

# Network Information Book

## Main South C

### Albury (inc) to Somerton (inc) & Benalla (inc) to Oaklands (inc)

OGW-30-30

#### Applicability

Interstate Network

#### Publication Requirement

Internal / External

#### Primary Source

Local Appendices South Volume 3

Route Access Standard – Defined Interstate Network Section Pages D53 & Intrastate Network I2

#### Document Status

Version #	Date Reviewed	Prepared by	Reviewed by	Endorsed	Approved
3.7	15 Mar 2024	Configuration Management Administrator	Corridor Assets & Operational Representatives	Configuration Manager	Head of Operations Standards

#### Amendment Record

Amendment Version #	Date Reviewed	Clause	Description of Amendment
1.0	10 Oct 16		Initial issue
2.0	11 Dec 17	Various	General Information sections including Rules, Train Control Centres, Level Crossings and diagram legend updated. Addition

© Australian Rail Track Corporation Limited (ARTC)

#### Disclaimer

This document has been prepared by ARTC for internal use and may not be relied on by any other party without ARTC's prior written consent. Use of this document shall be subject to the terms of the relevant contract with ARTC.

ARTC and its employees shall have no liability to unauthorised users of the information for any loss, damage, cost or expense incurred or arising by reason of an unauthorised user using or relying upon the information in this document, whether caused by error, negligence, omission or misrepresentation in this document.

**This document is uncontrolled when printed.**

Authorised users of this document should visit ARTC's intranet or extranet ([www.artc.com.au](http://www.artc.com.au)) to access the latest version of this document.

**CONFIDENTIAL**

Page 1 of 105

			of SCT siding at Barnawartha in Section 2.3. Albury text and diagram 2 updated. Benalla – Oaklands line locations relocated to end of book. Seymour and Somerton locations updated.
2.1	29 May 19	1.5, 1.7, 2.9 & 3.0	Level crossing details updated in section 1.7. Seymour intermediate siding information added to section 2.9. Benalla Oaklands line information added to new section 3.0.
3.0	9 Jul 20	1.4, 1.5.1, 1.7, 1.12, 2.7 2.9, 2.11, 2.13 & 3.0	Adjacent Train Control Centres & Interlockings & Sidings sections 1.4 & 1.5.1 updated. Level crossing details updated in section 1.7 Seymour wayside equipment updated in section 1.12 & 2.9. Benalla section 2.7 and Glenrowan – Benalla diagram updated with new private siding details. Kilmore East emergency grade crossing release details added to section 2.11. Donnybrook section 2.13 updated. Benalla Oaklands line train staff details removed from section 3.0. Level crossing & signal updates to various diagrams.
3.1	3 Aug 21	1.4, 1.7, 1.12, 1.15, 2.9, 3.2 & 3.6	Adjacent train control, level crossings table and wayside monitoring section updated. Seymour location and Avenel – Seymour diagram updated. Yarrawonga & Oaklands standing room details updated. Albury, Barnawartha, Springhurst, Bowser-Wangaratta, Alumatta – Glenrowan, Glenrowan-Benalla, Balmattum, Locksley-Avenel, Tallarook, Kilmore East, Donnybrook & Craigieburn diagrams updated. Drawing legend updated. Usage note added to all diagrams.
3.2	15 Mar 22	1.1, 1.10, 2.1, 2.3, 2.4, 2.7, 2.8, 2.9, 2.10, 2.11, 3.2, 3.6	Board Extent updated. Passenger Car Route Restrictions section added at 1.10. Albury location & diagram updated. Barnawartha, Chiltern, Benalla, Tallarook, Kilmore East, Yarrawonga & Oaklands locations updated. Longwood location added & Violet Town updated with crossovers. Various diagrams updated.
3.3	3 May 22	2.10, 2.15	Seymour location updated. Somerton diagram updated.
3.4	30 Sep 22	1.7, 2.1, 2.5, 2.8, 3.6	Level Crossing table & Albury location updated. Springhurst, Balmattum & Oaklands diagrams updated.
3.5	18 Sep 23	1.1, 1.7, 2.1, 2.3, 2.6, 2.10	Board Extent and Level Crossings table updated. Albury, Barnawartha, Wangaratta and Avenel-Seymour diagrams updated.
3.6	5 Feb 2024	2.1, 2.10, 2.11	Seymour text updated. Albury 1, Seymour – Tallarook and Tallarook diagrams updated
3.7	15 Mar 2024	2.1, 2.2, 2.4, 2.6, 2.10	Albury text and diagrams updated, Wodonga diagram updated. Chiltern text updated. Wangaratta text and diagram updated. Avenel text added.

## Table of Contents

<b>Table of Contents .....</b>	<b>3</b>
<b>1 General Information .....</b>	<b>5</b>
1.1 Board Extent .....	5
1.2 Safe Working System.....	5
1.3 Applicable Rules .....	5
1.4 Adjacent Train Control Boards / Centres & Signallers .....	5
1.4.1 Stations.....	5
1.5 Section Operating Equipment .....	6
1.5.1 Interlockings and Sidings.....	6
1.6 Train Braking Requirements .....	7
1.7 Level Crossings.....	8
1.8 Maximum Permitted Speeds and Permanent Speed Restrictions.....	16
1.9 Maximum Train Length .....	16
1.10 Passenger Cars Route Restrictions.....	16
1.11 Structure Clearances .....	16
1.12 Communications .....	17
1.13 Wayside Monitoring Systems.....	17
1.14 Ruling Gradients .....	17
1.15 Curve and Gradient Data .....	17
1.16 Drawing Legend .....	18
<b>2 Main South Line Locations and Sections Information .....</b>	<b>19</b>
2.1 Albury (ABY) .....	19
2.2 Wodonga Passing Lane (WPS) .....	24
2.3 Barnawartha (BVW) .....	26
2.4 Chiltern (CSG).....	28
2.5 Springhurst (SPT) .....	31
2.6 Wangaratta (WAP) .....	34
2.7 Benalla (BGG).....	37
2.7.1 Overview.....	37
2.7.2 Rail Movement to Benalla Yard and Oaklands Line .....	37
2.7.3 Rail Movement from Oaklands Line Proceeding into Benalla Yard .....	38
2.7.4 Rail Movement from Benalla Yard to East or West Line.....	38
2.7.5 Rail Movement from West Line to Benalla Precast Siding.....	38

2.7.6	<i>Rail Movement Benalla Precast Siding to West Line</i> .....	39
2.7.7	<i>Dwarf Signal BNL40</i> .....	39
2.7.8	<i>Points 15</i> .....	39
2.7.9	<i>Master Keys</i> .....	39
2.8	<b>Violet Town (VSG)</b> .....	43
2.8.1	<i>Switch Locks at Violet Town Intermediate Siding</i> .....	43
2.8.2	<i>Crossovers (VTN)</i> .....	44
2.9	<b>Longwood (LWD)</b> .....	51
2.9.1	<i>Overview</i> .....	51
2.9.2	<i>Points Clips</i> .....	51
2.9.3	<i>Rail Traffic Movements</i> .....	51
2.9.4	<i>Authority To Pass CTC Home Departure Signal at Stop</i> .....	53
2.10	<b>Avenel</b> .....	55
2.11	<b>Seymour Crossing Loop (SGS)</b> .....	57
2.11.1	<i>Operating Details</i> .....	57
2.11.2	<i>Intermediate Siding</i> .....	60
2.11.3	<i>Rail Movements Exiting Standard Gauge Siding</i> .....	63
2.11.4	<i>Seymour – Failure of Grade Crossing Pilot Lever</i> .....	63
2.11.5	<i>Wayside Monitoring System</i> .....	64
2.12	<b>Tallarook Passing Lane (TSS)</b> .....	68
2.13	<b>Kilmore East Passing Lane (KET)</b> .....	73
2.13.1	<i>Kilmore East Failure of Grade Crossing</i> .....	76
2.13.2	<i>Operation of Emergency Grade Crossing Release</i> .....	76
2.14	<b>Wallan Crossing Loop (WSG)</b> .....	80
2.15	<b>Donnybrook Passing Lane (DSG)</b> .....	82
2.16	<b>Somerton Crossing Loop (SGG)</b> .....	85
2.16.1	<i>Train Movements between Somerton Loop and Tullamarine Passing Lane</i> .....	85
2.16.2	<i>Somerton Yard Procedures – Train Movements</i> .....	86
<b>3</b>	<b>Benalla – Oaklands Branch Line</b> .....	<b>90</b>
3.1	<b>St James (SAJ)</b> .....	92
3.2	<b>Yarrawonga (YRW)</b> .....	95
3.3	<b>Warragoona (WAO)</b> .....	97
3.4	<b>Sanger (SAG)</b> .....	99
3.5	<b>Wangamong (WMM)</b> .....	101
3.6	<b>Oaklands (OAV)</b> .....	103

3.6.1	AWB Loop (Private Siding)	104
-------	---------------------------	-----

## 1 General Information

### 1.1 Board Extent

Albury (inclusive) AY166 signal (644.467km) to Somerton (inclusive) SOM2 signal (21.440km) & Benalla (inclusive) BNL46 signal (195.098km) to Oaklands (inclusive).

This area is controlled by Main South C Network Controller, Network Control Centre South (NCCS).

Contact Numbers:

Phone: (02) 6924 9802

Train Transit Manager: (02) 6930 5311

Emergency: (02) 6924 9862

### 1.2 Safe Working System

Albury to Somerton – Centralised Traffic Control (CTC)

Benalla to Oaklands – Phoenix Train Order System (PTOS)

### 1.3 Applicable Rules

TA20 ARTC Code of Practice for Victorian Mainline Operations.

TA20 Addendum for Phoenix Electronic Train Order System

NSW Rules and Procedures (Albury Location Only)

### 1.4 Adjacent Train Control Boards / Centres & Signallers

Main South B (ARTC Junee)	(02) 6924 9808	
Melbourne Metro (ARTC Mile End)	(08) 8152 8002	Emergency (08) 8152 8062
Metrol (Somerton-Craigieburn Area)	(03) 9610 7204	Emergency (03) 9610 7305
Control (Craigieburn to Mangalore Area)	(03) 9619 1077	
Control (Somerton to Mangalore)	(03) 9619 1061	
Control Senior	(03) 9619 1077	
Seymour Signal Box	(03) 5793 6251	
Kilmore Signal Box	(03) 5781 1467	
Craigieburn Signal Box	(03) 9610 2168	

#### 1.4.1 Stations

Wodonga (02) 6055 8165

Wangaratta (03) 5721 3641

Benalla (03) 5761 1765

## 1.5 Section Operating Equipment

### 1.5.1 Interlockings and Sidings

Km	Interlocking, Station, Platform or Siding	Length of Passenger Platform in Metres
646.244 NSW	Albury	Passenger Platform No.1 – 457m
304.766 VIC		Back platform – 327m Back platform utilising Engine Road – 250m
302.625	Wodonga Double Track	
299.196	Wodonga	Platform – 180m (West Track Only)
271.325	Chiltern	Platform – 160m East Track Platform – 130m West Track
257.412	Springhurst	Platform – 180m East Track Platform – 166m West Track
233.840	Wangaratta	Platform – 94m East Track Platform – 160m West Track
195.270	Benalla	Platform – 85m East Track Platform – 190m West Track
194.970	Benalla Oaklands Line Junction	
171.480	Violet Town Siding	
169.500	Violet Town	Platform – 190m East Track Platform – 170m West Track
150.990	Euroa	Platform – 240m East Track Platform – 160m West Track
116.000	Avenel	Platform – 170m East Track Platform – 110m West Track
101.800	Seymour Siding	
99.807	Seymour Double Track	
99.093	Seymour Loco Siding	
99.041	Seymour Grade Crossing	
98.780	Seymour	Platform – 180m
83.122 - 90.139	Tallarook Passing Lane	
63.251 – 69.751	Kilmore East Passing Lane	
65.735	Kilmore East Grade Crossing	
47.390 – 48.970	Wallan Loop	
34.050 – 40.150	Donnybrook Passing Lane	
21.845 – 23.450	Somerton Loop	
21.590	Somerton Grade Crossing	

## 1.6 Train Braking Requirements

### Brake Holding Tests for the Rearmost Vehicles (retention tests)

The following apply:

1. The operator **shall** put into place systems for conducting brake holding tests.
2. The number of vehicles (or for articulated or permanently coupled vehicles the number of triple valve control units) required to conform to the requirements of this sub-section shall be:
  - a. Three (3) for freight trains operated in New South Wales;
  - b. Two (2) for freight trains not entering New South Wales; and
  - c. One (1) for all passenger trains where a guard is provided or three (3) for passenger trains without guards.
3. The vehicle operator shall ensure that air and hand brakes operate correctly.
4. The air brakes on the vehicles **shall** remain effectively applied for a period of time, based on train length, considered sufficient for a member of the train (locomotive) crew to reach the vehicles and secure handbrakes in the event of a breakaway enroute.
5. This time **shall** be ten (10) minutes plus three (3) minutes for each 100 metres or part thereof of train length. For example, a train 1240 metres long will require a holding (retention) time of  $13 \times 3 + 10 = 49$  minutes.
6. If any of the required number of vehicles (as specified in item (2) above) fail the above test (as specified in item (5) above), generally known as a holding or retention test, the faulty vehicle(s) **shall** be repaired or the train remmarshalled to ensure compliance with the requirements of items (3) and (4) above.
7. Brake holding tests successfully completed will remain valid for the departure within a period of 24 hours from completion of the test. After that period, the vehicles **shall** be re-tested.

### Freight Trains

On freight trains, the maximum number of inoperative or isolated brakes permitted on a train **shall** be either of the following:

1. One conventional two-bogie vehicle for every ten (10) vehicles in the train where the vehicle is isolated as a unit.
2. One bogie for every ten (10) bogies in the train where individual bogies can be isolated or the isolation of triple valve control units affects more than two (2) bogies. This applies, only on the proviso that the total un-braked mass of the train **shall not** exceed 10% of the total train mass (excluding the mass of the hauling locomotives).

Item (1) above applies where the only vehicles isolated are conventional two-bogie vehicles. In all other cases, the requirements of item (2) **shall** be followed.

For the purposes of this clause, a four-wheel (two-axle) vehicle **shall** be counted as one bogie, and locomotives under power **shall not** be counted as train vehicles.

## 1.7 Level Crossings

ALCAM ID is the number allocated from the Australian Level Crossing Assessment Model used by rail and road managers across Australia. It's a national database for assessing risk which is overseen by a National Committee and supported by the Rail Industry Safety Standards Board (RISSB).

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
1033	Old Barnawartha Road (Cochranes Rd) Wodonga	Albury – Somerton	294.873	Road	Public	Half Boom Flashing Lights
1029	Old Hume Highway Barnawartha	Albury – Somerton	280.690	Road	Public	Half Boom Flashing Lights
1026	Indigo Creek Road (Havelock St) Barnawartha	Albury – Somerton	279.498	Road	Public	Half Boom Flashing Lights
5708	Chiltern Station Pedestrian Crossing	Albury – Somerton	271.355	Pedestrian	Public	Maze
1024	Chiltern Station Pedestrian Crossing	Albury – Somerton	271.306	Pedestrian	Public	Maze
1022	Main Street (Beechworth Rd) Chiltern	Albury – Somerton	270.920	Road	Public	Half Boom Flashing Lights
1021	Racecourse Road Chiltern	Albury – Somerton	269.261	Road	Public	Half Boom Flashing Lights
1020	Bennett's Road Springhurst	Albury – Somerton	262.041	Road	Public	Half Boom Flashing Lights
1019	Rutherglen - Springhurst Road (Cannings Crossing Rd) Springhurst	Albury – Somerton	258.433	Road	Public	Half Boom Flashing Lights
3212	Standalone Footpath - Springhurst	Albury – Somerton	257.666	Pedestrian	Public	Maze
1016	McMahons Road Springhurst	Albury – Somerton	254.655	Road	Public	Half Boom Flashing Lights
1014	Boralma - Rutherglen Road (Summers Rd) Bowser	Albury – Somerton	247.305	Road	Public	Half Boom Flashing Lights
1012	Wahgunyah - Wangaratta Road / Federation Way (Three Chain Rd) Bowser	Albury – Somerton	240.456	Road	Public	Half Boom Flashing Lights - (duplicated)
1011	Bourke Road Bowser	Albury – Somerton	239.242	Road	Public	Half Boom Flashing Lights
1010	Boorhaman Road North Wangaratta	Albury – Somerton	238.492	Road	Public	Half Boom Flashing Lights
1009	Burrows Street North Wangaratta	Albury – Somerton	236.453	Road	Public	Half Boom Flashing Lights
1007	Sisely Avenue Wangaratta	Albury – Somerton	233.087	Road	Public	Half Boom Flashing Lights - (duplicated)



ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
1006	Sandford Road Wangaratta	Albury – Somerton	231.132	Road	Public	Half Boom Flashing Lights
1005	Shanley Street Wangaratta	Albury – Somerton	230.352	Road	Public	Half Boom Flashing Lights
1004	Gravel Pit Road Alumatta	Albury – Somerton	229.073	Road	Public	Half Boom Flashing Lights
1003	Delloro Road Alumatta	Albury – Somerton	227.380	Road	Public	Half Boom Flashing Lights
1002	Taminick Gap Road Glenrowan	Albury – Somerton	225.640	Road	Public	Half Boom Flashing Lights
1000	Old Hume Highway Glenrowan	Albury – Somerton	214.913	Road	Public	Half Boom Flashing Lights
999	Gould Road Winton North	Albury – Somerton	210.958	Road	Public	Half Boom Flashing Lights
997	Winton Road (Huntly Road) Benalla	Albury – Somerton	204.968	Road	Public	Stop Signs
996	Benalla - Yarrawonga Road Benalla	Albury – Somerton	200.614	Road	Public	Half Boom Flashing Lights
995	Witt Street Benalla	Albury – Somerton	196.825	Road	Public	Half Boom Flashing Lights
993	Nunn St (Midland Hwy) Benalla	Albury – Somerton	195.028	Road	Public	Half Boom Flashing Lights - (duplicated)
992	Arundel Street Benalla	Albury – Somerton	194.340	Road	Public	Half Boom Flashing Lights
991	Faithful Street Benalla	Albury – Somerton	193.320	Road	Public	Half Boom Flashing Lights
990	Cemetery Road Benalla	Albury – Somerton	191.908	Road	Public	Half Boom Flashing Lights
989	Carroll Road Baddaginnie	Albury – Somerton	186.617	Road	Public	Half Boom Flashing Lights
988	Palmerston Street (Tarnook Rd) Baddaginnie	Albury – Somerton	183.043	Road	Public	Half Boom Flashing Lights
987	Erreys Road Violet Town	Albury – Somerton	177.179	Road	Public	Half Boom Flashing Lights
986	High Street Violet Town	Albury – Somerton	171.556	Road	Public	Primary Flashing Lights
985	Murchison - Violet Town Rd (Cowslip St) Violet Town	Albury – Somerton	169.496	Road	Public	Half Boom Flashing Lights - (duplicated)
981	Mc Diarmids Road (Dookie Rd) Violet Town	Albury – Somerton	168.314	Road	Public	Half Boom Flashing Lights

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
980	Mahers Road Violet Town	Albury – Somerton	163.800	Road	Public	Half Boom Flashing Lights
979	Wilbrahams Road Euroa	Albury – Somerton	160.510	Road	Public	Half Boom Flashing Lights
977	Balmattum Siding Rd Euroa	Albury – Somerton	158.719	Road	Public	Primary Flashing Lights
976	Dudley Road (Lydiards Sawmill Crossing Rd) Euroa	Albury – Somerton	152.525	Road	Public	Half Boom Flashing Lights
974	Birkett Street Euroa	Albury – Somerton	150.286	Road	Public	Half Boom Flashing Lights
973	Euroa Tip Rd / Cowells Lane	Albury – Somerton	149.044	Road	Public	Stop Signs
972	Angle Road Euroa	Albury – Somerton	146.350	Road	Public	Half Boom Flashing Lights
971	Creightons Siding Road Creighton	Albury – Somerton	143.246	Road	Public	Primary Flashing Lights (duplicated)
969	Down Street Longwood	Albury – Somerton	136.541	Road	Public	Half Boom Flashing Lights
967	Oxenburys Road Longwood	Albury – Somerton	135.328	Road	Public	Half Boom Flashing Lights
966	Nagambie - Locksley Road Locksley	Albury – Somerton	127.376	Road	Public	Half Boom Flashing Lights
965	Williams Road Monea	Albury – Somerton	122.078	Road	Public	Half Boom Flashing Lights
964	Bank Street Avenel	Albury – Somerton	116.127	Road	Public	Half Boom Flashing Lights - (duplicated)
961	Ewings Road Avenel	Albury – Somerton	115.635	Road	Public	Half Boom Flashing Lights
960	Aerodrome Road Avenel	Albury – Somerton	114.940	Road	Public	Half Boom Flashing Lights
959	O Connors Road Mangalore	Albury – Somerton	109.657	Road	Public	Half Boom Flashing Lights
956	Gravelside Siding Access Road Seymour	Albury – Somerton	106.357	Road	Public	Stop Signs
955	High Street Seymour	Albury – Somerton	99.820	Road	Public	Half Boom Flashing Lights
5672	Private Pedestrian (Rail) Seymour	Albury – Somerton	98.835	Pedestrian	Private	No defined Path
952	Schoolhouse Lane Hilldene	Albury – Somerton	94.433	Road	Public	Half Boom Flashing Lights

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
950	Sharp & Taylors Road Tallarook	Albury – Somerton	87.397	Road	Public	Half Boom Flashing Lights - (duplicated)
949	Dockereys Road Tallarook	Albury – Somerton	85.433	Road	Public	Half Boom Flashing Lights
947	Broadford Station Pedestrian Crossing	Albury – Somerton	75.251	Pedestrian	Public	Automatic Gates
945	Dry Creek Road Kilmore East	Albury – Somerton	70.930	Road	Public	Half Boom Flashing Lights
5661	Private Road (Rail) Kilmore East	Albury – Somerton	66.032	Road	Private	
940	Wandong Station Pedestrian Crossing	Albury – Somerton	55.246	Pedestrian	Public	Automatic Gates
939	Station Avenue (Escrites Road) Heathcote Junction	Albury – Somerton	53.618	Road	Public	Half Boom Flashing Lights - (duplicated)
937	Heathcote Junction Station Pedestrian Xing	Albury – Somerton	53.403	Pedestrian	Public	Automatic Gates
936	Epping - Kilmore Road (Magpie & Stump Rd) Heathcote Junction	Albury – Somerton	50.653	Road	Public	Half Boom Flashing Lights
932	Wallan - Whittlesea Road Wallan	Albury – Somerton	47.244	Road	Public	Half Boom Flashing Lights
929	Beveridge Station Lane	Albury – Somerton	41.413	Road	Public	Primary Flashing Lights
927	Donnybrook Road Donnybrook	Albury – Somerton	33.125	Road	Public	Half Boom Flashing Lights
926	Summerhill Road Craigieburn	Albury – Somerton	29.718	Road	Public	Half Boom Flashing Lights
925	Craigieburn Station Pedestrian Crossing	Albury – Somerton	26.176	Pedestrian	Public	Automatic Gates
<b>Benalla to Oaklands Branch Line</b>						
1054	Roe Street Benalla	Benalla - Oaklands	195.938	Road	Public	Give Way Signs
1055	Saleyards Road Benalla	Benalla - Oaklands	196.532	Road	Public	Give Way Signs
1056	Racecourse Road Benalla	Benalla - Oaklands	197.138	Road	Public	Give Way Signs
1057	Old Farnley Road Benalla	Benalla - Oaklands	198.493	Road	Public	Give Way Signs
1058	Link Road Benalla	Benalla - Oaklands	200.125	Road	Public	Primary Flashing Lights
1059	Old Thoona Road	Benalla - Oaklands	202.841	Road	Public	Give Way Signs

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
Benalla						
1060	Chesney Road Goorambat	Benalla - Oaklands	205.377	Road	Public	Give Way Signs
1061	Peck Road Goorambat	Benalla - Oaklands	207.859	Road	Public	Give Way Signs
1062	Spinks Lane Goorambat	Benalla - Oaklands	209.577	Road	Public	Give Way Signs
1063	(Sharp Rd) Saunders Road Goorambat	Benalla - Oaklands	211.207	Road	Public	Give Way Signs
1065	Station Entrance Goorambat	Benalla - Oaklands	212.132	Road	Public	Stop & Give Way Signs
1066	Goorambat - Thoona Road Goorambat	Benalla - Oaklands	212.578	Road	Public	Give Way Signs
1067	Feldtman Road Goorambat	Benalla - Oaklands	214.582	Road	Public	Give Way Signs
5710	Occupation Crossing (Sec 36) Goorambat	Benalla - Oaklands	215.400	Road	Private	
1068	Nooramunga Road Goorambat	Benalla - Oaklands	216.215	Road	Public	Give Way Signs
5711	Occupation Crossing (Sec 36) Goorambat	Benalla - Oaklands	216.950	Road	Private	
1069	Flynn Road Devenish	Benalla - Oaklands	217.855	Road	Public	Stop Signs
5712	Occupation Crossing (Sec 36) Devenish	Benalla - Oaklands	218.143	Road	Private	
1070	Cooper Road Devenish	Benalla - Oaklands	219.668	Road	Public	Give Way Signs
1071	Dookie Road Devenish	Benalla - Oaklands	221.279	Road	Public	Give Way Signs
1073	Boxwood Road Devenish	Benalla - Oaklands	222.545	Road	Public	Give Way Signs
5713	Occupation Crossing Devenish	Benalla - Oaklands	223.383	Road	Private	Stop Signs
5714	Occupation Crossing (Sec 36) Devenish	Benalla - Oaklands	224.200	Road	Private	Stop Signs
1074	Lidgerwood Road St James	Benalla - Oaklands	225.074	Road	Public	Give Way Signs
5715	Occupation Crossing (Sec 36) St James	Benalla - Oaklands	225.812	Road	Private	Stop Signs
5716	Occupation Crossing (Sec 36) St James	Benalla - Oaklands	225.941	Road	Private	Stop Signs
1075	Oliver Road St James	Benalla - Oaklands	226.713	Road	Public	Give Way Signs

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
5717	Occupation Crossing (Sec 36) St James	Benalla - Oaklands	227.315	Road	Private	Stop Signs
1078	St James Road St James	Benalla - Oaklands	228.314	Road	Public	Give Way Signs
5718	Occupation Crossing (Sec 36) St James	Benalla - Oaklands	229.133	Road	Private	Stop Signs
1079	Beggs Road St James	Benalla - Oaklands	229.948	Road	Public	Give Way Signs
1080	Cooper Road St James	Benalla - Oaklands	231.533	Road	Public	Give Way Signs
5719	Occupation Crossing (Sec 36) St James	Benalla - Oaklands	233.147	Road	Private	Stop Signs
1081	Wright Road Tungamah	Benalla - Oaklands	233.929	Road	Public	Stop Signs
5720	Occupation Crossing (Sec 36) Tungamah	Benalla - Oaklands	235.084	Road	Private	Stop Signs
1082	Pelluebla Rd (Devenish Rd) Tungamah	Benalla - Oaklands	236.329	Road	Public	Give Way Signs
1083	Crossing Road Tungamah	Benalla - Oaklands	237.398	Road	Public	Give Way Signs
1085	Spry St (Peechelba Rd) Tungamah	Benalla - Oaklands	240.430	Road	Public	Give Way Signs
1086	Bride Street Tungamah	Benalla - Oaklands	241.235	Road	Public	Give Way Signs
1087	Mays Hill Road Tungamah	Benalla - Oaklands	242.576	Road	Public	Give Way Signs
1088	Cemetery Road Tungamah	Benalla - Oaklands	244.295	Road	Public	Give Way Signs
1089	Hill Plain Road Telford	Benalla - Oaklands	246.594	Road	Public	Give Way Signs
1090	Three Chain Road Telford	Benalla - Oaklands	248.244	Road	Public	Give Way Signs
1091	Telford – Tungamah Road Telford	Benalla - Oaklands	248.956	Road	Public	Give Way Signs
1093	Connells Road Telford	Benalla - Oaklands	250.934	Road	Public	Give Way Signs
1094	Beatties Road Telford	Benalla - Oaklands	252.838	Road	Public	Give Way Signs
1095	Dodds Road Yarrawonga	Benalla - Oaklands	254.621	Road	Public	Give Way Signs
1096	Katamatite - Yarrawonga Road Yarawonga	Benalla - Oaklands	256.478	Road	Public	Primary Flashing Lights

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
1097	Benalla - Yarrawonga Road Yarrawonga	Benalla - Oaklands	258.765	Road	Public	Primary Flashing Lights
1098	Murray Valley Highway Yarrawonga	Benalla - Oaklands	259.590	Road	Public	Primary Flashing Lights
1100	Orr St (Irvine Parade) Yarrawonga	Benalla - Oaklands	260.291	Road	Public	Give Way Signs
1101	Piper Street Yarrawonga	Benalla - Oaklands	260.539	Road	Public	Give Way Signs
5730	Occupation Crossing (Lic) Yarrawonga	Benalla - Oaklands	261.329	Road	Private	Stop Signs
1102	Gulai Road Mulwala	Benalla - Oaklands	261.527	Road	Public	Give Way Signs
1103	Bayley Street Mulwala	Benalla - Oaklands	262.672	Road	Public	Give Way Signs
1104	Inglis Street Mulwala	Benalla - Oaklands	263.313	Road	Public	Give Way Signs
1106	North Street Mulwala	Benalla - Oaklands	264.455	Road	Public	Give Way Signs
1107	Corowa - Tocumwal Road Mulwala	Benalla - Oaklands	265.293	Road	Public	Give Way Signs
5742	Occupation Crossing	Benalla - Oaklands	266.346	Road	Private	Stop Signs
1108	Baileys Road Mulwala	Benalla - Oaklands	268.032	Road	Public	Give Way Signs
5743	Occupation Crossing (Lic) Mulwala	Benalla - Oaklands	270.400	Road	Private	Stop Signs
5744	Occupation Crossing (Lic) Mulwala	Benalla - Oaklands	270.993	Road	Private	Stop Signs
1109	Sloanes Siding Road Mulwala	Benalla - Oaklands	271.255	Road	Public	Give Way Signs
5745	Occupation Crossing Mulwala	Benalla - Oaklands	273.610	Road	Private	Give Way Signs
5746	Occupation Crossing (Lic) Mulwala	Benalla - Oaklands	275.048	Road	Private	Stop Signs
1111	Ten Mile Crossing Mulwala	Benalla - Oaklands	275.583	Road	Public	Stop Signs
1112	Lane No 450 Mulwala	Benalla - Oaklands	276.288	Road	Public	Give Way Signs
1113	Carmichaels Road Mulwala	Benalla - Oaklands	278.285	Road	Public	Give Way Signs
5747	Occupation Crossing Mulwala	Benalla - Oaklands	278.650	Road	Private	Stop Signs
1114	Whealers Lane Savernake	Benalla - Oaklands	281.238	Road	Public	Give Way Signs
1115	Mulwala - Savernake Road Savernake	Benalla - Oaklands	281.802	Road	Public	Give Way Signs

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
5748	Occupation Crossing Warragoon	Benalla - Oaklands	284.652	Road	Private	Stop Signs
1117	Renwarra Rd (Camerons Rd)	Benalla - Oaklands	286.138	Road	Public	Give Way Signs
1118	The Rest Rd (Lane No 2210)	Benalla - Oaklands	287.359	Road	Public	Give Way Signs
5749	Occupation Crossing	Benalla - Oaklands	288.941	Road	Private	
1119	Waterbag Rd (Waterbag La)	Benalla - Oaklands	290.713	Road	Public	Give Way Signs
1121	Cameron - Nagle Road Rennie	Benalla - Oaklands	291.757	Road	Public	Give Way Signs
5750	Occupation Crossing (Lic) Rennie	Benalla - Oaklands	293.267	Road	Private	Give Way Signs
1122	Riverina Highway Rennie	Benalla - Oaklands	294.642	Road	Public	Primary Flashing Lights
5751	Occupation Crossing	Benalla - Oaklands	295.481	Road	Private	Give Way Signs
5752	Occupation Crossing	Benalla - Oaklands	296.402	Road	Private	
5753	Occupation Crossing	Benalla - Oaklands	297.799	Road	Private	
1123	Botts Rd	Benalla - Oaklands	298.596	Road	Public	Give Way Signs
5754	Occupation Crossing	Benalla - Oaklands	300.006	Road	Private	Stop Signs
1124	Emu Park Rd Sanger	Benalla - Oaklands	302.858	Road	Public	Give Way Signs
5755	Occupation Crossing	Benalla - Oaklands	306.602	Road	Private	Give Way Signs
5756	Occupation Crossing	Benalla - Oaklands	311.798	Road	Private	
1126	Daysdale - Berrigan Rd Wangamong	Benalla - Oaklands	312.660	Road	Public	Give Way Signs
5758	Occupation Crossing	Benalla - Oaklands	314.040	Road	Private	
5759	Occupation Crossing	Benalla - Oaklands	316.382	Road	Private	Stop Signs
1128	Wangamong Oaklands Road Wangamong	Benalla - Oaklands	317.025	Road	Public	Give Way Signs
5761	Occupation Crossing	Benalla - Oaklands	317.215	Road	Private	
6201	Occupation Crossing	Benalla - Oaklands	318.418	Road	Private	
5762	Occupation Crossing	Benalla - Oaklands	319.980	Road	Private	
1129	Milthorpe Street Oaklands	Benalla - Oaklands	320.160	Road	Public	Give Way Signs
1130	Murray Street Oaklands	Benalla - Oaklands	320.807	Road	Public	Give Way Signs
	Clear Hills Road Oaklands	Benalla - Oaklands	321.720	Road	Public	Give Way Signs

## **1.8 Maximum Permitted Speeds and Permanent Speed Restrictions**

Refer the Route Access Standard - Defined Interstate Rail Network Section Pages D53 and Intrastate Network Section I2 for all speed information.

## **1.9 Maximum Train Length**

Maximum train length is 1800 Metres unless otherwise approved.

## **1.10 Passenger Cars Route Restrictions**

The V/Line VLocity is not permitted through the following points or locations.

- V/Line sidings at Somerton Loop
- Up End Cripple Road at Wallan Loop
- ARTC Engineers Siding Seymour Loop (former Seymour Crossing Loop)
- Violet Town Sidings
- Not to move past fouling point between 3 Road and 4 Road at Benalla (Oaklands end of yard).
- Private Siding Benalla.
- SCT Barnawartha Sidings
- Not to traverse the manual points between the Back Platform Road and the Engine Road Albury. (Access to the Engine Road through 29 Points permitted).

## **1.11 Structure Clearances**

Refer Route Access Standards for Rolling Stock Outlines.



## 1.12 Communications

The National Train Communications System (NTCS) is the Primary communications system for the ARTC controlled rail network and is mandatory for all operators to operate their locomotives using a NTCS ICE (In-Cabin Equipment) Unit as the primary communications device.

A standard ICE unit is installed with the following components

- Telstra NextG™ transceiver
- Iridium satellite transceiver
- UHF Radio
- GPS

The ICE unit primary communications is via the Telstra NextG™ and backup communications is provided via the Iridium Satellite network. The ICE unit will automatically call the Mile End network control centre when the routine and emergency buttons are pressed.

The UHF radio is used for the Local train Radio - Train to Train and train to track Side communications.

UHF Local Train Radio (LTR) frequency details

Frequency: 418.425 MHz (UHF),

Bandwidth: 12.5 KHz,

EIRP: 41W (remote/low density areas), 8.3W (medium & high density areas)

Tx CTCSS: 162.2 Hz

Rx CTCSS: 162.2 Hz

Selcall: disabled

Alternate Communication for this section is by mobile or satellite phones.

## 1.13 Wayside Monitoring Systems

Wheel Condition Monitor & Rail Bearing Acoustic Monitor at Seymour 94.26km

## 1.14 Ruling Gradients

Albury to Somerton	1 in 50
Somerton to Albury	1 in 50
Benalla to Oaklands	1 in 75
Oaklands to Benalla	1 in 73

## 1.15 Curve and Gradient Data

For all Curve and Gradient data, refer to the ARTC Internet.

[https://extranet.artc.com.au/eng\\_network-config\\_cd.html](https://extranet.artc.com.au/eng_network-config_cd.html)

## 1.16 Drawing Legend

	Standard gauge track		Dual gauge track
	Broad gauge track		Crossover
	Advisory Sign or Location Sign		Tunnel
	Pedestrian Crossing		Passive Protection Level Crossing
	Active Protection Level Crossing – Flashing Lights		Active Protection Level Crossing – Lights and Boom
	Bridge or Overpass		Underpass
	River/Creek or Significant river bridge or Viaduct		Station or Platform
	Derail		Dual Control Motorised Points
	Turnout		Catchpoint
	Point Indicator		Mechanical Frame
	Absolute Signals (Absolute signals in Victoria containing a 'P' on the name plate are co-acting signals)		
	Permissive Signals		Signal number reference
	Dwarf Signals		Banner Indicator
	Overheight Detectors		Wayside Equipment

## 2 Main South Line Locations and Sections Information

### 2.1 Albury (ABY)

#### General Arrangements

Albury is the location that ends NSW Main South Rail Vehicle Detection safeworking method and begins Centralised Traffic Control for the route to Melbourne.

Albury is also where single colour light signalling ends and three position signalling begins for the route to Melbourne.

Signage is positioned in the yard to indicate these changes.

Passenger platform 1 is located on the Platform Road and passenger platform 2 is located on the Back Platform Road.

*NOTE: After 2200 hours, passenger trains shunting from Platform 2 to the Shunt Neck and Engine Road for stabling, are not to sound their whistle before moving the train for these movements only.*

When shunting from the Dead End towards the Back Platform or Engine Road, rail traffic crews are to observe indications on signal AY71.

*NOTE: 27 points will remain set and locked throughout the movement*

#### Yard Limits

Albury Yard Limits extend from AY166 signal to AY61, AY62 and AY63 signals as described in the following table.

Direction	Km	Signal Number	Sign
Down	644.754	AY166	YL
Up	644.754	AY166	EYL
Down	646.558	AY61	EYL
Down	646.558	AY62	EYL
Down	646.558	AY63	EYL
Up	646.558	AY61	YL
Up	646.558	AY62	YL
Up	646.558	AY63	YL

#### Loop Standing Room

1660m

#### Sidings

Platform Road - 886m

Back Platform Road - 327m

Engine Road - 250m

Gantry Road No 5 - 345m

Gantry Road No 9 - 345m

**Operation of Power-operated Points in an Emergency**

All points are electrically controlled from the NCCS.

Points 27A, 27B, 29A and 29B are equipped with Dual Control Point machines.

Points 33A, 33B, 34A, 34B, 48A, 48B, 59A and 59B are equipped with Nippon KA1200A Electric Point Machines which can be operated by crank handle during failure conditions.

If these points fail to operate correctly, a transit alarm will sound and the Network Controller must try to restore the points to their previous position to allow trains to continue running.

Emergency Switch Machine Locks (ESML's) are provided for the Emergency manual operation of points and catch points. The ESML cabinets are attached to the gantry stanchion adjacent to Signal AY61 for Points 33A, 33B, 34A and 34B, attached to the side of the location case near the Signal gantry for Signals AY154 and AY153 for points 59A and 59B, and attached to the side of the location case adjacent to points 48A for 48A and 48B points, each crank handle is labelled with numbering to match the points.

Signal AY15 is equipped with a Theatre Box which displays an illuminated letter to indicate the route set.

AY15 Theatre Box Display

Back Platform Road – B

Passenger Platform – P

Main Line – M

Loop Line – L

Signal AY71 is equipped with a Theatre Box which displays an illuminated letter to indicate the route set.

AY71 Theatre Box Display

Engine Road – ER

Back Platform Road – BP

Signals AY62 and AY58 are equipped with illuminated '80' theatre boxes. The illuminated '80' will display when 13 points at Wodonga are set for the west line and the signals at Albury are set for the route.

**Ground Frames**

J Frames

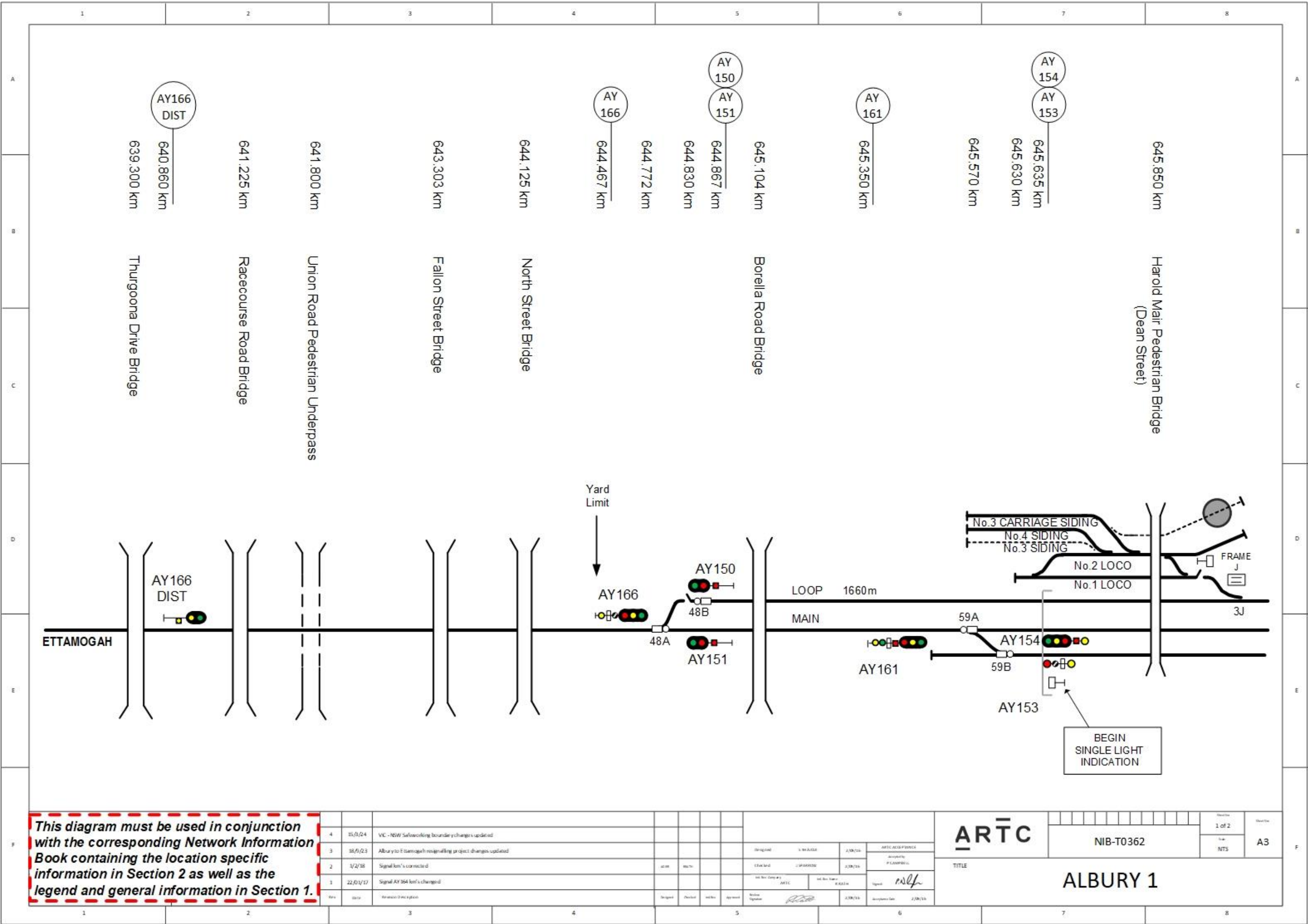
**Train Protection & Warning System (TPWS)**

TPWS is installed in Albury yard to prevent V Line passenger trains (or other trains fitted with the equipment) from exceeding set speeds on the approach to and along Albury Station platform No. 2 (Back Platform Road) and Albury South Yard Dead End.

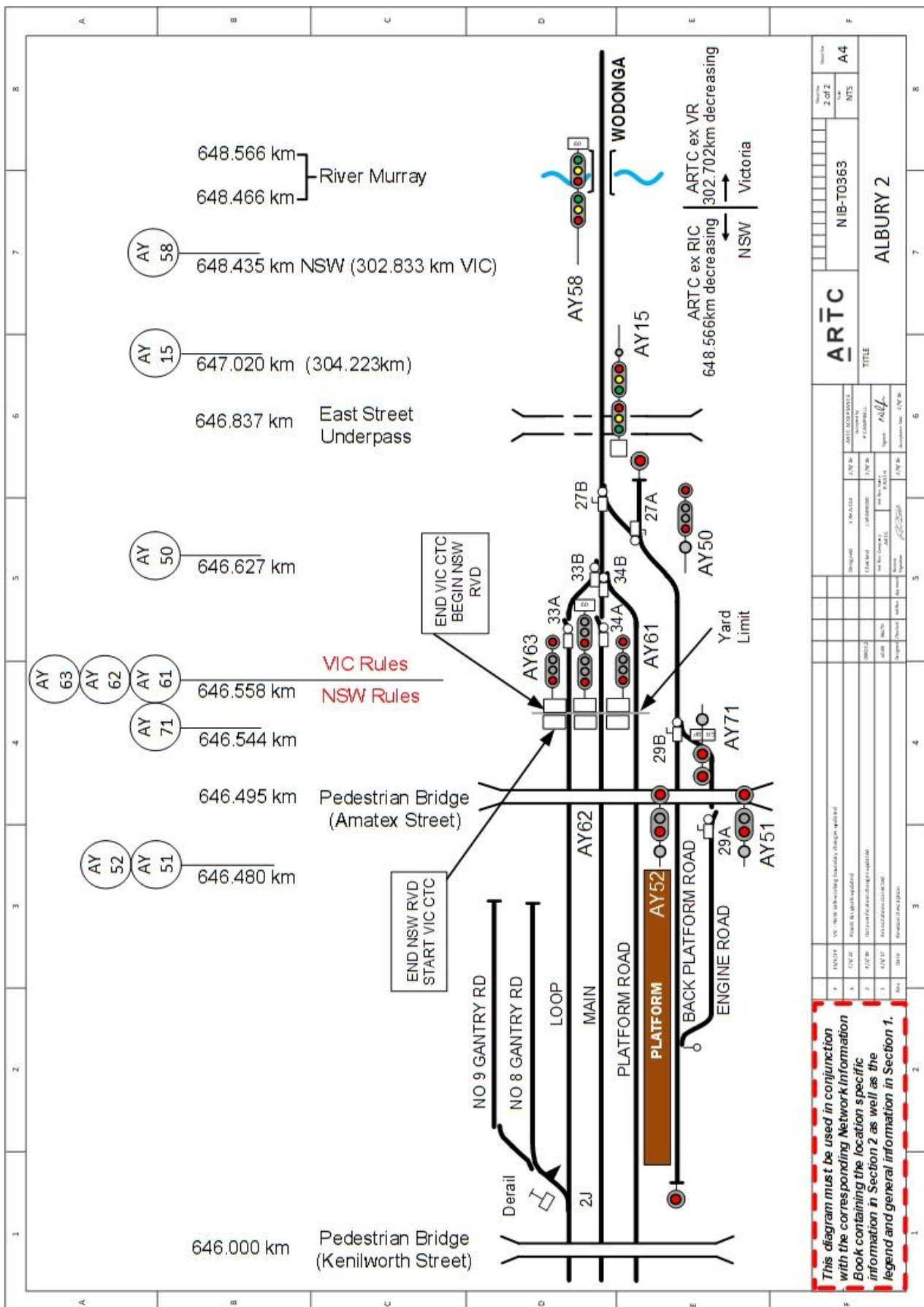
If the train speed exceeds the Overspeed Sensor setting an emergency braking application will be applied bringing the train to a stand. The system will not enforce Stop aspects and is not alarmed on the ARTC Train Control Screens.

TPWS equipment is located as follows

Location	Line	km
Signal AY15	Main Line	304.223 (647.045) From Sydney
Signal AY71	Back Platform Road Approach	304.710 (646.544) From Sydney
Albury Station Platform No 2	Junction of Engine Road & Back Platform Road	305.082
South Albury Yard	Dead End	(646.701) From Sydney



### Main South Line Locations and Sections Information





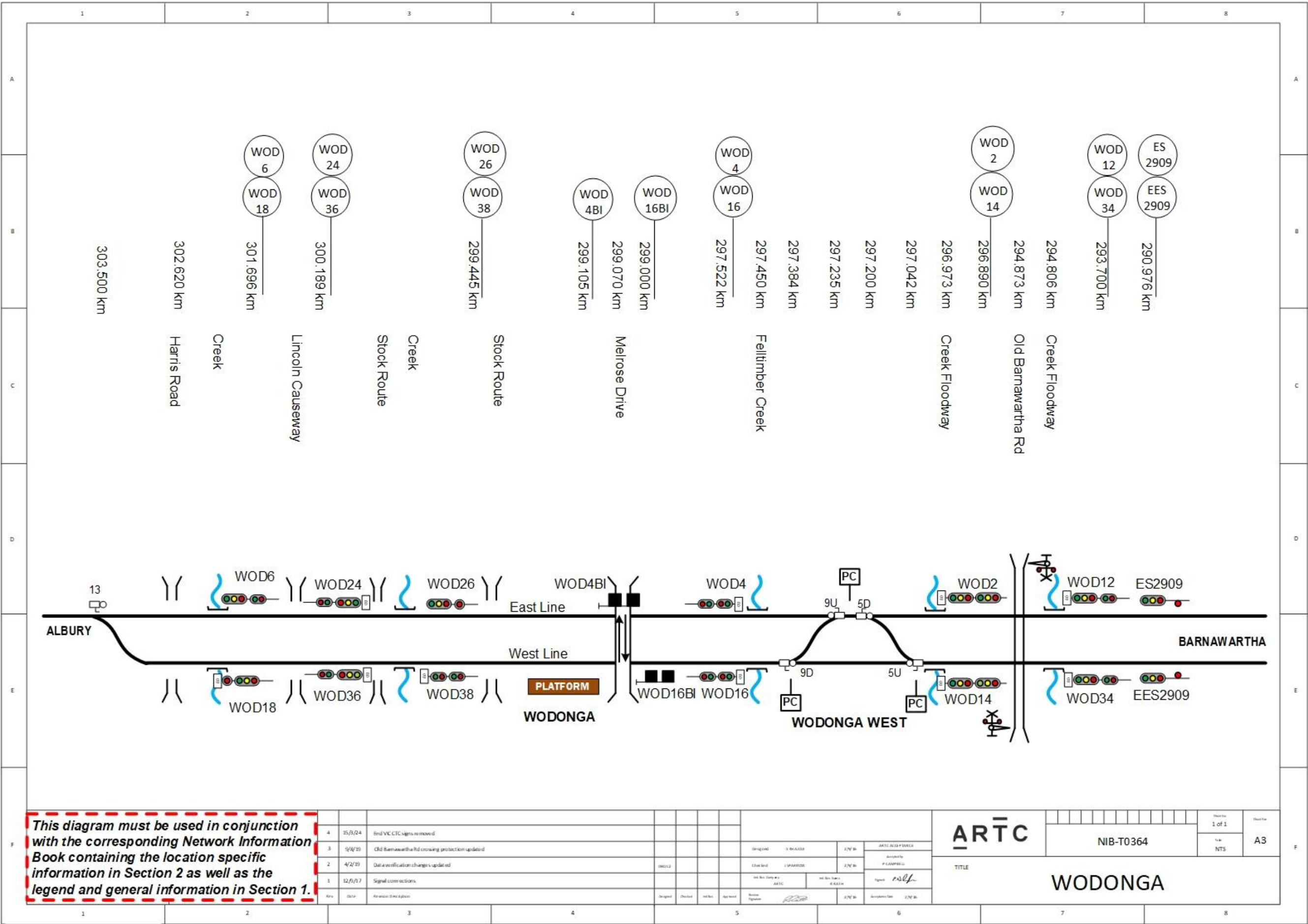
## 2.2 Wodonga Passing Lane (WPS)

Start of double track in Victoria 302.625 to 302.500km.

Passenger Platform (West Line) 299.285 to 299.105km (180m)

Crossovers between the East and West and West to East lines are located at Wodonga West between 297.384 and 297.042km.





## 2.3 Barnawartha (BVW)

The SCT Intermodal Terminal private siding is located on the Western side of the ARTC Standard Gauge West Line with access from both the North at 7D points (284.710km) and the South at 1U points (282.030km).

### Operational Procedures for Entry into the Terminal

The Network Controller at NCCS will check with the SCT Operations Coordinator when there is rail traffic at Albury or Wangaratta that is scheduled for entry into the Barnawartha sidings. The Network Controller will confirm that the rail traffic will be authorised to enter the Barnawartha siding at the time it is scheduled to arrive.

Only then will the Network Controller set the route for the rail traffic to proceed to Barnawartha on the West Track. The Network Controller will then set the route into the siding after the rail traffic has timed out at either of the Home Arrival signals (BAW18/BAW24)

If rail traffic that has not been scheduled requests to be signalled into the Barnawartha siding, the Network Controller at NCCS will contact the SCT Operations Coordinator and request permission for the rail traffic to be signalled into the siding.

### Operational Procedures for Exit from the Terminal

For rail traffic to depart the siding, the SCT Operations Coordinator will contact the Network Controller and request a signalled path onto the West Track.

The rail traffic must be "logged on" to the ICE radio system prior to exiting the sidings.

The clearing of either signal BAW12 (towards the south) or BAW32 (towards the north) will be the authority for the rail traffic to depart onto the West Track.

### Signals

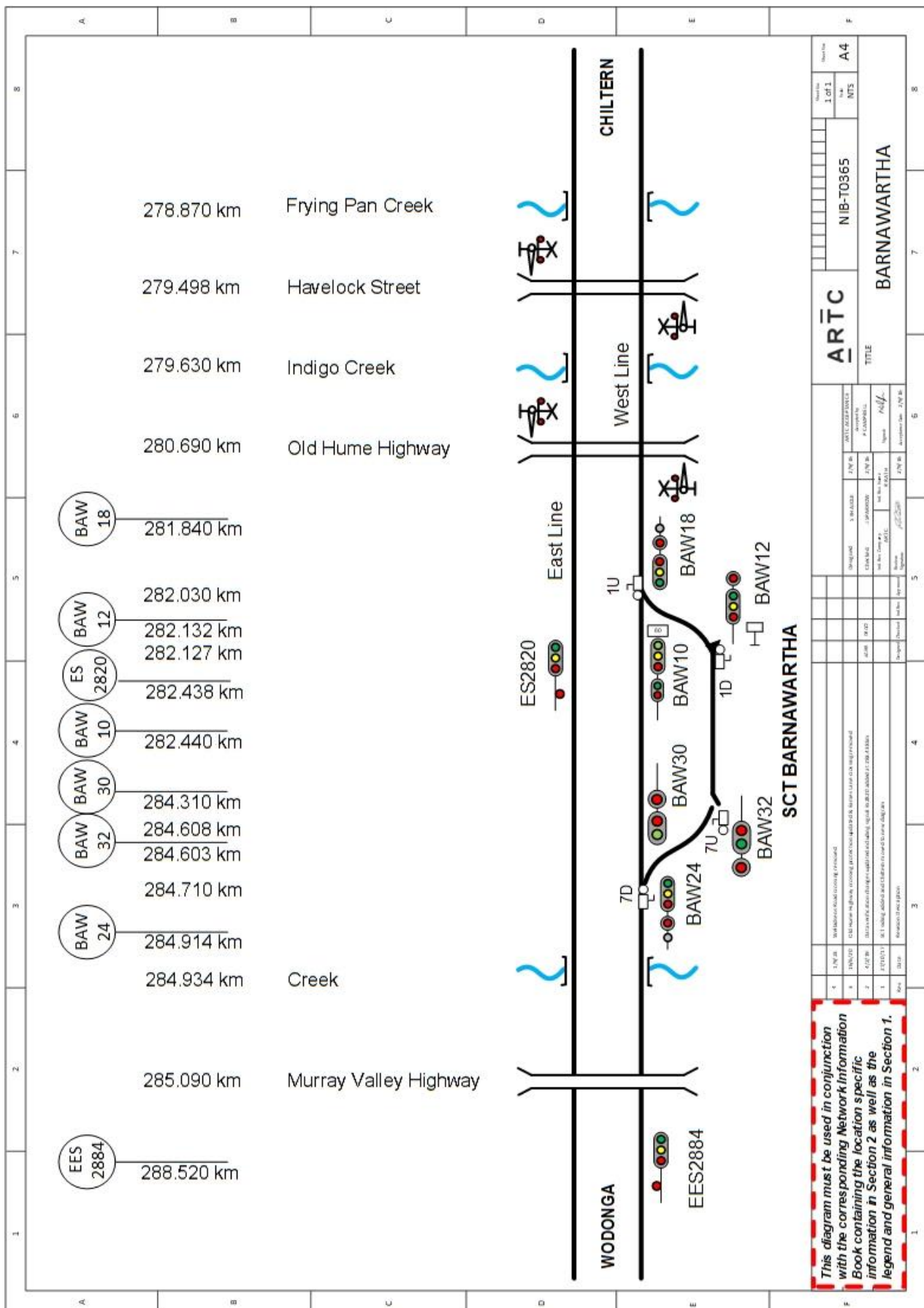
On the West Line, Controlled Signal BAW10 at 282.440km has a 3 aspect head 'A' arm for inclusion of a Yellow aspect, a 2 Aspect head 'B' arm for inclusion of a Green aspect and an '80' Kph Speed Indicator. The signal displays Stop, Caution Normal Speed, Clear Normal Speed and Reduce to Medium Speed (with '80' Kph speed indicator) for up direction movements along the West Line.

SCT Siding Up departure Controlled Signal BAW12 at 282.132km has a 3 Aspect head 'B' arm for inclusion of a Yellow aspect. The signal displays Stop, Caution Medium Speed, Clear Medium Speed, for up direction movements to the West Line.

A sign is installed adjacent to BAW12 inscribed with the following instruction.

"Movements are not to exceed 80 km/h until the driver confirms the aspect on CHI/14."

## Main South Line Locations and Sections Information



## 2.4 Chiltern (CSG)

Passenger Platform (West Line) 271.390 to 271.260 (130m)

Passenger Platform (East Line) 271.490 to 271.330 (160m)

### Stopping Trains Departing Passenger Platforms in Up direction

Trains departing the passenger platforms on both the East and West lines must not exceed 20km/hr until reaching the Beechworth Road level crossing (270.922km)

### General

The Chiltern Mainline crossover is located on the ARTC East and West Main Line at 277.576km in the Chiltern to Barnawatha Section.

The crossover is signalled to provide a crossover point in the up direction from the West Line to the East Line and in the down direction from the East line to the West Line.

Points:

3U Turnout on the East Line at 277.496km. This is a left hand turnout to allow access to the West Line in the down direction and down through movements on the West Line.

3D Turnout on the West Line at 277.656km. This is a left hand turnout to allow access to the East Line in the up direction and up through movements on the West Line.

All point machines are dual control.

### Signals

On the West Line, Controlled Signal BAW10 at 282.440km has a 3 aspect head 'A' arm for inclusion of a Yellow aspect, a 2 Aspect head 'B' arm for inclusion of a Green aspect and an '80' Kph Speed Indicator. The signal displays Stop, Caution Normal Speed, Clear Normal Speed and Reduce to Medium Speed (with '80' Kph speed indicator) for up direction movements along the West Line.

SCT Siding Up departure Controlled Signal BAW12 at 282.132km has a 3 Aspect head 'B' arm for inclusion of a Yellow aspect. The signal displays Stop, Caution Medium Speed, Clear Medium Speed, for up direction movements to the West Line.

A sign is installed adjacent to BAW12 inscribed with the following instruction.

"Movements are not to exceed 80 km/h until the driver confirms the aspect on CHI/14."

CHI 2 Absolute Home Departure Signal at 277.181km on the East Line km is provided to protect 3U points and for Down direction movements along the East Line, or across via No 3 crossover to the West line. It is provided with 2 aspect 'A' arm, a 3 aspect 'B' arm and an '80' Kph Speed Indicator. The signal will display Stop, Clear Normal Speed, Caution Medium Speed and Clear Medium Speed (with '80' Kph speed indicator).

CHI 12 Absolute Home Departure Signal at 277.181km on the West Line is provided to protect 3D Points, and for Down direction movements along the West Line. It is provided with 3 aspect 'A' arm, and a 1 aspect 'B' arm. The signal will display Stop, Caution Normal Speed and Clear Normal Speed.

CHI 4 Absolute Home Departure Signal at 277.971km on the East Line is provided to protect 3U points and allow Up direction movements along the East Line. It is provided with 3 aspect 'A' arm,

## Main South Line Locations and Sections Information

and a 1 aspect 'B' arm. The signal will display Stop, Caution Normal Speed and Clear Normal Speed.

CHI 14 Absolute Home Departure Signal at 277.971km on the West Line is provided to protect 3D points and for Up direction movements along the West Line, or across via No 3 crossover to the East line. It is provided with 2 aspect 'A' arm, a 3 aspect 'B' arm and an '80' Kph Speed Indicator. The signal will display Stop, Clear Normal Speed, Caution Medium Speed and Clear Medium Speed (with '80' Kph speed indicator)

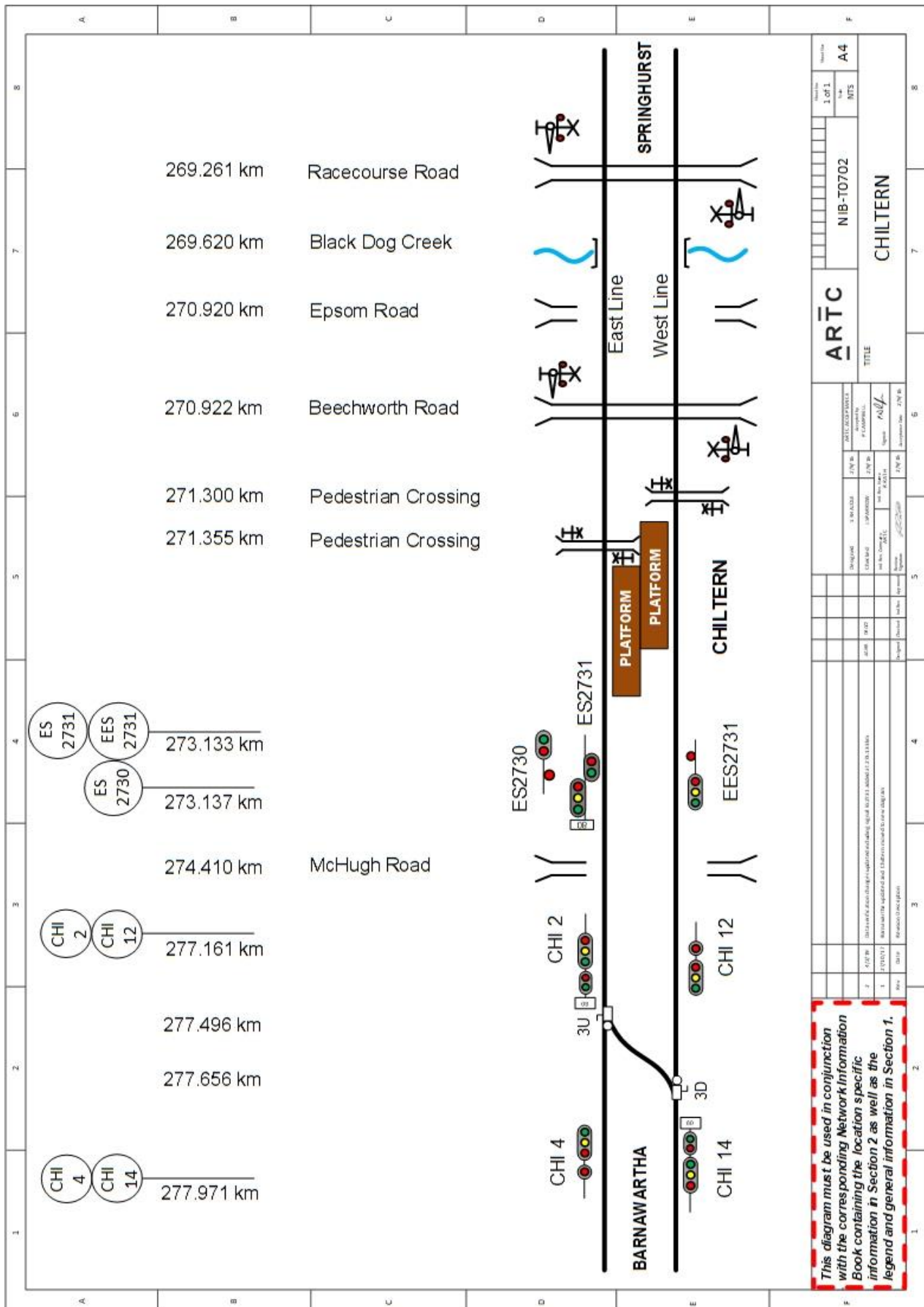
Permissive Signal ES2820 at 283.438 km for Up Direction Trains on the East Line, with a 3 aspect 'A' arm and 1 Aspect 'B' Arm which will display Stop, Caution Normal Speed and Clear Normal Speed ('A' arm indication only)

Permissive Signal ES2731 at 273.133 km for Down Direction Trains on the East Line, with a 3 aspect 'A' arm, a 2 aspect 'B' arm and an '80' Kph Speed Indicator. The signal will display Stop, Caution Normal Speed, Clear Normal Speed and Reduce to Medium Speed (with '80' Kph speed indicator) for Down direction movements along the East Line.

All signalling equipment is remotely controlled and indications displayed at Network Control Centre South.



## Main South Line Locations and Sections Information



## 2.5 Springhurst (SPT)

Passenger Platform (West Line) 257.586 to 257.420 (166m)

Passenger Platform (East Line) 257.502 to 257.322 (180m)

This diagram must be used in conjunction with the corresponding Network Information Book containing the location specific information in Section 2 as well as the legend and general information in Section 1.



## Page 33 of 105

## 2.6 Wangaratta (WAP)

Passenger Platform (East Line) 233.900 to 234.100 (200m)

### **Stopping Trains Departing Passenger Platforms in Up Direction**

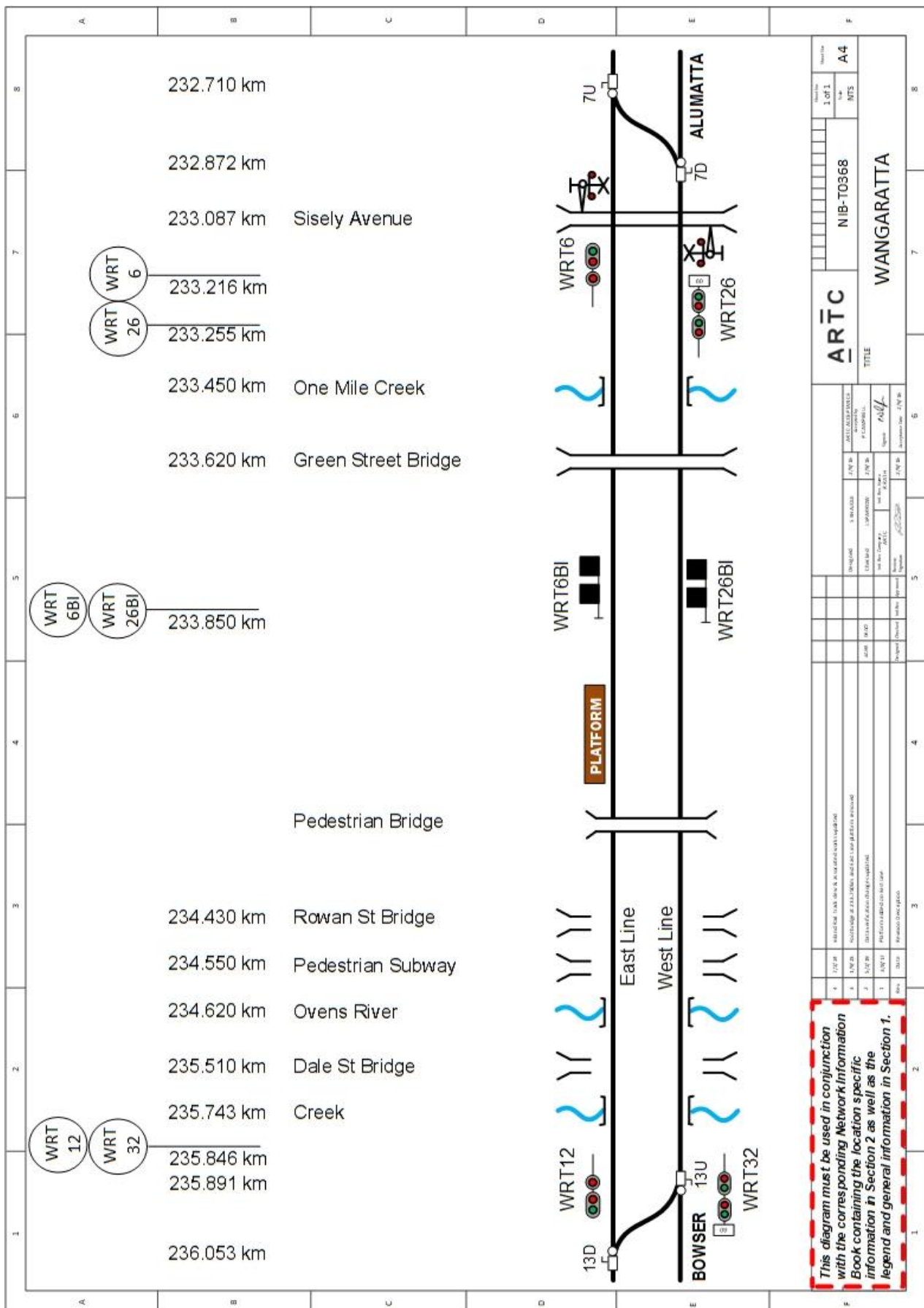
Trains departing the passenger platform on the East line must not exceed 40km/hr until reaching the Sisely Avenue level crossing (233.087km). Signs are located at 235.678km.

Crossovers between the East and West lines are located north of Wangaratta between 236.053 and 235.891km.

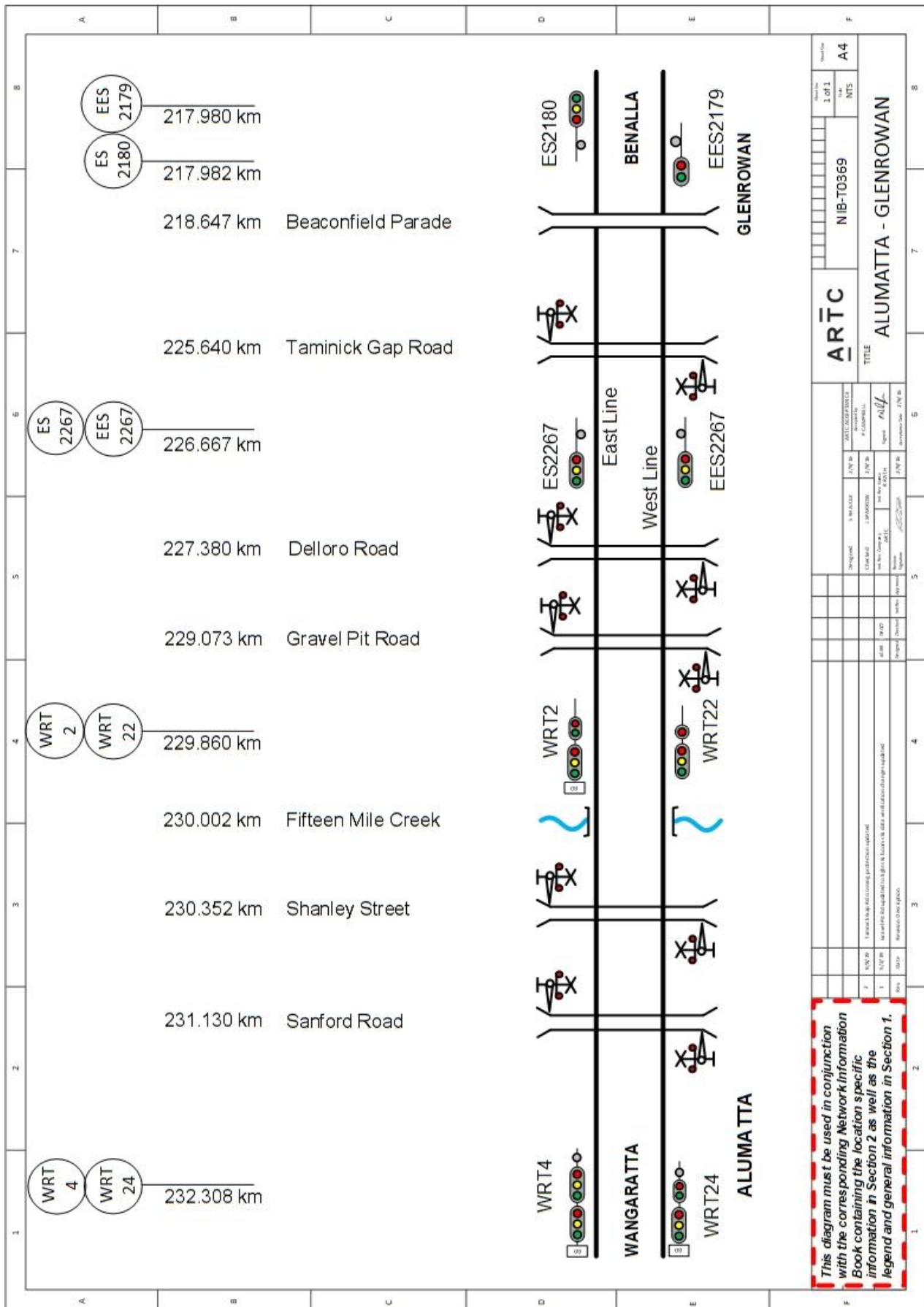
Crossovers between the West and East lines are located south of Wangaratta between 232.872 and 232.710km.

Axle Counters through this location

## Main South Line Locations and Sections Information



## Main South Line Locations and Sections Information



## 2.7 Benalla (BGG)

Benalla is the junction of the Benalla - Oaklands line with the Melbourne - Albury line.

### No.3 Road Standing Room

767m

### No.4 Road Standing Room

650m

### Goods Siding

Nil

### Local Control Panel

Nil

### Crank Handles

Nil

### Other information

Passenger Platform (East Line) 195.319 to 195.399 (80m)

Passenger Platform (West Line) 194.940 to 195.120 (180m)

### 2.7.1 Overview

Benalla is a CTC location, located at 195.500km and is provided with a high-speed crossover between the East and West lines at the Melbourne end and a high-speed crossover between the West Line and the East Line at the Sydney end of the station.

The Benalla Precast Siding is located at the 199.530km in the Benalla to Wangaratta section and is connected to the West Line by a motorised and signalled connection.

The Benalla yard and lead to the Oaklands line is connected to the West Line by a motorised and signalled connection at the Melbourne end of the yard at 194.970km.

Phoenix Train Order Working is in operation from the 'BEGIN TRAIN ORDER WORKING' sign located at 196.621km toward the Oaklands line.

An 'END TRAIN ORDER WORKING' and STOP' board is located at the 196.621km for rail movements proceeding from the Oaklands line toward Benalla.

The SHUNT LIMIT sign at Benalla is located 265 metres further on the Oaklands line at 196.321km.

The ARTC Network Controller operating the Main South C Network Control Board at NCCS operates the points and signals at Benalla.

### 2.7.2 Rail Movement to Benalla Yard and Oaklands Line

When a rail movement requires to proceed into the Benalla Yard from the East or West lines, the ARTC Network Controller will set the route and operate the signalling for the movement to proceed.

Prior to setting a route into the Benalla Yard, the ARTC Network Controller must confirm that there are no other rail activities occurring within the Benalla yard and if there are, advise the

## Main South Line Locations and Sections Information

driver or person in charge of the other rail activities of the impending movement and confirm that the rail movement can occur.

Provided the rail movement can occur, the ARTC Network Controller must advise the Train Driver of the arriving movement of the activities prior to setting the route.

In all instances, the Driver of the rail movement must check all hand points within the yard and ensure they are correctly set prior to proceeding over them.

The rail movement must not proceed beyond the 'BEGIN TRAIN ORDER WORKING' unless issued with a Train Order for the section in advance.

### 2.7.3 Rail Movement from Oaklands Line Proceeding into Benalla Yard

A rail movement approaching Benalla from the Oaklands Line must not pass the 'END TRAIN ORDER WORKING' and 'STOP' without the authority of the ARTC Network Controller.

Prior to granting permission to pass the 'END TRAIN ORDER WORKING' and 'STOP', the ARTC Network Controller must confirm that there are no other rail activities occurring within the Benalla yard and if there are, advise the driver or person in charge of the other rail activities if the impending movement and confirm that the rail movement can occur.

Provided the rail movement can occur the ARTC Network Controller must advise the Train Driver of the arriving movement of the activities prior to granting permission to proceed into the yard.

In all instances, the Driver of the rail movement must check all hand points within the yard and ensure they are correctly set prior to proceeding over them.

### 2.7.4 Rail Movement from Benalla Yard to East or West Line

When a rail movement is ready to depart the Benalla Yard, the driver of the rail movement must contact the ARTC Network Controller and advise that the movement is standing at Dwarf Signal BNL46 and is ready to depart.

Provided the correct conditions exist, the ARTC Network Controller may set the route for the movement accordingly.

### 2.7.5 Rail Movement from West Line to Benalla Precast Siding

When a rail movement requires to enter the Benalla Precast siding, the driver, whilst the rail movement is approaching Seymour, must confer with the siding operator that the rail movement will have clear passage and advise the ARTC Network Controller.

The ARTC Network Controller may call a route into the siding provided the following conditions are in place:

- A route has not been called on the West Line from Wangaratta to Benalla;
- A rail movement is not approaching Benalla on the West Line from Wangaratta, and
- Any preceding rail movement has cleared signal BNL42.

Upon calling the route into the siding, the route will not set until the rail movement has passed Signal BNL32 and is speed proven on approach to BNL38.

Provided the rail movement is speed proven, Signal BNL38 will display a 'Low Speed' aspect.

Upon the rail movement clearing into the siding behind BNL40, points 15 must be restored to the 'Normal' position by the Network Controller.



### 2.7.6 Rail Movement Benalla Precast Siding to West Line

When a rail movement requires to depart the siding the train driver must contact the ARTC Network Controller.

The ARTC Network Controller may call a route for the rail movement to depart provided the following conditions are in place:

- A route has not been called on the West Line from Wangaratta to Benalla;
- A rail movement is not approaching Benalla on the West Line from Wangaratta, and
- Any preceding Sydney-bound rail movement has cleared Signal BNL42.

Upon calling the route points 15 will set to 'Reverse' and a route being set from Signal BNL36, Dwarf Signal BNL40 will display a 'Low Speed' aspect.

Upon the rail movement passing beyond Signal BNL36, points 15 must be restored to the 'Normal' position by the Network Controller.

### 2.7.7 Dwarf Signal BNL40

Dwarf Signal BNL40 will not assume a 'Low Speed' aspect unless Signal BNL36 is also displaying a 'Proceed' aspect.

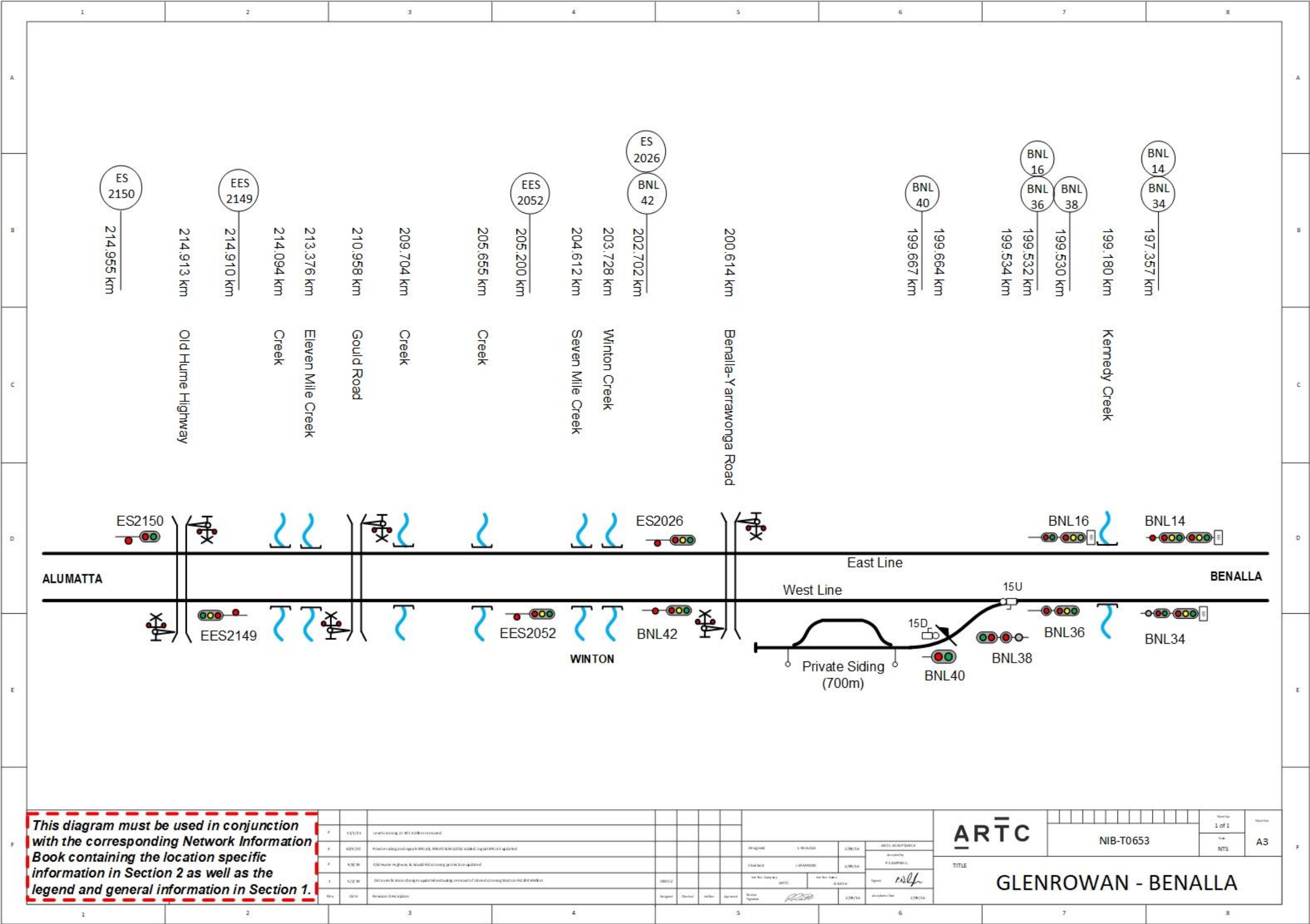
### 2.7.8 Points 15

The ARTC Network Controller must ensure that points 15 are operated to the 'Normal' position after each movement.

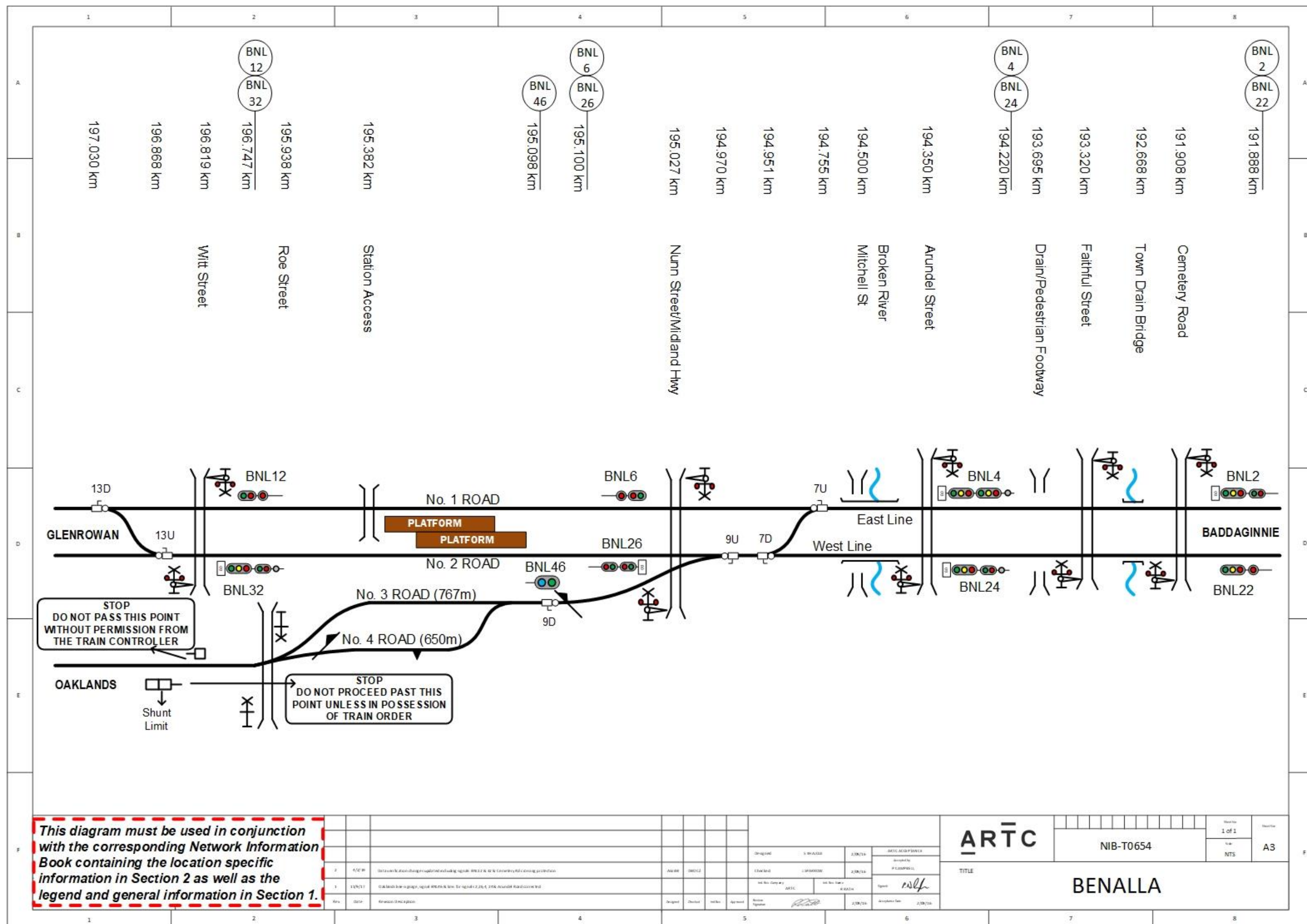
### 2.7.9 Master Keys

Master Keys are to be used to access the sidings. Five 'Ordinary Type' Master Keys numbered 1 to 5 will be used on the line. The numbers are used for identification purposes and the number of the Master Key carried, must be recorded on the Train Order. A Master Key log will be used to track the location of the Master Keys. The Master Key is to be carried on all train movements across the corridor.

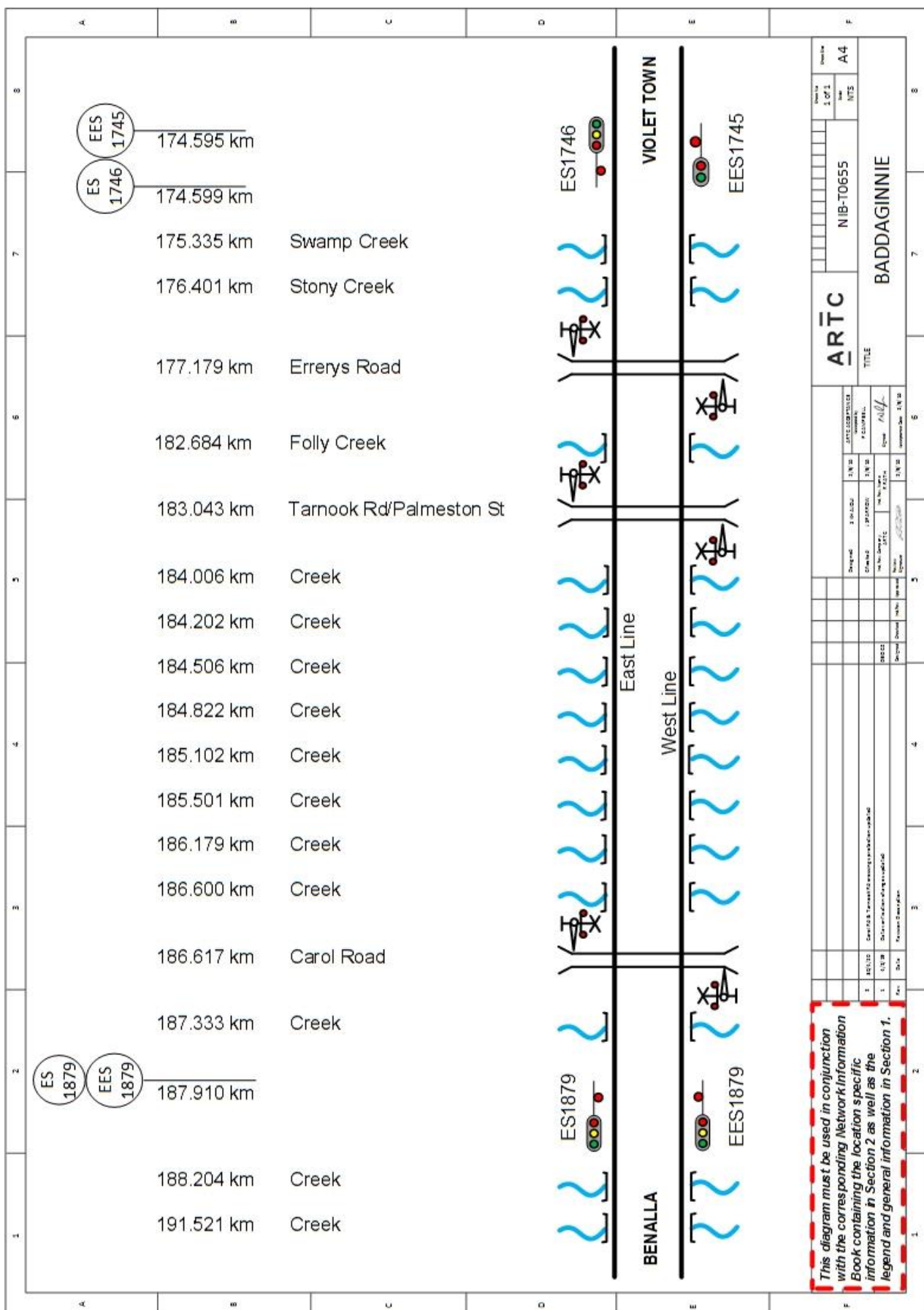
The Master Keys will be secured in security safes withing huts at Benalla, Yarrawonga and Oaklands. The huts can be accessed with the 5VPsW Victorian key. The security safes have Questors locks on the safes that require a procedure to be followed to gain access. The procedure will be available in the hut adjacent to the safes.







### Main South Line Locations and Sections Information



## 2.8 Violet Town (VSG)

Passenger Platform (East Line) 169.240 to 169.419 (179m)

Passenger Platform (West Line) 169.300 to 169.470 (170m)

### Siding

Length 1500m

### Main Line Points

9 points

### Local Control Panel

Nil

### Crank Handles

Nil

### 2.8.1 Switch Locks at Violet Town Intermediate Siding

The main line points are secured in their NORMAL position using motorised points which are released using two V5PSW key switches which are located in the safeworking cabinets near the main line points. Ground frames are not used.

#### Hayes Derail and Wheel Crowder (Violet Town Intermediate Siding)

The main line points at the Violet Town Intermediate Switch Locked siding operate in conjunction with a motorised Hayes derail and wheel crowder.

#### RELEASE key switch

Contact the Network Controller and gain authority to operate the release. Once authority has been obtained the RELEASE key switch must be operated first to gain the release from the Network Controller. There is a release indicator which comprises a Yellow light that will:

- flash when the electric release has been offered by the Network Controller, and
- remains steady when the release has been accepted locally.

#### POINTS key switch

The second key switch is identified as the POINTS key switch which is used to operate the points from their NORMAL position to the REVERSE position and vice versa.

This switch has three indicating lights which are extinguished unless a release has been given.

The indicating light will display:

- N (GREEN) - indicates that the points are in their NORMAL position
- FREE (WHITE) - indicates that the points are free to be operated by the V5PSW key switch
- R (YELLOW) – indicates that the points are in the REVERSE position.

#### Releasing Circuit

To gain access to the siding the vehicle must be positioned on the releasing circuit. The movement must be stopped with the vehicle:

- closer than 100 metres from the points, but not

- within three metres of the facing points.

### **Distance markers**

Distance markers are placed on the main line to indicate distance from 9 points at 500 metre and 1000 metre intervals.

Distance markers are placed in the siding to indicate distance from 9 points at 500 metre, 1000 metre and 1500 metre intervals.

## **2.8.2 Crossovers (VTN)**

### **2.8.2.1 Overview**

Crossovers have been installed to enable the previous section between Seymour Loop and Benalla to be split into three sections: Seymour Loop to Longwood, Longwood to Violet Town and Violet Town to Benalla.

7D POINTS LOCATED AT 164.000km

7U POINTS LOCATED AT 163.845km

5D POINTS LOCATED AT 163.670km

5U POINTS LOCATED AT 163.512km

When reversing the section for a movement over the same line in the opposite direction, the signalling system will take approximately two minutes to set the route before the signal will clear.

Siemens M23a MKII Dual Control Point Machines are installed at each point location and are equipped with a selector lever and hand throw lever for manual operation.

The selector switch and hand throw lever, when not being operated manually, are secured by V5PSW padlocks.

### **2.8.2.2 Point Clips**

Point Clips are in locked boxes secured with a V5PSW padlock at the following locations:

- Box containing one point clip located adjacent to 7D points at 164.000km on the West Line.
- Box containing two point clips located approximately midway between 5D and 7U points at 163.770km on the East Line.
- Box containing one point clip located adjacent to 5U points at 163.512km on the West Line.

### **2.8.2.3 Rail Traffic Movements**

#### **WEST LINE TOWARDS ALBURY**

Automatic Signal EES1607 located at 160.696km is fitted with an "A" (G, Y, R) and "B" (G, R) aspect, permitting the signal to display a "Reduce to Medium Speed" aspect with an Illuminated '80' displayed when a medium speed indication is displayed on VTN14.

CTC Home Departure Signal VTN14 located at 163.198km is fitted with an "A" (G, R) and "B" (G, R) aspect, permitting the signal to display a "Medium Speed" aspect with an Illuminated '80' displayed when No. 5 Points are set in reverse for a movement towards the East Line.

#### **EAST LINE TOWARDS ALBURY**



## Main South Line Locations and Sections Information

Automatic Signal ES1607 located at 160.696km is fitted with an “A” (G, Y, R) and “B” (G, R) aspect, permitting the signal to display a “Reduce to Medium Speed” aspect with an Illuminated ‘80’ displayed when a medium speed indication is displayed on VTN4.

CTC Home Departure Signal VTN4 located at 163.198km is fitted with an “A” (G, R) and “B” (G, R) aspect, permitting the signal to display a “Medium Speed” aspect with an Illuminated ‘80’ displayed when No. 7 Points are set in reverse for a movement towards the West Line.

**WEST LINE TOWARDS MELBOURNE**

Automatic Signal EES1668 located at 166.866km is fitted with an “A” (G, Y, R) and “B” (G, R) aspect, permitting the signal to display a “Reduce to Medium Speed” aspect with an Illuminated ‘80’ displayed when a medium speed indication is displayed on VTN16.

CTC Home Departure Signal VTN16 located at 164.344km is fitted with an “A” (G, R) and “B” (G, R) aspect, permitting the signal to display a “Medium Speed” aspect with an Illuminated ‘80’ displayed when No. 7 Points are set in reverse for a movement towards the East Line.

**EAST LINE TOWARDS MELBOURNE**

Automatic Signal ES1668 located at 166.866km is fitted with an “A” (G, Y, R) and “B” (G, R) aspect, permitting the signal to display a “Reduce to Medium Speed” aspect with an Illuminated ‘80’ displayed when a medium speed indication is displayed on VTN6.

CTC Home Departure Signal VTN6 located at 164.344km is fitted with an “A” (G, R) and “B” (G, R) aspect, permitting the signal to display a “Medium Speed” aspect with an Illuminated ‘80’ displayed when No. 5 Points are set in reverse for a movement towards the West Line.

**2.8.2.4 Following Rail Traffic Movements Between Violet Town and Benalla**

CTC is a signalled system and comprises the operation of track side fixed signals and points from a network control location by the network controller with responsibility for one or more sections. Each section may be subdivided into a series of separately signalled track sections. A Track Section is any division of a single line section, the entrance to which is controlled by a controlled or automatic, fixed signal.

A following movement is the second or subsequent rail traffic movement signalled into a Single Line section proceeding in the same direction, once the required track section and overlap track beyond the signal is clear.

**WEST LINE FROM VIOLET TOWN TOWARDS BENALLA**

Following movements from Violet Town towards Benalla that traverse the West Line only, will be able to depart from Violet Town Signal VTN14 (or VTN4 with 7 points reversed), once any preceding movement has cleared the normal speed overlap of Signal EES1745 (EES17450T) in advance, which is located at approximately 174.897km.

Following movements from Violet Town towards Benalla that traverse the West Line only, will be able to follow on from Signal EES1745, once any preceding movement has cleared the normal speed overlap of Signal BNL24 in advance, which is located at approximately 194.233km.

**EAST LINE FROM VIOLET TOWN TOWARDS BENALLA**

Following movements from Violet Town towards Benalla that traverse the East Line only, will be able to depart Violet Town Signal VTN4 (or VTN14 with 5 points reversed), once the preceding movement has cleared the normal speed overlap of Signal BNL4 in advance, which is located at approximately 194.233km.

**WEST LINE FROM BENALLA TOWARDS VIOLET TOWN**

Following movements from Benalla towards Violet Town that traverse the West Line only, will be able to depart Benalla Signal BNL26 (or BNL46 with 9 Points Benalla reversed), once any preceding movement has cleared the normal speed overlap of Absolute Signal VTN16 in advance and is occupying or clear of 7 points (A7T), which is located at approximately 164.042km.

**EAST LINE FROM BENALLA TOWARDS VIOLET TOWN**

Following movements from Benalla towards Violet Town that traverse the East Line only, will be able to depart Benalla Signal BNL6 (or BNL26 with 7 Points reversed), once any preceding movement has cleared the normal speed overlap of Signal ES1716 in advance and is clear of overlap track circuit (9T Violet Town Siding), which is located at approximately 171.406km.

Following movements from Benalla towards Violet Town that traverse the East Line only, will be able to follow on from Signal ES1716, once any preceding movement has cleared the normal speed overlap of Signal VTN6 in advance and is occupying or clear of 7 points (7T), which is located at approximately 164.042km.

**2.8.2.5 Following Rail Traffic Movements from Violet Town Towards Longwood****WEST LINE FROM VIOLET TOWN TOWARDS LONGWOOD**

Following movements from Violet Town towards Longwood that traverse the West Line only, will be able to depart from Violet Town VTN16 (or VTN6 with 5 points reversed) once the preceding movement has cleared the normal speed overlap of Absolute Signal LWD16 in advance and is occupying or clear of 7 points, which is located at approximately 131.977km.

**EAST LINE FROM VIOLET TOWN TOWARDS LONGWOOD**

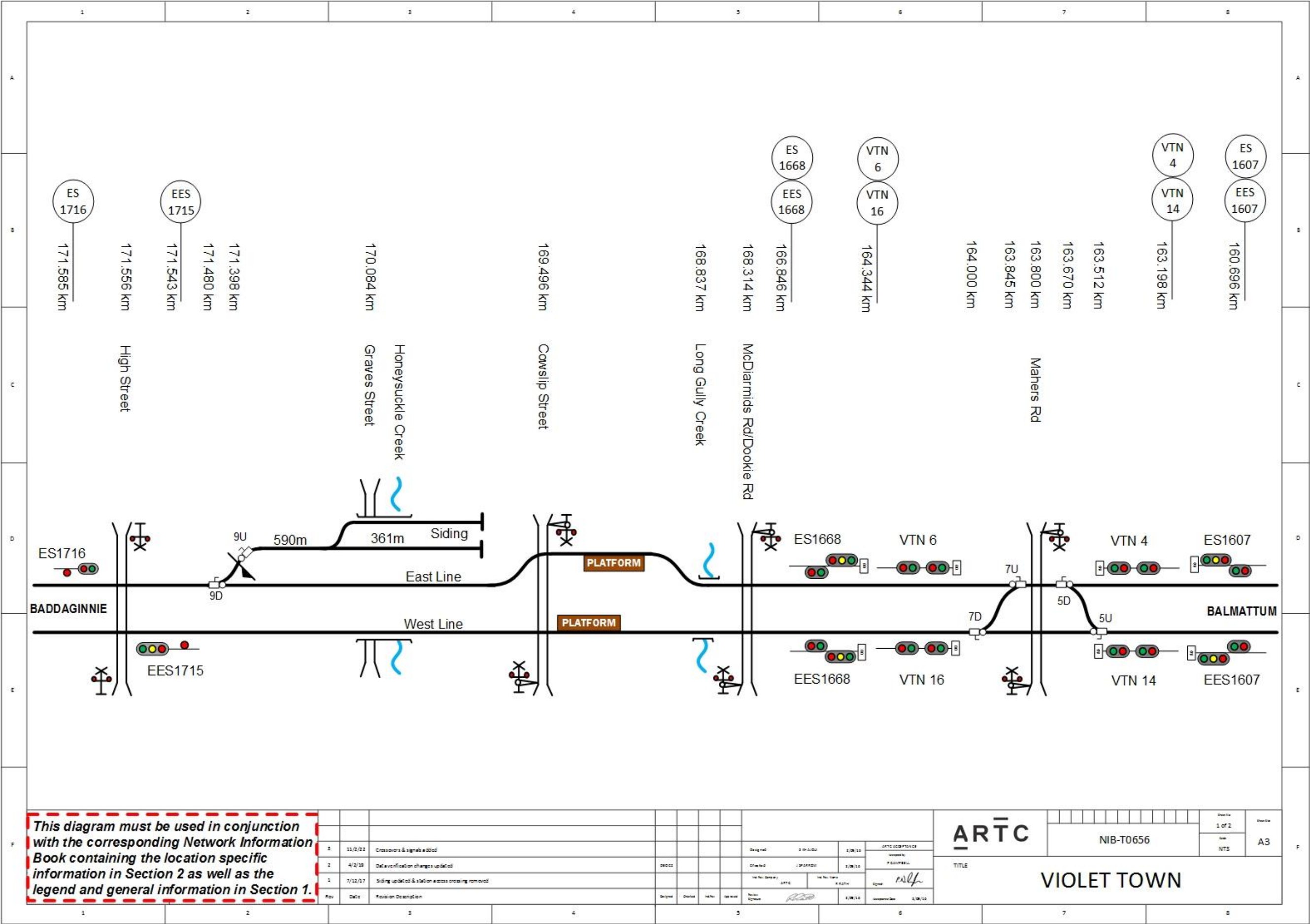
Following movements from Violet Town towards Longwood that traverse the East Line only, will be able to depart from Violet Town VTN6 (or VTN16 with 7 points reversed) once the preceding movement has cleared Signal ES1464 in advance and is clear of overlap track circuit (14640T), which is located at approximately 146.070km.

Following movements from Violet Town towards Longwood that traverse the East Line only, will be able to follow on from Signal ES1464 once any preceding movement has cleared the normal speed overlap of Absolute Signal LWD6 in advance and is occupying or clear of 9 points (9T), which is located at approximately 131.987km.

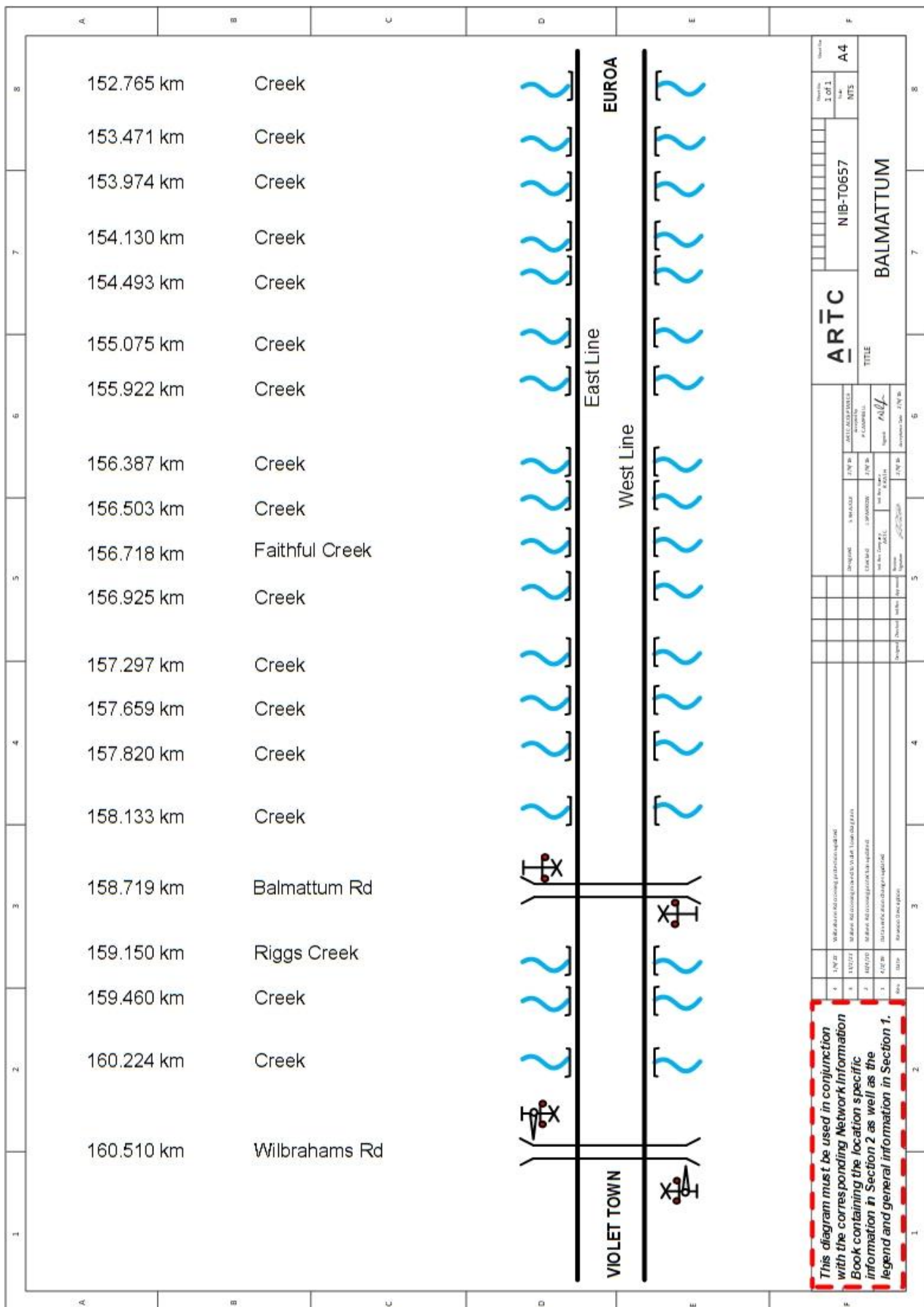
**2.8.2.6 Authority To Pass CTC Home Departure Signal at Stop**

Should a CTC Home Departure Signal fail to assume a 'Proceed Aspect' the Network Controller may issue a CTC Caution Order for the Driver to Pass the Home Departure Signal in accordance with Clause B, Rule 7, Section 17 of TA20.

The CTC Caution Order is to include the route to which it applies.

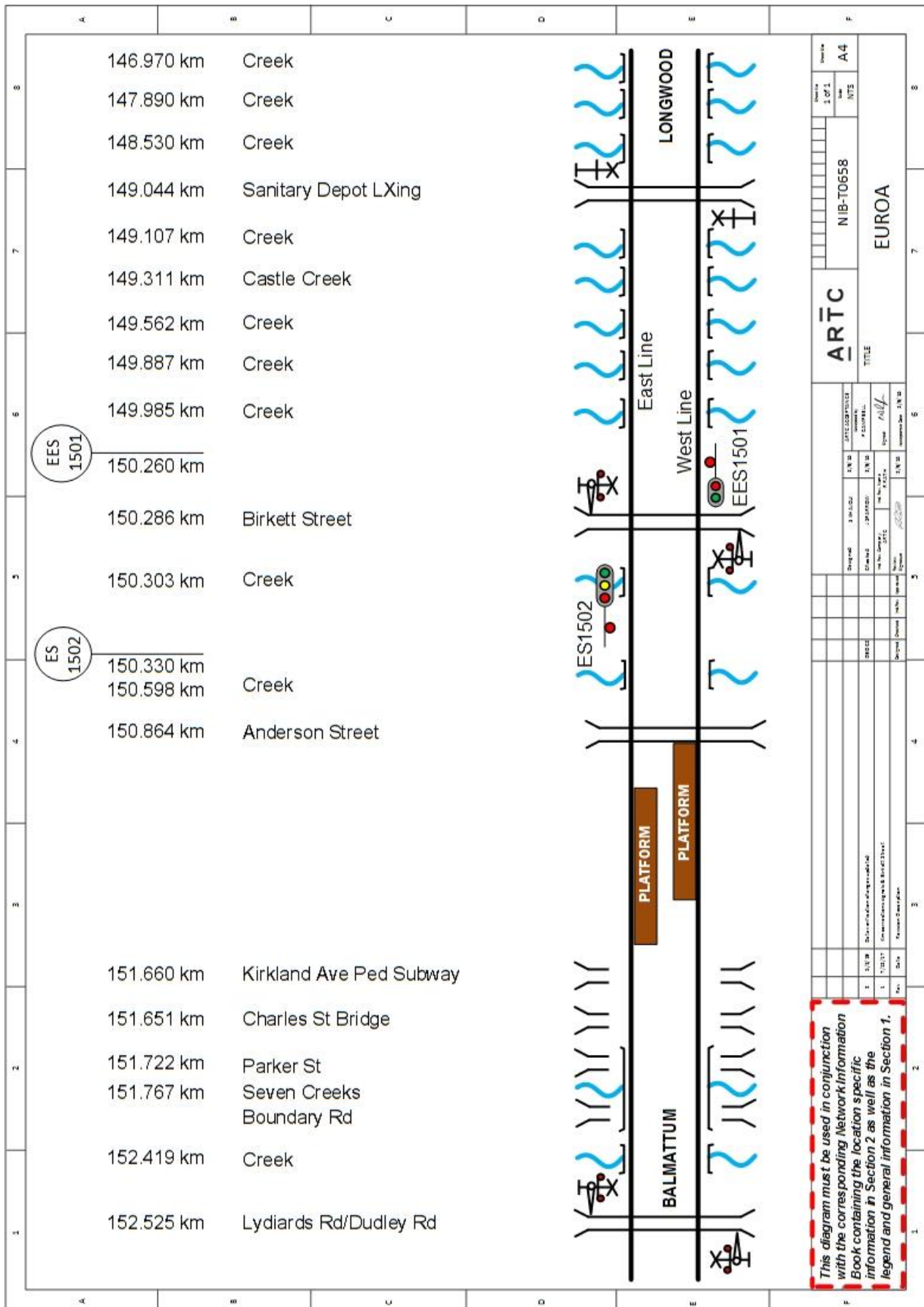


### Main South Line Locations and Sections Information

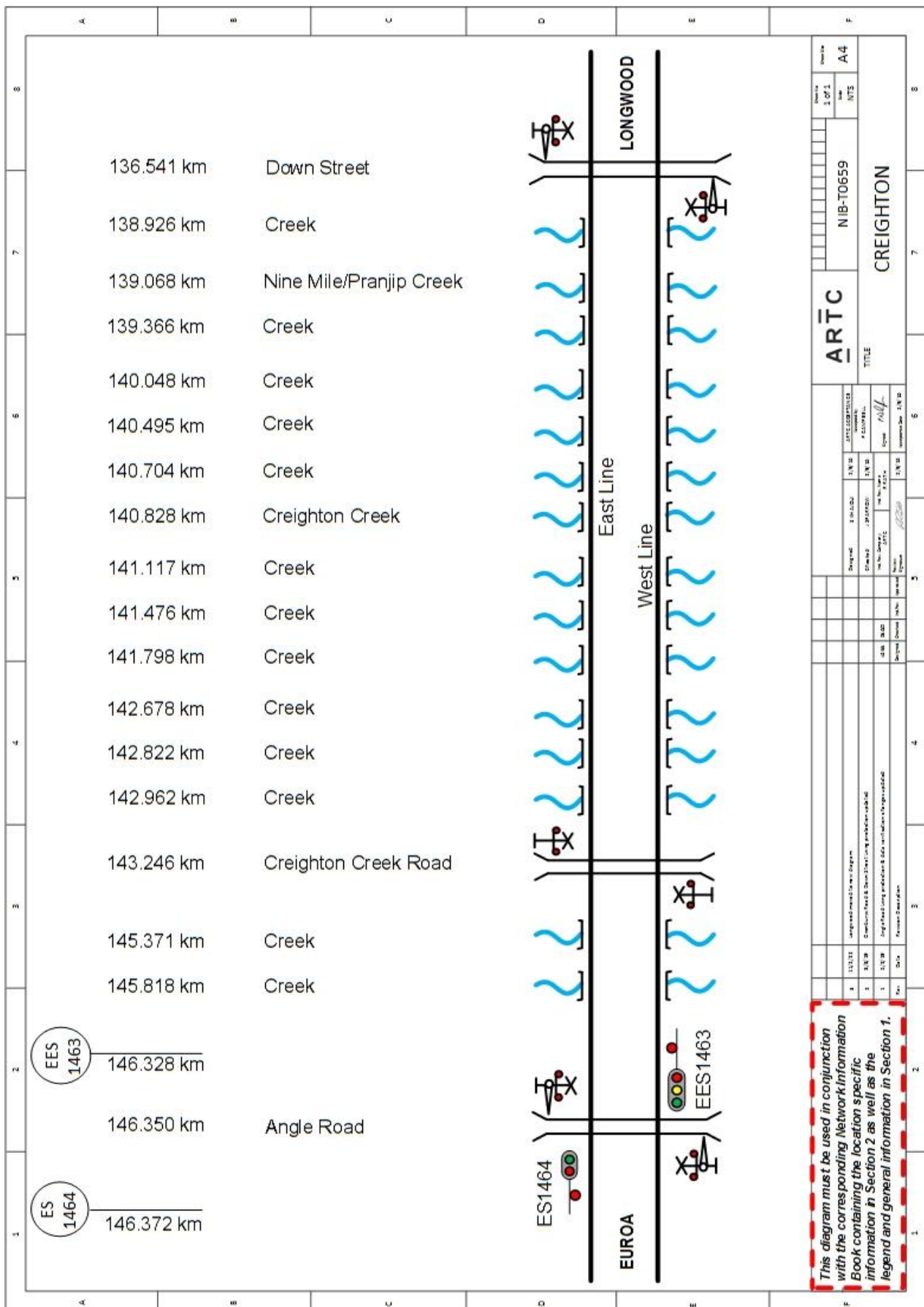




## Main South Line Locations and Sections Information



### Main South Line Locations and Sections Information



## 2.9 Longwood (LWD)

### 2.9.1 Overview

Crossovers have been installed to enable the previous section between Seymour Loop and Benalla to be split into three sections: Seymour Loop to Longwood, Longwood to Violet Town and Violet Town to Benalla.

9D POINTS LOCATED AT 131.977km

9U POINTS LOCATED AT 131.820km

5D POINTS LOCATED AT 131.780km

5U POINTS LOCATED AT 131.622km

When reversing the section for a movement over the same line in the opposite direction, the signalling system will take approximately two minutes to set the route before the signal will clear.

Siemens M23a MKII Dual Control Point Machines are installed at each point location and are equipped with a selector lever and hand throw lever for manual operation.

The selector switch and hand throw lever, when not being operated manually, are secured by V5PSW padlocks.

### 2.9.2 Points Clips

Point Clips are in locked boxes secured with a V5PSW padlock at the following locations: -

- Box containing one point clip located adjacent to 9D points at 131.977km on the West Line.
- Box containing two point clips located midway between 5D and 9U points at 131.800km on the East Line.
- Box containing one point clip located adjacent to 5U points at 131.622km on the West Line.

### 2.9.3 Rail Traffic Movements

#### WEST LINE TOWARDS ALBURY

Automatic Signal EES1289 located at 128.829km is fitted with an "A" (G, Y, R) and "B" (G, R) aspect, permits the signal to display a "Reduce to Medium Speed" aspect with an Illuminated '80' displayed when a medium speed indication is displayed on LWD14.

CTC Home Departure Signal LWD14 located at 131.309km is fitted with an "A" (G, R) and "B" (G, R) aspect, permits the signal to display a "Medium Speed" aspect with an Illuminated '80' displayed when No. 5 Points are set in reverse for a movement towards the East Line.

#### EAST LINE TOWARDS ALBURY

Automatic Signal ES1289 located at 128.829km is fitted with an "A" (G, Y, R) and "B" (G, R) aspect, permits the signal to display a "Reduce to Medium Speed" aspect with an Illuminated '80' displayed when a medium speed indication is displayed on LWD4.

CTC Home Departure Signal LWD4 located at 131.309km is fitted with an "A" (G, R) and "B" (G, R) aspect, permits the signal to display a "Medium Speed" aspect with an Illuminated '80' displayed when No. 9 Points are set in reverse for a movement towards the West Line.

#### WEST LINE TOWARDS MELBOURNE

Automatic Signal EES1350 located at 134.860km is fitted with an “A” (G, Y, R) and “B” (G, R) aspect, permits the signal to display a “Reduce to Medium Speed” aspect with an Illuminated ‘80’ displayed when a medium speed indication is displayed on LWD16.

CTC Home Departure Signal LWD16 located at 132.408km is fitted with an “A” (G, R) and “B” (G, R) aspect, permits the signal to display a “Medium Speed” aspect with an Illuminated ‘80’ displayed when No. 9 Points are set in reverse for a movement towards the East Line.

#### EAST LINE TOWARDS MELBOURNE

Automatic Signal ES1350 located at 134.860km is fitted with an “A” (G, Y, R) and “B” (G, R) aspect, permits the signal to display a “Reduce to Medium Speed” aspect with an Illuminated ‘80’ displayed when a medium speed indication is displayed on LWD6.

CTC Home Departure Signal LWD6 located at 132.408km is fitted with an “A” (G, R) and “B” (G, R) aspect, permits the signal to display a “Medium Speed” aspect with an Illuminated ‘80’ displayed when No. 5 Points are set in reverse for a movement towards the West Line.

### 2.9.3.1 Following Rail Traffic Movements Between Seymour Loop and Longwood

CTC is a signalled system and comprises the operation of track side fixed signals and points from a network control location by the network controller with responsibility for one or more sections. Each section may be subdivided into a series of separately signalled track sections. A Track Section is any division of a single line section, the entrance to which is controlled by a controlled or automatic, fixed signal.

A following movement is the second or subsequent rail traffic movement signalled into a Single Line section proceeding in the same direction, once the required track section and overlap track beyond the signal is clear.

#### WEST LINE FROM SEYMOUR LOOP TOWARDS LONGWOOD

Following movements from Seymour Loop towards Longwood that traverse the West Line only, will be able to depart Seymour Loop Signal SEY132, once any preceding movement has cleared the normal speed overlap of Signal EES1253 in advance and is clear of overlap track circuit (EES12530T), which is located at approximately 125.627km.

Following movements from Seymour Loop towards Longwood that traverse the West Line only, will be able to follow on from Signal EES1253, once any preceding movement has cleared the normal speed overlap of Signal LWD14 in advance and is occupying or clear of 5 points (A5T), which is located at approximately 131.612km.

#### EAST LINE FROM SEYMOUR LOOP TOWARDS LONGWOOD

Following movements from Seymour Loop towards Longwood that traverse the East Line only, will be able to depart Seymour Loop Signal SEY112 (or SEY132 with 113 Points reversed), once any preceding movement has cleared the normal speed overlap of Signal LWD4 in advance and is occupying or clear of 5 points (5T), which is located at approximately 131.612km.

#### WEST LINE FROM LONGWOOD TOWARDS SEYMOUR LOOP

Following movements from Longwood towards Seymour Loop that traverse the West Line only, will be able to depart from Longwood LWD16 (or LWD6 with 5 points reversed) once any preceding movement has cleared the normal speed overlap of Absolute Signal SEY134 in advance and is clear of overlap track circuit (136T), which is located at approximately 103.163km.

**EAST LINE FROM LONGWOOD TOWARDS SEYMOUR LOOP**

Following movements from Longwood towards Seymour Loop that traverse the East Line only, will be able to depart Longwood LWD6 (or LWD16 with 9 points reversed) once any preceding movement has cleared the normal speed overlap of Signal ES1222 in advance which is located at approximately 121.817km.

Following movements from Longwood towards Seymour Loop that traverse the East Line only, will be able to follow on from Signal ES1222 once any preceding movement has cleared the normal speed overlap of Signal SEY114 in advance, which is located at approximately 103.163km.

**2.9.3.2 Following Rail Traffic Movements from Longwood Towards Violet Town****WEST LINE FROM LONGWOOD TOWARDS VIOLET TOWN**

Following movements from Longwood towards Violet Town that traverse the West Line only, will be able to depart Longwood Signal LWD14 (or LWD4 with 9 points reversed), once any preceding movement has cleared the normal speed overlap of Signal EES1501 (EES15010T) in advance which is located at approximately 151.130km.

Following movements from Longwood towards Violet Town that traverse the West Line only, will be able to follow on from Signal EES1501, once any preceding movement has cleared the normal speed overlap of Signal VTN14 in advance and is occupying or clear of 5 points (A5T), which is located at approximately 163.512km.

**EAST LINE FROM LONGWOOD TOWARDS VIOLET TOWN**

Following movements from Longwood towards Violet Town that traverse the East Line only, will be able to depart Longwood Signal LWD4 (or LWD14 with 5 points reversed), once the preceding movement has cleared the normal speed overlap of Signal VTN4 in advance and is occupying or clear of 5 points (5t), which is located at approximately 163.502km.

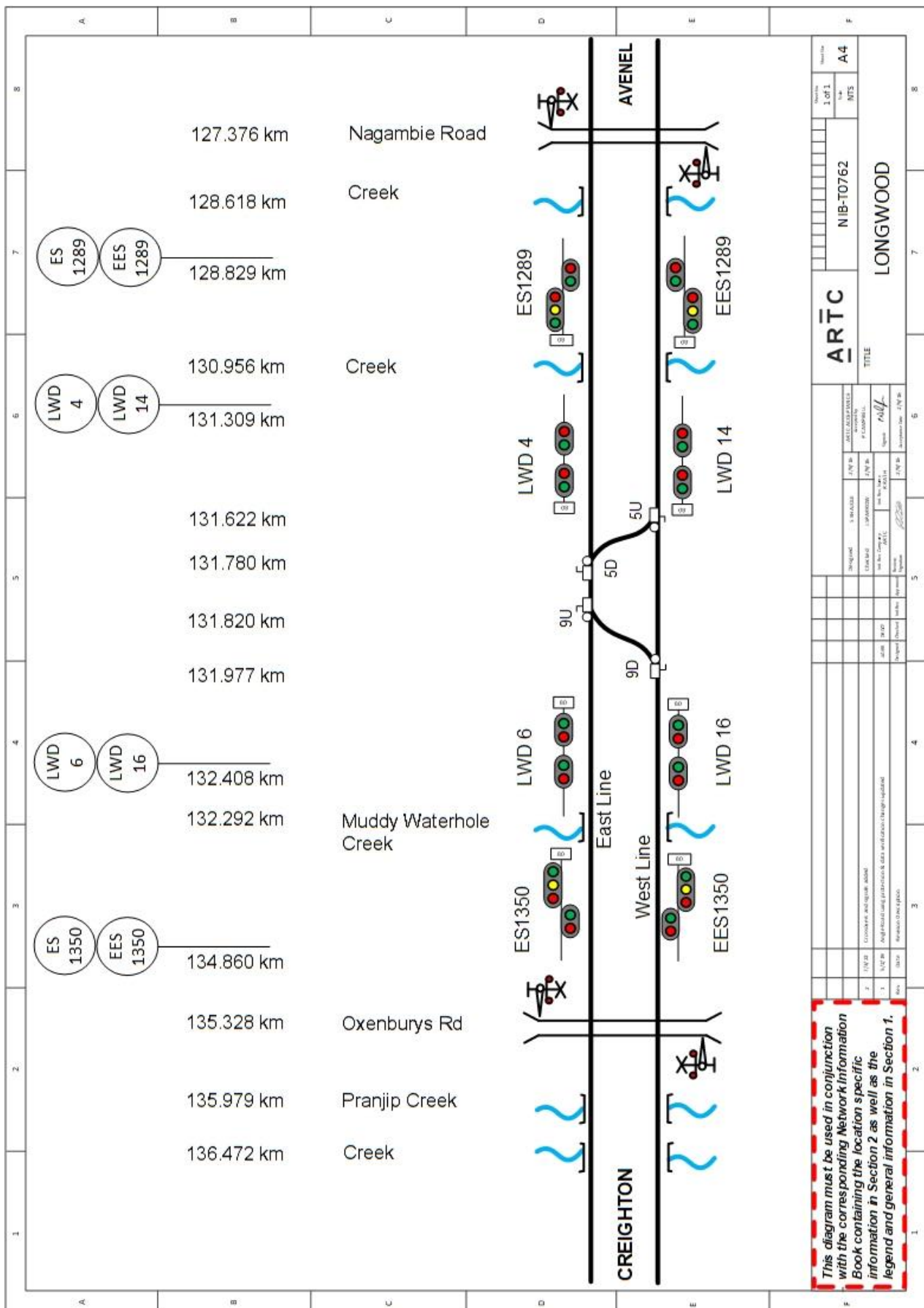
**2.9.4 Authority To Pass CTC Home Departure Signal at Stop**

Should a CTC Home Departure Signal fail to assume a 'Proceed Aspect' the Network Controller may issue a CTC Caution Order for the Driver to Pass the Home Departure Signal in accordance with Clause B, Rule 7, Section 17 of TA20.

The CTC Caution Order is to include the route / line to which it applies.



## Main South Line Locations and Sections Information



## 2.10 Avenel

Passenger Platform (West Line) 116.025km to 115.905km (120m)

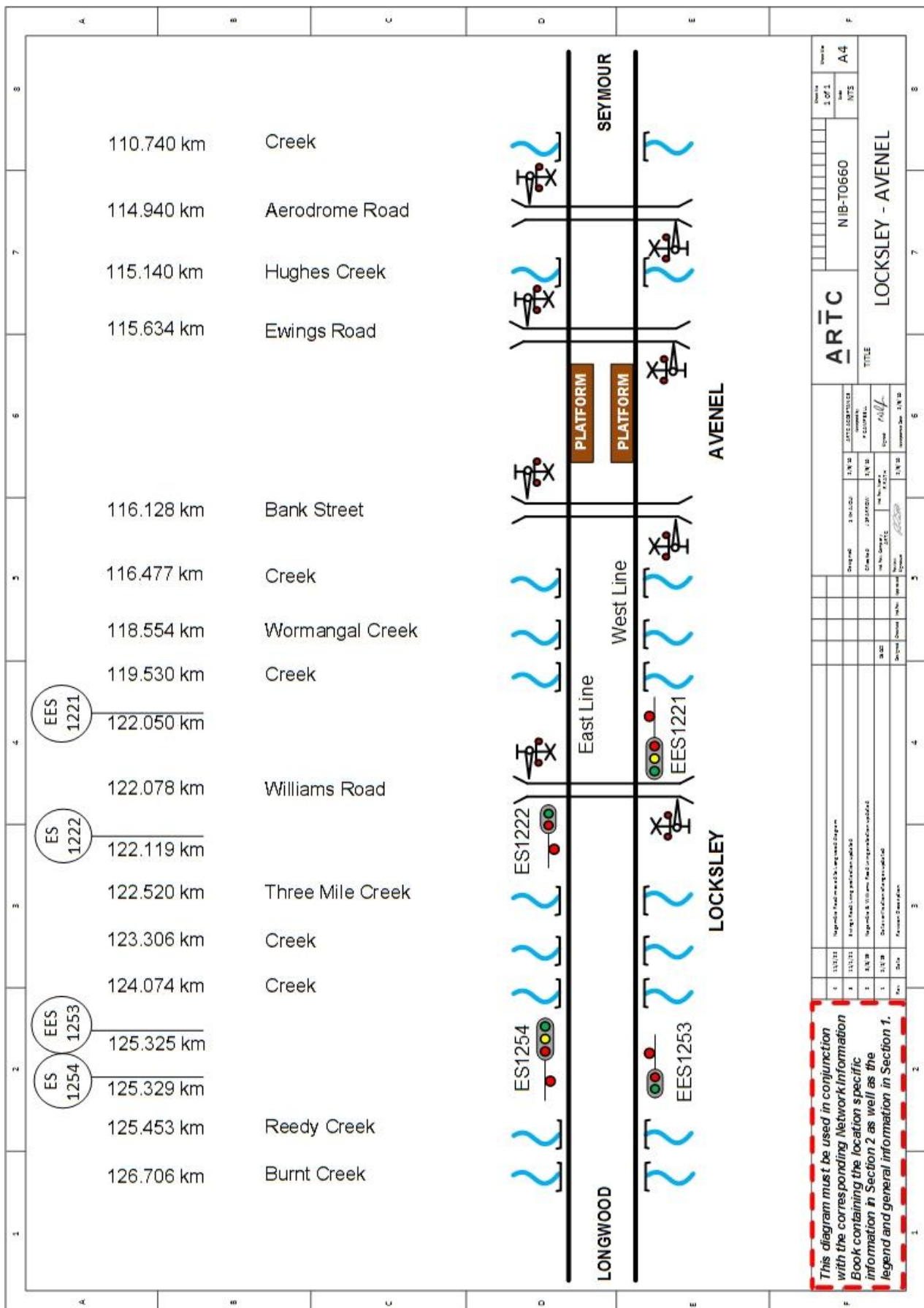
Passenger Platform (East Line) 116.060km to 115.880km (180m)

### **Stopping Trains Departing Passenger Platforms in Up Direction**

Trains departing the passenger platforms on both the East and West lines must not exceed 30km/hr until reaching the Ewings Road level crossing (115.634km). Signs are located near the Melbourne end of each platform.



## Main South Line Locations and Sections Information



## 2.11 Seymour Crossing Loop (SGS)

End of double track from Wodonga at 99.809km.

Broad gauge line deviates away from standard gauge line at 109.000km (Mangalore).

An intermediate siding is located on the East line at 101.820km.

Standard gauge run around is accessed via 111 points located at 99.160km.

### **Standing Room**

Loop 2000m

Siding 1506m

### **Local Control Panel**

No

### **Crank handles**

No

### **Points / Releases**

115 Points

111 Points (Need to confer with Seymour Signal Box before using)

Grade Crossing

### 2.11.1 Operating Details

#### **Points**

No.107 single ended points are provided at 99.807km facing Down direction traffic.

No.113U & 113D (double ended) points are provided at 102.680km and 102.844km to form a connection between the East and West Line.

The crossover is facing to Up direction traffic on the East Line and Down direction traffic on the West Line.

These points are fitted with Vossloh Cogifer point machines and are rated at a maximum speed of 80 km/h for a diverging movement.

The point machine is interlocked with the signalling system in order that when the Selector Lever is placed in to the 'Hand' operating position, the Signals protecting the points will be secured at the 'Stop' position.

#### **Point Clip Cabinets**

Point Clip cabinets are provided at the Up and Down ends of the Seymour Loop. The doors of the cabinets are secured closed with V5PSW padlocks.

#### **Signage**

East Line and West Line Advisory Signs are installed on the immediate Down side of No.107 points. The signs are White in colour with Black lettering and Worded 'East Line' or 'West Line' as applicable.

## Main South Line Locations and Sections Information

A 'Limit of Shunt' Board is installed at the Up end of No.1 Platform facing Up direction movements. Rail traffic movements exiting the standard gauge connection to the Seymour Locomotive Depot must not proceed beyond the 'Limit of Shunt' board.

---

*NOTE: All rail traffic movements exiting the Seymour Locomotive Depot to proceed towards Melbourne, must first proceed to Seymour Loop. From this point, the movement must then be signalled towards Melbourne in the usual manner.*

---

**Signals**

SEY102 Down Intermediate Home Signal located at 97.305km on the Down Side of the single line. This signal is for Down direction movements towards Down Home Signal SEY104. The Signal is provided with an illuminated 80km/h speed indicator for movements to the West Line.

SEY104 Down Home Arrival Signal located at 99.780km on the Down Side of the single line. This signal is for Down direction movements from the Single Line towards Down Home Signals SEY132 or SEY112. The Signal is provided with an illuminated 80km/h speed indicator for movements to the West Line.

SEY126 Up Home Departure Signal is located at 100.230km on the Up side of the West Line. This signal is for Up direction movements from the West Line to the Single Line. The Signal is provided with an illuminated 80km/h speed indicator for movements to the Single Line.

SEY106 Up Home Departure Signal is located at 100.240km on the Up Side of the East Line. This signal is for Up direction movements from the East Line to the Single Line.

SEY132 Down Home Departure Signal is located at 102.210km on the Up side of the West Line. This signal is for Down direction movements from the West Line Loop Road to the East or West Line. The Signal is provided with an illuminated 80km/h speed indicator for movements to the East Line.

SEY112 Down Home Departure Signal is located at 102.000km on the Up side of the East Line. This signal is for Down direction movements from the East Line Loop Road to the East Line.

SEY134 Up Home Arrival Signal is located at 103.165km on the Up side of the West Line. This signal is for Up direction movements from the West Line to the West Line Loop Road. The Signal is provided with an illuminated 80km/h speed indicator for movements to the Single Line at Signal SEY126.

SEY114 Up Home Arrival Signal is located at 103.165km on the Up side of the East Line. This signal is for Up direction movements from the East Line to the East or West Line Loop Road. The Signal is provided with an illuminated 80km/h speed indicator for movements to the West Line Loop Road.

SEY136 Up Uncontrolled Home Signal is located at 106.050km on the Up side of the West Line. This signal is for Up direction movements along the West Line towards Up Signal SEY134.

SEY116 Up Uncontrolled Home Signal is located at 106.050km on the Up side of the East Line. This signal is for Up direction movements along the East Line towards Up Signal SEY114.

EES1102 Up Repeating Signal is located at 110.246km on the Down side of the West Line. This signal is for Up Direction Movements along the West Line towards Up Uncontrolled Home Signal SEY136.

**Push Buttons for Home Departure Signals****a) Emergency Operation Owing to Control System Failure**

In the event of a control system failure and provided the correct interlocking and track occupancy conditions exist, the points and signals will assume automatic operation.

As a Melbourne bound train approaches signal SEY114 and provided the track ahead is clear, Points 113 will assume the Normal position and signal SEY114 will automatically clear for the movement to proceed onto the East Line.

As a Sydney bound train approaches Signal SEY102, Points 107 will assume the reverse position and Points 113 will assume the Normal position. Signal SEY102 and will then assume a proceed indication. Signal SEY104 will also clear for the movement to proceed to the West Line.

The signals will not clear for the arriving movement if there are conflicting movements already on the nominated track.

**b) Push Button Controls for Signals**

Push button controls are located at signal SEY132 at the Sydney end of Seymour Crossing Loop and signals SEY106 and SEY126 at the Melbourne end of Seymour Crossing Loop and allow the control of the signals in the event of control system failure.

The push buttons are applicable to the relevant signals at that location and are provided with 'Clear' and 'Cancel' push buttons.

When instructed by the Network Operations Controller, the Driver must push the applicable push button for the signal applicable to that which the train is standing at. Provided the correct interlocking conditions exist, the points will set to the required position and the signal selected will assume a proceed aspect for the train to depart.

**c) Seymour Crossing Loop: Operation of Home Departure Signals SEY106, SEY126 & SEY132 during Failure Conditions**

Push button controls housed in a cabinet are provided adjacent to the Signals to allow operation of the signals (and points where applicable) by train crews during failure conditions. The push buttons are provided with two controls for each signal:

The signalling system is provided with a facility that allows it to be locally operated by the train crew or automatically dependant on the infrastructure constraints of the area.

The push buttons have two controls for each signal:

Clear: Provided the correct conditions exist, sets the points for the required route and places a call on the signal.

Cancel: Cancels the command, a time release will operate on the signal prior to the route becoming free.

### 2.11.2 Intermediate Siding

An Intermediate Siding is provided leading off the East Line Road at Seymour Crossing Loop at 101.700km. Direct access to the Siding is available for Up direction rail traffic movements.

The Siding supports an 'in-clear' standing room of 1506 metres. The points governing access to the siding (No.115 points) are secured in the Normal position by motorised points which are released for use via the operation of V5PSW key switches as detailed below.

The main line points operate in conjunction with a Derail and Wheel Crowder situated at the exit from the siding. The Derail and Wheel Crowder is rodged to the main line points.

#### Description of Equipment:

The main line points at the Intermediate Siding are controlled from two V5PSW key switches located in a safeworking cabinet adjacent to the points.

The first V5PSW key switch (the Release V5PSW Key Switch) is used to accept the release from Network Control. The release may be manually cancelled by turning the key to the Left hand position.

The Release indication (a Yellow light) is:

- \* Flashing when the release is offered by the Network Controller, and
- \* Steady when the release is accepted locally.

The second V5PSW key switch (the Points V5PSW Key Switch) is utilized to operate the points to the Normal or Reverse position as required.

Three indicating lights are provided above this key switch and they are normally extinguished unless a release has been given:

- N (Green): Indicates that the points are set in the Normal position.
- Free (White): Indicates that the points are free to be operated from the key switch.
- R (Yellow): Indicates that the points are set in the Reverse position.

To operate the points to either the Normal or Reverse position, the V5PSW key must be operated to the required position, held in that position until the points have operated to the required lie and then returned to the centre position to be removed. A delay of up to 20 seconds may occur during the operation of the points command.

The cabinet also contains a separate control panel comprising of a Fortress key release and V5PSW key switch for use during a failure of the remote control release or the motorized points at the siding.

The door to the cabinet is secured closed with a V5PSW padlock

#### Rail Traffic Movement to Enter Siding

The movement must be stopped so that the lead vehicle is closer than 100 metres to the points, but not within 3 metres of the points.

The competent person must then:

1. Contact the Network Controller and request a release for the points.
2. Note that the indications on the control panel have illuminated and that the Yellow release light is flashing, signifying the release is available.

3. Insert the V5PSW key into the release key switch and accept the release by turning the key to the Right hand position. Hold the key in that position until the release light is steady.
4. The points will now be unlocked and the Points Free light will illuminate.
5. Remove the V5PSW key from the release key switch and insert it into the points key switch and turn the key to the Right hand position.
6. Once the points are indicated as being in the Reverse position, remove the key.
7. The movement may then shunt as required.
8. Once the shunt is completed, the movement must be clear of the points, after which the points must be normalized and the release cancelled.

### **Rail Traffic Movement to Depart the Siding after being Locked Away**

The competent person must:

1. Contact the Network Controller and request a release for the points.
2. Note that the indications on the control panel have illuminated and that the Yellow release light is flashing, signifying the release is available.
3. Insert the V5PSW key into the release key switch and accept the release by turning the key to the Right hand position. Hold the key in that position until the release light is steady.
4. The points will now be unlocked and the Points Free light will illuminate.
5. Remove the V5PSW key from the release key switch and insert it into the points key switch and turn the key to the Right hand position.
6. Once the points are indicated as being in the Reverse position, remove the key.
7. The movement may then depart the siding and stop clear of the points on the main line.
8. The points must be normalized and the release cancelled.

---

*Note: Distance markers have been positioned at the 500, 1000 and 1500 metre distances to assist the Driver in determining the train has cleared the main line points.*

---

### **Failure of Points Release/Control System - Description of Equipment Provided**

An emergency operation lock (EOL) is also provided in the safeworking cabinet.

The EOL key will enable the motorized points to be manually operated during a failure of the system. The EOL key must not be removed without the approval of the Network Controller.

The process of removing the EOL key is initiated by operating the V5PSW release key switch to the Right hand position. This process will initiate an alarm on the Network Controller's VDU. Whilst the release request is in process, the Yellow release light will flash and at the end of an approximate 4 - 9 minute time interval, the light will become steady, indicating that the key is available to be withdrawn.

The EOL key may then be removed by operating the push button and removing the key. Once the key is released from its lock, all Signals leading over the points are secured at the Stop position.

The EOL key is returned to its lock by replacing the key in to the lock and turning the key to the right.



**Failure of Points Release/Control System**

In the event of a failure of the points release/control system and it is necessary for the motorized points governing access to the Siding to be manually operated, the following procedure must be observed:

The Network Controller must:

1. Ensure that there are no other rail traffic movements affecting the release.
2. Check the VDU screen and associated lever to ensure that all signals leading into the section are at the Stop position.
3. Request the competent person to place the points key switch to the Normal position for 30 seconds and then return the V5PSW key to the central position and remove the key from the switch.
4. Request the competent person to place the Release key switch to the Normal position and then return the V5PSW key to the central position and remove the key from the switch.
5. The Network Controller must then cancel the release and attempt the procedure again.

If the local control system is still not responding, the Network Controller must:

1. Ensure the Home Arrival Signals governing access to the East line leg of the Loop are blocked at the 'Stop' position.
2. Request the competent person to operate the EOL lock to release the key.
3. Where the communication link has not been lost between Network Control and the local safeworking cabinet, ensure that the alarm is generated as soon as the request for the EOL key is made.

The Competent Person must then:

1. Place the V5PSW Key into the EOL key switch and place it to the Reverse position and leave it in that position for 6 minutes.
2. When the release becomes available, remove the Fortress key from the lock by turning it to the Left hand position.
3. Place the V5PSW to the Left hand position (Cancel Position) and remove the key.
4. Proceed to the main line points and unlock the Selector lever with the Fortress key and place it into the 'Hand' position.
5. Unlock the Hand Throw lever and place the main line points to the correct position. (The Fortress key will be held captive in the main line points machine)
6. Once the train has cleared the points, restore the main line points to the Normal position, restore the Selector lever to the 'Motor' position and remove the Fortress key.
7. Restore the Fortress key to its lock and turn it to the Right hand position.
8. Advise the Network Controller that the key has been restored.



**Failure of EOL Key to Release**

Should the EOL key fail to release following the completion of the above protocol, the services of a Signal Maintenance Technician must be obtained.

The protocols detailed above must be complied with prior to the key being manually withdrawn by the Signal Maintenance Technician.

**2.11.3 Rail Movements Exiting Standard Gauge Siding**

A Notice Board facing Up Trains is provided at the SG rail exit from the siding.

The sign has a RED background with the following WHITE text

STOP

DO NOT PASS WITHOUT ARTC NETWORK CONTROL NCCS PERMISSION AND  
SWITCHLOCK RELEASE

All Train Crews must first obtain permission for switch lock release, accept release, ensure main line points, and catch points are in reverse prior to requesting permission from Network Control to pass Stop Board.

All Train Crews and track machine operators must obtain permission from the ARTC Network Controller at NCCS prior to passing this Notice Board to depart the Locomotive Sidings.

**2.11.4 Seymour – Failure of Grade Crossing Pilot Lever**

The points leading to the Locomotive Depot are operated by Dual Control point machines.

The Selector and hand Throw levers on these machines are secured with special padlocks.

The key to these padlocks is kept in the Signal Control Room. The key must not be removed from the Control room without the express authority of the ARTC Train Controller.

Should the Broad Gauge Pilot Lever fail to release when required, the Signal Maintenance Technician must be advised of the circumstances. If it is necessary for a Broad Gauge train to proceed over the Grade Crossing during the period of failure, and the Signal Maintenance Technician is not in position to assist with the operation the following procedures must be adopted:

The Signaller at Seymour Signal Control Panel must come to a complete understanding as to what movements are to take place.

Prior to giving permission for the movement to take place, the ARTC Train Controller must:

Ensure that no Standard Gauge train or Track Machine is approaching the Grade Crossing;

Ensure that a Blocking Command has been applied to Standard Gauge Signals applicable to movements across the Grade Crossing

After giving permission for the movement to take place, not permit a Standard Gauge train or Track machine to proceed past the Home Signals protecting the Grade Crossing until the Signaller advises that the Grade Crossing is clear and that all applicable levers are in the normal position.

The Signaller must then take the key to the padlocks securing the Selector and Hand Throw levers and proceed to the points leading to the Locomotive Depot. The points must be manually reversed,

The necessary traffic movements may then take place. When all movements have been completed, the points must be placed to the Normal position, and the Selector and Hand Throw levers locked with the special padlocks provided.

The ARTC Train Controller must then be advised that all movements have been completed. The Blocking Commands may then be removed and normal working resumed.

The Train Register Book must be endorsed on each occasion that it is necessary for a train to proceed over the Grade Crossing during the period when a failure exists.

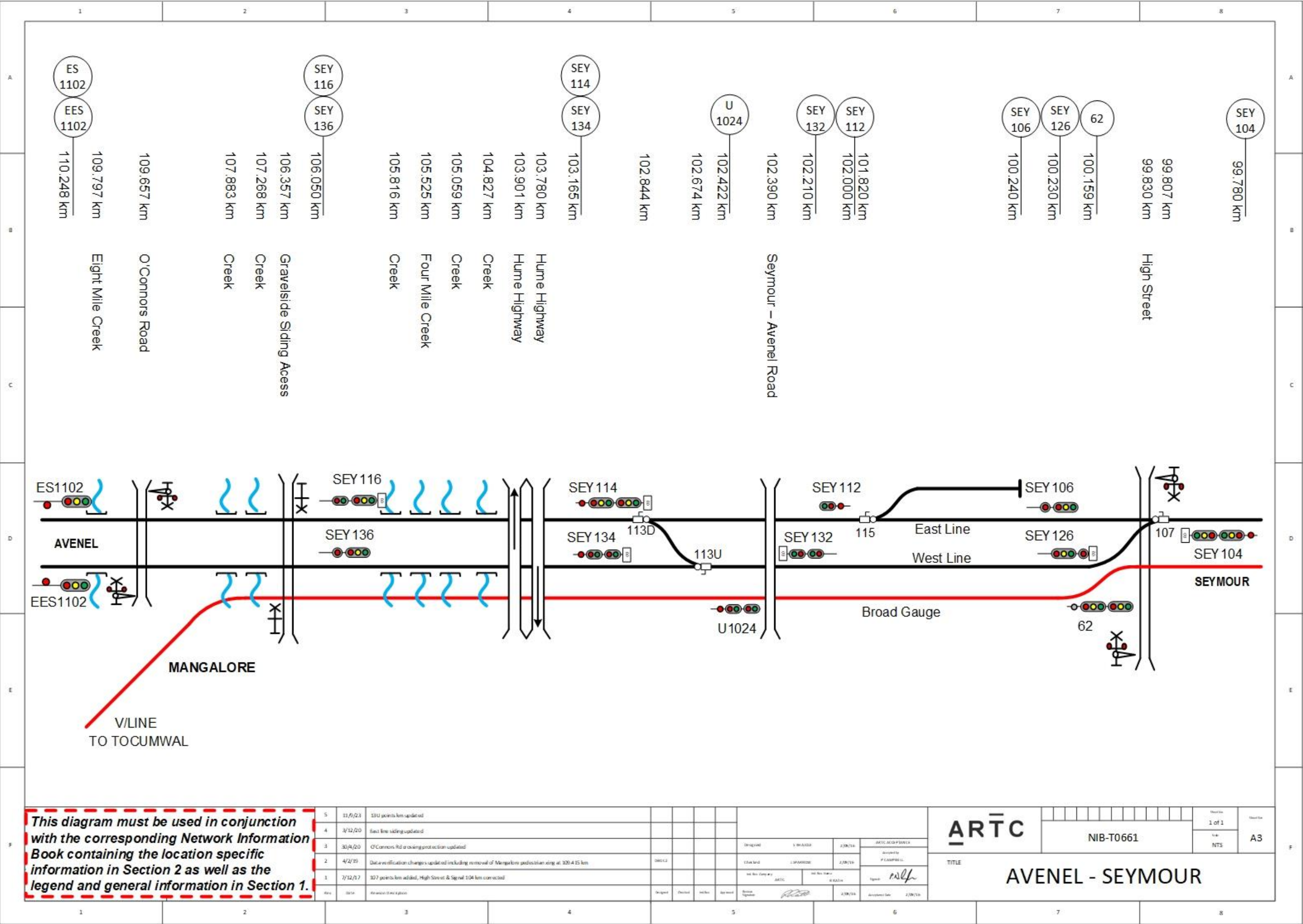
### 2.11.5 Wayside Monitoring System

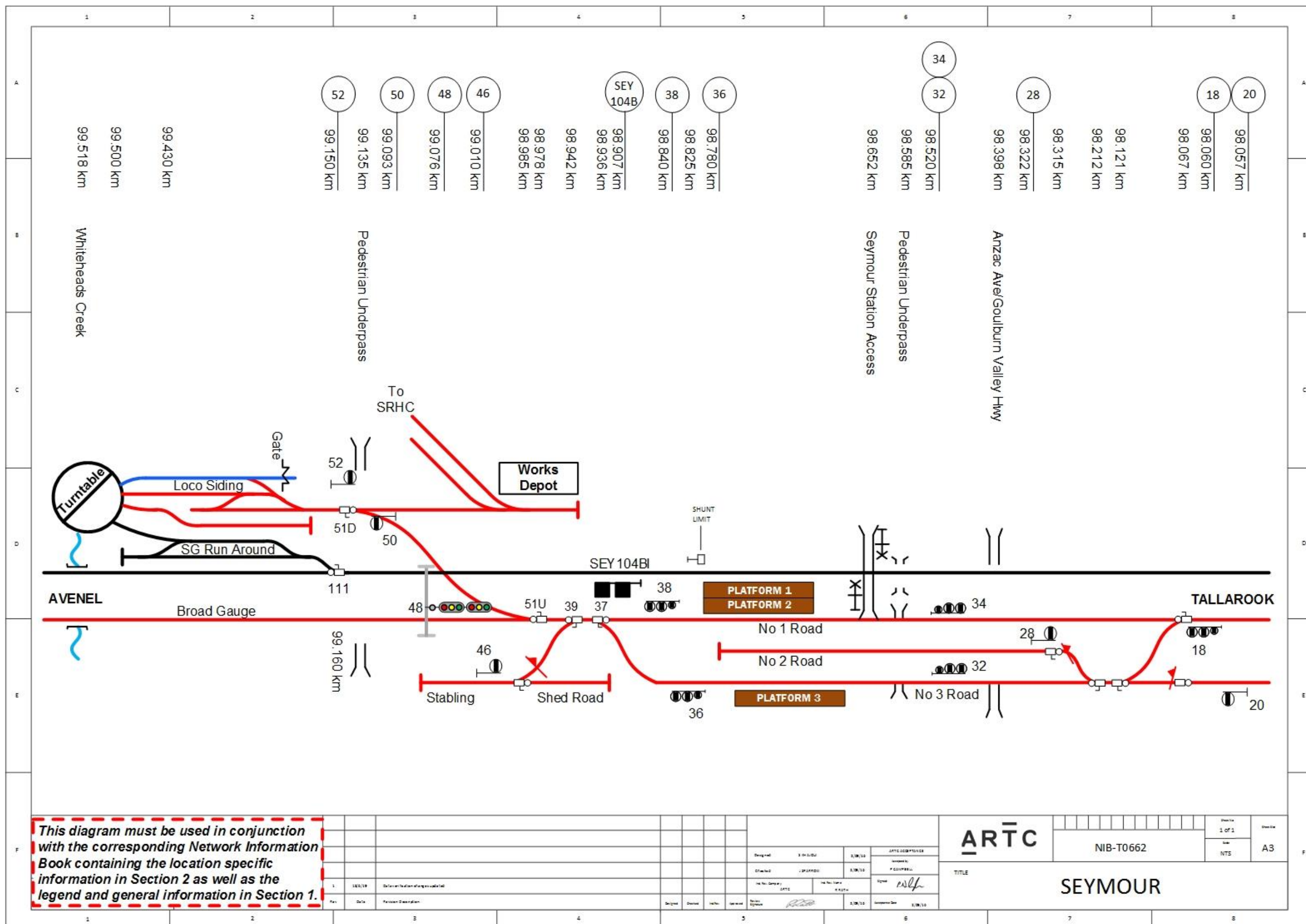
A Wheel Condition Monitor (WCM) and Rail Bearing Acoustic Monitor (RAILBAM) are installed in the Seymour to Somerton section at 94.26km.

The WCM detects an exceedance of force between the wheels and the rail caused by wheel flats. If a force above the threshold is detected, a notification is sent to the Network Control Centre TTM and the respective Operator for action. The automated text will contain details of the affected vehicle and also a maximum speed at which to travel.

Wheel Condition Monitors (WCM) systems give ARTC and Operators the ability to quickly and accurately perform condition monitoring of wheelsets on both wagons and locomotives. Defects on rollingstock wheels cause ongoing damage to the track, infrastructure and rollingstock components. The detection and subsequent removal of the wheel defect, which created the impact, reduces the potential of wheel and bearing failures (through identification of wheel faults, which may lead to bearing failures) as well as infrastructure failure.

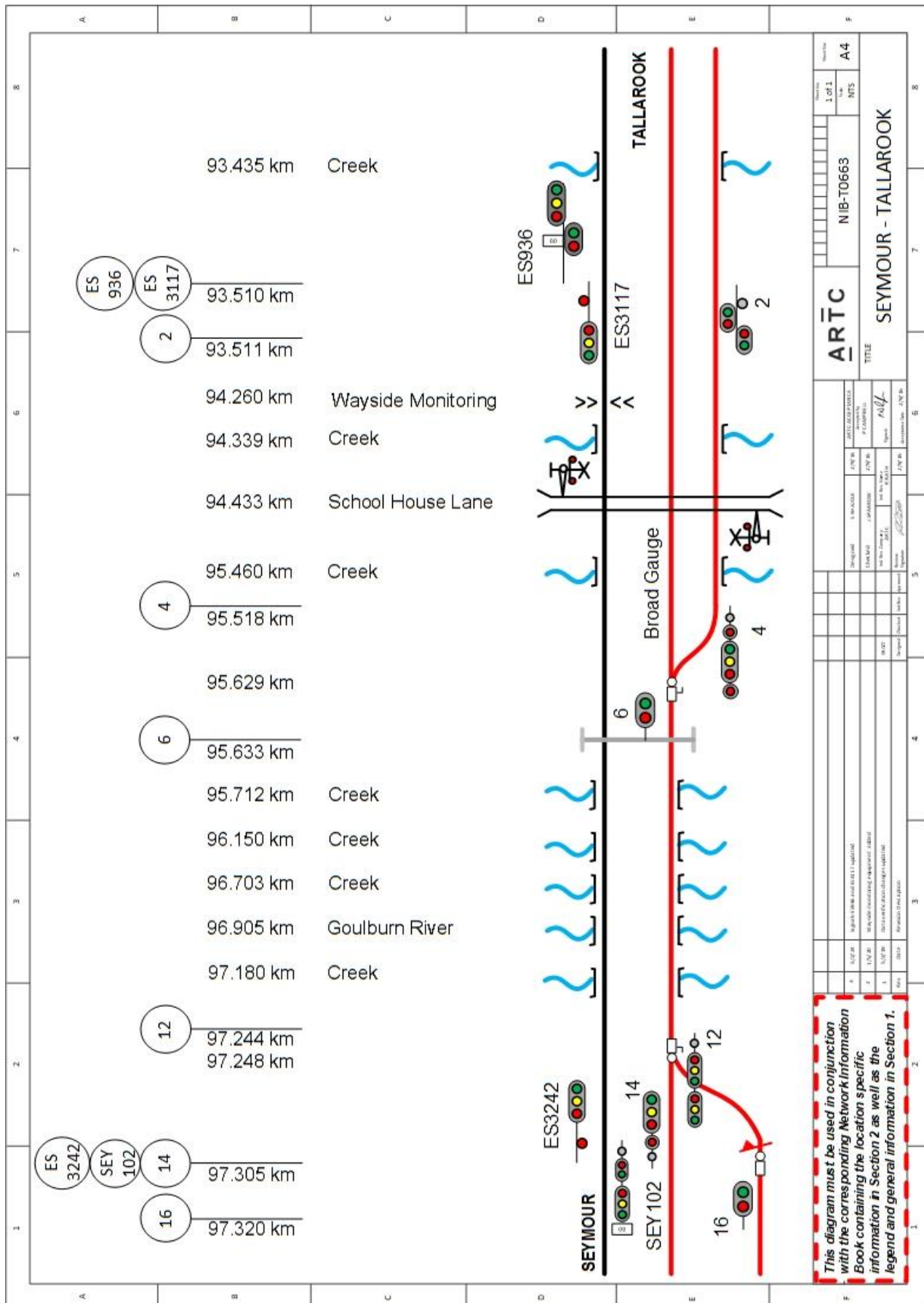
RailBAM can detect bearing faults which are just beginning and may have many thousands of kilometres to go before they fail. Train crews can tell if the unit is working or not by the fact that the track side sensor cabinets raise the doors exposing the microphones to the passing train, as it approaches from 50 metres away. This detects faulty bearings on passing trains by analysing the sound of the bearing. On detection, the information obtained by this device is sent to the Network Controller to advise the train crew.







## Main South Line Locations and Sections Information



## 2.12 Tallarook Passing Lane (TSS)

Passing lane 6800m in length

Passenger platform next to West track at 90.208km

Tallarook Passing Lane is located between 83.107km and 90.139km.

The straight track is known as the West line, whilst the diverging track is known as the East line.

Signage is located at each end of the passing lane to reflect which track is the east line and which track is the west line. Signage is also located at intermediate locations along the lane to assist track force operations in identifying the individual tracks.

### Points

No 3 and 7 points are operated by the Network Operations Controller Main South C located in NCCS. The points are fitted with Vossloh Cogifer electric point machines.

If these points fail to operate correctly, the Network Operations Controller must try to restore the points to their previous position to allow trains to continue running. However, if it is necessary to alter the route, the points may be manually operated.

The Vossloh Cogifer point machines are provided with a selector switch and hand throw lever which, when not being operated manually, are secured by V5PSW locks.

### Manual Operation of Vossloh Cogifer Points

Vossloh Cogifer point machines are provided with a hand throw lever to allow the points to be operated manually to either normal or reverse when necessary.

To manually operate the points:-

- Unlock the V5PSW padlock on the Selector Switch.
- Pull out the locking pin from the selector switch.
- Move the Selector switch to the hand position.
- Unlock and remove the lock from the hand throw lever.
- Remove the locking pins from both sides of the hand throw lever.
- Move the hand throw lever to operate the points to the required position.
- Make sure the switch blade is hard up against the stock rail, and
- Secure the points with the two point clips provided in the cabinet at the points.

To restore the points from HAND to MOTOR:

- Undo and remove the V5PSW lock from the selector switch and manual operating handle where applicable.
- Move the selector switch from HAND to MOTOR.
- Ask the Train Controller to test the points and confirm they are operating correctly.
- Reapply the V5PSW lock to the lever catch and the selector switch in the appropriate position.

The signals maintenance representative must be promptly advised of the circumstances.

---

**NOTE:** *Depending on the position of the points, the hand throw lever may need to be switched to the opposite side to engage the clutch to operate the points manually.*

---

Point clips will be provided in steel boxes locked with a V5PSW padlock adjacent to each point machine.

### Signals

Signals TLK2, TLK4, TLK16, TLK6, TLK18 and TLK8 are all classified as Home Departure Signals. The authority to pass these signals at stop is in accordance with the Rules for Centralised Traffic Control (CTC) contained in Section 17 of TA20. The Caution Order is to be suitably modified to reflect the location as a Passing Lane and not a Crossing Loop.

Intermediate Signals ES862, EES862, ES863 & EES863 are uncontrolled intermediate Home Signals. The authority to pass these signals in the event of a failure will be the verbal authority of the ARTC Network Operations Controller. Prior to giving approval to pass one of the above-mentioned signals, the Network Operations Controller must ensure that the track section ahead of the defective Signal is clear and that blocking has been applied to prevent a movement from entering the track section at the opposite end.

### Illuminated 80 km/h Indicators

Uncontrolled Home Signals EES862, EES863, Automatic Signals ES801 and ES936 and Home Departure Signals TLK16 and TLK18, TLK2 and TLK8 at Tallarook passing lane are provided with “80” km/h indicators.

When a Reduce to Medium Speed with an illuminated figure “80” is displayed on Signals EES862, EES863, ES801 or ES936, medium speed is defined as 80 km/h.

The illuminated white speed indicator “80” displayed with a “Reduce to Medium Speed” aspect indicates that the next signal is displaying a Clear Medium Speed aspect and an “80” illuminated indicator is also showing on that signal.

When an illuminated “80” white speed indicator is displayed in conjunction with a “Clear Medium Speed” aspect on Home Departure signals TLK2, TLK16, TLK18 or TLK8, the Driver of the rail movement may proceed at the maximum speed of 80 km/h. The speed restriction of 80km/h as indicated in conjunction with the “Clear Medium Speed” aspect on any of the afore-mentioned Home Departure Signals will only apply until the rail movement has cleared the points protected by the signal.

### Emergency Operation Owing to Control System Failure

In the event of a control system failure and provided the correct interlocking and track occupancy conditions exist, the points and signals will assume automatic operation.

As a Melbourne bound train approaches signal TLK8, and provided the track ahead is clear, points 7 will assume the reverse position and signal TLK8 will automatically clear for the movement to proceed onto the East line.

As a Sydney bound train approaches signal TLK2, and provided the track ahead is clear, points 3 will assume the normal position and signal TLK2 will automatically clear for the movement to proceed onto the West line.

The signals will not clear for the arriving movement if there are conflicting movements already on the nominated track and trains should then be worked as directed by the Network Operations Controller.



**Push Button Controls for Signals**

Push button controls are located at signals TLK6 and TLK18 at the Sydney end of Tallarook Passing Lane and signals TLK4 and TLK16 at the Melbourne end of Tallarook Passing Lane and allow local control of the signals in the event of control system failure.

The push buttons are applicable to the relevant signals at that location and are provided with “clear” and “cancel” push buttons.

When instructed by the Network Operations Controller, the driver must push the applicable push button for the signal applicable to that which the train is standing at. Provided the correct interlocking conditions exist, the points will set to the required position and the signal selected will assume a proceed aspect for the train to depart.

**Tallarook – Operation of Home Departure Signals during Failure Conditions****Signals TLK4 and TLK16**

The push buttons are provided with two controls for each signal:

Clear: Provided the correct conditions exist, sets the points for the required route and places a call on the signal.

Cancel: Cancels the command, a time release will operate on the signal prior to the route becoming free.

**Signals TLK6 and TLK18**

Push button controls housed in a cabinet are provided adjacent to the signals that allow operation of the signals (and points where applicable) by train crews during failure conditions. The push buttons have two controls for each signal:

Clear: Provided the correct conditions exist, sets the points for the required route and places a call on the signal.

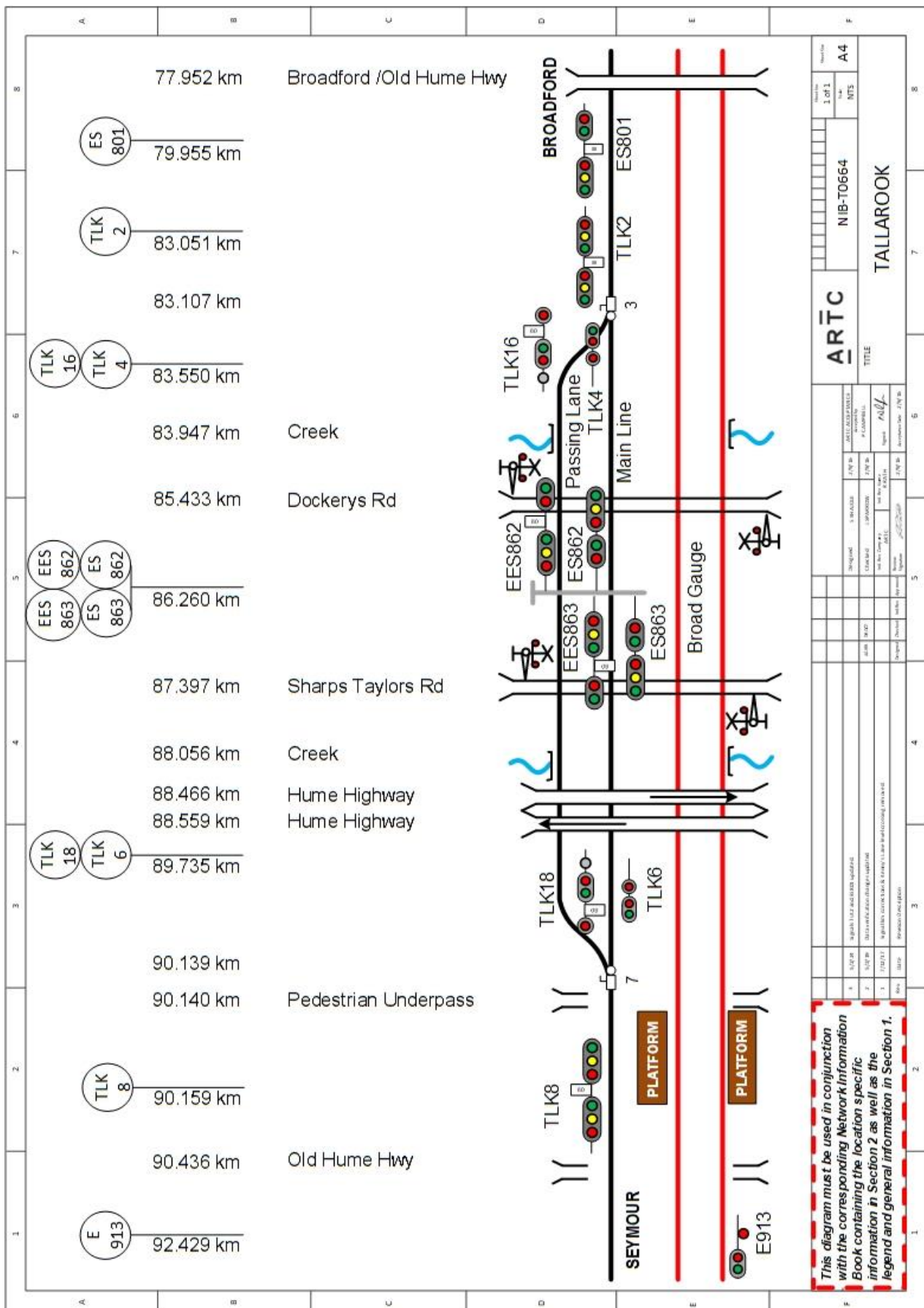
Cancel: Cancels the command, a time release will operate on the signal prior to the route becoming free.

---

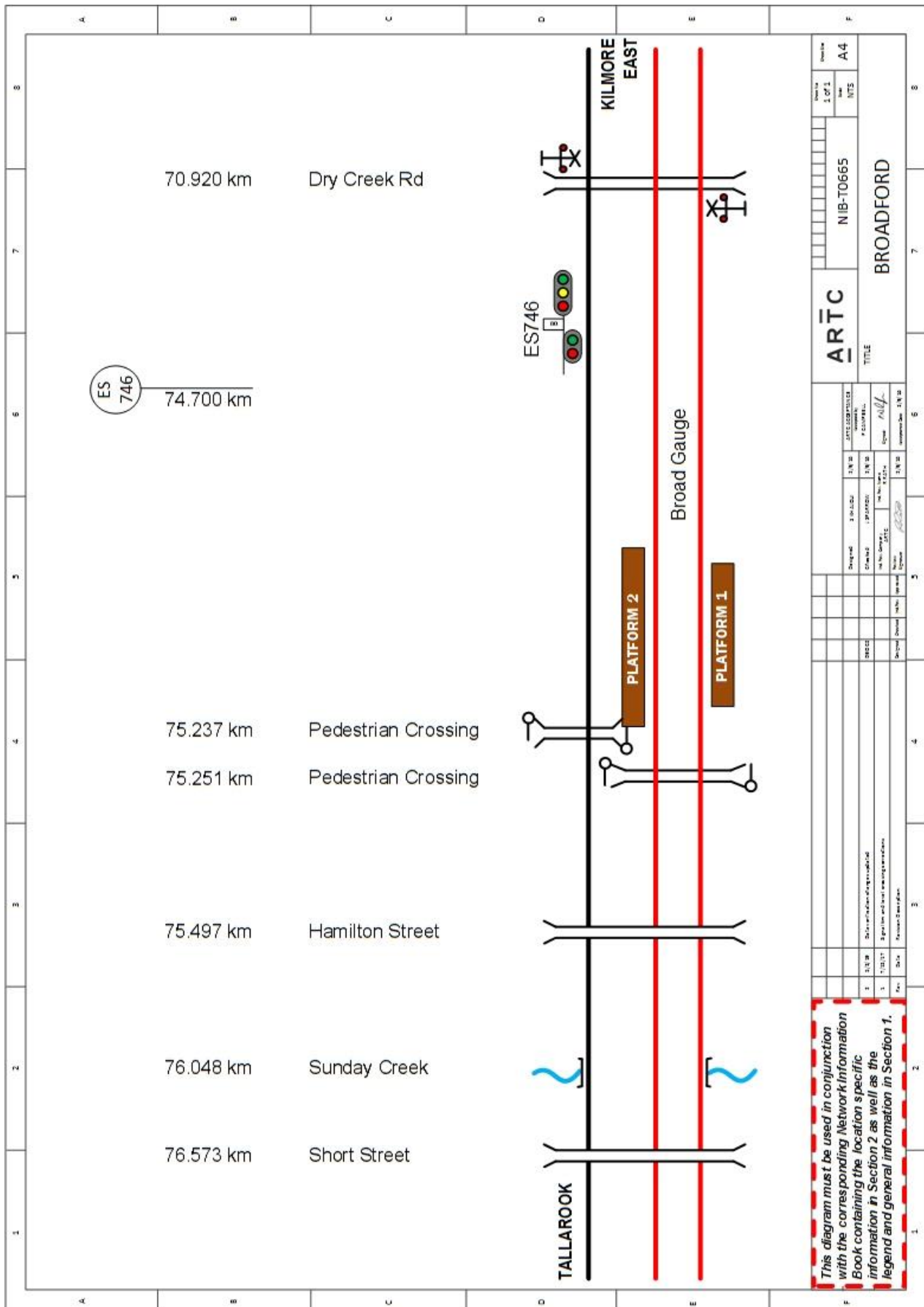
**NOTE:** *Train Crews are not to operate the push buttons without the authority of the Network Operations Controller.*

---

### Main South Line Locations and Sections Information



## Main South Line Locations and Sections Information



## 2.13 Kilmore East Passing Lane (KET)

Passing lane 6700m in length

Broad gauge line to quarry crosses passing lane at 65.710km.

### Releases

Grade Crossing

Kilmore East Passing Lane is located between distances 63.251km and 70.200km.

The straight track is known as the West line, whilst the diverging track is known as the East line.

Signage is located at each end of the passing lane to reflect which track is the east line and which track is the west line. Signage is also located at intermediate locations along the lane to assist track force operations in identifying the individual tracks.

### Points

No 3 and 7 points are operated by the Network Operations Controller Main South C located in NCCS. The points are fitted with Vossloh Cogifer electric point machines.

If these points fail to operate correctly, the Network Operations Controller must try to restore the points to their previous position to allow trains to continue running. However, if it is necessary to alter the route, the points may be manually operated.

The Vossloh Cogifer point machines are provided with a selector switch and hand throw lever which, when not being operated manually, are secured by V5PSW locks.

#### Manual Operation of Vossloh Cogifer Points

Vossloh Cogifer point machines are provided with a hand throw lever to allow the points to be operated manually to either normal or reverse when necessary.

To manually operate the points:-

- Unlock the V5PSW padlock on the Selector Switch.
- Pull out the locking pin from the selector switch.
- Move the Selector switch to the hand position.
- Unlock and remove the lock from the hand throw lever.
- Remove the locking pins from both sides of the hand throw lever.
- Move the hand throw lever to operate the points to the required position.
- Make sure the switch blade is hard up against the stock rail, and
- Secure the points with the two point clips provided in the cabinet at the points.

To restore the points from HAND to MOTOR:

- Undo and remove the V5PSW lock from the selector switch and manual operating handle where applicable.
- Move the selector switch from HAND to MOTOR.
- Ask the Train Controller to test the points and confirm they are operating correctly.
- Reapply the V5PSW lock to the lever catch and the selector switch in the appropriate position.

The signals maintenance representative must be promptly advised of the circumstances.

**NOTE:** *Depending on the position of the points, the hand throw lever may need to be switched to the opposite side to engage the clutch to operate the points manually.*

Point clips will be provided in steel boxes locked with a V5PSW padlock adjacent to each point machine.

### Signals

Signals KME2, KME4, KME16, MPR6, MPR18 and MPR8 are all classified as Home Departure Signals. The authority to pass these signals at stop is in accordance with the Rules for Centralised Traffic Control (CTC) contained in Section 17 of TA20. The Caution Order form is to be suitably modified to reflect the location as a Passing Lane and not a Crossing Loop.

When issuing a CTC caution order for Home signals KME2 or MPR8, the ARTC Network Operations Controller shall specify the track the movement is to take. (East or West line).

Intermediate Signals ES661 & EES661 are uncontrolled intermediate Home Signals. The authority to pass these signals in the event of a failure will be the verbal authority of the ARTC Network Operations Controller. Prior to giving approval to pass one of the above-mentioned signals, the Network Operations Controller must ensure that the track section ahead of the defective Signal is clear and that blocking has been applied to prevent a rail traffic movement from entering the track section at the opposite end.

Should Home Signals KME24 or KME28 fail to assume the 'Proceed' position when required, the provisions of Rule 7C (Section 17) of the ARTC Network Rules and Procedures – TA20 must be observed.

### Illuminated 80 km/h Indicators

Automatic Signals ES587, and ES746 as well as Intermediate Home Signals KME28 and EES661 and Home Departure Signals KME2, KME16, MPR18 and MPR8 at Kilmore East are provided with "80" km/h indicators.

When a Reduce to Medium Speed with an illuminated figure "80" is displayed on Automatic Signals ESS587 or ES746 or Intermediate Home Signals KME28 or EES661, medium speed is defined as 80 km/h.

The illuminated white speed indicator "80" displayed with a "Reduce to Medium Speed" aspect indicates that the next signal is displaying a Clear Medium Speed aspect and an "80" illuminated indicator is also showing on that signal.

When an illuminated "80" white speed indicator is displayed in conjunction with a "Clear Medium Speed" aspect on Home Departure signals KME2, KME16, MPR18 or MPR8, the Driver of the rail movement may proceed at the maximum speed of 80 km/h. The speed restriction of 80km/h as indicated in conjunction with the "Clear Medium Speed" aspect on any of the afore-mentioned Home Departure Signals will only apply until the rail movement has cleared the points protected by the signal.

**Emergency Operation Owing to Control System Failure**

In the event of a control system failure and provided the correct interlocking and track occupancy conditions exist, the points and signals will assume automatic operation.

As a Melbourne bound train approaches signal MPR8, and provided the track ahead is clear, points 7 will assume the reverse position and signal MPR8 will automatically clear for the movement to proceed onto the East line.

As a Sydney bound train approaches signal KME2, and provided the track ahead is clear, points 3 will assume the normal position and signal KME2 will automatically clear for the movement to proceed onto the West line.

The signals will not clear for the arriving movement if there are conflicting movements already on the nominated track and trains should then be worked as directed by the Network Operations Controller.

**Push Button Controls for Signals**

Push button controls are located at signals MPR6 and MPR18 at the Sydney end of Kilmore East and signals KME4 and KME16 at the Melbourne end of Kilmore East and allow the control of the signals in the event of control system failure.

The push buttons are applicable to the relevant signals at that location and are provided with clear and cancel push buttons.

When instructed by the Network Operations Controller, the driver must push the applicable push button for the signal applicable to that which the train is standing at. Provided the correct interlocking conditions exist, the points will set to the required position and the signal selected will assume a proceed aspect for the train to depart.

**Kilmore East – Operation of Home Departure Signals during Failure Conditions**

Signals KME4 and KME16

The push buttons are provided with two controls for each signal:

Clear: Provided the correct conditions exist, sets the points for the required route and places a call on the signal.

Cancel: Cancels the command, a time release will operate on the signal prior to the route becoming free.

Signals MPR6 and MPR18

Push button controls housed in a cabinet are provided adjacent to the signals that allow operation of the signals (and points where applicable) by train crews during failure conditions. The push buttons have two controls for each signal:

Clear: Provided the correct conditions exist, sets the points for the required route and places a call on the signal.

Cancel: Cancels the command, a time release will operate on the signal prior to the route becoming free.

---

**NOTE:** *Train Crews are not to operate the push buttons without the authority of the Network Operations Controller.*

---



### **2.13.1 Kilmore East Failure of Grade Crossing**

The points forming the Crossover between the Up and Down Broad Gauge Lines, that work in conjunction with the connection across the Standard Gauge are operated by Dual Control point machines

The points leading to the Quarry Siding are operated by point machines, which are operated by a special point handle that is held by the Signal Maintenance Technician. The point handle must not be used to manually operate the point machines without the express authority of the ARTC Train Controller.

Should the Broad Gauge Pilot Lever fail to release when required, the Signal Maintenance Technician must be advised of the circumstances. If it is necessary for a Broad Gauge train to proceed over the Grade Crossing during the period of failure, the following procedures must be adopted:

The Signaller at Kilmore East, the ARTC Train Controller and the Signal Maintenance Technician must come to a complete understanding as to what movements are to take place.

Prior to giving permission for the movement to take place, the ARTC Train Controller must:

Ensure that no Standard Gauge train or Track Machine is approaching the Grade Crossing;

Ensure that a Blocking Command has been applied to Signal Nos. KME 6 and KME 10

Operating Procedures for Specified Locations

After giving permission for the movement to take place, not permit a Standard Gauge train or Track machine to proceed past the Home Signals protecting the Grade Crossing until the Signal Maintenance Technician advises that the Grade Crossing is clear and that the points are in the normal position.

The Signal Maintenance Technician must then operate the points to the required position for the Broad Gauge movement and advise the Signaller at Kilmore East when the points have been placed and secured in that position.

The necessary traffic movements may then take place. When all movements have been completed, the points must be placed to the Normal position, and the point handle removed from the point machine

The ARTC Train Controller must then be advised that all movements have been completed. The Blocking Commands may then be removed and normal working resumed.

The Train Register Book must be endorsed on each occasion that it is necessary for a train to proceed over the Grade Crossing during the period when a failure exists.

### **2.13.2 Operation of Emergency Grade Crossing Release**

This Keyswitch is provided for the release of the Pilot Lever for the Grade Crossing leading to the Quarry Siding during a loss of communications between the ARTC Control Centre and the ARTC field interlocking.

When external communications are lost between the ARTC Control Centre and the ARTC field interlocking that will not permit the operation of the Grade Release Pilot Lever, the following instructions will apply for the operation of the emergency key switch.

The Signaller at Kilmore East will request permission from the ARTC Train Controller for the operation of the emergency key switch.

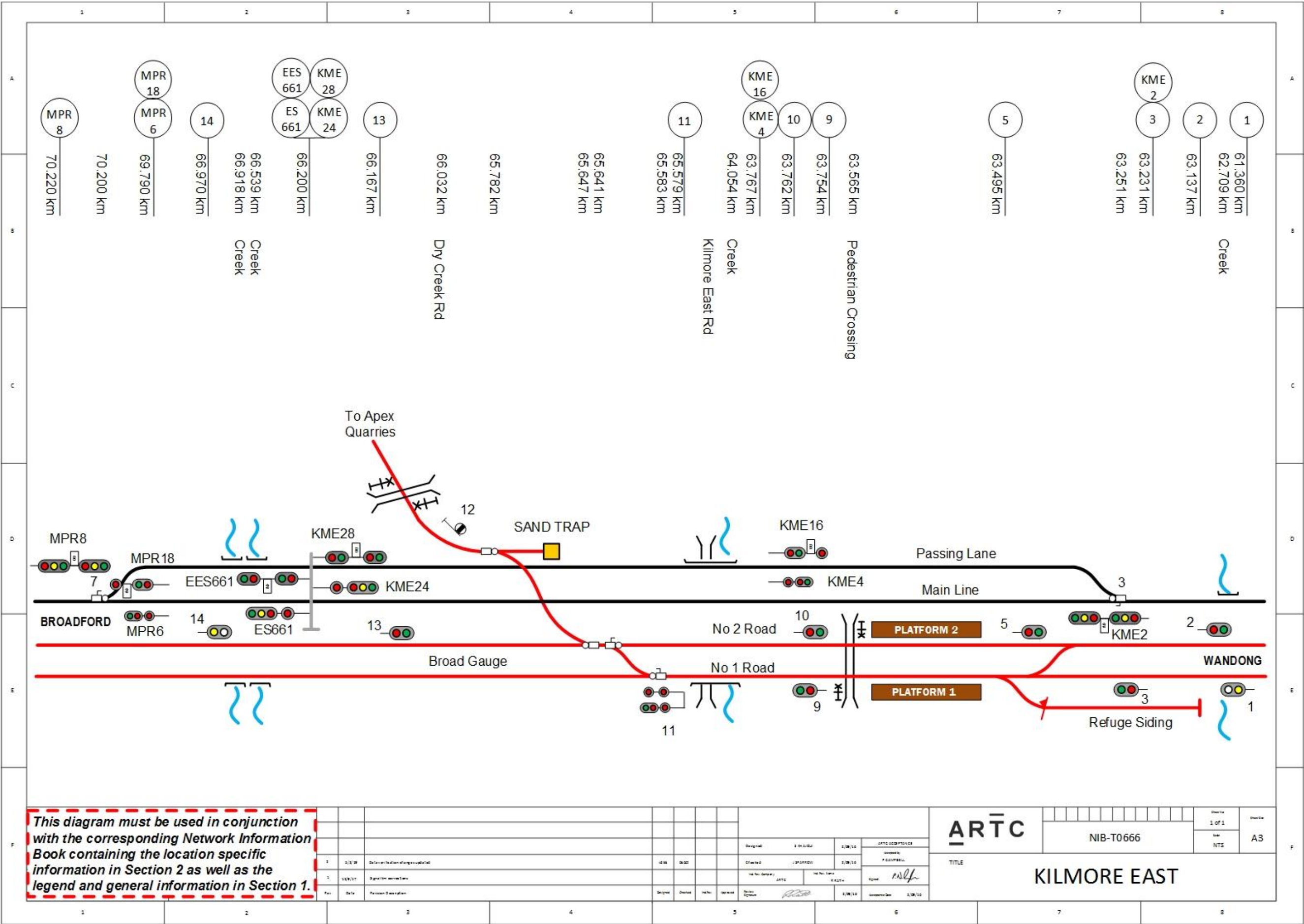
## Main South Line Locations and Sections Information

When the ARTC Train Controller has granted permission, the Signaller can operate the key switch to commence a 10-minute timer located on the Kilmore East signal box diagram.

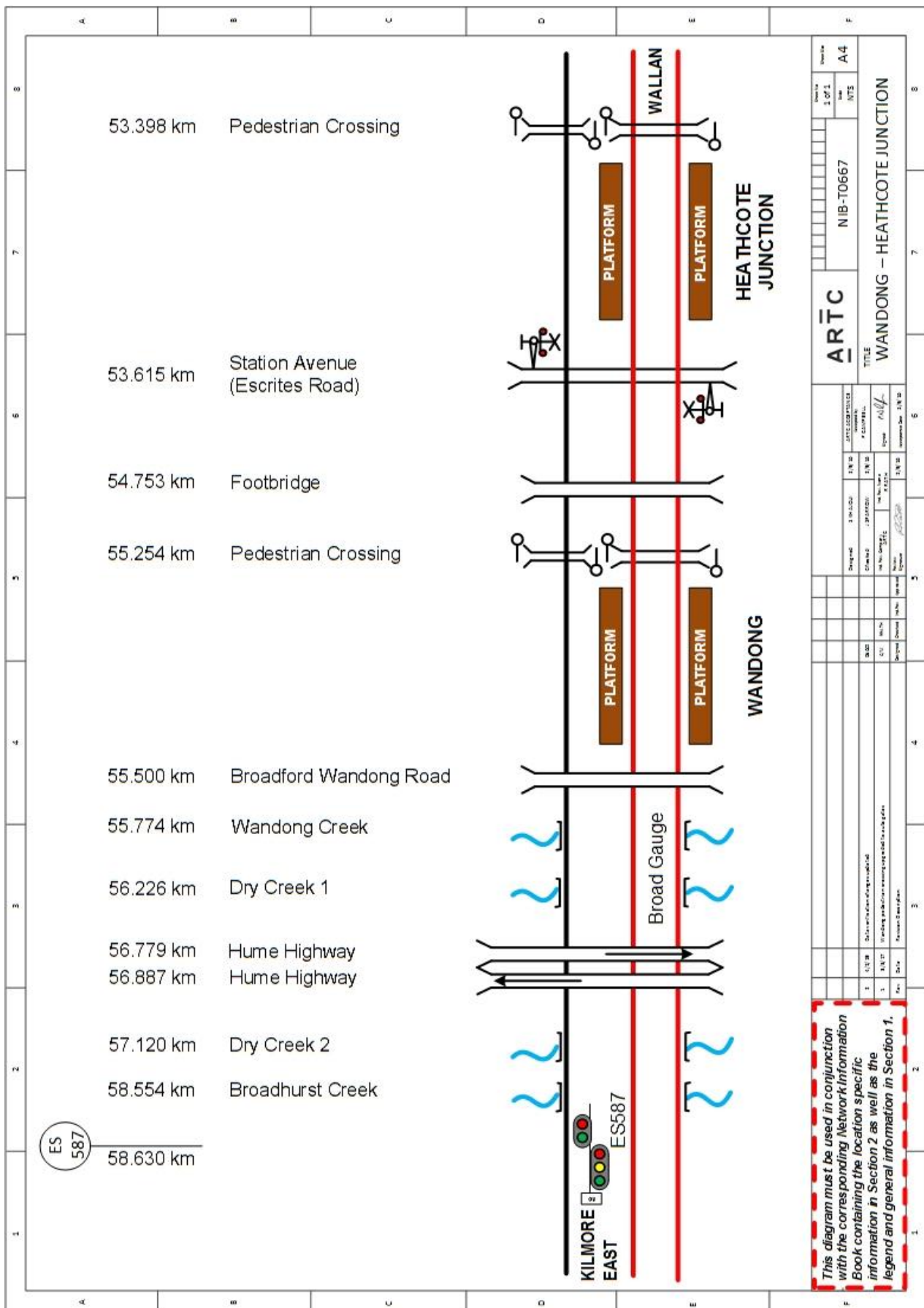
The operation of the emergency key switch requires all ARTC signals reading over the grade crossing to be at stop and free of approach locking and the communications link from the Kilmore East area for the ARTC interlocking to have failed.

At the completion of this run down timer, Lever No 23 will be available to be placed to the reverse position through the operation of the Push Button on the Block Shelf.

This is a one-shot arrangement and once the push button on the block shelf is operated and No 23 lever has been operated and replaced to the normal position, release is cancelled and a request must be made again for any subsequent release of lever No 23.



## Main South Line Locations and Sections Information



**2.14 Wallan Crossing Loop (WSG)****Standing Room**

1550m

**Siding – Cripple Road**

108m – Protected by catch points from dead end

**Local Control Panel**

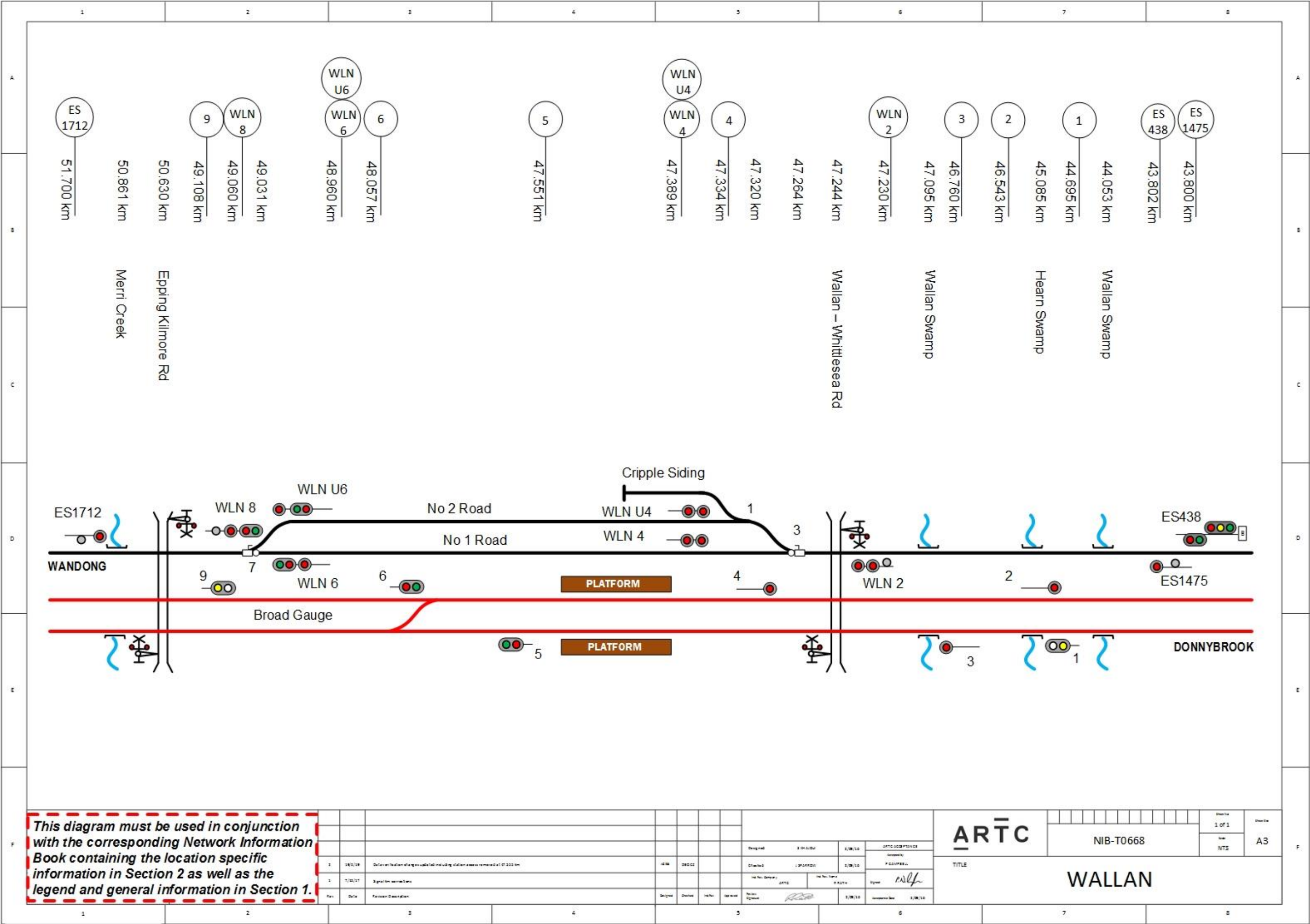
No

**Crank handles**

No

**Other Information**







## 2.15 Donnybrook Passing Lane (DSG)

Passing lane 6800m in length

### **Automatic operation of Signal DBK2 during failure:**

In the event of communications failure and provided the correct conditions exist on the West line, upon approach of a movement to signal DBK2, points 3 shall automatically set for the West line and signal DBK2 shall clear for the movement.

Any opposing movement shall be routed to the East line.

Additional signals along the route shall be passed at stop in accordance with the appropriate safe working procedures.

### **Automatic operation of Signal DBK8 during failure:**

In the event of communications failure and provided the correct conditions exist on the East line, upon approach of a movement to signal DBK8, points 7 shall automatically set for the East line and signal DBK8 shall clear for the movement.

Any opposing movement shall be routed to the West line.

Additional signals along the route shall be passed at stop in accordance with the appropriate safe working procedures.

### **Drivers Push Button Controls**

Drivers push button controls are provided in a cabinet adjacent to signals DBK4 / DBK16 and DBK6 / DBK18.

The push buttons have two controls for each signal:

Clear: Provided the correct conditions exist, sets the points for the required route and places a call on the signal.

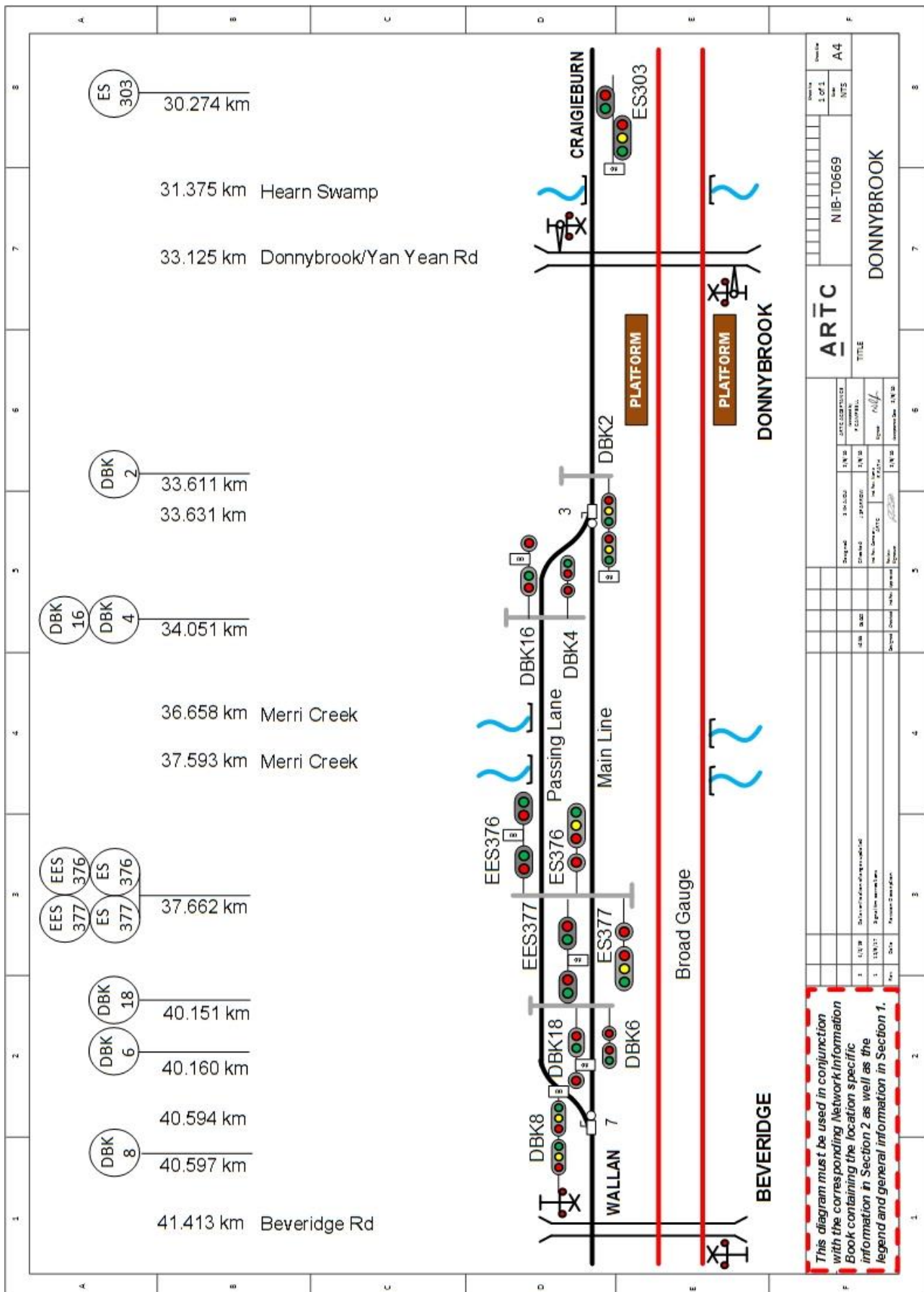
Cancel: Cancels the command, a time release will operate on the signal prior to the route becoming free

### **Manual Operation of Points**

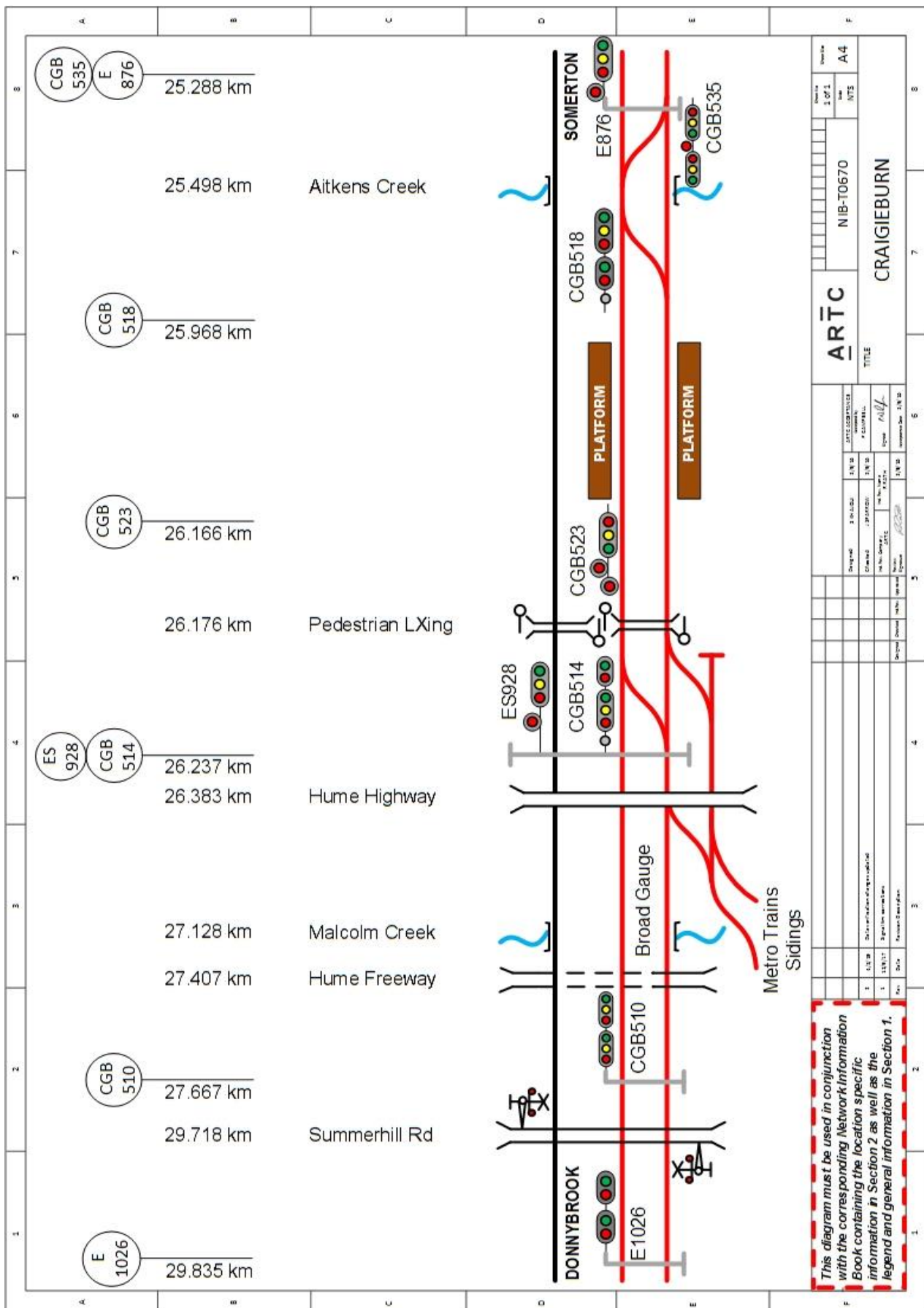
Point Clip cabinets are installed adjacent to Beverage 3 points and Donnybrook 7 points. The lid to the cabinet is secured closed with a V5PSW padlock.

The Signal Maintenance Technician must be promptly advised of the circumstances.

## Main South Line Locations and Sections Information



## Main South Line Locations and Sections Information



## 2.16 Somerton Crossing Loop (SGG)

### Standing Room

1550m

### Yard Operations

Yard movements under V/Line rules and procedures. Refer 2.14.2

### Local Control Panel

No

### Crank handles

No

### Other Information

Standing Train Notice 1926 issued on 09/09/2014 is amended and re-issued.

### 2.16.1 Train Movements between Somerton Loop and Tullamarine Passing Lane

The ARTC Network Controllers at NCCW Mile End and NCCS Junee must communicate and come to a clear understanding of the priority of train movements between Somerton Loop and Tullamarine Passing Lane SG prior to any departure signals being cleared for entry into the single line.

Train movements approaching from Melbourne will require the Network Controller at Mile End liaising with the Junee Network Controller for priority of the departing train and if the train is required to be held at Tullamarine or signals cleared for train to travel towards Somerton Loop.

Train movements approaching from Albury will require the Junee Network Controller to provide adequate train running information and advise the Mile End Network Controller of the train being advanced towards Tullamarine. Once agreement has been met between the two Network Controllers then the departure signals at Somerton Loop can be cleared for the train to continue towards Melbourne.

Movements between Somerton and Tullamarine require the Network Controllers at either Junee or Mile End to provide the other with a release before signals can be cleared into the other's territory.

To avoid any unnecessary delays to Broad Gauge services, Standard Gauge trains when being held at Tullamarine Passing Lane for an extended period must be held on the Standard Gauge track and the Dual gauge track at Tullamarine kept free for Broad Gauge traffic to operate

### Track Activities

All track inspection and track maintenance activities between Tullamarine Passing Lane and Somerton Loop to SOM/2 are to be performed under the direction of the Mile End Network Controller as per TA20 ARTC Victorian Rules.

Should a track maintenance vehicle or Road Rail (Hi Rail) operator request to operate between Tullamarine Passing Lane and Somerton Loop the Network Controller Mile End will grant such time for the Road Rail vehicle as far as Signal SOM/2 at Somerton Loop.

## Main South Line Locations and Sections Information

Should the Road Rail or Track Machine vehicle be required to operate through Somerton Loop the track operator will request time from the Network Controller Junee prior to entering Somerton Loop.

**Signage for Boundary Change**

Signage is located at signal SOM /2 at Somerton Loop for train crews to change channels from channel 11 to Channel 6 for North bound moves

Signage is located at signal SOM /4, SOM/U4; SOM/V4 at Somerton Loop for train crews to change channels from channel 6 to Channel 11 for South bound moves.

**Failure Conditions**

During failure conditions the Network Controller at NCCW will issue all safeworking forms for the section between Tullamarine Passing Lane and Somerton Loop on the Standard Gauge.

The Network Controller at NCCW will be responsible for the issue of CTC Caution Orders to pass the Home departure signals SOM/4, SOM/U4, and SOM/V4.

Before the Network Controller at NCCW issues a CTC Caution Order to pass the signals at Somerton Loop, the following conditions must first be in place

1. Ensure the Network Controller NCCS has been advised
2. The Network Controller NCCS has set the points for the intended move and has applied blocking commands.
3. The BG release has not be given to the MTM signaller at Craigieburn for a BG service and a Blocking command has been applied to the BG release for the Grade Crossing
4. The Network Controller NCCS has applied blocking commands to the signals at Somerton Loop.
5. The Network Controller NCCW has applied blocking commands signals at Tullamarine Passing Lane

The Network Controller NCCS will issue the CTC Arrival Message for signal SOM/2 during failure conditions.

**2.16.2 Somerton Yard Procedures – Train Movements**

Access to and from the Broad Gauge sidings and Broad Gauge Movements Crossing Standard Gauge Track (in and Out of Somerton Sidings)

When a Melbourne Metro Trains (MTM) signalled broad gauge movement requires to cross the ARTC signalled standard gauge track, the Signaller Craigieburn shall contact the ARTC Network Controller at NCCS and request a release on the Grade Crossing also advising the required movement/s and the period of time the release shall be required.

The ARTC Network Controller NCCS shall after ensuring that there are no movements proceeding toward the grade crossing, by both accessing the movements under his/her control and contacting the ARTC Network Controller NCCW to ensure no trains have departed Tullamarine Loop, place the signals protecting the grade crossing to stop and operate the 'offer grade release' and advise the Signaller Craigieburn.

The Signaller Craigieburn shall, upon establishing that the release has been provided, accept the release by reversing the points and operate the signals for the movement/s across the Grade Crossing.

## Main South Line Locations and Sections Information

Immediately the movement/s has been completed the Signaller Craigieburn shall restore the points to 'Normal' and advise the ARTC Network Controller accordingly.

The ARTC Network Controller shall cancel 'offer grade release' when advised by the Signaller Craigieburn.

**Failure of Release or Point Failure**

The point machines leading movements across the standard gauge can only be unlocked and operated by a MTM signal maintenance technician in accordance with TA20 Section 17 Rule 13.

Should the ARTC Network Controller NCCS be unable to provide the release owing to a failure, or should the points fail after the release has been provided, the Signaller Craigieburn will request the services of an MTM signal maintenance technician to unlock and operate the points by hand.

Prior to allowing the point machines to be unlocked, the Signaller Craigieburn shall confer with the ARTC Network Controller NCCS. The ARTC Network Controller NCCS shall, after ensuring that there are no movements proceeding toward the grade crossing, by accessing both the movements under his/her control and contacting the ARTC Network Controller NCCW to ensure no trains have departed Tullamarine Loop, apply blocking commands over the grade crossing to prevent Standard Gauge movements.

Once the blocking commands are in place, the Signaller Craigieburn will give permission to the MTM signal maintenance technician to operate the points by hand for a broad gauge movement to cross the standard gauge.

The Signaller Craigieburn will then give permission to the driver of the broad gauge movement to cross the standard gauge.

Immediately the movement has been completed, the point machines are to be restored to normal.

The Signaller Craigieburn will advise ARTC Network Controller NCCS when this has been done after which the blocking commands may then be removed.

**Operation of Standard Gauge movements at Somerton Sidings**

No 3 Track must normally be kept clear for arriving trains. The points governing access to No.3 Track at the Up and Down ends of the Standard Gauge Loop are secured in the Normal position by the application of blocking commands by the ARTC Network Controller at NCCS.

Prior to signalling a movement (proceeding to Somerton to shunt or terminate), from either Donnybrook Passing Lane or Tullamarine Passing Lane, the ARTC Network Controller NCCS must contact the V/Line Train Controller and establish that a direct movement can be accepted and advise the time the movement is expected to arrive.

Should the Control Train Controller advise that the movement cannot be accepted, or the ARTC Network Controller NCCS is unable to contact the Control Train Controller, the movement shall be held at a suitable crossing loop either side of Somerton.

Provided the movement can be accepted the Control Train Controller will give authority for the movement to arrive at Somerton, (or as arranged between the ARTC Network Controller NCCS and the Control Train Controller). The ARTC Network Controller NCCS shall remove the applicable blocking command, set the route and signal the movement into No 3 track accordingly.

Immediately the movement has arrived in clear in No.3 Track, the ARTC Network Controller NCCS shall restore the applicable points and signals and reapply the blocking command.



**Standard Gauge Movement departing Somerton Yard**

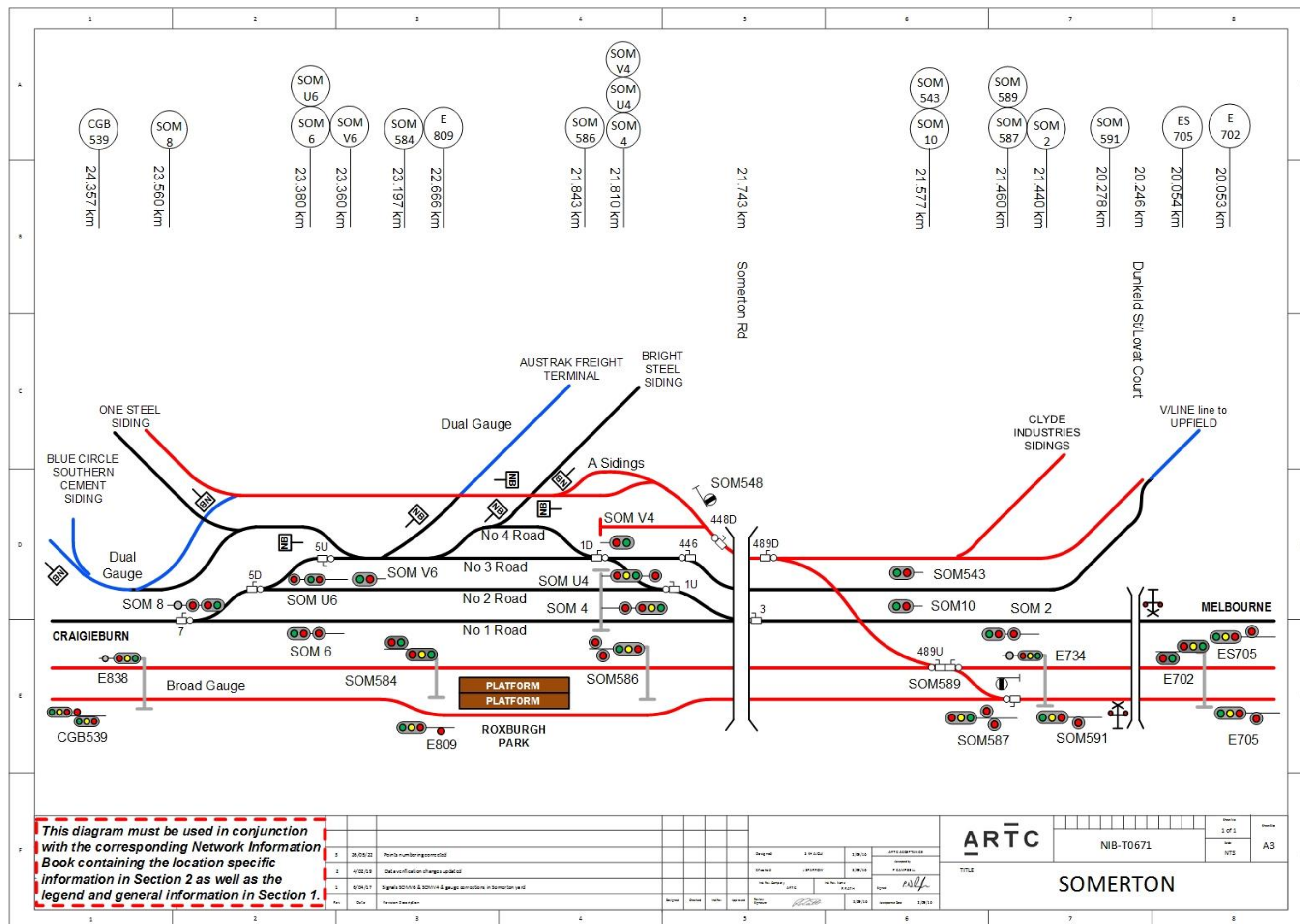
Prior to requesting a path, the operator shall ensure that the applicable train details are provided to the ARTC Network Controller Junee.

The operator must then confer with the Control Train Controller and advise that the train is ready to depart.

The Control Train Controller shall contact the ARTC Network Controller NCCS and advise when a movement is ready to depart. The ARTC Network Controller NCCS shall advise the Control Train Controller of when the movement can be accepted on to the ARTC network.

The ARTC Network Controller NCCS shall remove the applicable blocking command, set the route and signal the movement from No 3 track accordingly.

Immediately the movement is clear of the points and is on the ARTC Main Line, the ARTC Network Controller NCCS shall restore the applicable points and signals and reapply the blocking command.



### 3 Benalla – Oaklands Branch Line

#### Active Level Crossing Requirements

Due to infrequent rail traffic movement on the Benalla - Oaklands corridor the following instruction regarding active level crossings applies.

All Train Orders issued on the Benalla - Oaklands corridor are to be endorsed

"Approach All Active Level Crossings With Caution"

All Drivers of rail traffic movements on approach to each active level crossing on the Benalla - Oaklands line MUST:

STOP prior to the active level crossing to check whether the warning equipment is operating correctly,

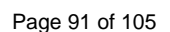
- if the warning equipment is operating correctly, proceed,
- if the warning equipment is not operating correctly, the Driver must direct the Second Crew Member to operate the manual test switch for the level crossing
- once an assurance has been obtained from the Second Crew Member that the level crossing warning equipment has operated correctly for a period of not less than 25 seconds and any road vehicle / pedestrians approaching the level crossing have stopped and it is safe to do so, the train may proceed over the level crossing.
- As soon as possible, report the status of the level crossing to the Network Controller.

The above procedure also applies to Track Machines as listed in TA20 - ARTC Code of Practice for the Victorian Main Line Network.

#### Master Keys

Master Keys are to be used to access the sidings. Five 'Ordinary Type' Master Keys numbered 1 to 5 will be used on the line. The numbers are used for identification purposes and the number of the Master Key carried, must be recorded on the Train Order. A Master Key log will be used to track the location of the Master Keys. The Master Key is to be carried on all train movements across the corridor.

The Master Keys will be secured in security safes within huts at Benalla, Yarrawonga and Oaklands. The huts can be accessed with the 5VPsW Victorian key. The security safes have Questors locks on the safes that require a procedure to be followed to gain access. The procedure will be available in the hut adjacent to the safes.



### 3.1 St James (SAJ)

**Standing room**

177m

**Siding**

180m

**Local Control Panel**

Nil

**Main Line Points**

South end of loop 228.049 locked by Master Key Lock and has a point indicator

North End of Loop 228.388 locked by Master Key Lock and has a point indicator

The points located between the Loop Road and the Siding has a lock bar and is padlocked in the Normal position.

A derail is fitted on the Melbourne end of the Loop Road for Roll out protection.

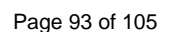
**Other information**

Location Boards are located at 224.939 and 231.819km

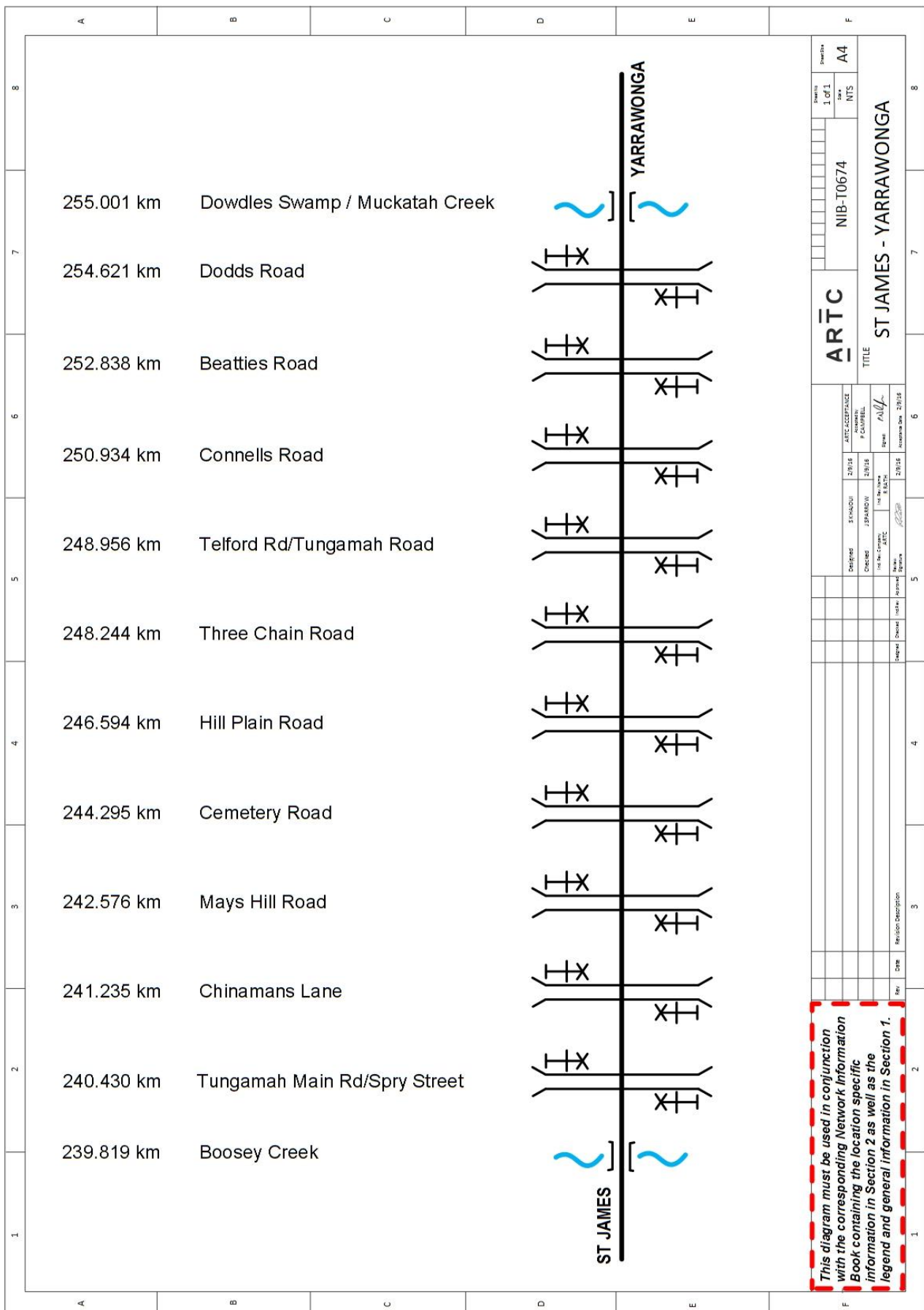
Yard Limit Boards are located at 227.002km and 229.747km

Shunt Limits Boards are located at 227.538km and 229.049km









### 3.2 Yarrawonga (YRW)

#### **Standing room**

525m

#### **Sidings**

Grain Siding Melbourne end 263m

Grain Siding Oaklands end 261m

Turntable Road 158m

Siding No.1

Siding No.2

#### **Local Control Panel**

Nil

#### **Main Line Points**

South End of Loop 259.793km are locked by Annet Key Lock and has a point indicator

Main Line to Turntable Road, Siding 1 and Siding 2 are locked by Annet Key Lock and has a point indicator

A Master Key to Annet Key Exchange apparatus is located North End of Loop 260.453km locked by Master Key Lock and has a point indicator

A derail is fitted on the Loop line, Turntable Road, Siding 1 and Siding 2 for Roll out protection

#### **Other information**

Location Boards are located at 256.387 and 264.151km

Yard Limit Boards are located at 258.394 and 262.050km

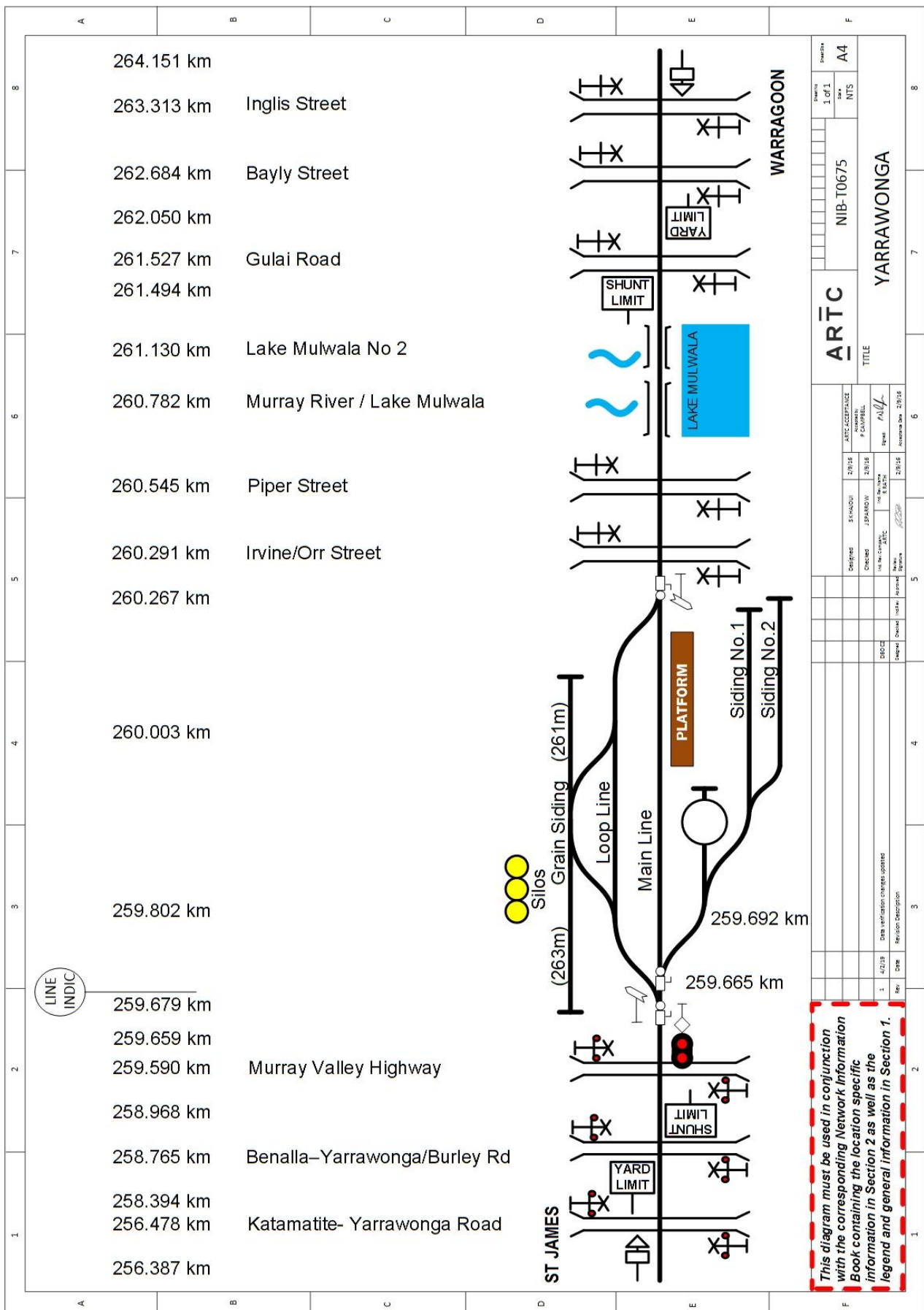
Shunt Limit Boards are located at 258.968 and 261.494km

Main Line Indicator "X" at 259.795km

#### **Master Keys**

Master Keys are to be used to access the sidings. Five 'Ordinary Type' Master Keys numbered 1 to 5 will be used on the line. The numbers are used for identification purposes and the number of the Master Key carried, must be recorded on the Train Order. A Master Key log will be used to track the location of the Master Keys. The Master Key is to be carried on all train movements across the corridor.

The Master Keys will be secured in security safes withing huts at Benalla, Yarrawonga and Oaklands. The huts can be accessed with the 5VPsW Victorian key. The security safes have Questors locks on the safes that require a procedure to be followed to gain access. The procedure will be available in the hut adjacent to the safes.



### 3.3 Warragoon (WAO)

**Standing room**

423m

**Siding**

Nil

**Local Control Panel**

Nil

**Crank Handles**

Nil

**Main Line Points**

South end of loop 282.206km locked by Master Key Lock and has a point indicator

North End of Loop 282.727km locked by Master Key Lock and has a point indicator

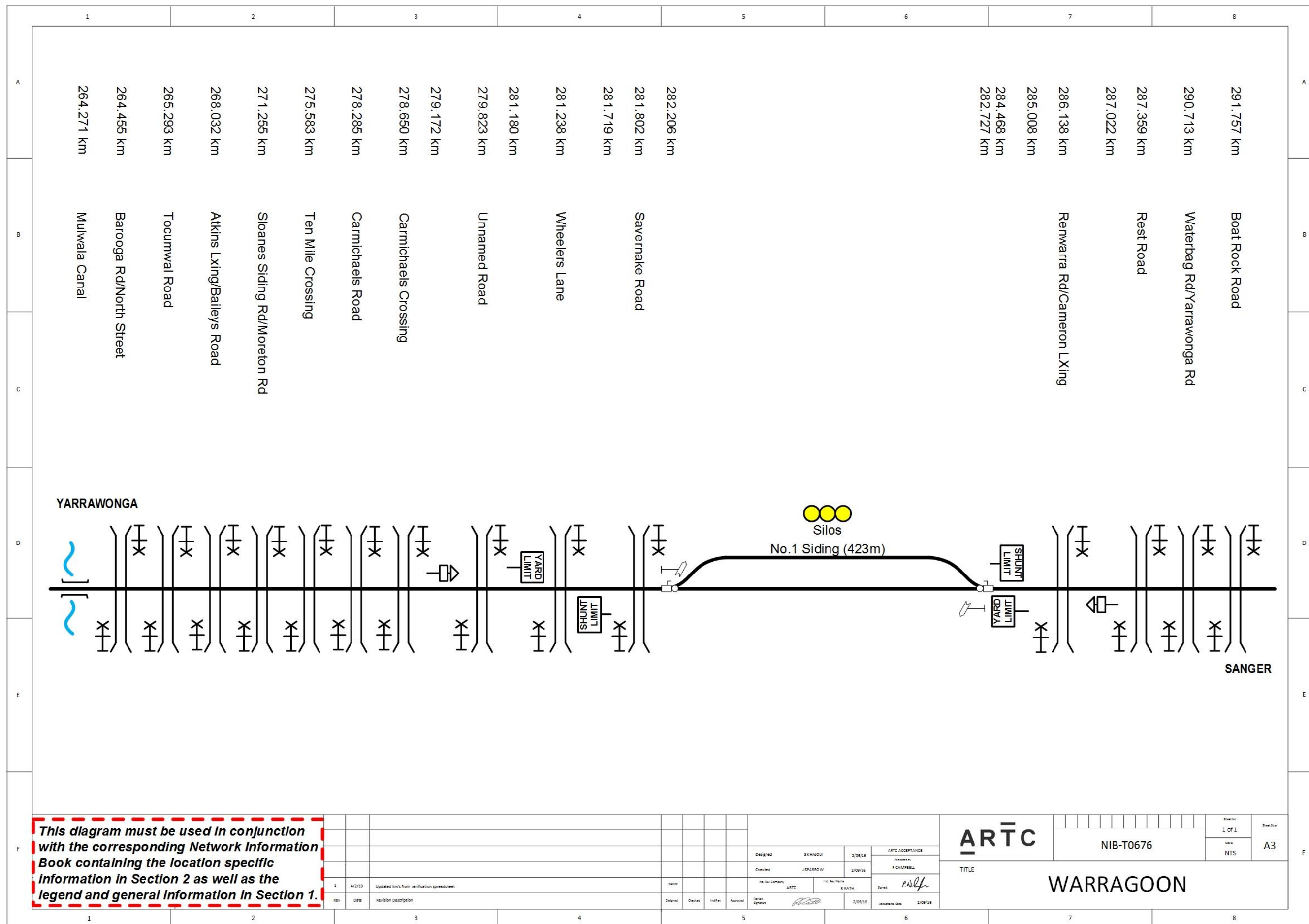
A derail is fitted on both ends of the Loop Road for Roll out protection

**Other information**

Location Boards are located at 279.172 and 287.022km

Yard Limit Boards are located at 281.180 and 285.008km

Shunt Limit Boards are located at 281.719 and 284.468km



### 3.4 Sanger (SAG)

**Standing room**

415m

**Siding**

Nil

**Local Control Panel**

Nil

**Crank Handles**

Nil

**Main Line Points**

South end of loop 303.234km locked by Master Key Lock and has a point indicator

North End of Loop 303.745km locked by Master Key Lock and has a point indicator

A derail is fitted on both ends of the Loop Road for Roll out protection

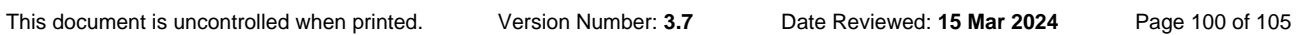
**Other information**

Location Boards are located at 300.236km and 307.128km

Yard Limit Boards are located at 302.241 and 305.085km

Shunt Limit Boards are located at 302.749 and 304.541km





### 3.5 Wangamong (WMM)

**Standing Room**

288m

**Siding**

Nil

**Local Control Panel**

Nil

**Crank Handles**

Nil

**Main Line Points**

South end of loop 313.122km locked by Master Key Lock and has a point indicator

North End of Loop 313.500km locked by Master Key Lock and has a point indicator

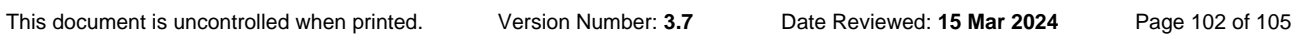
A derail is fitted on both ends of the Loop Road for Roll out protection

**Other Information**

Location Boards are located at 310.073 and 316.906km

Yard Limit Boards are located at 312.083 and 314.886km

Shunt Limit Boards are located at 312.628 and 314.308km



### 3.6 Oaklands (OAV)

**Loop Standing Room**

546m

**Siding**

100m

**Silo Road**

100m

**Head Shunt (On Main Line)**

40m

**Local Control Panel**

Nil

**Crank Handles**

Nil

**Main Line Points**

All points are WSA Lever type

Points between the Loop and the Silo Road are fitted with a hand locking bar 321.209km

**Other Information**

Location Board is located at 315.928km

End Train Order Working Board is located at 316.990km

Stop Board located at 316.990km

Shunt Limit Board is located at 317.503km

Do Not Proceed past this point unless in possession of Train Order Board is located at 317.503km

Begin Train Order Working Board is located at 316.990km

**Master Keys**

Master Keys are to be used to access the sidings. Five 'Ordinary Type' Master Keys numbered 1 to 5 will be used on the line. The numbers are used for identification purposes and the number of the Master Key carried, must be recorded on the Train Order. A Master Key log will be used to track the location of the Master Keys. The Master Key is to be carried on all train movements across the corridor.

The Master Keys will be secured in security safes withing huts at Benalla, Yarrawonga and Oaklands. The huts can be accessed with the 5VPsW Victorian key. The security safes have Questors locks on the safes that require a procedure to be followed to gain access. The procedure will be available in the hut adjacent to the safes.

**3.6.1 AWB Loop (Private Siding)**

Standing Room

740m

Siding

Nil

Local Control Panel

Nil

Crank Handles

Nil

Main Line Points

South end of the loop 318.651km have a hand locking bar and are padlocked in the Normal position

North end of the loop 319.479km have a hand locking bar and are padlocked in the Normal position

A derail is fitted at both ends of the Loop for Roll out protection

Other Information

