

Network Information Book

Upper Hunter 1

Singleton (exc) to Mt Pleasant (inc) & Aberdeen (exc)

OGW-30-17

Applicability

Hunter Valley

Publication Requirement

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|-----|-------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.0 | 22 Sep 2017 | Various | NIB name corrected and diagram legend updated, Nundah level crossing, Bengalla coal loop, Mt Owen points and Newdell Junction signals 25 & 29 updated. Wayside Monitoring Systems, Koolbury crew relief details and safety interface agreements references added. |
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| 2.6 | 21 May 2021 | 1.7, 2.3, 2.6, 2.7, 2.8 | Level crossing table updated. Mt Owen subsidence monitoring information updated. Newdell Coal location updated to remove redundant siding isolation information. Newdell Junction, Drayton Junction & Muswellbrook diagrams updated. Diagram note moved to bottom corner of drawing template. |
| 2.7 | 8 Nov 2021 | 1.6, 1.16, 2.3, 2.10, 2.11, 2.12, 2.14 | Section Operating Equipment & Drawing Legend updated. Mt Pleasant Loop added & Mt Pleasant Siding updated. Ravensworth Junction, Antiene Junction & Muswellbrook diagrams updated. |
| 2.8 | 27 May 2022 | 1.1, 1.7, 2.10, 2.13, 2.14 | Board Extent, Level Crossings table, Antiene No 2 Arrival Road updated. Muswellbrook & Bengalla diagrams updated. Mt Pleasant Siding text and diagram updated. |
| 2.9 | 17 Nov 2022 | 2.3, 2.8, 2.9, 2.11, 2.12 | Grasstree text moved to own location. Muswellbrook Down Yard details added. Ravensworth Junction, Drayton Junction, Drayton & Mt Arthur Coal Loops & Muswellbrook diagrams updated. |
| 3.0 | 28 Jul 2023 | 1.7, 2.1, 2.2, 2.3, 2.5, 2.7, 2.9 | Level Crossings table, Camberwell Junction and Muswellbrook updated. Nundah, Mt Owen, Newdell & Ravensworth Coal Loops, Drayton & Mt Arthur Coal Loops and Bengalla to Mt Pleasant diagrams updated. |

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1 General Information

1.1 Board Extent

Singleton (exclusive) 149.7 Down Main signal 241.002km & 150.4 Up Main signal 241.950km to Mangoola (exclusive) MA1 signal 303.302km & Aberdeen (exclusive) 03-3 signal 299.979km

This area is controlled by Upper Hunter 1 Network Controller, Network Control Centre North (NCCN).

Contact Numbers:

Phone: (02) 4902 7910

Train Transit Manager: (02) 4902 9410

Emergency: (02) 4902 7970

1.2 Safe Working System

| | |
|---------------------------------------|----------------------------------|
| Rail Vehicle Detection (RVD) | Double Line |
| Uni-Directional Signalling | Up Relief Nundah to Camberwell |
| Single Line Bi-directional Signalling | Drayton Junction to Drayton Mine |

1.3 Applicable Rules

The Network Rules and Procedures apply to the sections covered by this Information Book.

1.4 Adjacent Train Control Boards / Centres

| | | | |
|----------------|--------------|-----------|--------------|
| Middle Hunter | 02 4902 7908 | Emergency | 02 4902 7968 |
| Upper Hunter 2 | 02 4902 7911 | Emergency | 02 4902 7971 |
| Upper Hunter 3 | 02 4902 7905 | Emergency | 02 4902 7965 |

1.5 Yard Limits

Back to Back Yard Limits exist between Camberwell – Mt Owen – Newdell Junction.

Consolidated Yard exists for Muswellbrook (includes Drayton Junction, Antiene, Grasstree, Muswellbrook, Bengalla, Mount Pleasant, Koolbury and Dartbrook).

1.6 Section Operating Equipment

1.6.1 Motorised Point Machines

Some of the motorised points in this area are Swingnose points – EXTREME CAUTION must be exercised if points are being manually operated to ensure all parts of the turnout are wound, and to ensure that the whole route through the turnout is set correctly. Please note if there are 4 keys in EOL box there are 4 sets of points to wind.

| Camberwell | Newdell Junction | Grasstree |
|-------------------------|------------------------------------------------------------------|------------------------------|
| No 50 Points | No 114 Points | No 79 Points |
| No 51 Points | No 115 Points | No 80 Points |
| No 52 Points | No 116 Points | |
| No 53 Points | No 118 Points | Muswellbrook |
| No 55 Points | No 119 Points | No 87 Points |
| | No 120 Points | No 88 Points |
| | | Mount Pleasant Loop |
| | | No 90 Points |
| | | No 97 Points |
| Mount Owen | Drayton Junction | Bengalla Loop |
| No 52 Points | No 69 Points | No 91 Points |
| No 53 Points | No 72 Points | No 92 Points |
| | No 81 Points | No 93 Points |
| | No 82 Points | Mount Pleasant Siding |
| | No 83 Points | No 95 Points |
| Ashton Siding | Antiene | Koolbury |
| No 57 Points | No 77 Points | No 370 Points |
| (departure points only) | No 78 Points | No 371 Points |
| | 75-76-77A Points are tangential – crews may not manually operate | |

1.6.2 Interlockings and Sidings

| Km | Station, Platform, Interlocking or Siding | Length of Passenger Platform in Metres |
|---------|-------------------------------------------|----------------------------------------|
| 246.934 | Camberwell | |
| 253.925 | Mount Owen | |
| 256.600 | Ashton | |
| 259.935 | Ravensworth Branch | |
| 267.748 | Ravensworth Coal Washery | |
| 262.305 | Newdell Junction | |
| 272.010 | Drayton Junction | |
| 273.941 | Antiene | |
| 280.909 | Grasstree | |
| 283.993 | St Heliers | |
| 288.783 | Muswellbrook | Up Main, 188 Single Platform |
| 291.093 | Mount Pleasant Loop | |
| 292.900 | Bengalla | |
| 297.120 | Mount Pleasant Siding | |
| 294.010 | Koolbury | |
| 296.554 | Dartbrook | |

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 | Cerberus ID | Road Name | Line Segment | KM | Traffic Type | Access | Control Type |
|----------|-------------|------------------------------------------------|---------------------|---------|------------------|--------|------------------------------|
| 446 | 569 | Middle Falbrook Rd Glennies Creek | Main North | 251.492 | Road | Public | Half Booms & Flashing lights |
| 447 | 575 | Glennies Creek Rd | Main North | 253.733 | Road | Public | Half Boom Flashing Lights |
| | | Network Access Level Crossing Newdell Junction | Main North | 259.648 | Service Crossing | ARTC | |
| 3935 | | Ravenan Lxing | Main North | 264.420 | Road | Public | |
| | | Antiene Takeoff | Antiene Coal Branch | 273.900 | Service Crossing | ARTC | Stop Signs |
| 449 | 600 | Grasstree Lxing Signalled | Main North | 281.283 | Road | Public | Half Boom Flashing Lights |

| ALCAM ID | Cerberus ID | Road Name | Line Segment | KM | Traffic Type | Access | Control Type |
|----------|-------------|----------------------------------------|--------------|---------|------------------|---------|---------------------------|
| 4368 | | Muswellbrook Takeoff | Main North | 287.950 | Service Crossing | ARTC | |
| 1502 | | William Street Muswellbrook | Main North | 289.139 | Pedestrian | Public | Maze |
| 450 | 576 | Brook Street Muswellbrook | Main North | 289.388 | Road | Public | Half Boom Flashing Lights |
| 1503 | | Wilkins Street Muswellbrook | Main North | 289.943 | Pedestrian | Public | Maze |
| 451 | 577 | Limestone Road Muswellbrook | Main North | 292.257 | Road | Public | Primary Flashing Lights |
| 3956 | | Muswellbrook Lxing | Ulan Branch | 290.853 | Road | Private | Stop Signs |
| 3957 | | Bengalla Lxing | Ulan Branch | 292.267 | Road | Private | Stop Signs |
| 3958 | | Bengalla Lxing | Ulan Branch | 293.907 | Road | Private | Stop Signs |
| 3959 | | Bengalla Lxing | Ulan Branch | 294.505 | Road | Private | Stop Signs |
| 3960 | | Bengalla Lxing | Ulan Branch | 295.562 | Road | Private | |
| | | Bengalla Lxing | Ulan Branch | 297.041 | Road | Private | Stop Signs |
| 3961 | | Network Access Level Crossing Bengalla | Ulan Branch | 297.560 | Service Crossing | ARTC | Stop Signs |
| 3962 | | Roxburgh Lxing | Ulan Branch | 299.017 | Road | Private | Stop Signs |
| 3963 | | Roxburgh Lxing | Ulan Branch | 299.562 | Road | Private | Stop Signs |

Emergency keys for level crossings are held at Muswellbrook Provisioning Centre

1.8 Maximum Permitted Speeds and Permanent Speed Restrictions

Refer the Route Access Standard - Heavy Haul Network Section Pages H1 & H2 for all speed information.

1.9 Maximum Train Length

Refer to the ARTC Route Access Standard (RAS).

1.10 Structure Clearances

Refer Route Access Standards for Rolling Stock Outlines.

1.11 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 appropriate Network Control Centre (Broadmeadow or Junee) based on GPS location 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

Channel Name WB

Frequency: 450.050 MHz (UHF),

Bandwidth: 12.5 KHz,

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

Tx CTCSS: 173.8 Hz

Rx CTCSS: NA

Selcall: disabled

Channel Name Mountain Radio (WB)

Frequency: 450.050 MHz (UHF),

Bandwidth: 12.5 KHz,

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

Tx CTCSS: 103.5 Hz

Rx CTCSS: NA

Selcall: disabled

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

1.12 Wayside Monitoring Systems

Muswellbrook-Antiene (HBD, HWD, DED) 280.610km

HBD- Hot Bearing Detector

HWD- Hot Wheel Detector

DED- Dragging Equipment Detector

1.13 Ruling Gradients

| | |
|------------------|---------|
| Newdell Junction | 1 in 85 |
| Mount Owen | 1 in 86 |
| Camberwell | 1 in 82 |

1.14 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





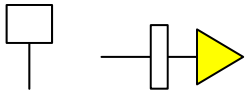

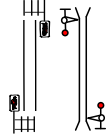

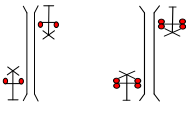
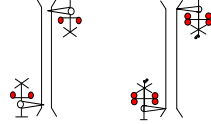
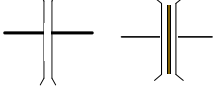

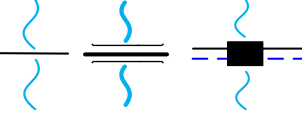
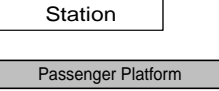


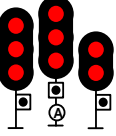
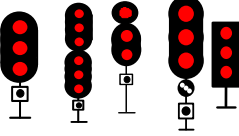
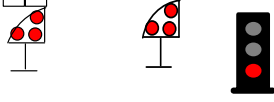
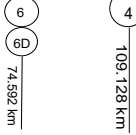


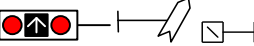
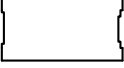


1.15 Lookout Working Hazardous Areas

The below list of locations are hazardous for Lookout Working and may require an additional Lookout or a higher level of protection to undertake work in these areas.

The Protection Officer is responsible for conducting a safety assessment and confirming that Lookout Working is suitable for the work to be performed at the location. This may require the use of an additional Lookout to ensure adequate minimum warning time to easily reach a Safe Place. If the safety assessment determines that Lookout Working is not suitable a higher level of protection must be applied.

| Area | KM From | KM To | Line | Line Direction | Up/Down | Reason Unsuitable |
|----------------------------|---------|---------|----------------|-----------------------------|---------|---------------------------------|
| Singleton – Ravensworth | 238.900 | 264.650 | Up Main | Duplicated uni-directional | Up | Track geometry unsuitable |
| Singleton – Ravensworth | 238.900 | 265.500 | Down Main | Duplicated uni-directional | Down | Track geometry unsuitable |
| Ravensworth | 266.800 | 268.200 | Up Main | Duplicated uni-directional | Up | Track geometry unsuitable |
| Drayton Junction - Antiene | 267.500 | 274.436 | Down Main | Duplicated uni-directional | Down | Track geometry unsuitable |
| Drayton Junction - Antiene | 268.200 | 274.436 | Up Main | Duplicated uni-directional | Up | Track geometry unsuitable |
| Antiene - Muswellbrook | 274.436 | 289.000 | Up & Down Main | Duplicated bi-directional | Both | Track geometry unsuitable |
| Bengalla – Mangoola | 289.000 | 304.500 | Ulan line | Single line bi-directional | Both | Tight curves |
| Muswellbrook – Aberdeen | 289.000 | 294.000 | Main North | Single North bi-directional | Both | Tight curves, bridge & cuttings |
| Muswellbrook – Aberdeen | 295.000 | 297.500 | Main North | Single North bi-directional | Both | Over crest / cutting |
| Muswellbrook – Aberdeen | 297.500 | 299.000 | Main North | Single North bi-directional | Both | Grade unsuitable |
| Muswellbrook – Aberdeen | 299.000 | 300.700 | Main North | Single North bi-directional | Both | Cuttings / built up area |

1.16 Drawing Legend

| | | | |
|-------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------|
|  | Standard gauge track |  | Dual gauge track |
|  | Broad gauge track |  | Crossover |
|  | Advisory Sign or Location Sign |  | Speed sign |
|  | 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 |  | Points |
|  | Automatic Signals |  | Controlled Signals |
|  | Dwarf Signals |  | Signal number reference |
|  | Repeater Signal |  | Mechanical Frame |
|  | Point Indicator |  | Tunnel |
|  | Overheight Detectors |  | Wayside Equipment |

2 Locations and Sections Information

2.1 Camberwell Junction (CMJ)

General Arrangements

Camberwell yard is between Singleton and Mt Owen and is controlled from Network Control Centre North.

Camberwell coal loop is on the up side of the Up Relief. Camberwell Coal Loop has 2 loading bins, Camberwell and Rix's Creek.

Camberwell has a Down Main, Up Main and Up Relief.

Tonnage signals exist for trains over 75% full load on Up Main and Up Relief.

Refer safety interface agreement IA1630 for further information.

Yard Limits

Down CL1 to MN1

Up / Up Relief CL24 to 152.6

Operation of Points and Signals

The points and signals at Camberwell Junction are operated from Network Control Centre North.

All points worked from Network Control Centre North are controlled by track circuit and cannot be moved unless the track indicator diagram is showing that the track(s) controlling the points is unoccupied.

Tonnage Signal CL24 251.265km

A tonnage signal sign is provided on CL24 signal at 251.265km and is controlled with a "T" indication and signage as follows:

"TONNAGE SIGNAL TRAINS OVER THE PRESCRIBED LOAD TO WAIT UNTIL SIGNAL IS AT FULL CLEAR OR MEDIUM ASPECT WITH TONNAGE INDICATOR LIT"

Up Main:

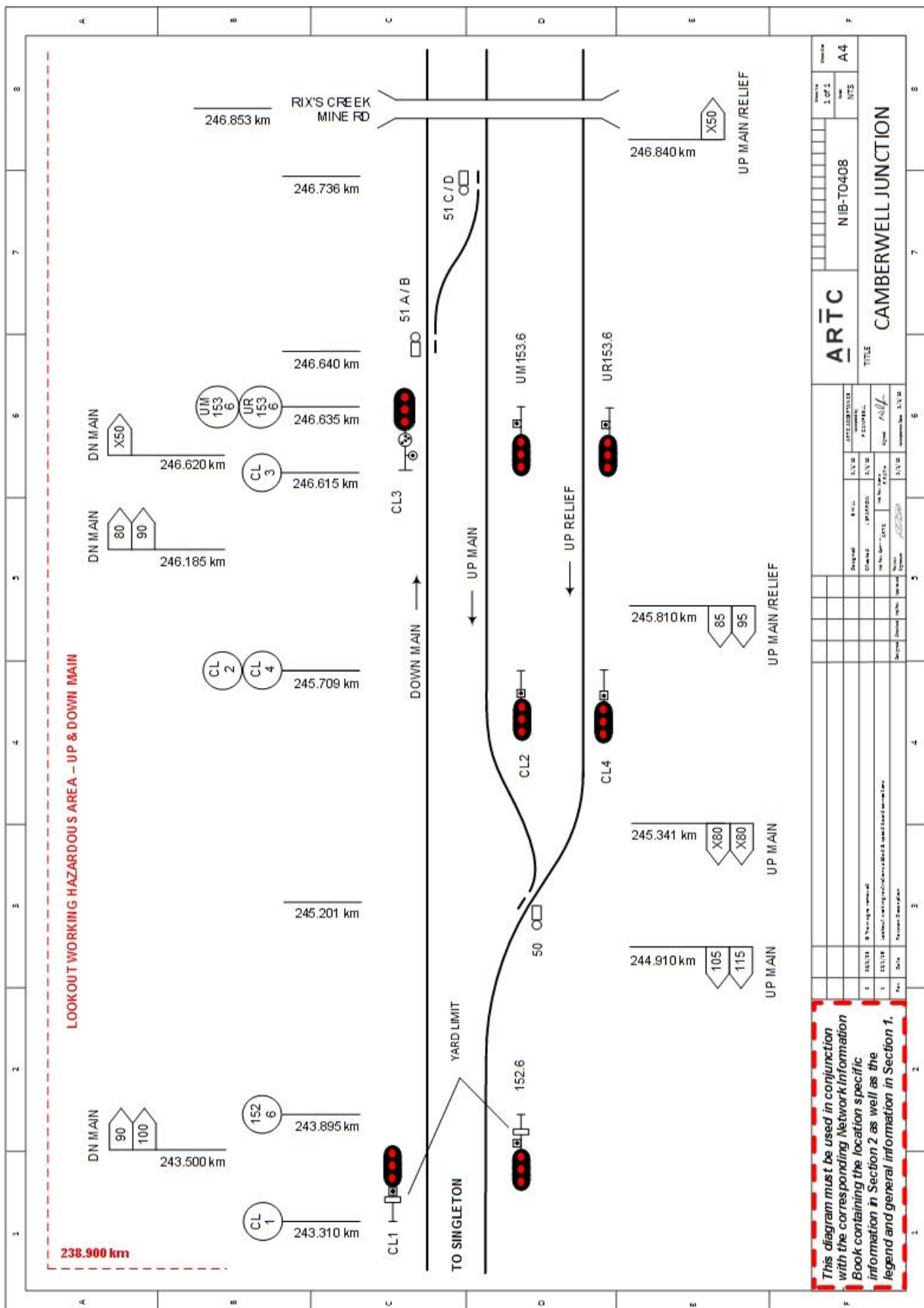
Unless 157.4 signal shows a full clear (Green) aspect, the driver of goods and coal trains with over 75% full load must come to stop at tonnage signal CL24 and wait for CL24 signal to show a medium aspect with Tonnage T indicator lit before proceeding.

This is to prevent trains in the up main being brought to a stand on a heavy rising grade (i.e. Between Signals CL22 and Signal CL12).

Up Relief Road:

Unless 157.4 Signal shows a full clear (Green) aspect, the driver of goods and coal trains with over 75% full load must come to stop at tonnage signal CL24 and wait for the signal to show full clear before proceeding. This is to prevent trains in the up Relief being brought to a stand on a heavy rising grade (i.e. Between Signal CL22 and Signal CL14).

Locations and Sections Information



2.2 Camberwell Coal Siding (CAM)

General Arrangements

Camberwell Coal siding is located on the Up side of the Up Relief line between the crossovers at Padulla and Mount Owen Coal siding.

Two loading bins are provided on the coal siding arrival road to allow coal trains to be loaded at either the Camberwell coal loader or the Rix's Creek coal loader.

Entry of Down trains into the coal siding arrival road is controlled by Down home signal No. CL3(S) and the departure of Up trains from the coal siding departure road is controlled by Up home signal No. CL16.

| | |
|-----------------------------------------|--------------------|
| Sign Advising Entry into Private Siding | 247.284km |
| Camberwell Bin | 249.257km |
| Distance | 1.937 metres |
| Camberwell Bin | 249.257km |
| Rix's Creek Bin | 249.627km |
| Distance | 370 metres |
| Rix's Creek Bin | 249.627km |
| Emergency Access Road Sign | 251.009km |
| Distance | 1382 metres |
| Total Loop Length | 3689 metres |

Operation of Points and Signals

The points and signals controlling the entrance to and exit from Camberwell Coal siding are operated and controlled from Network Control Centre North.

All points worked from Network Control Centre North are controlled by track circuit and cannot be moved unless the track indicator diagram is showing that the track(s) controlling the points is unoccupied.

Operation of Power-operated Points in an Emergency

All points worked from the Network Control Centre North are electrically power-operated.

If these points fail to operate correctly, the Network 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.

Note: 50, 51, 52, 53 and 55 points are Swingnose and will require more than 1 end to be manually operated.

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

Signalling Power Supply Indicators

When there is any alteration or interruption to the signalling power supplies, the Network Controller must promptly inform the Signals maintenance representative.

Special instructions for isolating the points leading to Camberwell Coal siding for maintenance purposes

Isolation Key is located Up Side of Up Relief at 247.060km mounted in a cupboard on a post, secured by S.L lock.

To prevent access to Camberwell Coal siding during maintenance work within the siding, a special key-locked isolating switch is provided in a locked box to enable the power for No.53 points to be isolated while the work is being carried out.

The key for the isolating switch box is held by the infrastructure maintainer for the area.

The isolating switch has two positions, "Normal Operating" and "Siding Isolated". The normal position of the switch is the "Normal Operating" position.

When the switch is locked in the "Normal Operating" position, the points can be operated normally. When the switch is locked in the "Siding Isolated" position, the power supply will be isolated and the points cannot be power-operated by the Network Controller.

Method of Operation

When this work is to be carried out, the coal siding must not be occupied by any train other than work trains or track vehicles involved with the work.

Before the work commences, the infrastructure maintainer must inform the Network Controller of the details of the work to be carried out and obtain permission to operate the isolating switch.

Before giving permission for the switch to be operated, the Network Controller must ensure that the points are in the normal position and apply blocking facilities to the points.

After permission has been given, the infrastructure maintainer must:

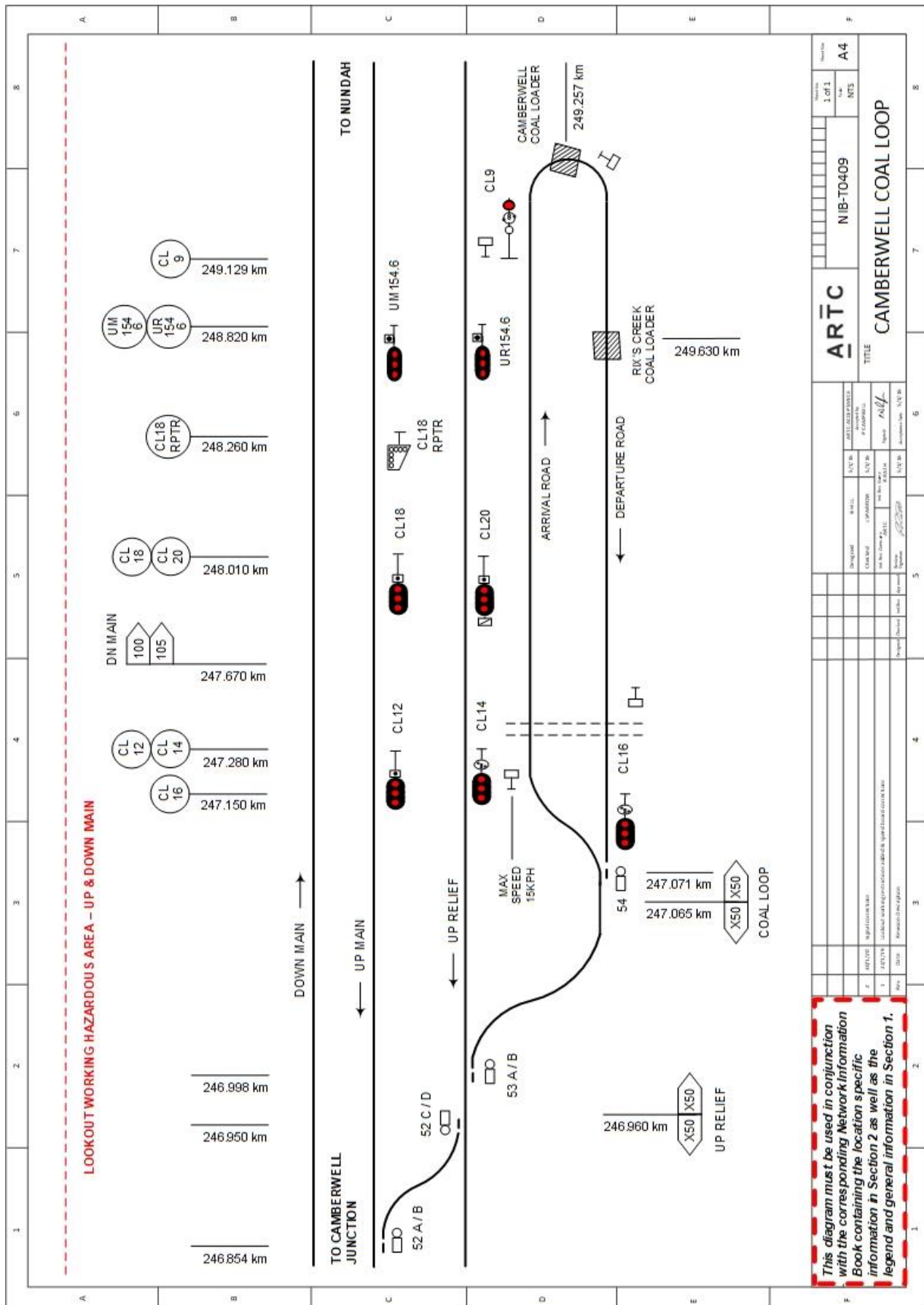
- ensure that the points are in the normal position
- unlock the isolating switch box and the isolating switch
- turn the switch to the "Siding Isolated" position, lock the switch, and then remove the key
- inform the Network Controller that the switch is in the "Siding Isolated" position and retain the key for the duration of the work.

When the work is completed, the infrastructure maintainer must inform the Network Controller and obtain permission to restore the isolating switch to the "Normal Operating" position.

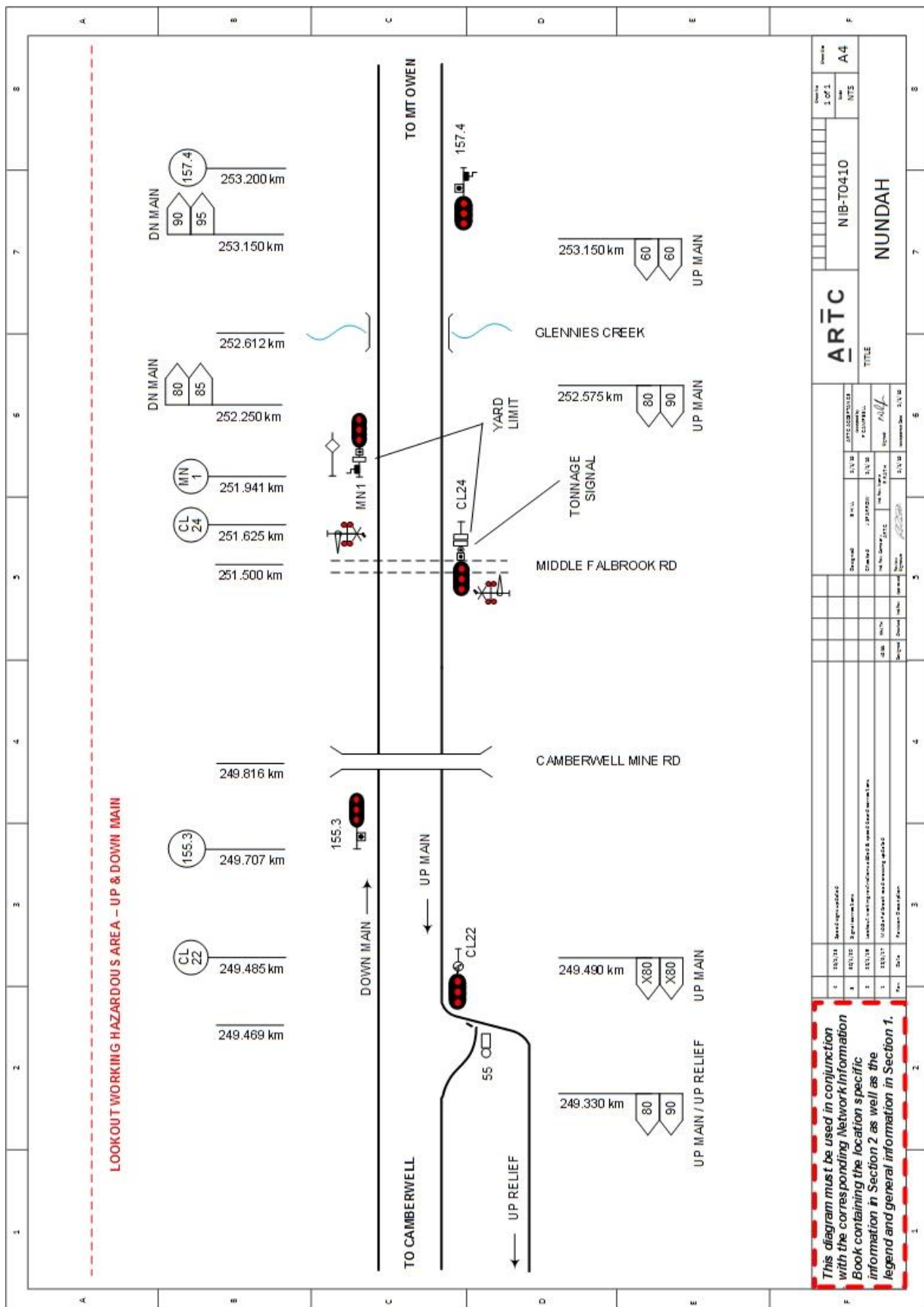
When permission is given, the infrastructure maintainer must unlock the switch and turn it to the "Normal Operating" position, lock the switch, and then inform the Network Controller.

When informed that the switch has been restored to the "Normal Operating" position, the Network Controller must test the points to ensure that they operate correctly to normal and reverse and that detection is available for both positions.

When the points have operated correctly, the Network Controller must instruct the infrastructure maintainer to remove the keys from the switch and secure the box.



Locations and Sections Information



2.3 Mount Owen (MTW)

General Arrangements

Mount Owen coal siding is located on the Up side of the Up main line between Camberwell coal siding and Newdell Junction.

Ashton Coal Siding is located on the Down side of the Down main line between Camberwell and Newdell Junction.

Refer safety interface agreements IA1608 and IA1629 for further information.

Yard Limits

Down Main/Branch MN1 to YL/EYL sign @ 258.618 km and MN10

Up Main/Branch MN8 and MN10 to CL24

Operation of Points and Signals

The points and signals controlling the entrance to and exit from Mount Owen coal siding and Ashton Coal Siding are operated from Network Control Centre North.

A local control panel is provided in the traffic hut at Mount Owen to allow the interlocking to be operated locally.

All points worked from NCCN or the local control panel are controlled by track circuit and cannot be moved unless the track indicator diagram is showing that the track(s) controlling the points is unoccupied.

Switching the Control Panel in or out

A two-position key-locked switch is provided in the control panel to allow it to be switched in (local) or switched out (remote).

Indicator lights inscribed "local" and "closing" respectively are provided to indicate when the control panel is switched in or switched to remote control.

The key for the local control panel is kept in a locked box secured with an SL lock in the traffic hut.

Allowing the Signals to Re-clear Automatically

Two buttons inscribed "A" are provided on the control panel for the Down and the Up main lines. When the buttons are operated, the following signals will clear automatically after the passage of a train:

Down signals Down accept / home main No. MN1 and Down home main No. MN3
 Down home MN15 & Down home / starter MN25

Up signals Up accept main No. MN8 and Up home / starting main No. MN4

Operation of Power-operated Points in an Emergency

Nos. 52, 53 and 54 points worked from NCCN are electrically power-operated.

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. However, if it is necessary to alter the route, the points may be manually operated.

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

Special instructions for isolating the points leading to Mount Owen coal siding and Ashton coal siding for maintenance purposes

To prevent access to Ashton coal siding during maintenance work within the siding, a key-locked isolating switch is provided in a locked box at to enable the power for No. 56 points to be isolated.

To prevent access to Mount Owen coal siding during maintenance work within the siding, a key-locked isolating switch is provided in a locked box to enable the power for No. 53 points to be isolated.

The key for the isolating switch box is held by the infrastructure maintainer for the area.

The isolating switch has two positions, "Normal Operating" and "Siding Isolated". The normal position for the switch is the "Normal Operating" position.

When the switch is locked in the "Normal Operating" position, the points can be operated normally. When the switch is locked in the "Siding Isolated" position, the power supply will be isolated and the points cannot be power-operated.

Subsidence Monitoring

As part of the underground mining operations in the Glennies Creek area long wall mine occurs under the existing Mount Owen rail spur.

To ensure the track stability a subsidence monitoring system on the single line section of the Mount Owen spur with real time (24 hours a day) monitoring is installed by the Mt Owen siding owners. The following alarm states are incorporated into the system.

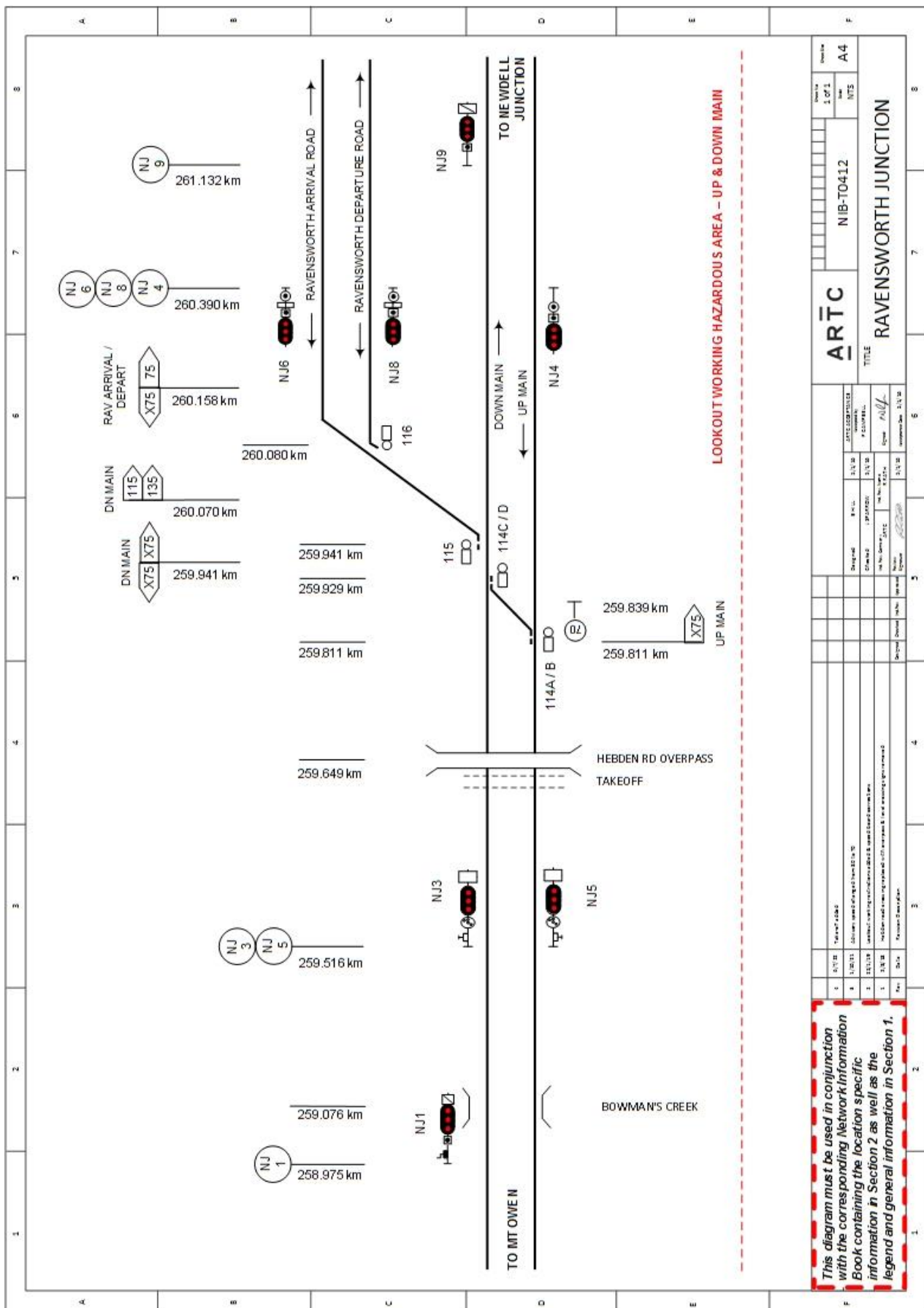
These will be monitored by the controller at Mt Owen Mine and any alteration in status advised to the Upper Hunter 1 Network Controller.

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Green Setting | Normal operations, no action required |
| Blue Alarm | No action required by ARTC. |
| Yellow Alarm | Respond to call from Mt Owen operations and all trains to reduce speed (CAN Warn all rail traffic). Warning will remain in place until advices by Laing O'Rourke or Mt Owen Mine operators. |
| Red Alarm | All rail traffic is to be brought to a stand. All train operations must be suspended until the spur line has been certified by Laing O'Rourke. |

NOTE: *An automated phone call to the Upper Hunter 1 desk will take place when a red alarm is activated and the mine operator has not acknowledged the alarm.*



Locations and Sections Information



2.4 Newdell Junction (NDJ)

General Arrangements

Newdell Junction is between Mt Owen and Drayton Junction on the down main line on the Main Northern Railway line in the NSW Hunter Valley Rail corridor.

Newdell Junction contains two spur lines.

Ravensworth Balloon loop is at 259.935km on the down main line.

Newdell Balloon loop is at 262.403km on the down main line.

The signalling and motor points in this area are via the Phoenix System controlled by the Network Controller on Upper Hunter 1 board from the Network Control Centre North (NCCN).

The safe working system in this area is Rail Vehicle Detection.

Refer to safety interface agreement IA1621 for further information.

Yard Limits

Down main line from Limit of Shunt sign at 258.618km (YL/EYL signs provided) to 164.5 signal (Auto) 264.675km.

Up main line from NJ20 signal 264.787km to MN8 signal 255.700km.

Ravensworth down arrival, departure roads and Ravensworth Branch are within yard limits to Ravensworth Balloon loop.

Ravensworth and Newdell Branch lines to Ravensworth and Hunter Valley balloon loops are within Newdell Junction yard limits.

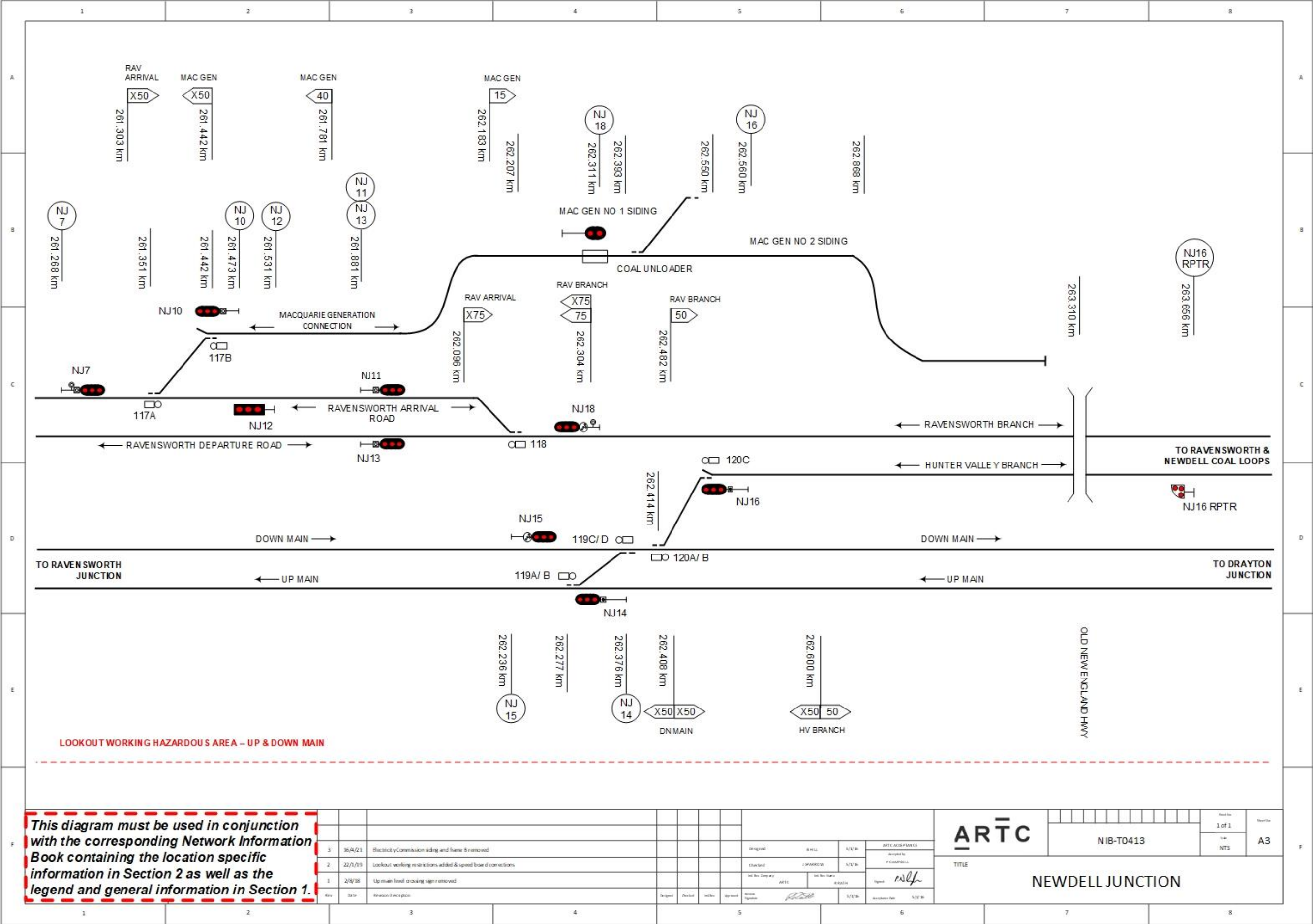
Operation of Points and Signals

Control of the area is via the Phoenix system Controlled signals and Automatic sections managed by the controllers at the NCCN.

Shunting Limit Sign

The Shunting Limit sign is on the down main line at 258.618km to facilitate shunting operations for the Macquarie Generation siding via the Ravensworth Down Arrival road.

The sign is located on the Down side of the Down main line approximately 898 metres on the Sydney side of Down Home Signal NJ3. This sign is inscribed "Shunting limit on Down main" and applies to shunting movements in the Up direction on the Down main line.



2.5 Ravensworth Coal (RCT)

General Arrangements

The Ravensworth Down Arrival, Up Departure and Ravensworth Branch between Ravensworth and Ravensworth Balloon loop is for bi-directional rail traffic movements. An arrival and departure road is between 259.935km and 262.207km on the down side of the Down Main line between Mt Owen and Newdell Junction.

The arrival and departure roads between 259.935km and 262.207km will allow trains 1543 metre in length to stand to cross clear of the main lines.

The Macquarie Generation siding is off the Ravensworth Arrival Road via 117 motorised points at 261.351km.

Entry to the siding is controlled by clearance of shunt proceed indication on number NJ7 signal and departure is controlled by clearance of number NJ10 signal.

The points and signals at Ravensworth Coal siding are all part of the Newdell Junction interlocking.

Entry of Down trains into the Ravensworth Coal arrival road is controlled by Down home Ravensworth branch signal to Ravensworth Coal arrival road signal NJ25

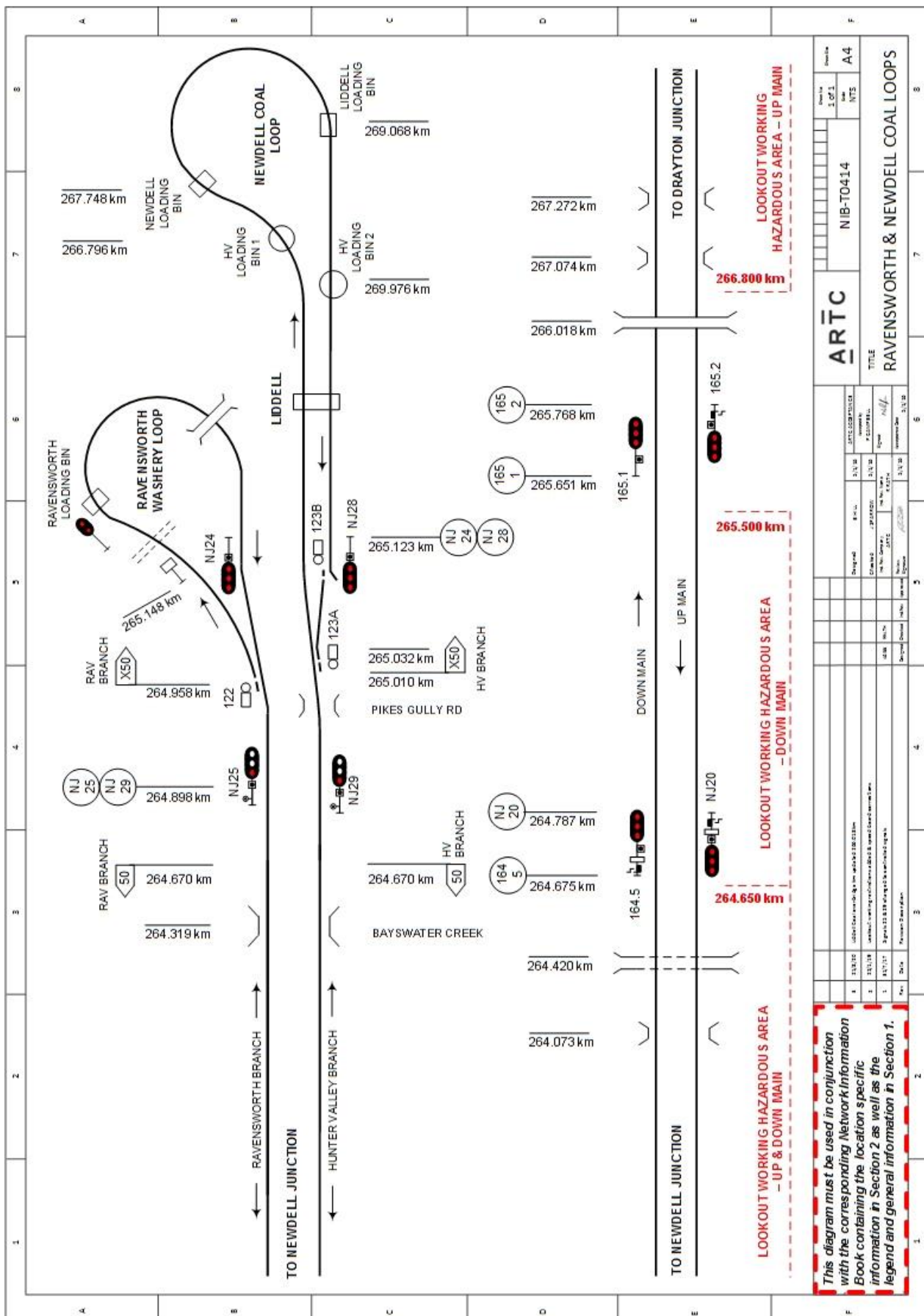
The departure of Up trains from the Ravensworth Coal departure road is controlled by Up home Ravensworth Coal signal NJ24

Refer safety interface agreement IA1627 for further information.

Operation of Points and Signals

The points and signals controlling the entrance to and exit from Ravensworth Coal siding are operated from Network Control Centre North.

Locations and Sections Information



2.6 Newdell Coal (NDC)

General Arrangements

Newdell coal siding is located at the terminal ends of the single branch line.

The points and signals at Newdell coal siding are all part of Newdell Junction interlocking.

Entry of Down trains into the coal siding arrival road is controlled by Down home signal NJ29

The departure of Up trains from the coal siding departure road is controlled by Up home signal NJ28.

Hunter Valley Balloon loop operations is via connection at Newdell Junction via number 120 points, 119 crossover via Hunter Valley Branch and number 123 points to Newdell Balloon loop.

Hunter Valley balloon loop has 4 loading bins.

| | |
|---------------------|-----------|
| Hunter Valley bin 1 | 266.526km |
| Newdell bin | 267.478km |
| Liddell bin | 269.070km |
| Hunter Valley bin 2 | 269.978km |

Operation of Points and Signals

The points and signals controlling the entrance to and exit from Newdell coal siding are operated from Network Control Centre North.

2.7 Muswellbrook Consolidated Yard

Yard Limits

| | |
|----------------|-----------------------------------|
| Down Direction | DJ47 to DJ60 (Drayton Branch) |
| | DJ47 to MK236 (Ulan Line) |
| | DJ47 to MK330 (Werris Creek Line) |
| <hr/> | |
| Up Direction | MK236 (Ulan) to 168.6 |
| | MK330 (Werris Creek) to 168.6 |
| | DJ60 (Drayton Branch) to 168.6 |

2.8 Drayton Junction (DRJ)

General Arrangements

Drayton Junction is part of Muswellbrook consolidated yard.

Refer safety interface agreement IA1625 for further information.

Operation of Points and Signals

All points worked from Network Control Centre North are controlled by track circuit/axle counter and cannot be moved unless the track indicator diagram is showing that the track(s) controlling the points is unoccupied.

Down Refuge Loop

The Down Refuge Loop is located on the down side adjacent to the Down Main. The Down Refuge Loop is provided to allow for passing and stowing of trains. Catch points numbers 71 and 73 have been provided to allow trains to be stabled on the Down Refuge Loop (with no train crew present). 71 EOL cabinet is located at 269.918km on the down side of the down refuge loop.

Both 71 and 73 catch points will remain closed for normal operations and will be operated to the Reverse position (Open) by the Network Controller to facilitate stabling of trains.

The down refuge loop is unidirectional.

The Drayton down refuge loop will provide for 1660 metre trains to operate/stand between number 71 catch point clearance point at 269.898km and intermediate down shunt signal DG55 at 271.583km with entry speed for refuge loop being 80 km/h.

Microlok II system is utilised for the interlocking purpose to control the Drayton Junction down refuge loop.

Operating Power Operated Points in an Emergency

All points worked from Network Control Centre North are electrically power-operated.

If these points fail to operate correctly, the Network 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 Signals maintenance representative must be promptly advised of the circumstances.

Special instructions for isolating the points leading to Drayton Junction for maintenance purposes

To prevent access to the Up and the Down branch lines during maintenance work within the branch lines, special key-locked isolating switches are provided in locked boxes to enable the power for Nos. 73, 81 and 82 points to be isolated.

Maintenance isolation switch for the Drayton Branch will be located on the same signalling relay cabinets as number 81 crossover EOL located at 271.834km on the down side.

The key for the isolating switch box is held by the infrastructure maintainer for the area.

The isolating switch has two positions, "Normal Operating" and "Siding Isolated". The normal position for the switch is the "Normal Operating" position.

When the switch is locked in the “Normal Operating” position, the points can be operated normally. When the switch is locked in the “Siding Isolated” position, the power supply will be isolated and the points cannot be power-operated.

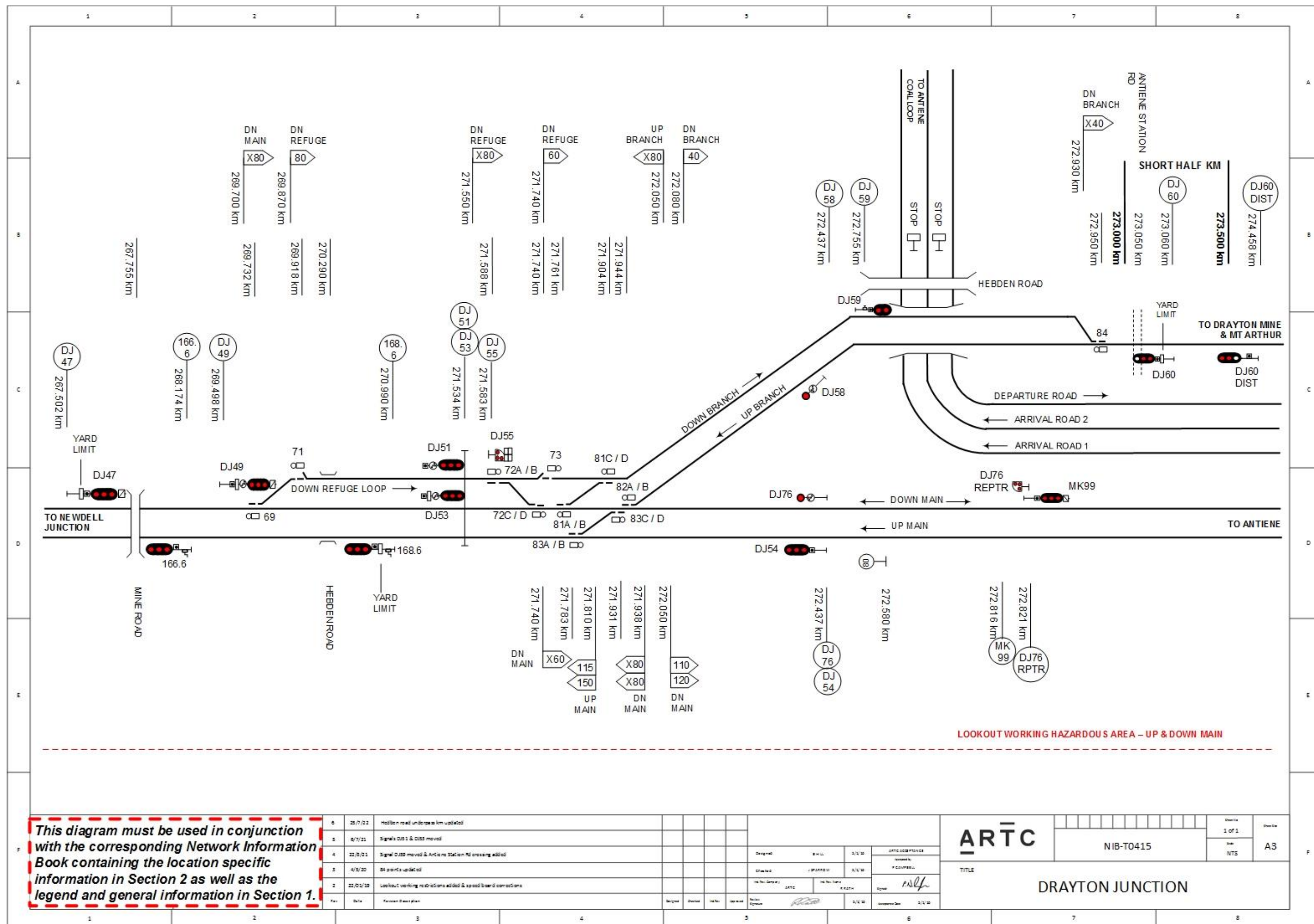
Signalling Power Supply Indicators

Drayton Junction has a stand-by generator and UPS system as a power backup to maintain the signalling during normal and emergency changeover around the Drayton Junction area. Locations DJ47, DJ49 and DJ51 will send an individual power supply health indication to Phoenix. This power supply health indication includes the status of all the available power supplies for each location.

Half Pilot Staffs

A half pilot staff is provided in a pilot staff lock inside a locked box on the post of the home/starting signal for the Drayton Junction - Drayton Mine section.

The half pilot staff for the section Drayton Junction - Drayton Mine is inscribed "Drayton JN B169.5".



2.9 Drayton Mine & Mount Arthur Coal Sidings (MNC)

General Arrangements

Drayton Mine and Mount Arthur Mine coal sidings are located at the terminal end of the Drayton branch line.

Operation of Points and Signals

The points and signals at Drayton Mine and Mount Arthur Mine coal sidings are operated from Network Control Centre North.

A local control panel is also provided in the traffic hut at Drayton Mine to allow the interlocking to be operated locally.

Nos. 86, 87 and 88 points worked from NCCN are controlled by track circuit and cannot be moved unless the track indicator diagram is showing that the track(s) controlling the points is unoccupied.

Special instructions for isolating the points leading to Drayton Mine and Mount Arthur Mines coal sidings for maintenance purposes

To prevent access to Drayton Mine and Mount Arthur Mine coal sidings during maintenance work within the sidings, special key-locked isolating switches are provided in a locked box to enable the power for Nos. 86 and 87 points to be isolated.

The key for the isolating switchboxes is held by the infrastructure maintainer for the area.

The isolating switch has two positions, "Normal Operating" and "Siding Isolated". The normal position for the switch is the "Normal Operating" position.

When the switch is locked in the "Normal Operating" position, the points can be operated normally. When the switch is locked in the "Siding Isolated" position, the power supply will be isolated and the points cannot be power-operated.

Derail Detector (Drayton Mine)

A derail detector has been installed on the eastern side of No. 1 loading bin at Drayton Mine under the light pole on the departure road. There is a tripper bar situated between the rail tracks which, when struck (lowered) by the wheels of a derailed vehicle, activates two limit switches.

If the tripper bar is struck (lowered)

- the alarm lights on both Nos. 1 and 2 loading bay control desks will flash
- the loading gate will close and the chute will be raised to stop loading
- and the stop signal will be sent to the train telemetry radio system receiver.

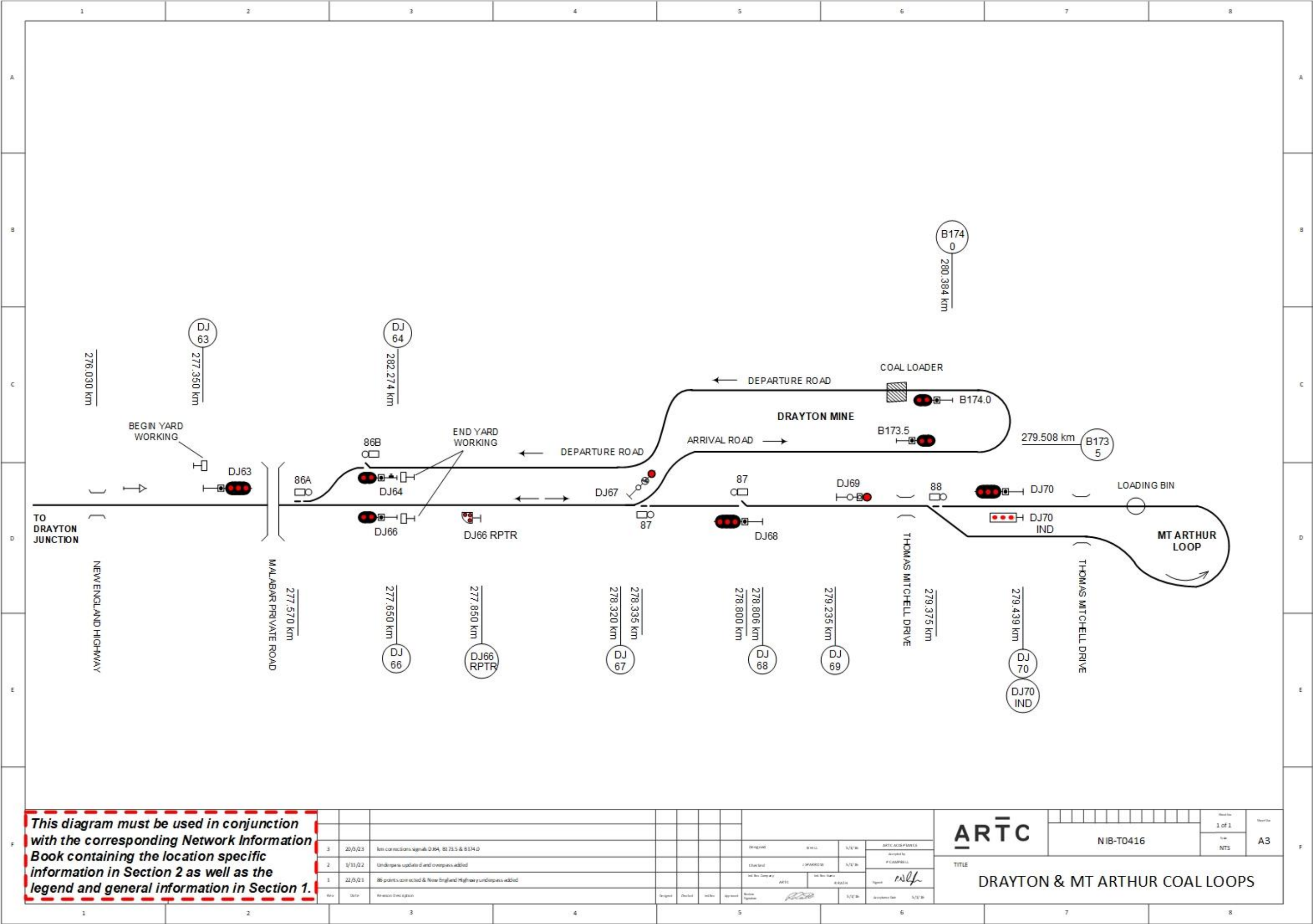
The loading operator must contact the train crew using the railway two-way radio and advise them of the situation.

The loading operator will request one of the train crew to inspect the track with them to determine the cause of the alarm. Dragging equipment may have struck the tripper bar and caused the alarm to activate.

Track maintenance affecting the tripper bar

If it is necessary for the tripper bar to be struck (lowered) to allow track maintenance work to be carried out, it can only be lowered towards the east as all rail traffic moves in an anti-clockwise direction around the coal siding.

- When the maintenance work is completed, the tripper bar must be raised and set in position by lifting the bar and tightening the bolts to again allow train loading.



2.10 Antiene Coal Siding (ATN)

2.10.1 General Arrangements

Antiene is part of Muswellbrook Consolidated Yard and is located on the down side of the Down Main between Drayton Junction and Muswellbrook. Access is via signals controlled by Network Control Centre North (NCCN).

Refer to safety interface agreements IA1626 and IA1628 for further information.

Operation of Push Buttons

Driver requests release (100) from Network Controller Upper Hunter at Network Control Centre North (NCCN) using phone.

Network Controller gives the release to Antiene.

- The white 'RELEASE AVAILABLE' light will light

Driver pushes the 'REQUEST RELEASE' button to take the release.

Driver pushes the 'SET ROUTE' button for the route required.

- The Green Signal route light in the 'SET ROUTE' button will flash
- The points are set and the signal clears
- The Green Signal route light will become steady

When the shunting move takes place

- The signal goes back to stop
- The route is cancelled
- The Green Signal route light goes out

If shunt does not proceed, the signal can be cancelled by pushing the 'CANCEL ROUTE' button

- The signal goes back to stop
- The route is cancelled
- The Green Signal route light goes out
- If the signal is approach locked, the Green Signal Route light will flash until the approach locking is released (60 seconds) and will then go out

When all shunting is complete and control is to be returned to the Network Controller NCCN, the driver pushes the 'CANCEL RELEASE' button

When the Network Controller normalises the release

- The white 'RELEASE AVAILABLE' light will go out

NOTE: Any 'REQUEST RELEASE' button in any of the Push Button units can be used to take the release, and any 'CANCEL RELEASE' buttons can be used to give the release back to the Network Controller.

During the time the release is taken, the 'SET ROUTE' button at the signal will be the only way to set the route from the signal.

During normal operations of the siding from Network Controller NCCN, 102(S)A and 102(S)B are the only Shunt Signals that can be cleared at Antiene Macquarie Sidings.

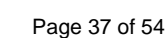
During local control at Macquarie Generation sidings, no train will be able to enter from the main line or depart to the mainline. 51 Point will be locked Normal and the Network Controller NCCN will not be able to control any signalling within the Macquarie Generation siding area.

2.10.2 Provisioning of Locomotives / Trains in Arrival Road No 2

When there is a requirement for Aurizon to provision locomotives / trains on Arrival Road No 2, an isolation of Arrival Road No 2 will be required to be taken out.

The following precautions must be taken:

- The Aurizon employee is required to contact the Network Controller to advise of intentions and request isolation of Arrival Road No. 2.
- The Network Controller must apply blocking facilities to prevent rail vehicle access to Arrival Road No. 2 and record the isolation on the Train Control Diagram.
- The Aurizon employee must ask the Network Controller to repeat back details of the blocking facility applied. Once the Aurizon employee has confirmed that the blocking facilities have been applied and are correct, they will record the time of the conversation on the appropriate Aurizon document (not an ARTC document).
- Derailers may be attached to Arrival Road No. 2 as required by Aurizon isolation procedure
- On completion of the isolation the Aurizon employee must contact the Network Controller to advise them that the isolation on Arrival Road No. 2 is complete and request that the applicable blocking facilities be removed.



2.11 Grasstree

Grasstree is part of Muswellbrook Consolidated Yard.

The points and signals are operated from the Network Control Centre North.

Grasstree Level Crossing

Type F flashing lights, bells and half boom barriers are provided at Grasstree level crossing at 281.273km.

The Emergency and Test switch boxes are located on the MK122 location hut adjacent to the Up Main line.

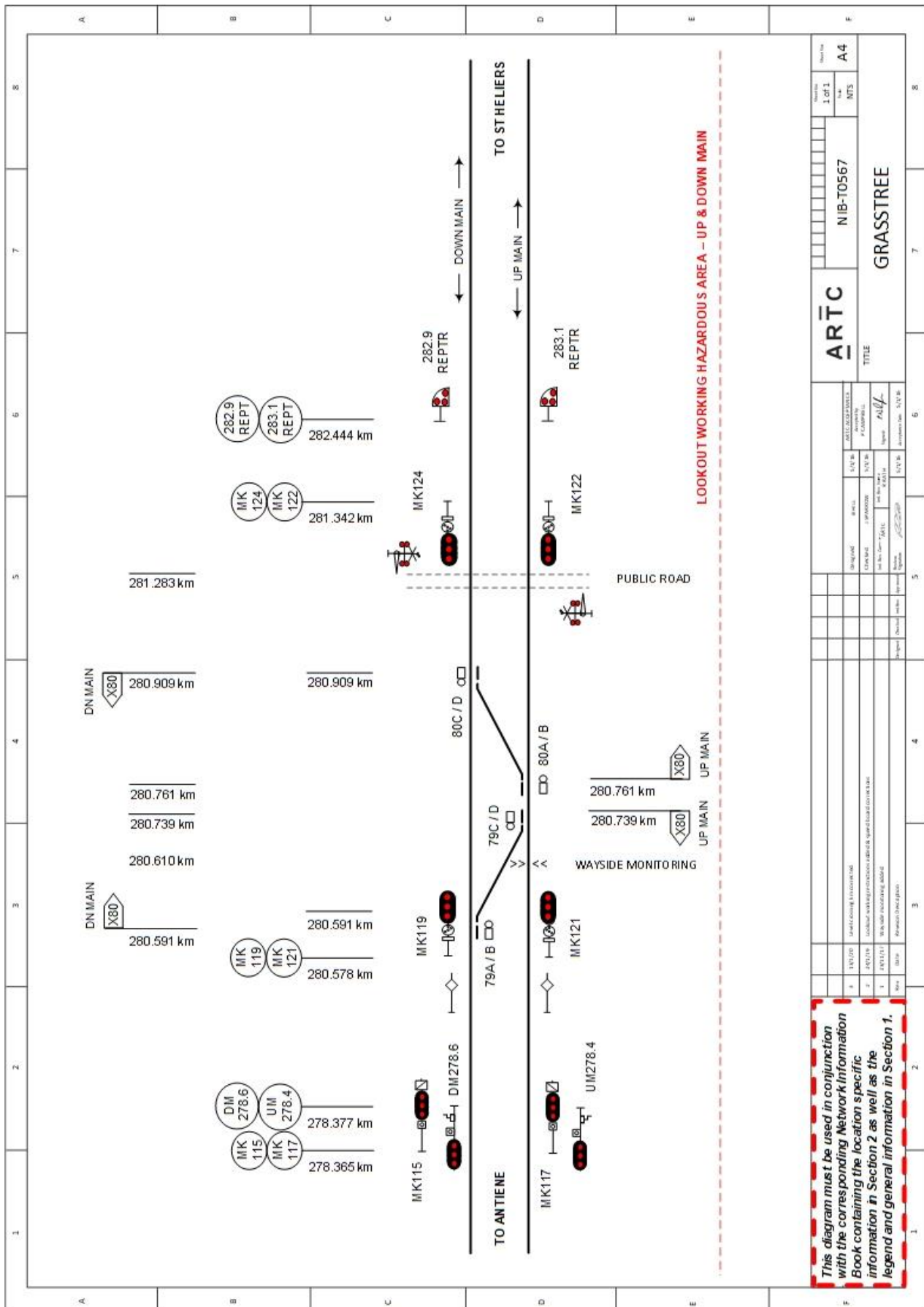
The Emergency switch keys will be located at the Muswellbrook Provisioning Centre.

Driver push buttons are installed on signal numbers MK119, MK121, MK122 and MK124 and a sign advising rail traffic crews 'BEFORE PASSING SIGNAL AT STOP, PRESS BUTTON TO ACTIVATE LEVEL CROSSING'.

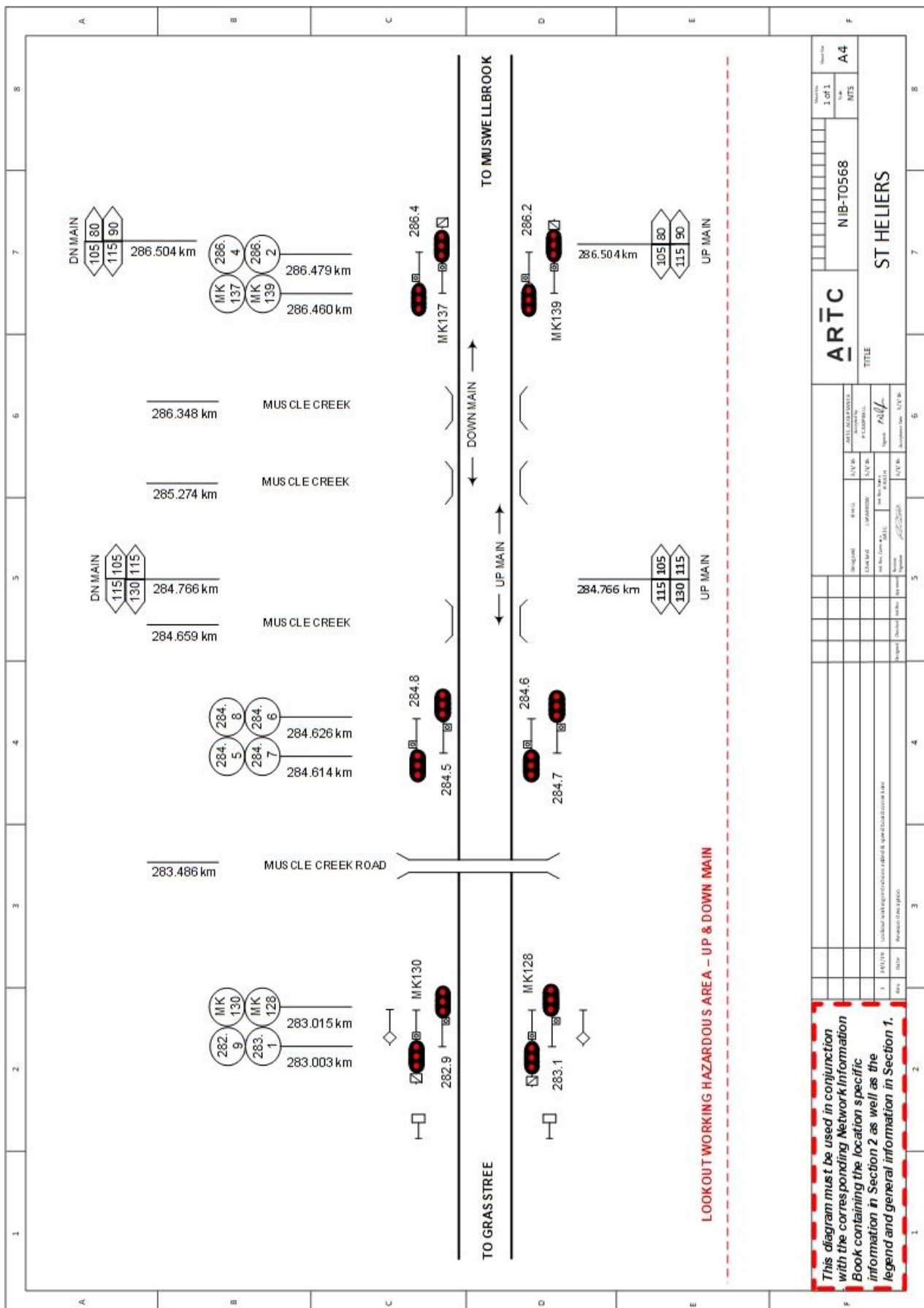
Grasstree X, Y and Z Maintenance Releasing Switch Keys

X, Y and Z Maintenance releasing switch keys are located on MK119 location hut on the up side of the line at Grasstree. These allow signals to clear only in the standard running-direction, preventing bi-directional signalling between MK122 / MK124 signals (Grasstree) and MK103 / MK105 signals (Antiene).

Locations and Sections Information



Locations and Sections Information



2.12 Muswellbrook (MUS)

2.12.1 General Arrangements

The points and signals at Antiene, Muswellbrook, Koolbury, Dartbrook Coal Loop, Bengalla siding and Mount Pleasant coal loop are all part of the Muswellbrook signalling area.

Refer to safety interface agreement IA1611

Operation of Points and Signals

The points and signals at Antiene, Grasstree, Muswellbrook, Koolbury, Dartbrook Coal Loop Bengalla crossing loop, Bengalla siding and Mount Pleasant coal loop are operated from the Network Control Centre North.

All points worked from Network Control Centre North are controlled by track circuit and cannot be moved unless the track(s) controlling the points is unoccupied.

Operation of power-operated points in an emergency

All points worked from Network Control Centre North are electrically power-operated.

If these points fail to operate correctly, the track section for that set of points will flash and the Network 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 Signals maintenance representative must be promptly advised of the circumstances.

Muswellbrook bi-directional signalling

X, Y and Z maintenance releasing switch keys will be provided on MK143 location hut on the down side of the line at Muswellbrook. When utilised, signals will clear only in the standard running direction, preventing bi-directional signalling between MK119 / MK121 signals (Grasstree) and MK162 / MK164 (Muswellbrook).

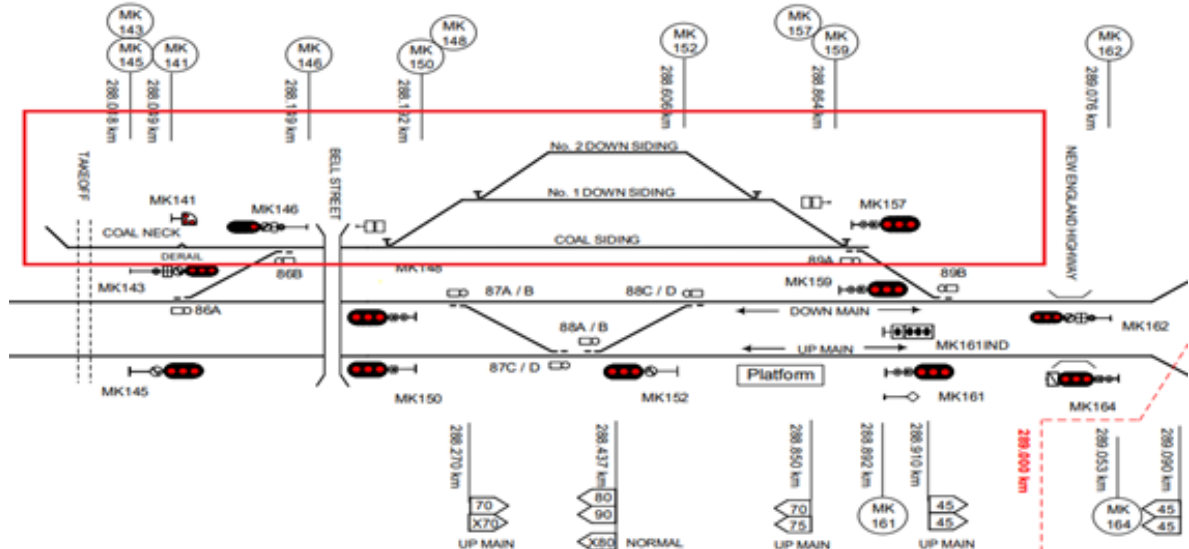
Shunting Limit Signs

Shunting limit signs are provided at Muswellbrook. The signs are located as follows:

- Down side of the main line between Up home signal MK164 and Brook Street level crossing at 289.282km.
 - The sign is inscribed "Shunting limit on main line" and applies to shunting movements in the Down direction on the main line.
- Down side of the Branch line between Up home signal MK162 and down signal MK171 at 289.263 km and applies to shunting movements in the Down direction on the branch line.
- Down side of Down Main between down signals MK137 and MK143 at 287.762 km and applies to shunting movements in the Up direction on the down main line.

2.12.2 Muswellbrook Down Yard

Muswellbrook has a non-track circuited shunting yard on the down side of the down main line called the Down yard



The Down Yard is designated as a shunting yard and includes the listed roads:

- Coal Siding (685m)
- Coal Neck (250m long)
- No 1 Down Siding (410m)
- No 2 Down siding (405m)

Entry to Muswellbrook down yard (south end) will be by No 86 motorised points remotely controlled from the Network Control Centre North (NCCN)

Entry to Muswellbrook down yard (north end) will be by No 89 motorised points remotely controlled from the Network Control Centre North (NCCN)

The coal neck is 250 metres in length from MK141 signal at 288.060km to 287.810km is provided and connected to the southern end of the Down Coal Siding. A motor operated derail device is provided at 288.062km on the Coal neck, which is controlled by the operation of No 86 points.

End of Signalled Authority signs will be at 288.153km and 288.886km at the end of Rail Vehicle Detection (RVD) and prior to entering down sidings Muswellbrook yard non-track circuited Coal siding, number 1 down siding and number 2 down siding.

WORK ON TRACK WITHIN THE DOWN YARD SHUNTING YARD

Work on Track as per ANWT 300 Planning work in the Rail Corridor – “Working Safely on Track in Shunting Yards applies.”

Before permitting any work on track to commence, the following instructions must be strictly adhered to:

- identify yourself to the ARTC Network Controller
- advise of your location
- give details of the worksite, including limits, utilising the hierarchy of controls regarding protection.

Acceptable protection would be a combination of two or more of these examples.

- Points clipped and SL locked to prevent rail traffic access to the worksite (exclude rail traffic)
- “Tagged” (PO name and contact number) Red flag or STOP sign/light clamped in the four foot at the protection limits
- An adjoining work on track authority that prevents unauthorised rail traffic access to the protection limits if applicable,
- Blocking facilities from Network Control if applicable,
- Three Railway Track Signals placed at the protection limits, or
- Handsignaller/s if applicable

Where rail traffic is within the protection area or has the ability to impact workers or equipment, the Protection Officer must put a control in place to manage this hazard such as:

- Tagged Red flag or STOP sign/light clamped in the four foot in clear display visible for rail traffic crews in conjunction with the listed protection methods

Coal Siding Advisory Sign

This sign is provided to advise Competent Workers that wagons cannot be stabled on the City side of the sign, to allow shunting movements into and out of the Coal Neck.

2.12.3 Brook Street Level Crossing

Type F flashing lights, bells and half boom barriers are provided at Brook Street level crossing at 289.380km. Pedestrian crossings with swing gates are also provided on both sides of the level crossing.

The warning equipment is automatically controlled by track circuit for Down trains and is subject to the clearance of the Up outer home signal for Up trains.

If a train closely approaches Up outer home signal No. MK166 at stop, the setting of the signal route will cause the level crossing warning indicators to be displayed but clearing of the signal will be delayed for 15 seconds.

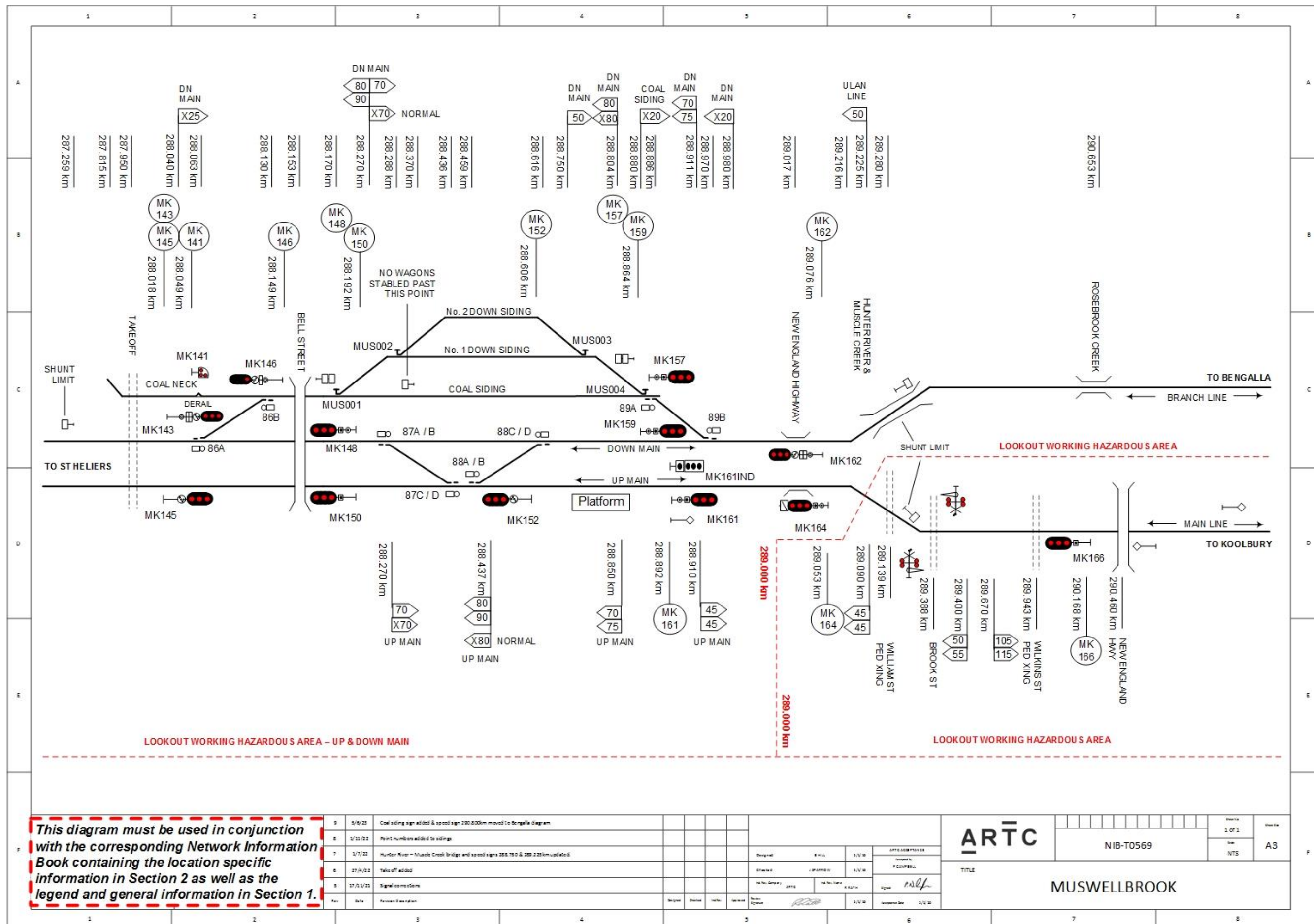
If it becomes necessary to hold a train at signal MK166 after the signal has been cleared, the level crossing warning indicators will continue to be displayed for a period of 120 seconds after the signal is returned to stop and will then cancel automatically.

2.12.4 Hot Box Detector

A hot box detector is located on the Up Main line Muswellbrook at 279.000km between signal MK117 and signal MK121.

A notice sign, with silver letters on blue background and inscribed ‘Hot Box Detector 279.000km’ is provided on the Up side of the line near the detector.

When a hot box detector is activated, an audible alarm will sound until cancelled by the Network Controller.



2.13 Mount Pleasant Coal Loop (MPC)

Mount Pleasant coal loop is situated on the Up side of the Ulan line.

Entry and Exit of Trains to and from Mount Pleasant Loop

Entry and exit of trains to Mount Pleasant is controlled by fixed signals controlled by the Upper Hunter 1 Network Controller at NCCN.

Trains will operate in a clockwise direction around the balloon loop. Mount Pleasant has a balloon loop capacity of 4529m.

Two trains of 1604m in length can fit within the Mount Pleasant Loop, an empty train on the arrival side of the train load out and one on the departure side of the train load out.

Admitting an additional train into Mount Pleasant Balloon Loop

When one train is occupying the Mount Pleasant Loop, the Network Controller at NCCN may allow an additional train to enter, provided that the additional train can be accommodated clear of the main line.

Special instructions for isolating the points leading to Mount Pleasant Loop for maintenance purposes

To prevent access to Mount Pleasant Loop during maintenance work within the loop, a special key-locked isolating switch is provided in a locked box to enable the power for No. 90 points to be isolated.

The key for the isolating switch box is held by the Infrastructure Maintainer for the area.

The isolating switch has two positions, "90 Points Normal" and "90 Points Isolated". The normal position for the switch is the "Normal Operating" position.

When the switch is locked in the "Normal Operating" position, the points can be operated normally. When the switch is locked in the "Siding Isolated" position, the power supply will be isolated and the points cannot be power-operated.

Operation of Power-operated Points in an Emergency

Nos. 90 and 97 points are electrically power-operated. If these points fail to operate correctly, the Network 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 should be manually operated. The Signals Maintenance Representative must be promptly advised of the circumstances.

2.14 Bengalla (BJL)

General Instructions

Bengalla is located between Muswellbrook and Mangoola and is part of Muswellbrook Consolidated Yard.

Bengalla has a passing loop situated on the down side of the main Ulan line and a coal balloon loop situated on the up side of the main Ulan line.

All signals and point are controlled by the Upper Hunter 1 Network Controller at NCCN.

Refer safety interface agreement IA1610 for further information.

Yard Limits

Rail traffic operations between Muswellbrook and Bengalla crossing loop and Bengalla balloon loop locations are within Muswellbrook yard limits.

Operation of Points and Signals

The points and signals at Antiene, Grasstree, Muswellbrook, Bengalla crossing loop, Bengalla siding and Mount Pleasant coal loop are operated from the Network Control Centre North. **Special instructions for isolating the points leading to Bengalla siding for maintenance purposes**

To prevent access to Bengalla siding during maintenance work within the siding, a special key-locked isolating switch is provided in a locked box to enable the power for No. 93 points to be isolated.

The key for the isolating switch box is held by the Infrastructure Maintainer for the area.

The isolating switch has two positions, "Normal Operating" and "Siding Isolated". The normal position for the switch is the "Normal Operating" position.

When the switch is locked in the "Normal Operating" position, the points can be operated normally. When the switch is locked in the "Siding Isolated" position, the power supply will be isolated and the points cannot be power-operated.

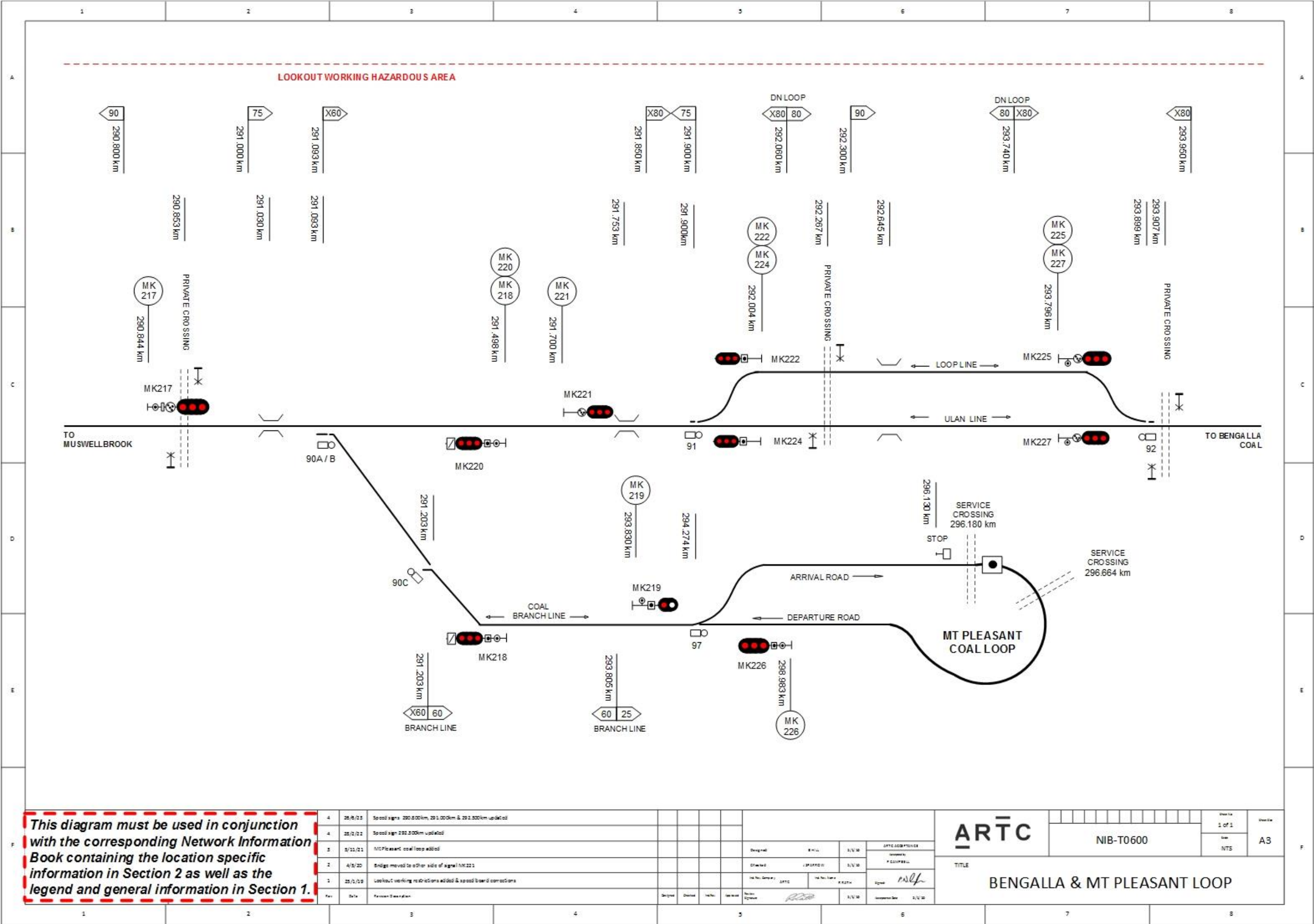
Entry and Exit of Trains to and from Bengalla Coal Loop

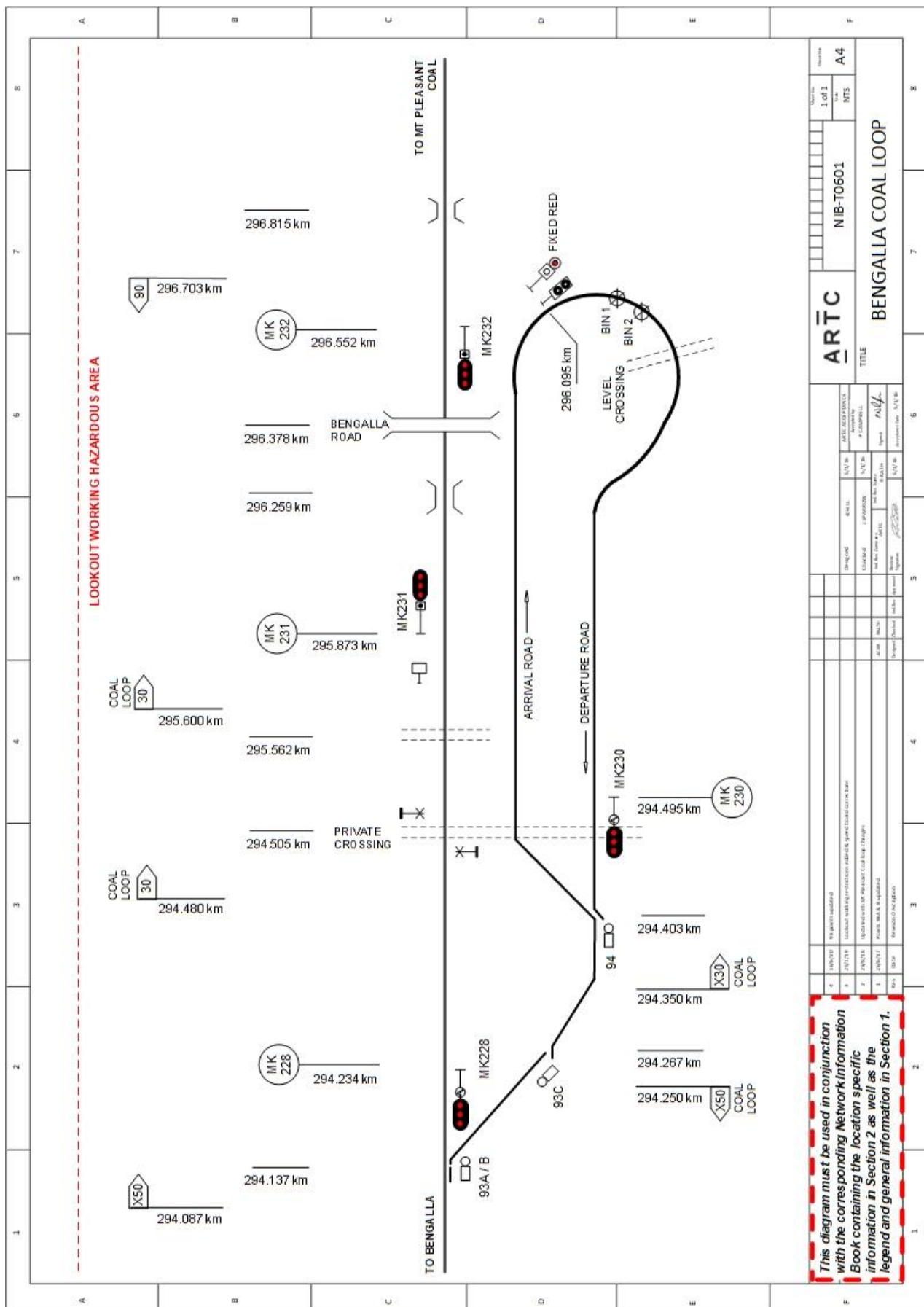
Entry and exit of trains to Bengalla is controlled by fixed signals.

Admitting an additional train into Bengalla.

When one train is occupying Bengalla, the Network Controller at NCCN may allow an additional train to enter, provided that;

- the train already in Bengalla is on the approach track to signal no MK230
- and the additional train can be accommodated clear of the main line.





2.15 Mount Pleasant Siding (MSJ)

Mt Pleasant siding is situated on the Up side of the Ulan line.

Muswellbrook Yard Limits (YL) and End Yard Limits (EYL) at Mt Pleasant commence and finish at Home signal MK236. Rail Traffic Crew relief must not be undertaken at MK236 signal unless authorised by the Upper Hunter 1 Network Controller at NCCN.

Entry and Exit of Trains to and from Mount Pleasant Siding

Entry and exit of rail traffic to Mt Pleasant Siding is controlled by fixed signals operated by the Upper Hunter 1 Network Controller at NCCN.

Special instructions for isolating the points leading to Mount Pleasant for maintenance purposes

To prevent access to Mount Pleasant Siding during maintenance work within the siding, a special key-locked isolating switch is provided in a locked box to enable the power for No. 95 points to be isolated.

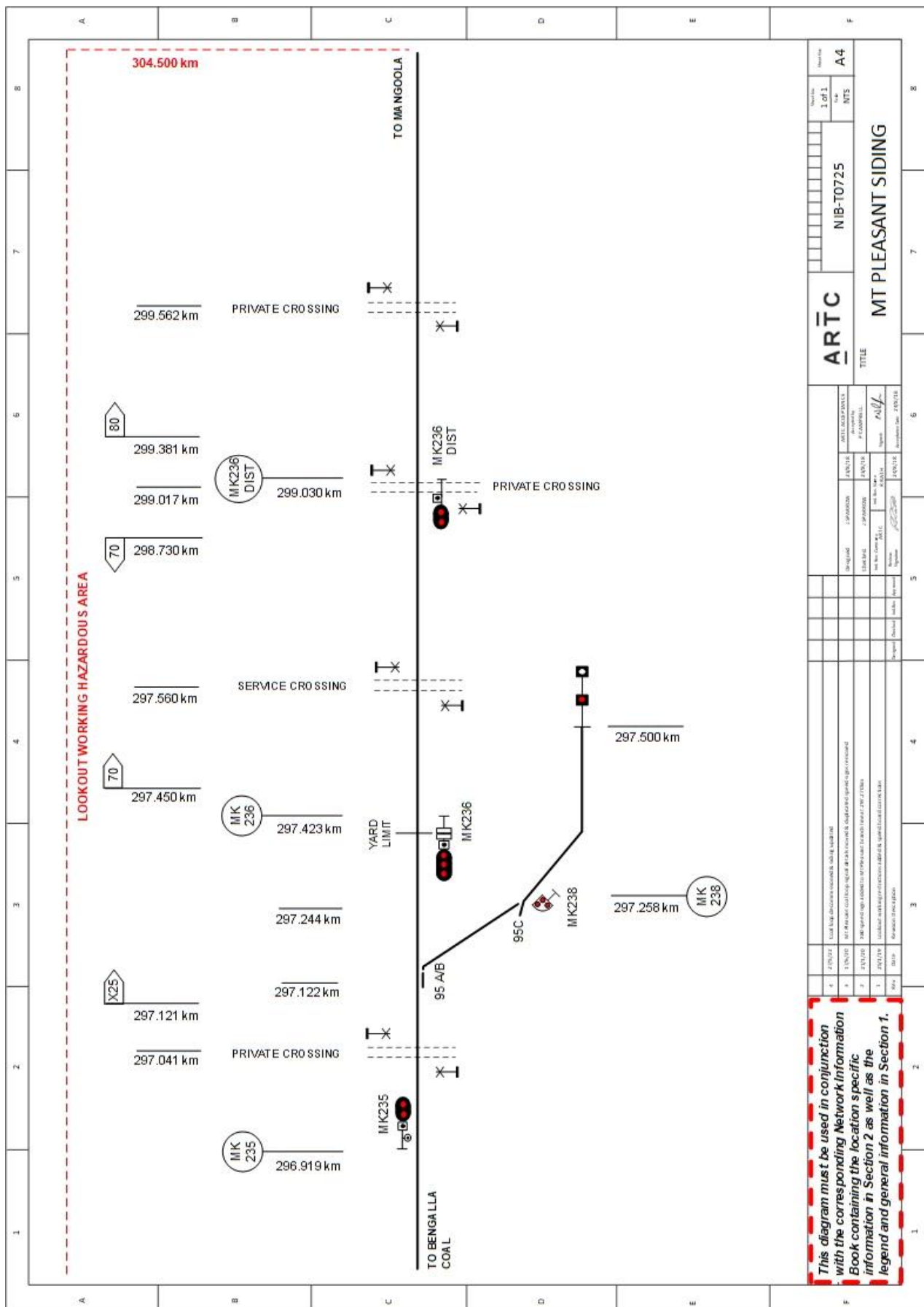
The key for the isolating switch box is held at the Muswellbrook Provisioning Centre.

The isolating switch has two positions, "Normal Operating" and "Siding Isolated". The normal position for the switch is the "Normal Operating" position.

When the switch is locked in the "Normal Operating" position, the points can be operated normally. When the switch is locked in the "Siding Isolated" position, the power supply will be isolated, and the points cannot be power-operated.

The isolation switch must not be operated without approval of the Network Controller.

Locations and Sections Information



2.16 Koolbury (KOB)

General Arrangements

Koolbury is located between Muswellbrook and Aberdeen on the main north line. The passing loop is situated on the down side of the Down Main North.

All signals and points are controlled by the Upper Hunter 1 Network Controller at NCCN.

No crew relief is to be effected on DOWN trains within Koolbury crossing loop.

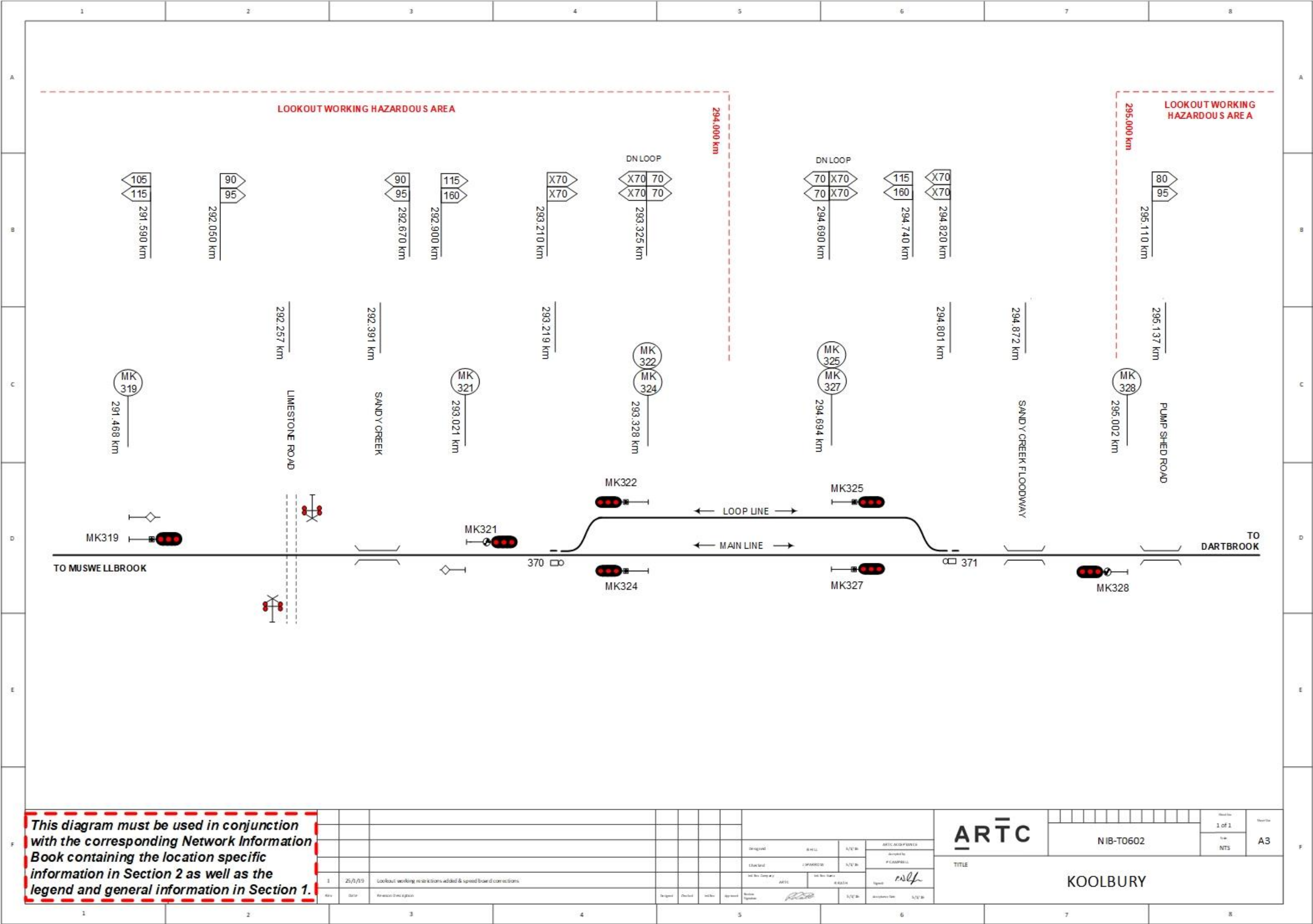
Yard Limits

Muswellbrook Yard Limit (YL) and End Yard Limit (EYL) incorporate both Koolbury and Dartbrook.

Muswellbrook (Dartbrook) yard limits will commence and finish at the up home signal MK330.

Rail traffic operations between Muswellbrook, Koolbury crossing loop and Dartbrook balloon loop are within Muswellbrook Yard Limits.

The section is Muswellbrook (Dartbrook) to Aberdeen.



2.17 Dartbrook (DTJ)

Entry and Exit of Trains to and from Dartbrook

Entry and exit of trains to Dartbrook is controlled by fixed signals.

Admitting an additional train into Dartbrook

When one train is occupying Dartbrook, the Network Controller at NCCN may allow an additional train to enter, provided that;

- the train already in Dartbrook is on the approach track to signal no MK332
- and the additional train can be accommodated clear of the main line.

Special instructions for isolating the points leading to Dartbrook for maintenance purposes

To prevent access to Dartbrook during maintenance work within the siding, a special key-locked isolation switch is provided in a locked box to enable the power for no 373 points to be isolated.

The key for the isolation box is held by the infrastructure maintainer for the area.

The isolation switch has two positions, 'Normal Operation' and 'Siding Isolation'. The normal position for the switch is the 'Normal Operating' position.

When the switch is locked in the 'Normal Operating' position, the points can be operated normally. When the switch is locked in the 'Siding Isolation' position, the power supply will be isolated and the points can not be power operated.

Locations and Sections Information

