Sydney Trains

Engineering System Integrity Engineering Manual Signalling and Control Systems



# MN S 41412 (Appendix)

# **Survey of Engineering Competencies**

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Approved	Professional Head
by:	Signalling and Control Systems
	Engineering System Integrity

**Publications Manager** System Integrity

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#### **Document control**

Version	Date	Author/Prin. Eng.	Summary of change
1.0	28 May 2018	Mark Albrecht	New Sydney Trains format updated from RailCorp TMG SEC v1.1
1.1	26 September 2022		Scheduled review

# **Table of Contents**

1	Purpose	4
2	Instructions	4
3	Personal Details	5
Qualifica	ations and Experience	5
Formal C	Qualifications – Australian Qualifications Framework (AQF)	6
Rail Safe	ety Training	6
Rail spee	cific knowledge and/or Experience	6
Other Re	elevant Qualifications	6
Technica	al Competencies	7
Signallir	ng Construction Work	7
	Definition of Levels of Competency	7
	Interpret Installation Requirements from Design	7
	Working Safely in Locations and Equipment Rooms	8
	Perform Installation (Circuits)	8
	Signalling Safe Working	9
	Trackside Installation General	9
	Trackside Installation and Termination of Signals	9
	Trackside Installation and Termination of Train Stops1	0
	Trackside Installation and Termination of Points1	0
	Trackside Installation and Termination of Track Circuits1	0
	Trackside Installation and Termination of Earthing & Surge Protection	11
	Installation and Termination of Rack Assembly and Wiring	11
	Installation and Termination of Control Panels & Telemetry	11
	Installation and Termination of Power Supplies1	2
	Installation and Termination of ATP (ETCS)1	2
	Perform Installation Testing1	2
	Perform Commissioning Tests1	2
	Perform Decommissioning Tasks1	3
	Monitoring & Support the Installation Process1	3
Licence	s and Memberships 1	3
Professi	onal Memberships1	3
	Sydney Trains or other Issued Licence or Authorisation1	4
	AIPM Certificates1	4
	IRSE Licence/s1	4
Addition	al Information	4
Submit	Completed Self-assessment Form1	5

#### 1 Purpose

#### IMPORTANT

The self-assessment survey captures a candidate's own assessment of their qualifications, experience and competency.

This information will be formally reviewed, assessed and amended by a suitability qualified Assessor.

A Certificate of Competency will be issued to reflect the agreed competencies.

The objectives of this self-assessment survey are to:

- Provide a method of pre-registration of Signalling resources to work on Sydney Trains infrastructure.
- Provide data for the training needs analysis elements
- Provide evidence of capacity and capability for Sydney Trains.

#### Notes:

- The information requested is aligned with the evidence requirements for the signalling discipline, to become an accredited Signalling Licenced/Authorised person to work on Sydney Trains infrastructure and be issued with a Certificate of Competency.
- The back-up for the information requested in the survey should be in the form of a Log Book that can be assessed when applying for a position with Sydney Trains.
- Your immediate Supervisor's contact detail (at your Parent Organisation/previous place of employment) is required to enable confirmation of proficiency and currency of competency.

#### 2 Instructions

This questionnaire is an interactive, electronic form.

#### a. Save the Survey Form

Save the form to an appropriate location.

Please do not change the filename, except to add your name (using capitals, with no spaces), e.g. John Smith saves it to his personal folder as ' Signal Electrical Installer Skills Survey Form\_JohnSmith.docx'.

#### b. Complete the self-assessment survey

There are four (4) sections to be completed in this survey. Please follow any additional instructions provided at the beginning of the individual sections.

To check a check-box, double-click on the check-box to open the dialogue box. Change the Default Value to 'checked'.

#### c. Return the completed form to Sydney Trains

Email the completed self-assessment survey form to Sydney Trains at: signalling&controlsystemsintegrity@transport.nsw.gov.au.

#### d. Prepare relevant evidence of training and experience for interview

Identify and/or collate the back-up for the information requested in the survey so that it can be reviewed during the interview when applying for a position with Sydney Trains (e.g. identify pertinent entries in your logbook and collate appropriate evidence).

# **3** Personal Details

Name:	
Contact No.:	
E-mail:	

#### Parent/Other Organisation:

Aurecon	Laing O'Rourke	
O'Donnell Griffin	ARTC	
Siemens	ODG	
Downer	CRN	
John Holland	UGL	
Ansaldo	Other	

Supervisor: (only for Parent Organisation)

Name:

**Contact Details:** 

# **Qualifications and Experience**

Please use the tick boxes below to record all relevant qualifications and experience.

**Note** that evidence of qualifications (e.g., copies of certificates, transcripts, cards, or statements of attainment) should be brought to a recruitment/assessment interview and may be requested at a later date for formal assessment.

Where additional information is requested, please state:

- currency (current/expired)
- relevant railway authority/company
- state/country.

# Formal Qualifications – Australian Qualifications Framework (AQF)

Cert III Qualifications (please specify)		Graduate Certificate – Railway Signalling (please specify)					
Bachelor's Degree (or equivalent) (please specify)		Graduate Diploma – Railway Signalling (please specify)					
Cert IV Qualifications (please specify)		Post-graduate Diploma / Certificate – Railway Signalling ( <i>please specify</i> )					
Other (example, attained outside Australia)		Masters – Railway Signalling (please specify)					
Doctoral Degree – Railway, Communications, Electrical, ICT related ( <i>please specify</i> )							

# **Rail Safety Training**

RISI (specify expiry date)	WHS General Construction Induction Training Card (GIT Card)
Introduction to Sydney Trains SMS	Statement of Competency (please specify)
RIW Card	

# Rail specific knowledge and/or Experience

Knowledge of NSW Rail Signalling Construction Standards/Guides/Codes
Knowledge of Relevant Aust./Int. Standards/Guides/Codes
Knowledge of Sydney Trains Signal Principles I
Knowledge of Sydney Trains Signal Principles II
Knowledge of Sydney Trains Signalling Safeworking Procedures (EI40)
Knowledge of Sydney Trains Signal Circuit Inspection & Testing (ST46)
Knowledge of Sydney Trains Access to and working safely in a live Signal Location (EI06)
Knowledge of Sydney Trains Control Systems (ATRICS)
Other (Please specify):

# **Other Relevant Qualifications**

# **Technical Competencies**

# Signalling Construction Work

This section specifically refers to Signalling Construction work. For candidates from other areas please complete to give an indication of experience.

For each of the following competency areas/skills:

- Indicate if you have had Sydney Trains (ST) experience
- rate yourself on a scale from 0 3 (the following table provides the guidelines on the scale for rating of proficiency in a specific competency):

#### **Definition of Levels of Competency**

Proficiency	Description					
Level 0	Novice					
Level 1	Supervised Practitioner					
Level 2	Practitioner					
Level 3	Expert					

#### Interpret Installation Requirements from Design

Profi	Proficiency				Competency
ST	0	1	2	3	
					Signalling and/or Track Plans
					Track Insulation Plans
					Circuit Books and Wiring Schedules
					Identify & Interpret Signalling conventions, symbols, terminology, etc.
					Signalling Construction Drawings and DSSs
					Signal Sighting Forms and Checklists
					Installation Manuals
					Installation Standards & Method Statements
					Identify Required Tools, Plant & Test Equipment (approved, calibrated, etc.)
					Identify Required Materials, Replacement Equipment & Consumables

# Working Safely in Locations and Equipment Rooms

Prof	Proficiency				Competency
ST	0	1	2	3	
					Safety for Signalling Personnel (e.g. Touch Potentials)
					Access to Live Locs and Equipment Rooms
					Precautions to prevent accidental damage/interference to live signalling system
					Actions to take to identify and control hazards to live signalling system
					Working in New Locs and Equipment Rooms
					Working in Live Locs and Equipment Rooms
					Stagework wiring in live Locs and Equipment Rooms
					Changeover wiring in live Locs and Equipment Rooms
					Personnel & Competence
					Safety Equipment & Clothing

# **Perform Installation (Circuits)**

Profic	iency				Competency
ST	0	1	2	3	
					Relay based Circuits
					SSI equipment and Circuits
					Microlok equipment and Circuits
					WESTRACE equipment and Circuits
					ATP equipment and Circuits
					Signalling Power equipment and Circuits
					Signalling and Power Cabling, access and termination
					Specialised Cables (i.e., Fibreoptic, shielded), access and termination
					Telecommunications equipment, modems & radios
					Using installation tools, labelling, wiring separation/segregation
					Vital and Non-vital equipment installation

## Signalling Safe Working

Profic	iency				Competency
ST	0	1	2	3	
					Attend derailments/Irregularities, assess situation, make safe
					Test & Inspect operational signalling infrastructure
					Certify operational signalling infrastructure following maintenance or corrective action
					Rerailing: electrified area
					Rerailing: non - electrified area
					Release track locking
					Investigate and Repair Signalling Failures
					Disconnect operational signalling infrastructure
					Perform temporary bridging as per maintenance procedures

# **Trackside Installation General**

Profic	iency				Competency
ST	0	1	2	3	
					Signalling Power System
					Compressed Air System
					Hydraulic System
					Cable Route List Type*
					Detailed Site Survey

### Trackside Installation and Termination of Signals

Profic	iency				Competency
ST	0	1	2	3	
					Signal Sighting
					Signal Profiles
					LED Signals
					Lamp Signals
					Signal Route Indicators Type*
					Set up and Installation integrity checks Signals

# Trackside Installation and Termination of Train Stops

Profic	iency				Competency
ST	0	1	2	3	
					JA Train Stops
					JAH Train Stops
					Set up and Installation integrity checks Train Stops
					Other List*

## Trackside Installation and Termination of Points

Profic	iency				Competency
ST	0	1	2	3	
					84M Point Machines
					M3A Point Machines
					Electro-Pneumatic Points
					Other List*
					Clawlocks
					Spherolock
					Set up and Installation integrity checks Points

#### **Trackside Installation and Termination of Track Circuits**

Profic	iency				Competency
ST	0	1	2	3	
					Insulated Joints, Clearance Points
					CSEE Track Circuit
					HVI (Jeumont) Track Circuit
					Other List*
					Track Insulation & Bonding
					Tuning Units
					Impedance bonds
					Set up and Installation integrity checks Track Circuits

## **Trackside Installation and Termination of Earthing & Surge Protection**

Profic	iency				Competency
ST	0	1	2	3	
					Earthing & Surge Protection Equipment
					Spark Gap Arrestors
					Routing of Earthing Conductors
					Different types of Earthing arrangements (MEN/Floating)
					Set up and Installation integrity checks Earthing & Surge Protection

#### Installation and Termination of Rack Assembly and Wiring

Profic	iency				Competency
ST	0	1	2	3	
					Layouts of Equipment Racks for Signalling Equipment Rooms and Locs
					Equipment including terminals, Fuses, Relays, SSI, Microlok, TC Equipment & Power Supplies
					Wiring & Termination onto equipment including terminals, Fuses, Relays, SSI, Microlok, TC Equipment & Power Supplies
					Separation of clean & dirty wiring for CBI installations
					Set up and Installation integrity checks for wiring & Equipment in Signalling Equipment Rooms & Locs
					Assist Installation/Changeover during Commissioning or Possession

# Installation and Termination of Control Panels & Telemetry

Profic	iency				Competency
ST	0	1	2	3	
					Control Panels List Type*
					Control Systems ATRICS
					Control Systems List Type*
					Telemetry Systems List Type*

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## Installation and Termination of Power Supplies

Proficiency					Competency
ST	0	1	2	3	
					Signalling Power Supplies
					Set up and Installation integrity checks for Signalling Power Supplies

### Installation and Termination of ATP (ETCS)

Profic	iency				Competency
ST	0	1	2	3	
					LEU/Balise Equipment
					Set up and Installation integrity checks for LEU/Balise Equipment

## **Perform Installation Testing**

Profic	iency				Competency
ST	0	1	2	3	
					Perform Relay/Equipment/Wire Analysis
					Perform Wire/Null Count
					Perform Bell Continuity Testing
					Perform Strap & Function Testing
					Perform Through Testing
					Perform Insulation Testing
					Perform Power Supply leakage Testing
					Perform Correlation Testing
					Perform Wiring Changeover Testing
					Understand how to markup testing documentation & certificates

### **Perform Commissioning Tests**

Proficiency					Competency	
ST 0 1 2 3		3				
					Signal Aspect & Warning Lights	
					Track Circuit Correspondence	
					Test & Certify Equip.	
					Point Correspondence	
					Set up & Adjust Equip.	

## Perform Decommissioning Tasks

Proficiency					Competency	
ST 0 1 2 3		3				
					Signal Aspect & Warning Lights	
					Track Circuit Correspondence	
					Test & Certify Equip.	
					Point Correspondence	
					Set up & Adjust Equip.	

#### **Monitoring & Support the Installation Process**

Proficiency					Competency	
ST 0 1 2 3		3				
					Monitor & Provide feedback on quality of installation, documentation & standards (e.g. method statements, installation drawings, IWP, etc.)	
					Ensure the Testing & Commissioning documentation is completed (ITP, CWP, etc.)	
					Understand the limits of competence & authority	

# **Licences and Memberships**

Please check any and all relevant licences currently held. If equivalent or other relevant licences are held, please provide details in the space provided at the bottom.

# **Professional Memberships**

Please indicate the type/level of membership, where applicable.

IRSE Non-Corporate Member	AIPM Member
IRSE Corporate Member – Associate	CPEng
IRSE Corporate Member – Member	NPER
IRSE Corporate Member - Fellow	Other (please specify)

Sydney Trains Circuit Tester

### Sydney Trains or other Issued Licence or Authorisation

Note: That evidence of qualifications should be brought to a recruitment interview.						
	Sydney Trains Electrical Mechanic 3.2		Sydney Trains Signal Electrician 4.3			
	Sydney Trains Electrical Mechanic 4.1		Sydney Trains Signal Engineer Field			

Sydney Trains Authorised Person		Sydney
Other <sup>(please specify)</sup> Note: Please record IRSE licences on t	he following p	age.

#### **AIPM Certificates**

CPPM Project Manager	CPPD Project Director
QPP Project Engineer (in Railway context)	Other (please specify)

#### **IRSE Licence/s**

Please specify and IRSE licences held:

Title	Version	Start Date	Expiry Date

# **Additional Information**

Please provide any additional information you consider relevant.

# Submit Completed Self-assessment Form

Date of self-assessment:

#### Check:

Have you saved the file with the correct filename, i.e. 'Signal Electrical Installer Skills Survey Form\_JohnSmith.docx'?

Submit completed form to: mailto:signalling&controlsystemsintegrity@transport.nsw.gov.au