Engineering Manual
Signalling and Control Systems

MN S 41412 Appendix

Survey of Engineering Competencies

Version 1.0

Date in Force: 28 May 2018

Manual

Transport Sydney Trains

NSW GOVERNMENT

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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

Summary of changes from previous version

Summary of change	Section
NOTE – If the final document is small enough for the 'Contents' and 'Document control' to fit on one page remove the page break between the existing pages 2 and 3. HOWEVER if the 'Document control' page carries over to a second page separate pages must be used for 'Contents' and 'Document control'	
If there are no changes or they are so minor that they will fit in the above table delete this table and its heading.	

Table of Contents

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 suitably 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. Self Assessment Survey

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 (*please specify*)
☐	Other (example, attained outside Australia)	☐	Masters – Railway Signalling (*please specify*)
☐	Doctoral Degree – Railway, Communications, Electrical, ICT related (*please specify*)		

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

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

Proficiency					Competency
ST	0	1	2	3	
☐	☐	☐	☐	☐	Safety for Signalling Personnel (eg 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)

Proficiency					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 (ie Fibreoptic, shielded), access and termination
☐	☐	☐	☐	☐	Telecommunications equipment, modems & radios
☐	☐	☐	☐	☐	Using installation tools, labeling, wiring separation/segregation
☐	☐	☐	☐	☐	Vital and Non-vital equipment installation

Signalling Safe Working

Proficiency					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

Proficiency					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

Proficiency					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

Proficiency					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

Proficiency					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

Proficiency					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

Proficiency					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

Proficiency					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

Proficiency					Competency
ST	0	1	2	3	
☐	☐	☐	☐	☐	Control Panels List Type*.....
☐	☐	☐	☐	☐	Control Systems ATRICS
☐	☐	☐	☐	☐	Control Systems List Type*.....
☐	☐	☐	☐	☐	Telemetry Systems List Type*.....

Installation and Termination of Power Supplies

Proficiency					Competency
ST	0	1	2	3	
☐	☐	☐	☐	☐	Signalling Power Supplies

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

Installation and Termination of ATP (ETCS)

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

Perform Installation Testing

Proficiency					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 mark up testing documentation & certificates

Perform Commissioning Tests

Proficiency					Competency
ST	0	1	2	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	
☐	☐	☐	☐	☐	Understands the Requirements for decommissioning equipment
☐	☐	☐	☐	☐	Performs decommissioning of Signalling Equipment

Monitoring & Support the Installation Process

Proficiency					Competency
ST	0	1	2	3	
☐	☐	☐	☐	☐	Monitor & Provide feedback on quality of installation, documentation & standards (eg 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 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 Trains Circuit Tester
☐	Other *(please specify) Note: Please record IRSE licences on the following page.*		

AIPM Certificates

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

IRSE Licence/s

Please specify any 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: signalling&controlsystemsintegrity@transport.nsw.gov.au