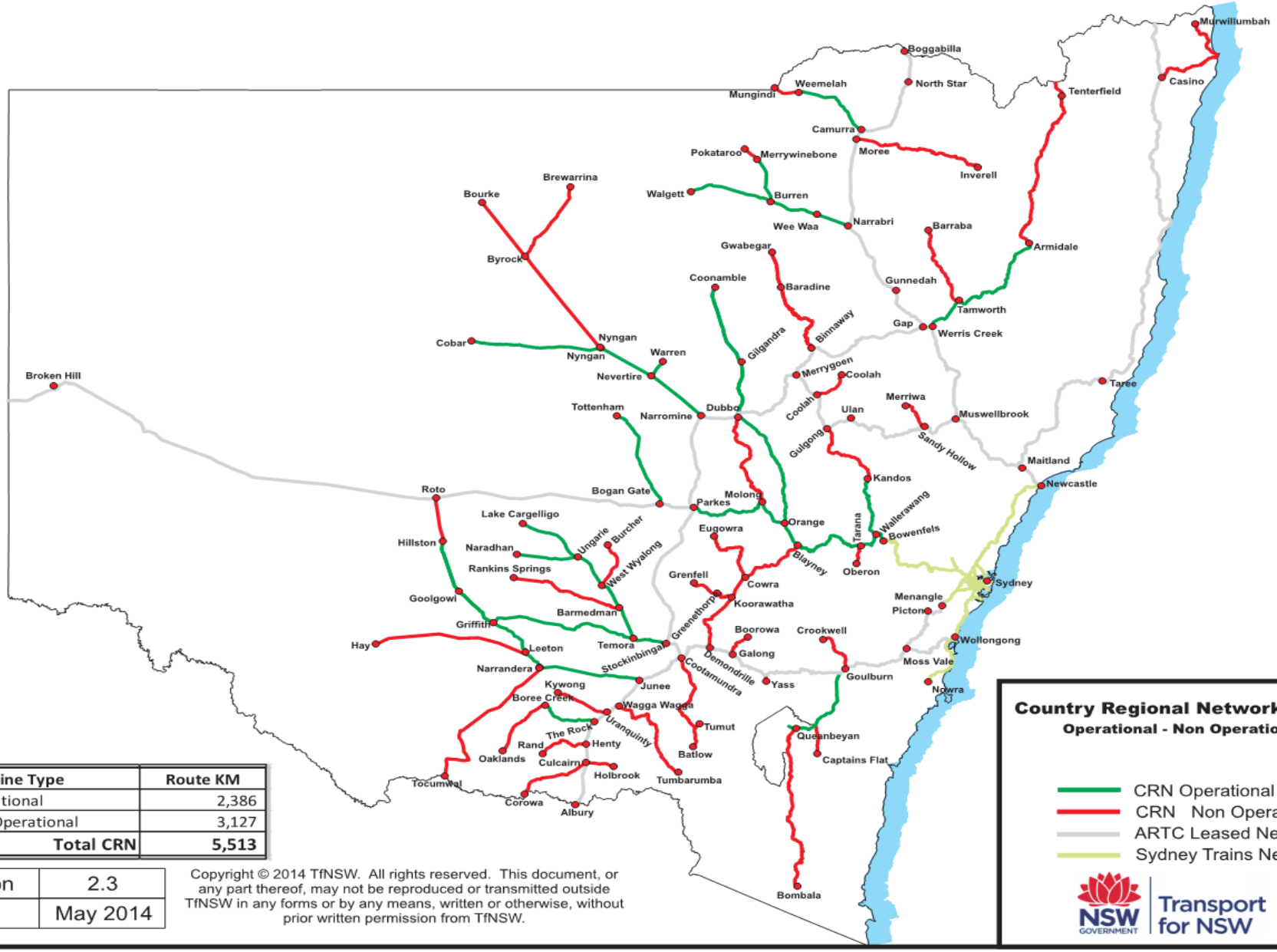
The Challenges in the Country Regional Network

Stewart Rendell, Principal Signal Engineer

23rd April 2015

John Holland

COUNTRY REGIONAL NETWORK



Country Regional Network (CRN)
Operational - Non Operational

- CRN Operational
- CRN Non Operational
- ARTC Leased Network
- Sydney Trains Network

NSW GOVERNMENT Transport for NSW

Line Type	Route KM
CRN Operational	2,386
CRN Non Operational	3,127
Total CRN	**5,513**

Version	2.3
Date	May 2014

Engineering

- 3rd Party and CRC Priority Works
  - Enhancements to attract growth and support Communities
    - Feasibility studies to re-open non-operational corridors
    - Main line grain or containerised loading sites
    - Community and Industry events

Operations

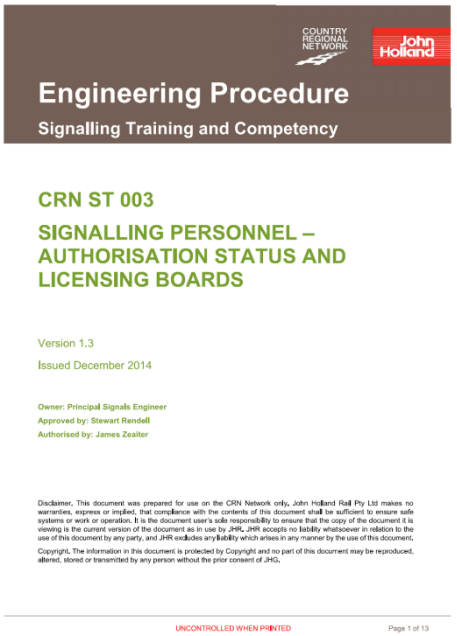
- Management of ‘above rail’ operations
  - Our partnership with 4Tel
    - Network Operations at Mayfield for the entire CRN
    - Completely duplicated control systems at our disaster recovery centre
    - Development and Implementation of TMaCS (Train Order Working)
  - Passenger Services – NSW Trains
    - XPT to Dubbo daily, Indian Pacific twice weekly and Bathurst Bullet
  - Freight Services
    - Pacific National, Southern Shorthaul Railways
      - Regular containerised traffic – yard to port services
      - Seasonal crops such as wheat, soy, cotton, maize and minerals

Diversity

- Operational Corridors
  - Maintained in line with Standards
    - Geographically vast regions to cover
- Non-Operational Corridors
  - Caretaker inspections to ensure safety of the infrastructure
    - Leasing of Station buildings and precincts
    - Heritage considerations
    - Grazing access in corridors
- Stewardship of ARTC overbridges
  - Bridge inspections and Renewal programs
    - Oversize / Overmass vehicle management
    - Liaison with RMS and CRC to ensure compliance

Signalling Engineering

- Licensing and Authorisations – Signalling Rail Safety Workers
  - Detailed in our Standards and Procedures
    - Written examinations and interviews
    - License to Practise
    - Statement of Competency – SoC
    - Reaccreditation
    - Published lists of CRN SoC holders in each grade / category of SoC



COUNTRY REGIONAL NETWORK | John Holland

Engineering Procedure

Signalling Training and Competency

CRN ST 003

SIGNALLING PERSONNEL – AUTHORISATION STATUS AND LICENSING BOARDS

Version 1.3

Issued December 2014

Owner: Principal Signals Engineer
Approved by: Stewart Rendell
Authorised by: James Zealter

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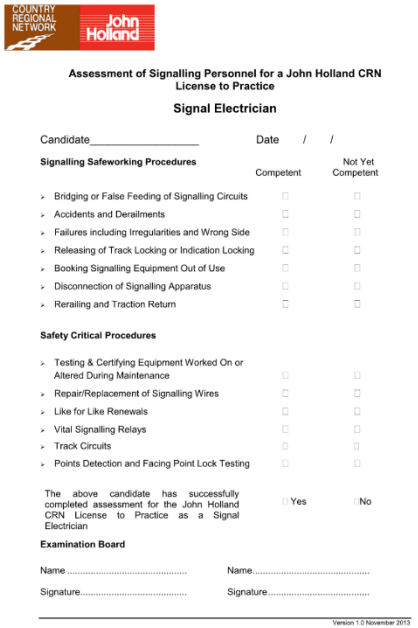
UNCONTROLLED WHEN PRINTED Page 1 of 13



COUNTRY REGIONAL NETWORK | John Holland

Assessment of Signalling Personnel for a John Holland CRN License to Practice

Signal Electrician

Candidate_____ Date / /

Signalling Safeworking Procedures	Competent	Not Yet Competent
Bridging or False Feeding of Signalling Circuits	☐	☐
Accidents and Derailments	☐	☐
Failures including Irregularities and Wrong Side	☐	☐
Releasing of Track Locking or Indication Locking	☐	☐
Booking Signalling Equipment Out of Use	☐	☐
Disconnection of Signalling Apparatus	☐	☐
Rerailing and Traction Return	☐	☐

Safety Critical Procedures		
Testing & Certifying Equipment Worked On or Altered During Maintenance	☐	☐
Repair/Replacement of Signalling Wires	☐	☐
Like for Like Renewals	☐	☐
Vital Signalling Relays	☐	☐
Track Circuits	☐	☐
Points Detection and Facing Point Lock Testing	☐	☐

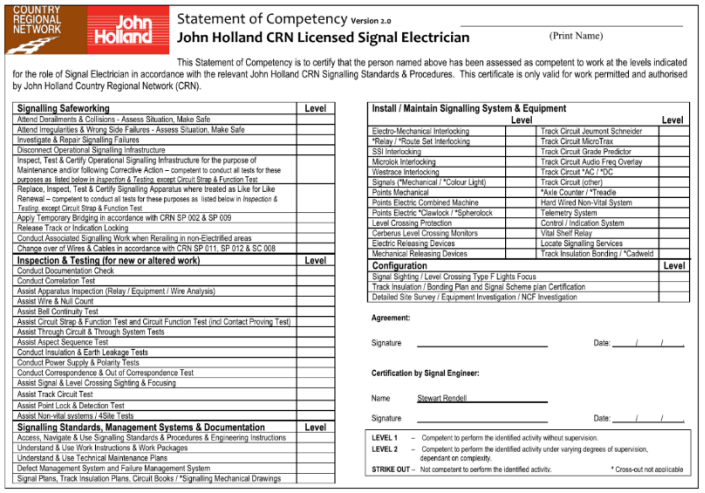
The above candidate has successfully completed assessment for the John Holland CRN License to Practice as a Signal Electrician ☐ Yes ☐ No

Examination Board

Name ..... Name.....

Signature..... Signature.....

Version 1.0 November 2013



COUNTRY REGIONAL NETWORK | John Holland

Statement of Competency Version 2.0

John Holland CRN Licensed Signal Electrician (Print Name)

This Statement of Competency is to certify that the person named above has been assessed as competent to work at the levels indicated for the role of Signal Electrician in accordance with the relevant John Holland CRN Signalling Standards & Procedures. This certificate is only valid for work permitted and authorised by John Holland Country Regional Network (CRN).

Signalling Safeworking	Level
Attend Derailments & Collisions - Assess Situation, Make Safe	
Attend Irregularities & Wrong Side Failures - Assess Situation, Make Safe	
Investigate & Repair Signalling Failures	
Disconnect Operational Signalling Infrastructure	
Inspect, Test & Certify Operational Signalling Infrastructure for the purpose of Maintenance and/or following Corrective Action – competent to conduct all tests for these purposes as listed below in Inspection & Testing, except Circuit Strap & Function Test	
Replace, Inspect, Test & Certify Signalling Apparatus where treated as Like for Like Renewal – competent to conduct all tests for these purposes as listed below in Inspection & Testing, except Circuit Strap & Function Test	
Apply Temporary Bridging in accordance with CRN SP 002 & SP 009	
Release Track or Indication Locking	
Conduct Associated Signalling Work when Rerailing in non-Electrified areas	
Change over of Wires & Cables in accordance with CRN SP 011, SP 012 & SC 008	
Inspection & Testing (for new or altered work)	**Level**
Conduct Documentation Check	
Conduct Correlation Test	
Assist Apparatus Inspection (Relay / Equipment / Wire Analysis)	
Assist Wire & Null Count	
Assist Bell Continuity Test	
Assist Circuit Strap & Function Test and Circuit Function Test (incl Contact Proving Test)	
Assist Through Circuit & Through System Tests	
Assist Aspect Sequence Test	
Conduct Insulation & Earth Leakage Tests	
Conduct Power Supply & Polarity Tests	
Conduct Correspondence & Out of Correspondence Test	
Assist Signal & Level Crossing Sighting & Focusing	
Assist Track Circuit Test	
Assist Point Lock & Detection Test	
Assist Non-vital systems / iSite Tests	
Signalling Standards, Management Systems & Documentation	**Level**
Access, Navigate & Use Signalling Standards & Procedures & Engineering Instructions	
Understand & Use Work Instructions & Work Packages	
Understand & Use Technical Maintenance Plans	
Defect Management System and Failure Management System	
Signal Plans, Track Insulation Plans, Circuit Books / *Signalling Mechanical Drawings	

Install / Maintain Signalling System & Equipment Level			Level
Electro-Mechanical Interlocking		Track Circuit Jeumont Schneider	
*Relay / *Route Set Interlocking		Track Circuit MicroTrax	
ESI Interlocking		Track Circuit Grade Predictor	
Microlok Interlocking		Track Circuit Audio Freq Overlay	
Westrace Interlocking		Track Circuit *AC / *DC	
Signals (*Mechanical / *Colour Light)		Track Circuit (other)	
Points Mechanical		*Axle Counter / *Treadle	
Points Electric Combined Machine		Hard Wired Non-Vital System	
Points Electric *Clawlock / *Spherolock		Telemetry System	
Level Crossing Protection		Control / Indication System	
Cerberus Level Crossing Monitors		Vital Shelf Relay	
Electric Releasing Devices		Locate Signalling Services	
Mechanical Releasing Devices		Track Insulation Bonding / *Cadweld	

Configuration	Level
Signal Sighting / Level Crossing Type F Lights Focus	
Track Insulation / Bonding Plan and Signal Scheme plan Certification	
Detailed Site Survey / Equipment Investigation / NCF Investigation	

Agreement:

Signature _____ Date: ___/___/___

Certification by Signal Engineer:

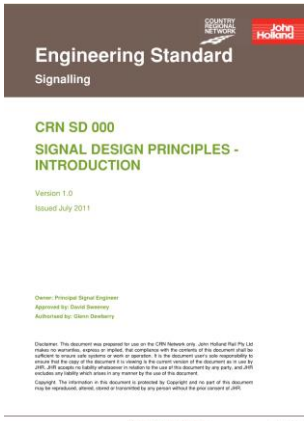
Name Stewart Rendell

Signature _____ Date: ___/___/___

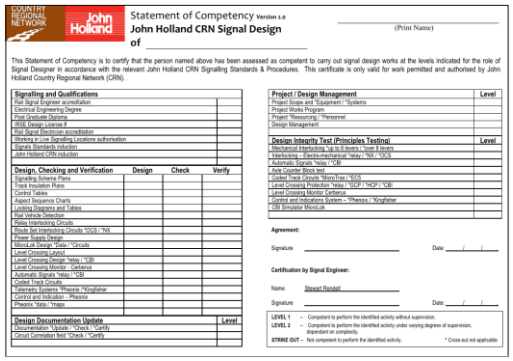
LEVEL 1 – Competent to perform the identified activity without supervision.
LEVEL 2 – Competent to perform the identified activity under varying degrees of supervision, dependant on complexity.
STRIKE OUT – Not competent to perform the identified activity. * Cross-out not applicable

Signalling Engineering

- Signal Design
  - All design works undertaken by private companies
    - Follow published design standards
    - Individuals are granted design authority via SoC – not companies
    - Companies follow their own internal process for design, check and verification
    - Designs are “Authorised for Installation” and typically not checked in detail once issued from the design house.


Engineering Standard
Signalling
CRN SD 000
SIGNAL DESIGN PRINCIPLES - INTRODUCTION

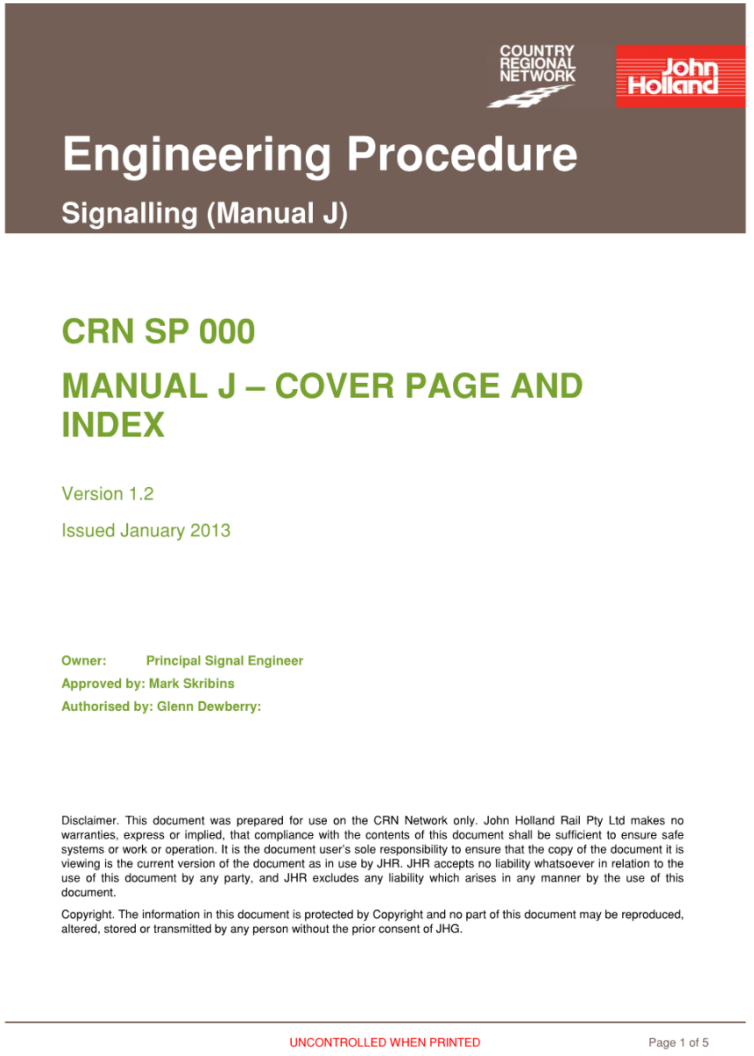

CIRCUIT BOOK No. 219
SIGNALLING PLAN
ORANGE(EXCL) - WELLINGTON(EXCL)
CIRCUIT BOOK No. 087
TRACK INSULATION
JHCRN CIRCUIT BOOK: No. 196
ARTC CIRCUIT BOOK: No. 016
DUBBO SP EXTRACT
UTS Rail PTY LTD
TROY JUNC (EXCL)- COONAMBLE
RELOCATION OF LEVEL CROSSING EQUIPMENT AT BOOTHENBA RD
~~467.213 KM~~ 467.227 KM
CONVERSION OF MLT, BLT TRACK CIRCUITS TO SOLAR
LAST PAGE NUMBER 65 .


Statement of Competency Version 1.0
John Holland CRN Signal Design
(Print Name)
of


ORAH RAIL
SIGNALLING PLAN
SPRING HILL NEW
SPRING HILL RESIGNALLING
SPRING HILL
SIGNALLING PLAN NEW

ASA and the CRN

- Signal Standards
  - Form part of our accreditation granted to John Holland Rail by the Transport Regulator to be an operator / maintainer of a rail undertaking
  - Emerged from the RIC / RAC standards of the day when John Holland Rail was preparing to take over the management of the CRN
  - Are updated internally so they are a ‘best fit’ for the evolving CRN business and the different equipment types and systems that are in use on the CRN.
  - Are not directly influenced by Sydney Trains or ARTC standards



COUNTRY REGIONAL NETWORK

John Holland

Engineering Procedure

Signalling (Manual J)

CRN SP 000

MANUAL J – COVER PAGE AND INDEX

Version 1.2

Issued January 2013

Owner: Principal Signal Engineer

Approved by: Mark Skribins

Authorised by: Glenn Dewberry:

Thank you

- Stewart Rendell
  - Principal Signal Engineer,
    John Holland Rail – CRN
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    Parramatta, NSW, 2150
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