

# Network Information Book

## Sydney 2

### Enfield (inc) to Flemington Junction (exc) & Chullora Junction to Leightonfield (inc) excluding Sefton Park Junction

OGW-30-26

#### Applicability

Interstate Network

#### Publication Requirement

Internal / External

#### Primary Source

Local Appendix Units Metropolitan 010, 040, 045, 050 & 055

Route Access Standard - Defined Interstate Rail Network Section Pages D45

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1.0	31 Aug 2016		Initial issue

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1.1	20 Jul 2017	1.16, 2.1,2.2,2.4	Diagram legend updated, Enfield location & diagram updated, Chullora & Leightonfield diagrams updated, safety interface agreement references added.
1.2	8 Mar 2019	1.3	Shared corridor details added to section 1.3. Diagrams updated.
1.3	10 Jul 2019	2.2, 2.4	Chullora 361 points auto normalisation added to section 2.2. Leightonfield diagram updated in section 2.4
1.4	15 Apr 2020	1.3, 1.16	Shared Corridor procedures updated in section 1.3. Drawing legend updated. All diagrams updated for eTap introduction.
1.5	12 May 2020	2.1	Enfield Yard text updated with note regarding electric locomotive operation and points 341 & 345
1.6	6 Jul 2021	1.4, 1.13, 2.1, 2.2, 2.4	Adjacent Train Control section updated. Sefton Dive water level sensors added to Wayside Equipment section 1.13 Chullora location text & diagram updated. Enfield and Leightonfield locations updated. Usage note added to diagrams
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1.8	5 Sep 2022	1.1, 2.2, 2.3, 2.4	Board Extent & Chullora location updated. Sefton Dive & Leightonfield diagrams updated.
1.9	11 Apr 2023	1.7, 2.1	Level Crossings table updated. Enfield yard operating guidelines added.
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## 1 General Information

### 1.1 Board Extent

Enfield South including ED101 (12.737km) & G12.8 (12.793km) to Leightonfield including LF12 (24.482km) & Sefton SP3 (21.287km)

Chullora ED288 (17.710km) ED286 (17.725km) EW405 (19.711km) & EW407 (19.712km)

Flemington Junction inclusive Down Main signal ED18.7 (18.648km) and up Main signal ED18.8 (18.895km)

This area is controlled by the Sydney 2 Network Controller, Network Control Centre South (NCCS).

Contact Numbers:

Phone: (02) 6924 9804

Train Transit Manager: (02) 6930 5311

Emergency: (02) 6924 9864

### 1.2 Safeworking System

Rail Vehicle Detection

### 1.3 Applicable Rules

#### **Safeworking - Network Rules and Procedures**

ARTC Network Rules and Procedures will apply to the Metropolitan Freight Network and the Southern Sydney Freight Line.

To ensure consistent application of Network Rules and Procedures in the Sydney Trains and ARTC shared rail corridor areas where the Southern Sydney Freight Line and Metropolitan Freight Network operates, ARTC and Sydney Trains have agreed to variations to their respective Network Rules and Procedures which will apply as detailed.

#### **ANWT 304 Track Occupancy Authority and ANPR 701 Using a Track Occupancy Authority**

In exception to the requirement in ARTC Rule ANWT 304 page 4, Authorisation, Attended locations and ANPR 701 page 3, Obtaining a Track Occupancy Authority, Network Controllers, Network Control Officers and Protection Officers must compile a Track Occupancy Authority form (ANRF 002B) when a Track Occupancy Authority is wholly within the yard limits of an ARTC attended location.

#### **ANWT 308 Absolute Signal Blocking**

In exception to the requirement in ARTC Rule ANWT 308 page 4, Protection Methods, Protection Officers when requesting Absolute Signal Blocking (ASB) on the ARTC Network must make sure that:

- two consecutive controlled signals can be set at STOP with blocking facilities applied, or
- an ESML handle can be removed to exclude rail traffic, or
- one controlled signal can be set at STOP with blocking facilities applied, and
  - a set of points can be secured to prevent access

or

- an easily-reached safe place is available and a Lookout is provided.

Network Controllers and Network Control Officers must make sure that when Protection Officers request an ASB on the ARTC / Sydney Trains shared rail corridor that the above requirements are observed.

### **NWT 310 Lookout Working**

In addition to the requirements of Sydney Trains Rule NWT 310, Sydney Trains will ensure that persons working under NWT 310 Lookout Working, Protection Officers when requesting Lookout Working must make sure that:

- Work in the Danger Zone using the Lookout Working method must be done in daylight hours only, for a maximum of two (2) hours, and
- If the work is to continue beyond this time, it is to be treated as a new application.

Network Controllers and Network Control Officers must make sure that when Protection Officers request Lookout Working on the ARTC / Sydney Trains shared rail corridor that the above requirement is observed.

The above exceptions are summarized in the following table:

## ADDITIONAL REQUIREMENTS

SYDNEY TRAINS	ARTC
<b>NWT 304</b>	<b>ANWT 304</b>
NIL	A Track Occupancy Authority form (ANRF 002B) must be compiled when a Track Occupancy Authority is wholly within the yard limits of an ARTC attended location.
<b>NWT 308 (Absolute Block)</b>	<b>ANWT 308</b>
NIL	<ul style="list-style-type: none"> <li>two consecutive controlled signals can be set at STOP with blocking facilities applied, or</li> <li>an ESML handle can be removed to exclude rail traffic, or</li> <li>one controlled signal can be set at STOP with blocking facilities applied, and <ul style="list-style-type: none"> <li><input type="checkbox"/> a set of points can be secured to prevent access</li> </ul> </li> </ul> <p>or</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> an easily-reached safe place is available and a Lookout is provided.</li> </ul>
<b>NWT 310</b>	<b>ANWT 310</b>
<ul style="list-style-type: none"> <li>Work in the Danger Zone using the Lookout Working method must be done in daylight hours only, for a maximum of two (2) hours, and</li> <li>if the work is to continue beyond this time, it is to be treated as a new application.</li> </ul>	NIL

**1.4 Adjacent Train Control Boards / Centres**

ARTC Sydney 1	(02) 6924 9806	Emergency	(02) 6924 9866
ARTC Sydney 3	(02) 6924 9803	Emergency	(02) 6924 9863
Sydney Trains			(02) 9379 4733
Flemington South Up Goods interface Lidcombe Panel			(02) 9752 8450
Sefton Junction Up Goods interface			(02) 9563 7973

## 1.5 Section Operating Equipment

### 1.5.1 Interlockings and Sidings

Km	Interlocking, Station, Platform or Siding	Length of Passenger Platform in Metres
13.731km	Enfield South	
13.956km	Enfield Through Road No 1	
14.575km	Sadlier's Siding	
15.554km	Down Storage Siding	
16.666km	Enfield North	
16.764km	Enfield Through Road No 1	
16.829km	Staging Roads	
16.908km	Intermodal Logistics Siding	
17.005km	Delec Siding	
17.083km	Chullora Junction South	
17.467km	Chullora Junction West	
17.597km	Chullora Junction North	
17.467km	Chullora Industrial Sidings (Down Goods)	
17.475km	Chullora Industrial Sidings (Up Goods)	
19.828km	Enfield West	
22.450km	Leightonfield	

## 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 en route.
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 remarshalled 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
4342	Wentworth Road Enfield	MFN	14.933	Road	Private	Half Boom Flashing Lights
	Chullora Service Lxing	MFN	17.370			
4347	Chullora Junction Takeoff	MFN	18.744	Road	Private	
4345	Enfield West Takeoff	MFN	18.237	Road	Private	
4379	Leightonfield Service Lxing	SSFL	23.530	Road	Private	Stop Signs
4380	Leightonfield Service Lxing	SSFL	23.640	Road	Private	Gate
	Flemington South Take Off	SSFL	18.900			

## 1.8 Emergency Local Releases

Nil

## 1.9 Maximum Permanent Speeds and Permanent Speed Restrictions

Refer the Route Access Standard - Defined Interstate Rail Network Section Pages D45 for all speed information.

## 1.10 Maximum Train Length

Maximum train length is 1800 metres

## 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 Junee 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

Water level sensors Sefton Dive 21.625km.

## 1.14 Ruling Gradients




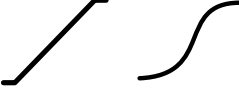
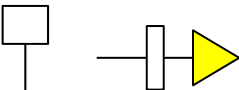

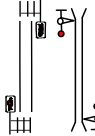

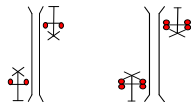
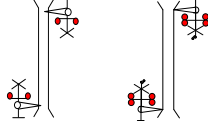
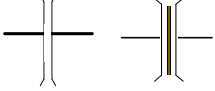

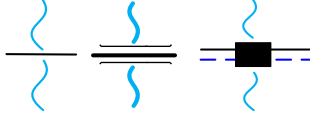
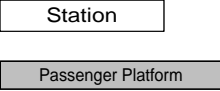


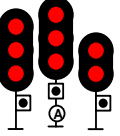
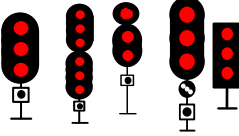
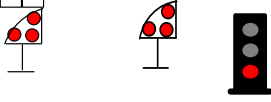
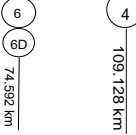


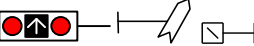
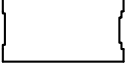


Enfield to Leightonfield	1 in 100
Leightonfield to Enfield	1 in 100

## 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		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 Enfield Yard (EFY)

#### General Arrangements

Operations along the double bi-directional (RVD) Metropolitan Freight Network (MFN) Line are remotely controlled by the ARTC Network Control Centre South (NCCS).

ARTC/Sydney Trains Interface boundary is at 18.909km on the Up and Down Flemington Line

Refer safety interface agreements IA1615, IA1903, IA1916, IA1917, IA1918 & IA1919 for private sidings information.

#### Operating Guidelines

- All trains must be individually crewed when in Enfield staging roads.
- Crew changes may be conducted in Enfield staging roads.
- If train crew are required to walk through Enfield Yard to access a train on the Staging Roads for a crew change, the Enfield Yard Train Management Centre must be contacted on 02 8745 4331 before entering Enfield Yard.

**NOTE:** *Main line points 341 and 345 at the western end of Enfield Yard are not available for electric locomotive operation.*

#### Enfield Yard Staging Roads

The movement of trains into Enfield Yard Staging Roads on the Up Main is via 340 points and is controlled and signalled by the NCCS.

The movement of trains into Enfield Yard Staging Roads on the Down Main is via 301, 302, 304, and 306 points and is controlled and signalled by the NCCS.

Enfield Yard Staging Roads No: 1 and No: 2 are capable of holding 1670 metre trains.

Points and signals on Staging Roads No.1 & No. 2 are controlled and signalled by the NCCS.

Emergency Operating Locks are provided for the emergency operation of the following points:

Points No.	Description	Point Type	EOL Location
380	Turnout Staging Road 1 to Staging Road 2	D84M + Claw Lock	Up side of Staging Road 2 adjacent to ED504 signal hut
383	Crossover Staging Road 2 to Staging Road 1	D84M + Claw Lock	Up side of Staging Road 2 adjacent to ED516 signal hut
384	Crossover Staging Road 1 to Staging Road 2		Up side of Staging Road 2 adjacent to ED516 signal hut
387	Turnout Staging Road 1 to Staging Road 2		Up side of Staging Road 2 adjacent to ED201 signal hut

**Enfield Private Sidings**

Access into the Sydney Trains Enfield Yard and connecting roads is managed by Pacific National Enfield Shift Manager. Approval to enter the Sydney Yards is by Pacific National and signalled by ARTC NCCS.

Exiting from the Sydney Trains Enfield Yard and is managed and signalled by ARTC.

There are six private sidings. Movements into and exiting the Private Sidings are managed by NCCS.

Catch points are located at the connection points to the ARTC Network.

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

All main line and staging roads points are electrically controlled from the NCCS.

If these points fail to operate correctly, a transit alarm will sound on the Network Controller workstation.

If it is necessary to alter the route, Emergency Switch Machine Locks (ESMLs) / Emergency Operation Locks (EOLs) are provided so points may be manually operated.

Emergency Switch Machine Locks (ESMLs) / Emergency Operation Locks (EOLs) are provided for the Emergency manual operation of points and catch points.

The Network Controller must promptly advise the Signals Maintenance Representative of failures.

**Enfield Yard – Level Crossing (14.928)**

A level crossing is provided across the Metropolitan Freight Network at 14.928kms to provide access to the Enfield Yard area.

The Enfield Yard level crossing is equipped with flashing lights and boom barriers.

A train approaching a red signal will operate the crossing and the crossing operation will be normalised after the train comes to a stand at the red signal.

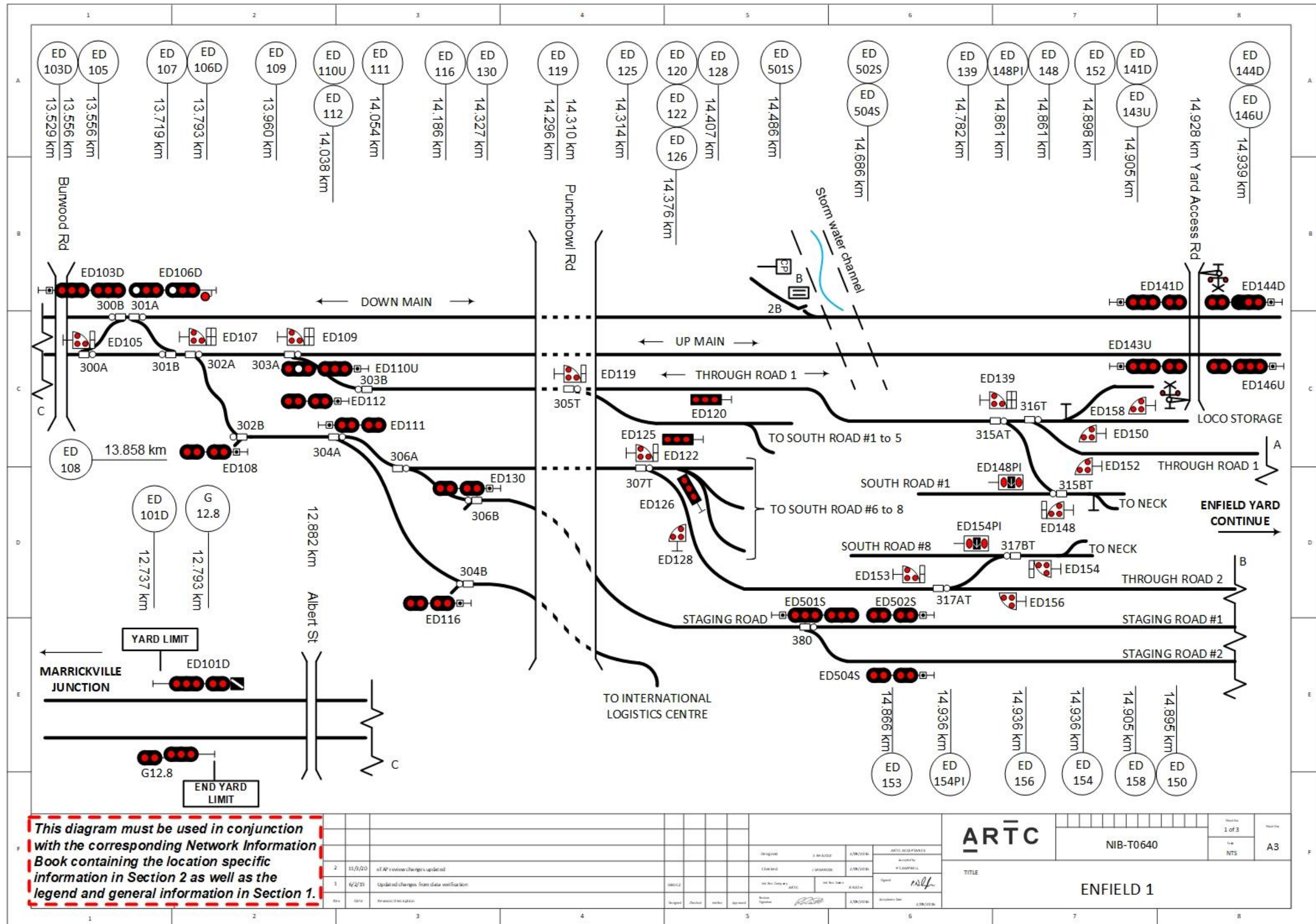
A Test switch, Manual Operations switch and Emergency switch is provided and mounted on the wall of the Level Crossing equipment cabinet.

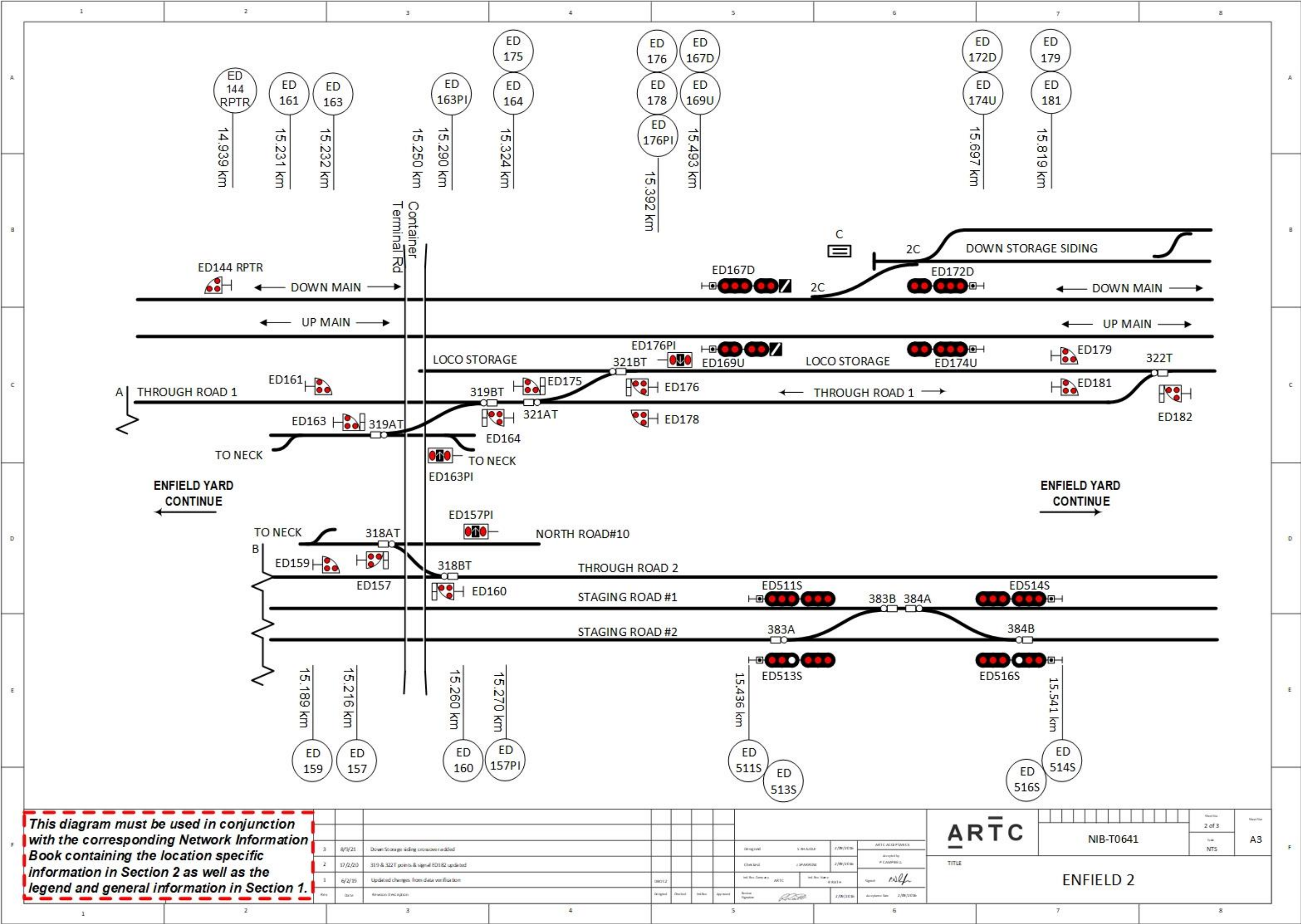
**Freight Paths from Enfield Yard**

Freight services departing Enfield to travel via the Lidcombe Loop will operate on the bi-directional Up Goods Fork and Up East Fork lines and then cross to the Up Main South via the 206 Crossover at Regents Park.

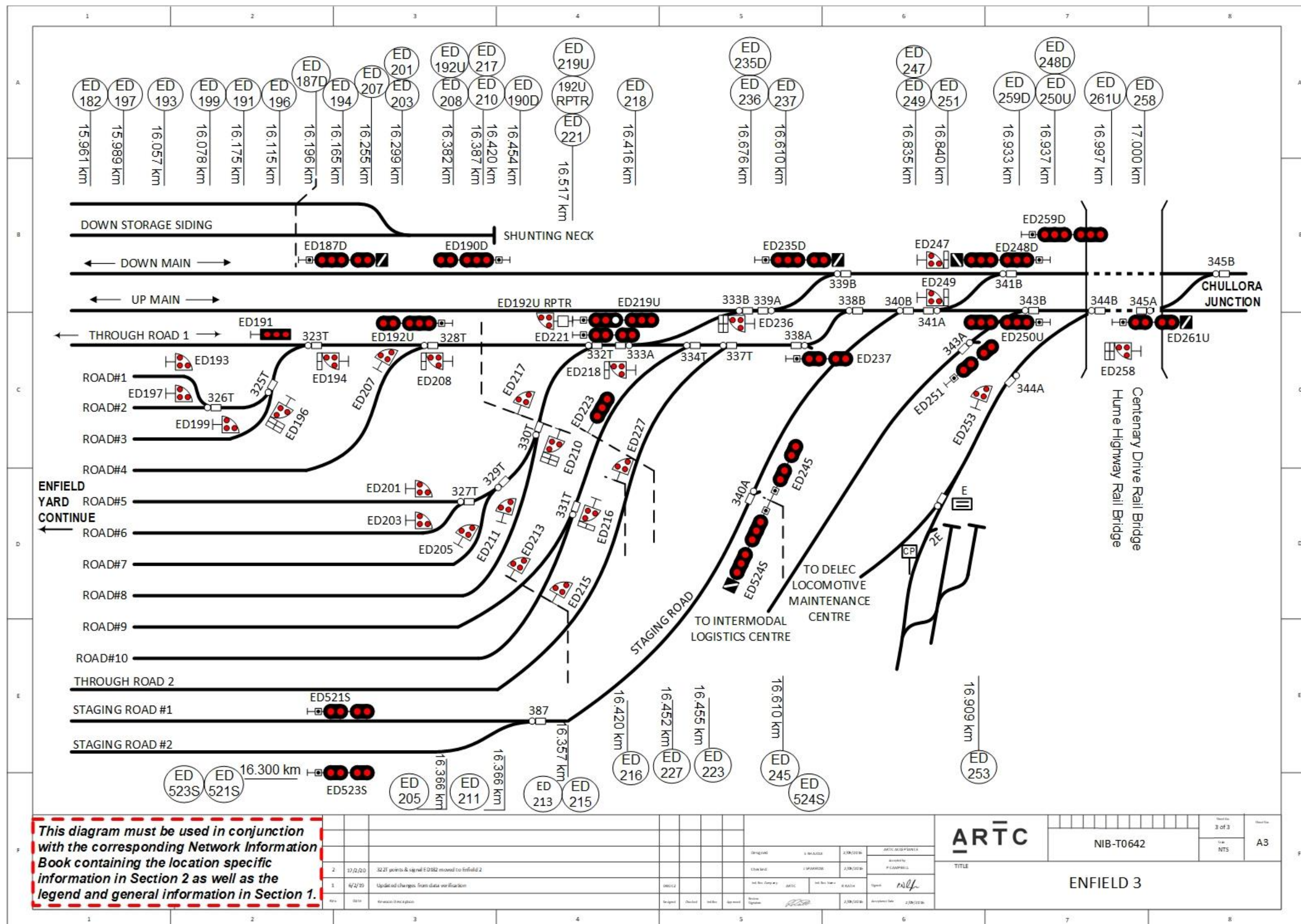
Freight services departing Enfield to travel towards Sefton will operate on the bi-directional Up Goods Fork and Up West Fork and then cross to the Down West Fork via the 205 Crossover.













## 2.2 Chullora (CGJ)

### General Arrangements

Operations along (RVD) Metropolitan Freight Network (MFN) Line are remotely controlled by the ARTC Network Control Centre South (NCCS)

### Chullora Private Sidings

Chullora comprises of four private sidings. There are 5 interfaces shown on the diagram: Chullora Master siding, No 7 MTS, Industrial siding and SOY east and west.

Movements into and exiting the Private Sidings are managed by NCCS.

Catch points are located at the connection points to the ARTC Network. G, F and Y frames are manually operated and release is given by NCCS.

Refer safety interface agreement IA1903 for further information.

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

All main line points are electrically controlled from NCCS.

If these points fail to operate correctly, a transit alarm will sound on the Network Controller workstation.

Emergency Switch Machine Locks (ESMLs) / Emergency Operation Locks (EOLs) are provided for the manual operation of points and catch points.

The Network Controller must promptly advise the Signals Maintenance Representative of failures.

### Points Auto Normalisation

Number 352, 353 and 361 points will auto normalise to the normal position if they are in the reverse position and have been in the reverse position and free and available for 45 continuous seconds.

### Emergency Level Crossing

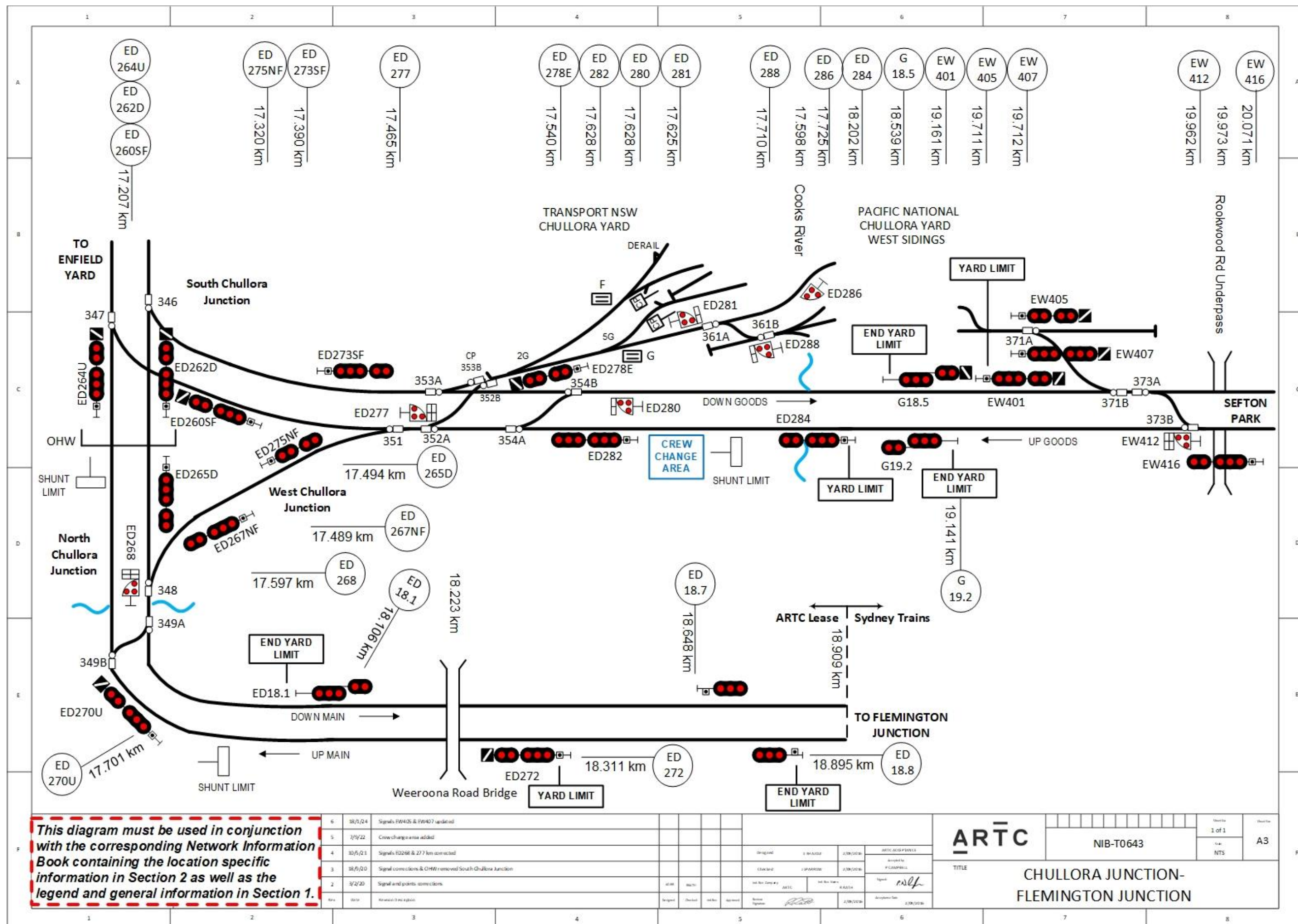
Located on the Up and Down Goods lines at 17.370km

Sydney Trains Access site.

Locked boundary gates and signs to contact NCCS for access.

### Crew Change Location

A crew change area of 80m length is located on the Up Goods line between signal ED282 and the shunting limit sign.



## 2.3 Sefton Dive and Pump Station (SFT)

### General Arrangements

Operations along the single line (RVD) Southern Sydney Freight Line are remotely controlled by the ARTC Network Control Centre South (NCCS)

The Southern Sydney Freight Line passes under the Sydney Trains Bankstown line via the Sefton Dive.

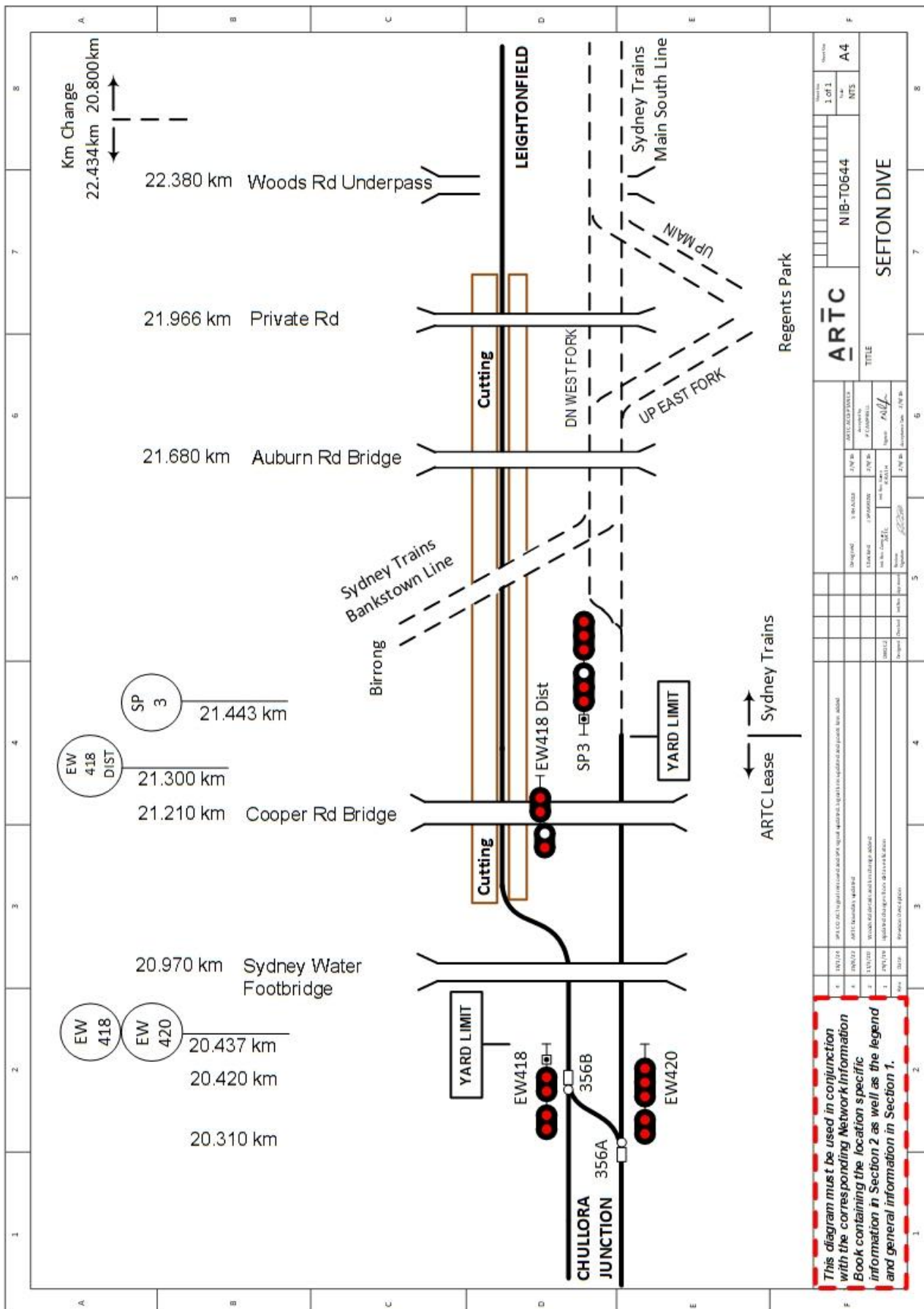
A pump station is located within the Sefton Dive to control any storm water that might enter the dive.

### Sefton Dive Pumps

The Dive is fitted with water level sensors at 21.625km which will activate the pumps according to water levels within the Sefton Dive.

Pump activation alarms are monitored by the NCCS.

## Locations and Sections Information





## 2.4 Leightonfield (LTA)

### General Arrangements

Operations along the single line (RVD) Southern Sydney Freight Line are remotely controlled by the ARTC Network Control Centre South (NCCS).

A crossing loop and sidings are provided at Leightonfield.

The movement of trains into Leightonfield Yard No1 siding is via the Loop Line and is signalled by the NCCS.

Access to the Leightonfield Yard No 2 siding is managed by manual point switches.

All points and signals controlled from the NCCS are controlled by axle counters.

### Leightonfield Loop

Leightonfield Loop is capable of holding 1370 metre trains.

Up and Down trains may travel through the Leightonfield Loop line on the authority of the fixed signals.

Catch points are located at both ends of Leightonfield Loop.

### Leightonfield Yard

Leightonfield Yard comprises of No 1 & No 2 sidings.

Movements within Leightonfield Yard are managed by NCCS.

“End of Signalled Authority” boards are provided and operators must contact NCCS to request permission to proceed.

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

All main line and loop line points are electrically controlled from NCCS.

If these points fail to operate correctly, a transit alarm will sound on the Network Controller workstation.

If it is necessary to alter the route, Emergency Switch Machine Locks (ESMLs) / Emergency Operating Locks (EOLs) are provided for the manual operation of points and catchpoints.

Emergency Operating locks are provided for the Emergency manual operation of points 217, 218, 220 & 221 points and catch points.

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

### Emergency Level Crossing

Located on the main Southern Sydney Freight Line at 23.530km

Sydney Trains Access site.

Locked boundary gates and signs to contact NCCS for access.

