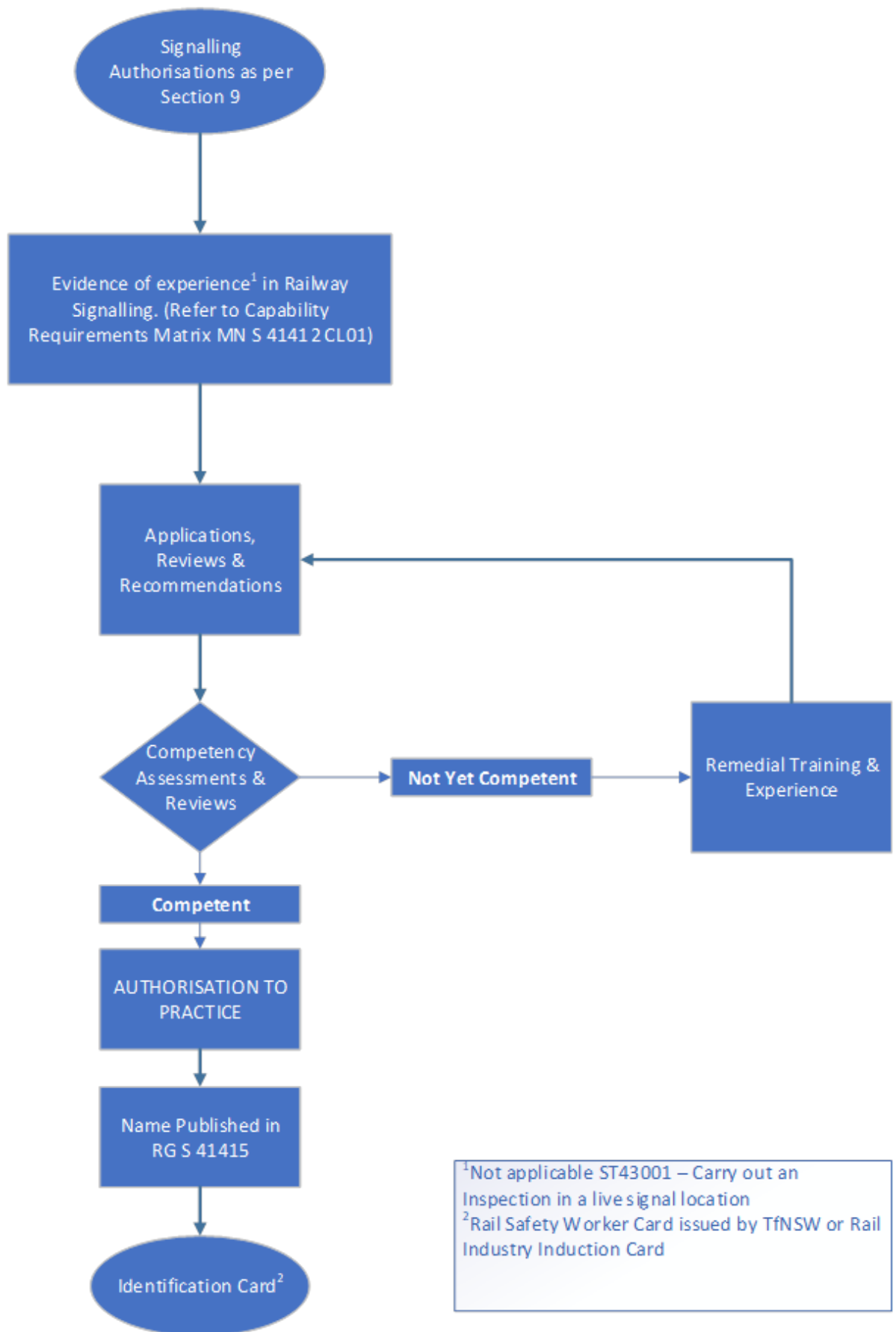


Figure 1: 'Authorisation to Practice' pathway

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10 Signalling Licensing

Sydney Train's competency based structure covers non-trade and trade staff up to certificate IV level for a range of national training packages.

The initial training and assessment of signalling personnel will only be accepted providing it was conducted by a Registered Training Organisation (RTO) as determined by the State or Territory registering body.

Therefore, only the Licensing requirements for signalling personnel, who have varying levels of engineering authority and thus require a 'licence to practice' for certifying signalling equipment/systems 'fit for purpose' in the testing, commissioning, de-commissioning and maintenance phases of its life-cycle, or who are required in the course of their duties to disconnect and or otherwise interfere with operational signalling equipment/systems, will be described below.

Application to sit before the Licensing Board for a 'licence to practice' for tradespersons, will only be accepted providing the applicant has successfully been assessed as competent by an accredited workplace assessor, at the minimum level in the stream (ancillary, mechanical or electrical) for which they are applying. (See Appendix A)

Since there are no national training packages for Signal Engineer (Field) or Control Systems, the process is described in Section 11.

Refer to Capability Requirements Matrix MN S 41412 CL01 for the minimum Prerequisites, Training course, Competency and Behavioural Requirements.

The functions that require a Signalling Licence for the various streams are shown in Section 7.

Applicants (excluding Apprentices) who wish to apply for a Sydney Trains signalling Licence:

- a. who have never held a Sydney Trains Signalling Licence must fulfil the application requirements as described below?

OR

- b. who have previously held:
 - i. a Sydney Trains Signalling Licence but did not maintain the accreditation.

OR

- ii. who hold a current signalling licence from another recognising signalling authority (e.g. IRSE or ARTC).

OR

- iii. a form of formal signalling competency, must fulfil the application requirements as described below. A gap analysis will then be conducted. A tailored plan will be suggested to satisfactorily meet the application requirements as determined by Sydney Trains.

Application Requirements

Unlicensed persons seeking a Signalling Licence must:

- a. Complete the application for Signalling Licence/Authorisation Form (included in Appendix A and the internet).
- b. For initial application complete the Technical self-assessment titled "Survey of Engineering Competencies" (Appendix A) for the relevant Licence, which captures the candidate's own assessment of their qualifications, experience and competency (except for Signals Ancillary).

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- c. Complete the Behavioural Capability Requirements.
- d. Provide:
 - i. Proof of appropriate Qualification.
 - ii. Details in the Logbook of relevant signalling work experience and training that is applicable to the licence being sought.
 - iii. Contact details of previous relevant supervisors. Statements of experience should include supervisor’s verification signatures where available.
 - iv. Proof of satisfactory completion of the prerequisite training courses as described below.
- e. For:
 - i. Sydney Trains applicants send the application and supporting documentation to their controlling Signal Engineer or Control Systems Engineer.
 - ii. Non Sydney Trains applicants send the application and supporting documentation directly to the Principal Engineer Signalling Integrity.

Sydney Trains Apprentices and Signalling Infrastructure Worker Bulk Recruitment Programs

Sydney Trains apprentices and Signalling IW Bulk Recruitment program applicants will be required after completing the training course as outlined in *MN S 41412 CL01 Capability Matrix* to sit four written examinations as defined below:

- A Paper – Safeworking
- B Paper – Inspection and Testing, Like for Like and Work Packages
- C Paper – Signal Indications, EP and Electrical Signalling
- D Paper – Track Circuits, Maintenance and General Knowledge.

Upon successful completion of the written examination the Signalling Competency Engineer or Signals Trainer will complete the Examiner’s Reports for Electrical – Rail Signalling Competency (MN S 41412 FM02) and sight the applicant has been issued with a *Certificate IV in Electrical – Rail Signalling*.

Note:

The applicant cannot progress further until the *Certificate IV in Electrical – Rail Signalling* has been sighted.

The applicant’s Team Leader/Manager must complete the Examiner Report for Electrical – Rail Signalling Competency and confirm the named applicant has received “ON THE JOB” training for the units of competency listed on the form and is ready to sit the formal Workplace Assessments.

The applicant is to arrange for two approved Workplace Assessors as listed in *RG S 41415 Signalling Personnel – Licensing and Authorisation Status* to complete the formal assessment using the approved TfNSW Assessment to tools and the standard L&D assessment process.

If the applicant meets the required the Licensing Board as detailed in the process below.

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Licensing Board

Once the applicant has met all the requirements, the applicant will attend an interview with the Sydney Trains Licensing Board which will be organised by the controlling Signal Engineers as described in e) above.

This following section describes the process needed to gain the following Licences.

10.1 Signals Ancillary

Depending on the applicants role the competency structure is derived from National Training Packages from either, Transport and Logistics (Rail Infrastructure) TLI15, or Electro technology Electrician UEE11, or Integrated Telecommunications ICT10, or Metal & Engineering MEM05 etc.

Note:

Persons require a Signals Ancillary "Licence to Practice" to perform work on operational signalling equipment.

10.2 Signals Mechanical

This Licence entitles Signals Mechanical personnel to work on operational signals mechanical equipment.

Entry Qualification Requirements (refer to Section 6):

- *TLI30220 Certificate III in Mechanical Rail Signalling*. For all new licenses commencing from 2022.
- Mechanical Trades Certificate.

Entry Authorisation Requirement:

- Work Safely in a live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

10.3 Signals Electrical

This Licence entitles Signals Electrical personnel to work on operational signalling equipment.

Entry Qualification Requirements (refer to Section 6):

- *UEE41211 Certificate IV in Electrical – Rail Signalling*. Mandatory for any new Licence issued from 2018, or
- Electrical Trades certificate for internal or external applicants previously holding a Sydney Trains Signal Electricians Licence to Practice prior to 2018.

Entry Authorisation Requirement:

- Work Safely in a live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

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10.4 Control System Technician

This Licence entitles Control Systems Technician personnel to work on operational control systems equipment as detailed below:

- Carry out defined inspection, like for like replacement, rectification and testing activities on existing control system equipment.
- Ensure that all the inspection and testing plans, procedures, activities and tasks required by the technical maintenance plan are competently and correctly completed and recorded.

Entry Qualification Requirements (refer to Section 6)

- Either of the following:
 - Relevant Tertiary Qualification as defined in Section 6, or
 - Telecommunications Trade Certificate, or
 - Electrical Trade Certificate.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01).

10.5 Signal Engineer (Field)

This Licence entitles Signal Engineer (Field) personnel to work on operational signalling equipment and the testing and certification of new and altered signalling.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - *UEE41211 Certificate IV in Electrical – Rail Signalling*. Mandatory for any new Licence issued after 2018, or
 - Electrical Trades certificate for internal or external applicants previously holding a Sydney Trains Signal Engineers/Electricians Licence to Practice prior to 2018.
 - Relevant Tertiary as defined in Section 6.

Candidates must have at least three years practical experience in the signalling maintenance and construction environments supported by documented evidence (e.g. Log Book) and at least some agreed time of practical experience in a Sydney Trains environment.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01), plus

The information on the Signal Engineer (Field)'s Exam process is described in the document "Signal Engineer (Field) Exam Material".

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An assessment examination consisting of two written papers of three hours duration each, based on Sydney Train's signalling systems and safeworking practices is held to assess the candidate's signalling knowledge and covers both the technical aspects including design, typical layouts and equipment, testing and certification for commissioning new and altered signalling and the signalling safeworking requirements. Both papers include approximately seven questions each, the first a series of short answer questions covering general knowledge, other questions may be presented as multiple choice covering either the maintenance or construction environment as described in Section 11.

Additional technical subjects to be covered in the written examination are:

- Knowledge and testing of Mechanical Interlocking.
- Electrical calculation, including, Ohms law, series and parallel resistance and impedance.
- Signalling technology.
- Signal design principles.

10.6 Control Systems Engineer

This Licence entitles Control Systems Engineer personnel to work on operational control systems equipment and the testing and certification of new and altered control system equipment.

Entry Qualification Requirements (refer to Section 6)

- Either:
 - Relevant Tertiary Qualification
 - OR
 - Telecommunications Trade Certificate
 - OR
 - Electrical Trade Certificate.

Candidates must have at least three years practical experience in the control systems maintenance and construction environments supported by documented evidence (e.g. Log Book) and at least some agreed time of practical experience in a Sydney Trains environment.

Entry Authorisation Requirement:

- Work Safely in a Live Signal Location.

Training Requirements:

- As per the Capability Requirements Matrix (MN S 41412 CL01), plus
- Additional training and examination requirements under development. Refer to Professional Head Signalling & Control Systems for more information.

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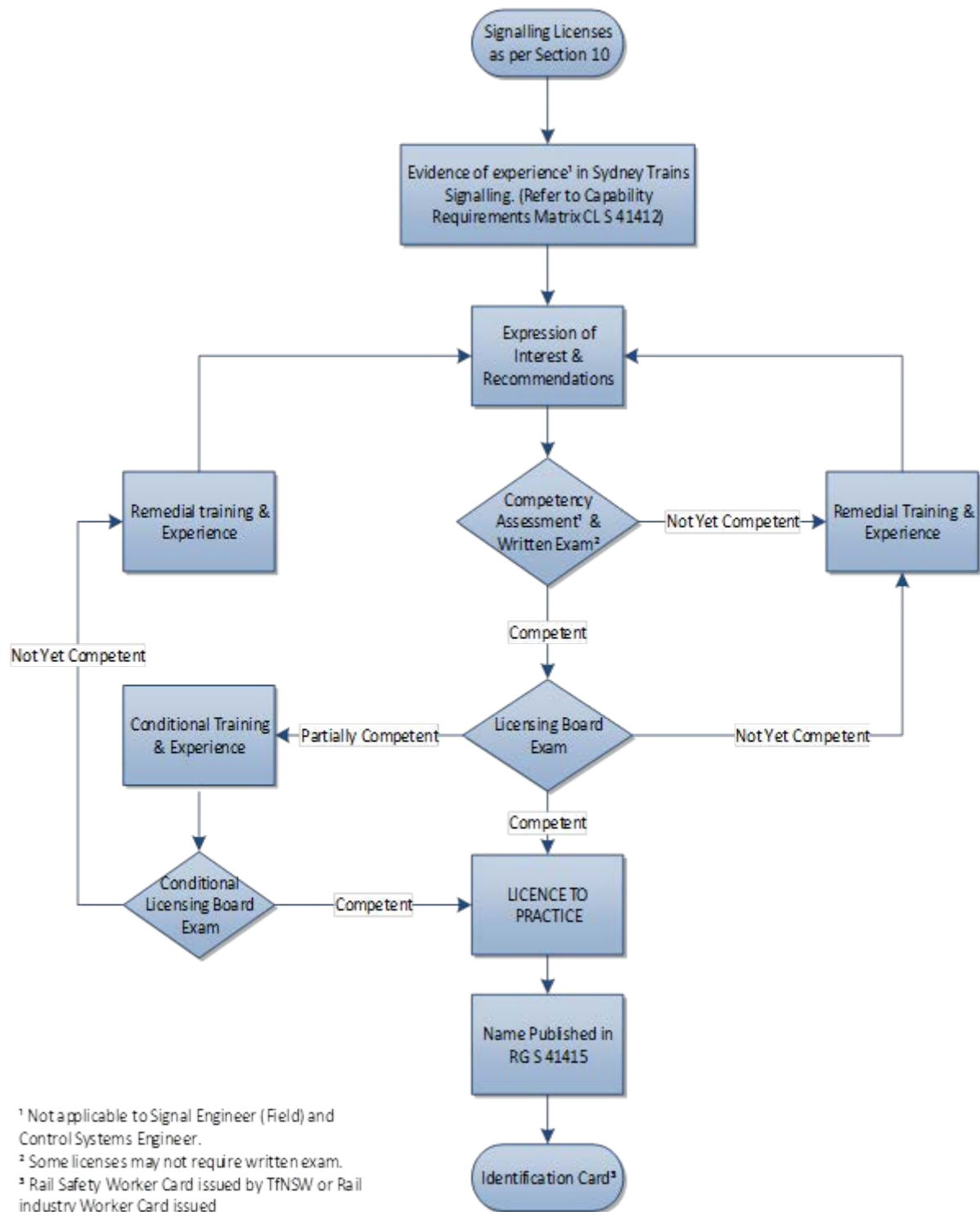


Figure 2: 'Licence to Practice' pathway

11 Signalling Safeworking – Licensing Examination Format

The format of the licensing assessment will be scenario based, i.e. the candidate will be asked to answer a series of questions based on typical operational situations that can occur during the normal course of their duties. Scenarios are to be restricted to questions relating the signalling safeworking, testing and safety critical maintenance activities and are not to include the technical and theory based subject matter already assessed by the various competences in the applicable classification structures. Where a candidate already holds a relevant Sydney Trains signalling authorisation, for example Circuit Tester or Circuit Function Tester, the aspects of those authorisations are not required to be covered by the Licensing Board. The lists of assessment subjects that may be used in the licensing assessment are listed below.

Licensing Assessment Subjects

The following references are used in this clause:

- | | |
|---|------------------------------|
| • (Signals Ancillary) | - Ancillary staff |
| • (Signals Mechanical) | - Sectioner |
| • (Signals Electrical) | - Electricians and Engineers |
| • (Signal Engineers) | - Engineers |
| • (Control Systems Technicians/Engineers) | - Control Systems. |

11.1 Signalling Safeworking Procedures

Temporary Bridging of Signalling Circuits (Electrical):

- Signalling Safeworking Procedure – PR S 40002
- Network Procedure - NPR 704
- Forms - IBA NRF 003, PR S 40002 FM01.

Major Incidents (Including Accidents or Derailments) – Action to be taken (Signals Ancillary, Mechanical, Electrical and Control Systems):

- Signalling Safeworking Procedure – PR S 40003
- Network Rule - NSG 614, Network Procedure - NPR 720.

Failures (Mechanical, Electrical and Control Systems):

- Signalling Safeworking Procedure – PR S 40004
- Network Rules - NWT 312, NSY 518, NGE 216, NSG 608
- Network Procedures - NPR 704, NPR 715
- Forms - IBA NRF 003, PR S 40004 FM01 and FM02.

Release of Track Locking or Indication Locking (Electrical):

- Signalling Safeworking Procedure – PR S 40006
- Network Rules - NSG 608, NGE 234, Network Procedure - NPR 740
- Form - IBA NRF 003.

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Securing Signalling Apparatus Out of Use (Mechanical, Electrical and Control Systems):

- Signalling Safeworking Procedure – PR S 40008
- Network Rule - NWT 312, Network Procedure - NPR 704
- Form - IBA NRF 003.

Disconnection of Signalling Apparatus (Mechanical, Electrical):

- Signalling Safeworking Procedure – PR S 40009
- Network Rules - NWT 312, NGE 218, Network Procedures - NPR 704, NPR 715, Form - IBA NRF 003.

Rerailing and Traction Return (Electrical):

- Signalling Safeworking Procedure – PR S 40026 and PR S 40027
- Network Rules - NWT 300, to 314, NWT 318, Network Procedure - NPR 715, Forms - IBA 003, Temporary Rail Bond Approval NRF 013.

11.2 Safety Critical Procedures

Risks and Controls Associated with Testing and Certifying Equipment (Mechanical, Electrical and Control Systems):

- Signalling Safeworking Procedure – PR S 40010

Renewals Work (Mechanical, Electrical and Control Systems)

- Signalling Safeworking Procedure – PR S 40011

Repair/Replacement of Signalling Wires (Electrical and Control Systems)

- Signalling Safeworking Procedure – PR S 40012

Vital Signalling Relays (Electrical)

- Signalling Safeworking Procedure – PR S 40024

Rail Vehicle Detection (Electrical)

- Signalling Safeworking Procedure – PR S 40025

ETCS Level 1 Limited Supervision

- Signalling Safeworking Procedure – PR S 40028

Point Lock and Detection Testing on Power Operated Points (Mechanical and Electrical)

- Signalling Safeworking Procedures – PR S 40029 and PR S 40030.

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11.3 Inspection and Testing of Signalling

- **Inspection and Testing of Signalling: Introduction** - PR S 47110
- **Inspection and Testing of Signalling: Roles, Responsibility and Authorities (Electrical and Control Systems)** - PR S 47111
- **Inspection and Testing of Signalling: Plans, Programs, Documentation and Packages** - PR S 47112
- **Inspection and Testing of Signalling: Inspection and Testing Principles (Electrical)** - PR S 47113
- **Inspection and Testing of Signalling: Inspection and Testing Procedures (Electrical)** - PR S 47114
- **Inspection and Testing of Signalling: Typical Inspections and Tests for Signalling Apparatus (Electrical)** - PR S 47115
- **Inspection and Testing of Signalling: Interface Requirements and Procedures for Alterations (Electrical and Control Systems)** - PR S 47116
- **Inspection and Testing of Signalling: Standard Forms (Electrical and Control Systems)** - PR S 47117
- **Inspection and Testing of Signalling: Typical Signal Support Procedures for Trackworks (Electrical)** - PR S 47118
- **Inspection and Testing of Signalling: ETCS Level 1 Limited Supervision Integration of Trackside Alterations (Electrical)** - PR S 47120.

11.4 Structure of the Licensing Examination

11.4.1 Circuit Testing

A scenario for Circuit Tester or Circuit Function Tester personnel covers all the applicable Circuit Tests in accordance with ST S 43012 or ST S 43013.

11.4.2 Signals Ancillary

To be advised.

11.4.3 Signals Mechanical

The number of scenarios for mechanical personnel would be a minimum of three (3) but no more than five (5) and is to cover all the applicable safeworking subjects with a major portion of the safety critical procedures to be included. The subjects concerned are listed under the heading “Mechanical and Electrical” in Section 10.1. Where the subject matter includes both mechanical and electrical requirements, only the mechanical component is to be tested.

Interlocking Fitter

In addition to the above the Interlocking Fitter’s licensing assessment is to include a separate mechanical interlocking assessment that tests the candidate’s ability to read and interpret mechanical interlocking diagrams and complete a practical assessment through demonstration, on the testing of the interlocking arrangements for mechanical interlocking machines and associated equipment.

A separate “Interlocking Certificate” is issued following successful assessment and remains current for the duration of that person’s issued Certificate of Competency.

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11.4.4 Signal Electrician

For electrical staff the number of scenarios would typically be a minimum of five (5) but no more than seven (7) and would cover all signalling safeworking subjects relating to accidents and derailments, bridging of signalling circuits, disconnect and booking equipment out of use, rerailing including traction return arrangements, fault finding including investigation of irregularities and wrong side failures, releasing of track locking and a major proportion of the safety critical procedures such as, level crossings, track circuit shunt testing, certifying equipment covering new, altered and like for like situations and points lock and detection test requirements.

11.4.5 Control Systems Technician

For Control Systems Technician personnel the number of scenarios would typically be a minimum of five (5) but no more than seven (7) and would cover signalling safeworking subjects relating to, disconnect and booking equipment out of use, fault finding including assisting the Lead Signal Engineer in an investigation of irregularities, safety critical procedures and certifying equipment covering new, altered and like for like situations.

11.4.6 Signal Engineer (Field)

For Signal Engineer personnel the number of scenarios would typically be a minimum of five (5) but no more than seven (7) and would cover all signalling safeworking subjects relating to accidents and derailments, bridging of signalling circuits, disconnect and booking equipment out of use, traction return arrangements, fault finding including investigation and management of irregularities and wrong side failures, Circuit Testing, releasing of track locking and a major proportion of the safety critical procedures such as, level crossings, track circuit shunt testing, certifying equipment covering new, altered and like for like situations and the Roles and Responsibilities of the Signal Engineer in Maintenance and Construction activities.

11.4.7 Control Systems Engineer

For Control Systems Engineering personnel the number of scenarios would typically be a minimum of five (5) but no more than seven (7) and would cover signalling safeworking subjects relating to, disconnect and booking equipment out of use, fault finding including assisting the Lead Signal Engineer in an investigation of irregularities, safety critical procedures and certifying equipment covering new, altered and like for like situations.

12 Licensing Boards

Signalling Licensing boards are formed by Signal Engineers (Field) and Control System Engineers listed on the “Authorised Officers List” of the training and competency procedures document, *RG S 41415 Signals and Control Systems Personnel – Licensing and Authorisation Status*.

The composition of the licensing board for each signalling position requiring a “Licence to Practice” is shown in Section 12.1, Licensing Examination Board List of this document. The licensing board shall have one board member independent from the business unit the applicant is employed..

When a board is formed the senior engineer on the board will be deemed the board chairperson for the duration of the board. The chairperson’s role shall be to provide the various exam scenarios for the assessment and ensure that all the relevant documentation relating to the candidate’s eligibility to apply for a licence is examined and verified.

The chairperson will issue the appropriate “License to Practice” certificate to the applicant with copies forwarded to the controlling Licensed Engineer and to the Principal Engineer Signalling Integrity.

The candidate’s controlling Licensed Engineer is responsible for issue of an initial Certificate of Competency (see Section 13) and “Permit to Work” if candidate is successful or any remedial training required if the candidate was unsuccessful. The chairperson will advise the candidate’s controlling Licensed Engineer of any restrictions or comments to be included on the initial Certificate of Competency. A copy of the certificate is to be sent to Signalling Integrity for archiving on the person’s record and updated in *RG S 41415 Signals and Control Systems Personnel – Licensing and Authorisation Status*.

Once the Principal Engineer Signalling Integrity receives a copy of the completed “License to Practice” certificate the successful candidate’s name shall be updated in *RG S 41415 Signals and Control Systems Personnel – Licensing and Authorisation Status* and maintained on the list as long as they have a current “Identification Card”.

The following specification lists the essential criteria for an officer to achieve the authority levels shown.

LEVEL A:

- a. Licensed Principal Engineers, Licensed Senior Engineers Signalling Integrity

Note:

Level retained by past incumbents.

LEVEL B:

- a. Minimum five (5) years as a Signal Engineer (Field) or Control Systems Engineer with experience.
AND
- b. Minimum grade RC 6 or equivalent.
AND
- c. Experienced as member of “C” board.
AND
- d. Observer on “B” board (minimum 3 occasions).
AND

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- e. Recommended by two (2) “B” board members and approved by a Level ‘A’ member.
OR
- f. Recommended and approved by the Professional Head Signalling & Control Systems.

LEVEL C:

- a. Minimum Two (2) years as Signal Engineer (Field) or Control Systems Engineer with experience.
OR
- b. An experienced Signal Engineer (Field) or Control Systems Engineer approved by a Level ‘A’ member.

AND

- c. Qualified as a Level of “D”.
AND
- d. Observer on “C” boards, (minimum 2 occasions).
AND
- e. Recommended by “B” board member and approved by a Level ‘A’ member.
OR
- f. Recommended and approved by the Professional Head Signalling & Control Systems.

LEVEL D:

This is the entry level and the requirement is for officers to have passed the Signal Engineers (Field) examination or equivalent and be appointed to a Field Signal Engineers position as well as the following criteria:

- a. Current qualifications in the competency or competencies being assessed.
- b. The following competencies from the Training and Assessment Training Package (TAE40116), (as amended from time to time) or be able to demonstrate equivalent competencies:
 - i. TAEASS401 Plan assessment activities and processes
 - ii. TAEASS402 Assess competence
 - iii. TAEASS403 Participate in assessment validation.
- c. A minimum of two years’ practical experience in each competency being assessed.

LEVEL X:

- a. An experienced Senior Signal Engineer (Field) with extensive experience in Mechanical Interlocking.
AND
- b. Recommended and approved by the Professional Head Signalling & Control Systems.

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12.1 Licensing Board List

BOARD	POSITION	LICENSING BOARD COMPOSITION
A	Signal Engineer (Field)	A (S) + B (S) + B (S)
A	Control Systems Engineer	A (S)+ B (S or CS) + B (S or CS)
B	Signalling Authorised Person (Circuit Function Tester Authorisation)	B (S) + B (S)
B	Signal Electrician	B (S) + C (S)
B	Control Systems Technician	B (S) + C (S or CS)
B	Signalling Authorised Person (Circuit Testing Authorisation)	B (S)+ C (S)
B	Signals Mechanical	B (S)+ C (S)
C	Signals Ancillary	C (S)+ C (S)
X	Mechanical Interlocking	X (S) + X (S)

*See Note in Section 9.11.

(S) – Signals Licensing Board

(CS) – Control Systems Licensing Board

Note 1:

Officers of a higher authority level may sit on boards requiring a lower authority level.

Note 2:

Level A boards shall have at least 1 independent member from the office of the Professional Head Signalling and Control Systems.

12.2 Authorised Officers List – Amendments

An Officer wishing to be included on the list, raised in authority level or deleted from the list, may make written application to the Principal Engineer Signalling Integrity who will after consideration of the merits and experience of the applicant authorise any necessary amendments to the list.

Where applicable the application must include the recommendations of the required authorised officer.

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13 Certificate of Competency

A Certificate of Competency states the following:

- a. competency proficiency levels of a rail safety worker undertaking rail safety work such as Signalling safeworking, maintenance, design, configuration and construction.
- b. equipment and systems a rail safety worker is deemed competent to work on.
- c. supervisory requirements and authorisation.

Signalling Certificates of Competency are issued in the following categories:

- Signalling Authorised Person
- Signals Ancillary
- Signals Mechanical
- Signal Electrician
- Signal Engineer (Field)
- Signals Designer Authorisation
- Control Systems Technician
- Control Systems Engineer
- Control Systems Designer Authorisation.

To be issued a Certificate of Competency a candidate must first be issued either a Licence to Practice (Section 9) or an Authorisation to Practice (Section 8). Additionally a candidate will undergo an assessment of their proficiency by the candidate's controlling licenced Signal Engineer or Licenced Control Systems Engineer (Section 13.3) who will also issue a Permit to Work (Ref *PR S 41419 Permit to Work*). Both documents are required before the worker is allowed to perform signalling safety related duties.

Workers shall not be employed in any of the categories listed above without a current Certificate of Competency except under direct and close supervision as detailed in the signalling safeworking procedures.

A Certificate of Competency is valid for three years. Renewal of a Certificate of Competency is through application to the controlling Signal or Control Systems Engineer, see Section 13.4.

For the purposes of issuing a Certificate of Competency a Non Sydney Trains rail safety worker's controlling engineer shall be the Principal Engineer Signalling Integrity.

13.1 Requirements for Issue of Certificate of Competency

13.1.1 Signals

Senior Signal Engineers are denoted as "Senior" in the comment section of RG S 41415.

The following essential criteria is required for an officer to be denoted as a Senior Signal Engineer and is applicable to licenced Signal Engineers (Field), who have a current need to issue Certificate of Competency and work on Sydney Trains signalling infrastructure:

- a. Hold a senior position (RC 7 or equivalent) within an organisation for a minimum of five (5) years.
- b. Minimum ten (10) years as a licenced Signal Engineer.

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- c. Recommended by two (2) Senior Signal Engineers and approved by a Principal Engineer.

OR

- d. Recommended and approved by the Professional Head Signalling & Control Systems.

The Professional Head Signalling & Control Systems, Principal Engineer Signalling Integrity, Signals Engineering Manager or Testing and Commissioning Manager Signalling can issue a Signal Engineer (Field) Certificate of Competency to a Senior Signal Engineer.

Senior Signal Engineers can assess and issue Signal Engineer (Field) Certificate of Competency to other Signal Engineers.

Signal Engineers who have a Signal Engineer (Field) Certificate of Competency can assess and issue a Certificate of Competency to all grades of infrastructure workers as long as the Engineer has a minimum of two years' practical experience in each competency being assessed.

13.2 Proficiency Levels

A Certificate of Competency lists a worker's competencies relevant to their role, to which various proficiency levels are assigned as described in Table 2 below.

Level of Proficiency	Task Complexity		Supervisory Authority
	Simple Tasks	Complex Tasks	
Level 3	Competent to perform simple tasks unsupervised	Competent to perform complex tasks unsupervised	May supervise and assess all other levels
Level 2	Competent to perform simple tasks unsupervised	Competent to perform complex tasks under indirect supervision	May supervise Levels 0 & 1 performing simple or complex tasks. May assess Level 0 & 1
Level 1	Competent to perform simple tasks under indirect supervision	May perform complex tasks under direct supervision	May supervise Level 0 performing simple tasks
Level 0	May perform simple tasks under direct supervision	May perform complex tasks under direct supervision	Nil

Table 2: Proficiency Levels

While it is up to the supervisor to determine if a specific task is simple or complex and the exact nature of the direct/indirect supervision, the following definitions apply.

Simple Tasks are tasks that meet one of the following conditions.

- a. Work that is detailed/described in standards, procedures and service schedules.
- b. Work that is covered by work instructions (except for work instructions that deal with complex tasks).
- c. Work that is repetitive in nature.
- d. Investigating and certifying right side failures of the signalling system.

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- e. Design tasks that are based on other very similar or pre-existing designs.
- f. Work that poses no risk to the integrity or reliability of the signalling system.

Examples of simple tasks include:

- Like for like replacement of a points mechanism where a no bridging authority is required.
- Testing, adjusting and certifying a facing point lock and detection during maintenance or after a failure.
- New design for a configuration that is similar to an existing design - for example design for three aspect automatic signalling, or a new Map design that is similar to a previous.
- Project.

Complex Tasks are defined as tasks that meet any of the criteria below:

- a. Work that is novel or unique in nature.
- b. Work that requires the application of a worker's knowledge and skills in non-routine ways.
- c. Work that has multiple simultaneous elements of risk.

For example:

- Correlation of circuits in a location with shelf relays and non-PCV insulated wiring.
- Setting up, testing, adjusting and certifying a facing point lock and detection on commissioning or renewal.
- Like for like replacement of a points mechanism where a bridging authority of the detector circuit is also required.
- Site Acceptance Testing of a new Control Systems software release.
- Sitting on a Licensing Board.
- Type approval of new equipment or technologies.
- Safeworking, Technical Maintenance Plan or Training development workshops

Direct Supervision: The purpose of direct supervision is for a supervisor to monitor a person's work to ensure compliance with relevant standards and procedures and to be able to take corrective action in a timely manner. While engaged in direct supervision, the responsibility for the continued integrity of the signalling systems rests with the supervisor.

The nature of direct supervision will require the supervisor to constantly monitor the performance of the work being undertaken. The supervisor is to remain in close proximity to those undertaking the work to provide the appropriate guidance and corrective actions.

Under direct supervision communication the onus to initiate communication is with the supervisor since in this case the worker is not expected to be aware of their own limitations or the full requirements of the task at hand.

A secondary purpose of direct supervision is to foster and develop a worker's knowledge and skillset to facilitate their continuous development and career progression. Supervisors therefore are encouraged to promote informal worksite learning opportunities.

Indirect Supervision: The purpose of indirect supervision is to provide a worker with a mentoring resource to guide and support the worker while performing non-routine activities. Similar to direct supervision, indirect supervision requires various levels of interaction between the worker and supervisor that is task dependent.

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For example, indirect supervision of a control systems technician or signal electrician attending a fault/failure may require communication between the supervisor and worker after every series of tests and before repairs are made. Alternatively indirect supervision of a designer may require only very limited communication between the supervisor and worker, say once or twice a week or at the completion of a design task.

While indirect supervision may be face-to-face it is more likely to be remote (i.e. via phone or two-way radio) or under certain circumstances via email. The onus to initiate communication under indirect supervision rests equally with the supervisor and the worker as both people should have a reasonable understanding of the limits of the worker’s knowledge, skills and abilities.

13.3 Assessment of Competency

The Certificate of Competency details the various safety related tasks, functions, equipment types and systems activities a worker is competent to perform or work on. When being assessed, a worker will be deemed to be competent in an activity at a certain level of proficiency where the worker meets the criteria in Table 3 below.

Proficiency Level	Evidence Required
To qualify at Level 3	Qualified at Level 2 Verified Work Experience Record – Successfully complete three full sets of a complex task under indirect supervision Assessment by controlling Licenced Engineer
To qualify at Level 2	Qualified at Level 1 Verified Work Experience Record – Successfully complete three full sets of a simple task under direct supervision Assessment by controlling Licenced Engineer
To qualify at Level 1	Hold a Licence/Authorisation to Practice Relevant Product Training Assessment by controlling Licenced Engineer
Level 0	No training prerequisite No experience prerequisite

Table 3: Competency Assessment Criteria

The assessment required for Level 1 is conducted on a competency by competency basis by the candidate's controlling Licenced Engineer issuing the Certificate of Competency. The assessment is based on the details on the completed Licence to Practice form issued by the Licencing Board, the candidate's training records, log book records, supervisor reports, interview questions and personal observation.

Verified Work Experience is the observation/verification by a supervisor of a candidate completing three full sets of simple or complex tasks necessary for qualification at the level of proficiency for the specific competency a person is being assessed.

Verified Work Experience tasks must be completed correctly, confidently and efficiently in a normal working environment and without assistance from the supervisor verifying the works. The candidate records the work experience in their log book and then transfers the information to the Work Experience Record (see sample in Appendix A) which the supervisor endorses with comments on performance. A different supervisor may be used for each individual set of tasks being verified.

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Successfully performing a full set of a task may include:

- demonstration of the knowledge of relevant standards and procedures to undertake the task at hand.
- understanding of how to apply technical maintenance plans and service schedules.
- proper use and completion of work instructions.
- appropriate implementation of safeworking procedures.
- correct use of tools, gauges and test instruments.
- making relevant record keeping entries, e.g. history cards, circuit books, drawings, data file or documents.

Demonstration of a full set of three simple/complex tasks is required for each competency being assessed.

It is likely that when demonstrating a task for the purpose of applying for an increased proficiency level that a single complete task will require the demonstration of a number of competencies listed on a Certificate of Competency. All such competencies can be assessed at the same time.

Example 1: Like-for-like replacement of a Trainstop requires a range of competencies such as:

- Trainstop Gauging
- Replace, Inspect, Test & Certify Signalling Apparatus
- Trainstops (All Types) under the Install/Maintain Signalling System & Equipment.

Example 2: Replacing a Rail Control Server may require the following competencies:

- Investigate & Repair Control System Failures
- Disconnect Operational Control System Infrastructure
- Inspect, Test & Certify Operational Control System Infrastructure
- Replace, Inspect, Test & Certify Control System Apparatus.

The very nature of some tasks will make it impractical to demonstrate competency three times under real world conditions, for example investigation of a derailment or wrong side failure. In these cases, it is acceptable for verified work experience to be based on a demonstration under simulated work experience conditions. Candidates should confirm the requirements of a work experience simulation with their controlling engineer prior to assessment.

To apply for an increase in proficiency, candidates should forward a completed Application for Signalling Licence/Authorisation (MN S 41412 FM01) together with their verified Work Experience Record to their controlling licenced Signal or Control Systems Engineer. Candidates may apply for increases in their competency at any time once they fulfil the assessment criteria above.

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13.4 Maintenance of Competency

It is important to ensure that workers remain current in their capacity to perform their duties and maintain their proficiency ratings. As stated above Certificates of Competency are valid for a maximum of three years and then require review and renewal by an assessing Licenced Signal or Control Systems Engineer. There are three ways to maintain a competency:

1. Relevant work experience as recorded and validated in the worker's log book. See *PR S 41416 Log Book Procedures*.
2. Relevant refresher training, e.g. the three-yearly Safeworking Reaccreditation course is used to maintain Signalling Safeworking Competencies (as shown in the upper-left hand quadrant of a Certificate of Competency).
3. Recommendation by a licenced Signal or Control Systems Engineer (this includes the assessing Engineer).

Note:

The recommending Engineer must keep evidence of the assessment process used to justify the recommendation (e.g. minutes of an assessment interview, copies of questions asked and answers given, diary entry of workplace observations etc.

During reassessment any competency that cannot be supported by one of the three methods above will be reduced by one proficiency level. Such reduction can occur each time a Certificate of Competency is reviewed every three years without supporting evidence. Should a worker have their proficiency level reduced due to lack of evidence then reinstatement of their previous proficiency level can be achieved through one of the three methods mentioned in the preceding paragraph.

If a proficiency rating drops to Level 0 then the worker's competency level for that specific competency must be reinstated though the process described in Section 13.3 above.

13.5 Reduction of Competency Due to Signalling Safeworking Breaches

Any reduction or loss of signalling competency due to Signalling Safeworking Breaches and their subsequent reinstatement is to be managed in accordance with *MN S 41418 Signalling Safeworking Breaches*.

14 Reassessment

The competency of rail safety workers qualified to certify signalling equipment or systems fit for purpose shall be formally reviewed for reassessment within a period not exceeding every three (3) years.

The following rail safety workers, as listed in *RG S 41415 Signalling Personnel – Licencing and Authorisation Status*, shall be subject to reassessment to maintain their licence and/or authorisation(s).

- All licenced signalling personnel
- Authorised Circuit Testers
- Authorised Circuit Function Testers.

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14.1 Reassessment process

Reassessment shall consist of two elements:

- A refresher course and written assessment.
- An assessment by the controlling engineer of a person's competencies relating to the safeworking activities associated with the person's duties.

Topics to be covered in the reassessment shall include those listed in Section 11 of this documents.

14.1.1 Reassessment course and training

The refresher course and assessment shall confirm the basic knowledge of the worker in the current, relevant signalling safeworking practices in accordance with Sydney Trains Network Rules and Procedures.

The course shall consist of refresher instruction and a knowledge based assessment based on a scenario format. The course length and content will be as authorised by the Professional Head Signalling & Control Systems, on the advice of the Signalling Training Committee.

The refresher course and assessment examination will not attempt to retrain or examine staff in the various makes and models of items of equipment or systems but will focus on the rules, regulations, procedures and practices that ensure the safety of trains, persons and the signalling system. The course material covered is detailed in the following documents:

- Signalling Maintenance Procedures MN S 40000 and PR S 40001 to PR S 40052
- Inspection and Testing of Signalling MN S 47110, PR S 47111 to PR S 47118 and PR S 47120
- Relevant Network Rules and Procedures relating to signalling.

Persons who pass the assessment shall be instructed in the correct answers to any questions they may have answered incorrectly.

On completion of the refresher course and assessment the training provider shall forward written advice regarding the results of the assessment to SignallingControlSystemsIntegrity@transport.nsw.gov.au

A record of successful completion of the reassessment course shall be registered against a person's Rail Safety Workers Card (Gold Card) or Rail Industry Workers Card (as applicable) and *RG S 41415 Signalling Personnel – Licensing and Authorisation Status* updated to reflect the new expiry date.

Workers who successfully complete the reassessment course may apply for renewal of their Certificate of Competency in accordance with Section 12 of this document.

If a person is unsuccessful refer to Section 13.2.

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14.1.2 Assessment by the controlling engineer

Engineers who conduct reassessment of signalling workers are responsible for the final certification of the competency of the worker. In determining a worker’s competency the Engineer should consider the results of the refresher course written assessment and the person’s work performance related to their signalling safeworking activities (also refer to Section 13.4).

Controlling Engineers who are responsible for the reassessment of signalling workers, must themselves hold current signalling safeworking certification.

Engineers will be reassessed by the Principal Engineer Signalling Integrity or other nominated Senior Signal Engineer.

14.2 Workers deemed 'not yet competent'

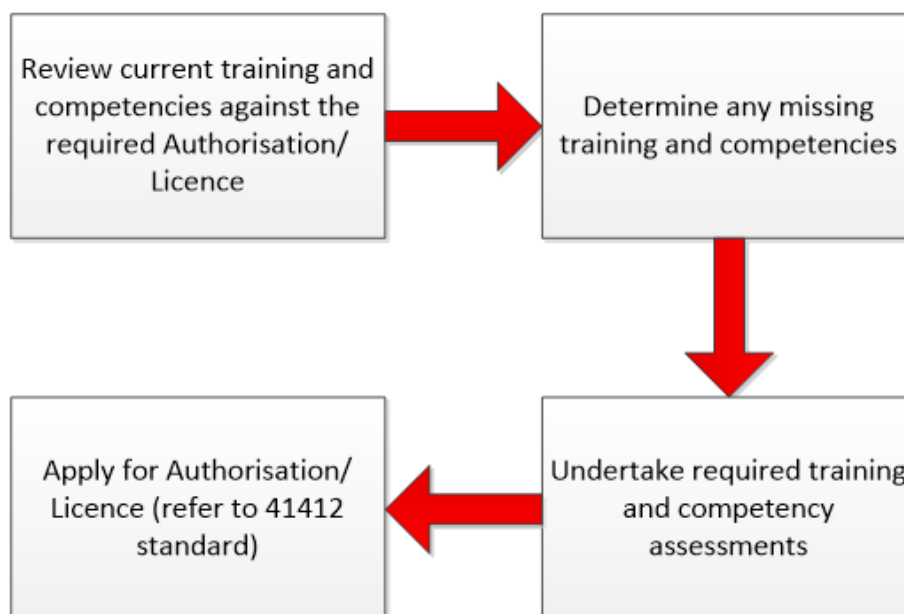
If a worker is deemed ‘not yet competent’ following the refresher course they may elect to be immediately reassessed. If they are again unsuccessful or elect not to be immediately reassessed they are to be removed from their signalling safeworking responsibilities until they successfully complete the next available refresher course and reassessment.

If a person is unsuccessful a confidential letter detailing areas covered by the refresher course and assessment together with any areas considered to need reinforcement will be forwarded promptly to their controlling Engineer. A copy of the letter shall be made available to the person concerned.

Until the worker is deemed competent they may only perform signalling safety related duties under the direct and close supervision by a certified person holding the relevant qualifications for the task.

15 Capability Gap Analysis

The Capability Requirements Matrix can be readily used to carry out a gap analysis between differing authorisations and licenses. The gap analysis shall be conducted by an applicant referencing the Capability Requirements Matrix to determine any deficiencies between the required prerequisites, training, competencies and behavioural requirements for the Licence or Authorisation they require.



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16 Identification Card

Identification cards are issued as an either:

- Rail Safety Worker Card (Gold Card) which is issued by TfNSW.
OR
- Rail Industry Worker Card which is issued by an ARA provider.

16.1 Rail Safety Worker Card

Once a candidate's name is published in *RG S 41415 Signals and Control Systems Personnel – Authorisation and Licensing Status* the applicant may make a request to TfNSW for an issue or reissue of the gold credit card sized Rail Safety Worker Card by emailing the request to Learning@transport.nsw.gov.au

- The card is issued to the worker after being granted the qualification by the discipline's licensing board and is then renewable every three years through the reassessment process.
- A valid Rail Safety Worker Card will show the date of issue, expiry date, the workers name and signalling safeworking qualification category code the worker is certified in as shown in the table in Section 7.

Certificates of Competency or Statements of Competency issued by other organisations ARE NOT valid for work on Sydney Trains signal infrastructure.

The Rail Safety Worker Card must be carried by the holder at all times and presented for inspection upon request by a Rail Safety Officer.

A TfNSW Rail Safety Worker Card is only valid for work carried out for or on behalf of Transport for NSW, Sydney Trains and NSW Trains.

16.2 Rail Industry Worker Card

Once the candidates name is published in *RG S 41415 Signals and Control Systems Personnel – Authorisation and Licensing Status* the applicant may make a request to <https://www.riw.net.au> and upload the relevant information so that their competency profile may be updated.

- The card is issued to the worker after being granted the qualification by the discipline's licensing board and is then renewable every three years through the reassessment process.
- A valid Rail Industry Worker Card will show the QR code so a smart phone can access the date of issue, expiry date, the workers name and signalling safeworking qualification code the worker is certified in as shown in the table in Section 8.

Certificates of Competency or Statements of Competency issued by other organisations ARE NOT valid for work on Sydney Trains signal infrastructure.

The Rail Industry Worker Card must be carried by the holder at all times and presented for inspection upon request by a Rail Safety Officer.

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Appendix A Forms

Application for Signalling Licence/Authorisation Form

- [Application for Signalling License/Authorisation](#)

Examiners Reports for Electrical-Rail Signalling Form

- [Examiners Report for Electrical - Rail Signalling Competency](#)

Authorisation to Practice Forms

- [Circuit Tester](#)
- [Circuit Function Tester](#)

Licence to Practice Forms

- [Signals Mechanical \(Assistant Sectioner\)](#)
- [Signals Mechanical \(Sectioner\)](#)
- [Interlocking Fitter](#)
- [Mechanical Interlocking Accreditation for Signal Engineer](#)
- [Signal Engineer Field](#)
- [Signal Electrician](#)
- [Control Systems Technician](#)
- [Control Systems Engineer](#)

Sample of Verified Work Experience Record

- [Verified Work Experience Record](#)

Certificate of Competency Forms

- [Signalling Authorised Person](#)
- [Signals Mechanical](#)
- [Signal Electrician](#)
- [Signal Engineer, Field](#)
- [Signals Ancillary](#)
- [Signal Systems Section](#)
- [Control Systems Operations](#)
- [Control Systems Commissioning](#)

Survey of Engineering Competencies

- [Survey of Engineering Competencies](#)

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Sample of Verified Work Experience Record

Name		Fred Smith	
Classification		Signal Electrician	
Date of Application		29 August 2018	
Date	Detailed Description of Task (e.g. Track Circuit Maintenance SS01)	Supervisor Verification Name, position, signature, comments and date.	
12 Dec 2015	<p>Task: Like for Like replacement of Pine Road Level Crossing Boom Mechanism</p> <p>Equipment: Westinghouse Boom Mechanism</p> <p>Competencies: Disconnect Operational Signalling Infrastructure Replace, Inspect, Test & Certify Signalling Apparatus where treated as Like for Like Renewal Changeover of Wires & Cables in accordance with PR S 40011, 40012 and SPG 0711.9</p>	<p>John Jackson Signal Engineer X Fred correctly performed the works in accordance with the necessary standards and procedures 1 Jan 2016</p>	
1 March 2016	<p>Task: Like for Like replacement M12.8 Trainstop</p> <p>Equipment: JAH Trainstop</p> <p>Competencies: Disconnect Operational Signalling Infrastructure Replace, Inspect, Test & Certify Signalling Apparatus where treated as Like for Like Renewal Change over of Wires & Cables in accordance with PR S 40011, 40012 and SPG 0711.9</p>	<p>Akmal Hakim Signal Team Leader X Top worker, job done well. Recommend increasing listed competencies.</p>	
15 June 2017	<p>Task: Like for Like replacement of 123A Points Cronulla</p> <p>Equipment: Electric Clawlock Points (M84 machine)</p> <p>Competencies: Disconnect Operational Signalling Infrastructure Replace, Inspect, Test & Certify Signalling Apparatus where treated as Like for Like Renewal Change over of Wires & Cables in accordance with PR S 40011, 40012 and SPG 0711.9</p>	<p>Britney Steinhart Tester In Charge Observed Fred perform Like for Like replacement of 123 A and B points. Works properly performed in accordance with the relevant like-for-like change form. Recommend increase of Fred's proficiency levels for the three competencies listed to the left.</p>	
16 June 2017	<p>Task: Like for Like replacement of 123B Points Cronulla</p> <p>Equipment: Electric Clawlock Points (M84 machine)</p> <p>Competencies: Disconnect Operational Signalling Infrastructure Replace, Inspect, Test & Certify Signalling Apparatus where treated as Like for Like Renewal Change over of Wires & Cables in accordance with PR S 40011, PR S 40012 and SPG 0711.9</p>	<p>Britney Steinhart Tester In Charge Observed Fred perform Like for Like replacement of 123 A and B points. Works properly performed in accordance with the relevant like-for-like change form. Recommend increase of Fred's proficiency levels for the three competencies listed to the left.</p>	

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