

Superseded by TS TOC 2 v5.0



Transport
for NSW

TS TOC.2 : 2015 issue 2

Manual

Train Operating Conditions (TOC) Manual – Division Pages

Version 4.0

Issued date: 07 September 2015

Important Warning

This document is one of a set of standards developed solely and specifically for use on Transport Assets (as defined in the Asset Standards Authority Charter). It is not suitable for any other purpose.

You must not use or adapt it or rely upon it in any way unless you are authorised in writing to do so by a relevant NSW Government agency. If this document forms part of a contract with, or is a condition of approval by a NSW Government agency, use of the document is subject to the terms of the contract or approval.

This document is uncontrolled when printed or downloaded. Users should exercise their own skill and care in the use of the document.

This document may not be current. Current standards may be accessed from the Asset Standards Authority website at www.asa.transport.nsw.gov.au.

Superseded by TS TOC 2 v5.0

Standard governance

Owner: Lead Rolling Stock Engineer, Asset Standards Authority
Authoriser: Chief Engineer Rail, Asset Standards Authority
Approver: Executive Director, Asset Standards Authority on behalf of ASA Configuration Control Board

Document history

Version

1.0
2.0
3.0
4.0

Summary of change

First issue (December 2013)
Second issue (December 2014)
Third issue (April 2015)
Current issue (August 2015)

For queries regarding this document,
please email the ASA at
standards@transport.nsw.gov.au
or visit www.asa.transport.nsw.gov.au



Transport
Asset Standards
Authority

Preface

The Asset Standards Authority (ASA) is an independent unit within Transport for NSW (TfNSW) and is the network design and standards authority for defined NSW transport assets.

The ASA is responsible for developing engineering governance frameworks to support industry delivery in the assurance of design, safety, integrity, construction, and commissioning of transport assets for the whole asset life cycle. In order to achieve this, the ASA effectively discharges obligations as the authority for various technical, process, and planning matters across the asset life cycle.

The ASA collaborates with industry using stakeholder engagement activities to assist in achieving its mission. These activities help align the ASA to broader government expectations of making it clearer, simpler, and more attractive to do business within the NSW transport industry, allowing the supply chain to deliver safe, efficient, and competent transport services.

The ASA develops, maintains, controls, and publishes a suite of standards and other documentation for transport assets of TfNSW. Further, the ASA ensures that these standards are performance based to create opportunities for innovation and improve access to a broader competitive supply chain.

This Train Operating Conditions (TOC) manual is published by the ASA to provide an update from the April 2015 issue of the TOC manual.

This TOC manual aims to provide a single reference and technical guidance for train operations on the RailCorp Network.

The content, information, and data within this TOC manual are derived from updates since the last edition of 30 April 2015. The information is compiled from a number of sources. The ASA performs limited validation of this information as it is deemed to be sourced from competent organisations.

This August 2015 issue of the TOC manual comprises three parts as follows:

- TS TOC.1: 2015 issue 2
- TS TOC.2: 2015 issue 2; this document
- TS TOC.3: 2015 issue 2

As the ASA continues to evolve, future iterations of the TOC Manual and the information contained within it may be made available in different formats and delivery mechanisms to facilitate ease of access and usability.

Superseded by TS TOC 2 v5.0

Superseded by TS TOC 2 v5.0

Contents

■ Introduction	6
Purpose.....	7
Scope	7
Application	7
Reference documents	7
Terms and definitions	7
Summary of changes	7
Page layout.....	9
13. Northern Division pages.....	16
Maximum speed of locomotives and rolling stock	16
DOWN loads	17
DOWN – sectional running times and full sectional loads.....	18
UP loads	19
UP – sectional running times and full sectional loads	20
Location of speed signs.....	21
Station data	24
Advisory speed signs.....	25
Tonnage signals	25
Transfer of 90, TT, TT100(139t), 5000 and 5020 class locomotives Woodville Junction – Enfield/Chullora and return for wheel lathe attention or maintenance.....	26
14. Western Division pages.....	28
Maximum speed of locomotives and rolling stock	28
DOWN loads	29
DOWN – sectional running times and full sectional loads.....	29
UP loads	30
UP – sectional running times and full sectional loads	31
Location of speed signs.....	32
Station data	33
Tonnage signals	33
Freight train braking requirements.....	34
15. Illawarra Division pages	36
Maximum speed of locomotives and rolling stock	37
DOWN loads	38
DOWN – sectional running times and full sectional loads.....	39
UP loads	40
UP – sectional running times and full sectional loads	41
Wollongong local area – loads.....	42
Location of speed signs.....	43
Station data	47
Emergency working or diversion of container trains Tempe – Unanderra (en-route to and from Moss Vale).....	48
Loads and conditions between Unanderra and 91.080 km (Unanderra – Moss Vale line).....	48
DOWN loads	48
DOWN - sectional running times and full sectional loads.....	49
UP loads	49
UP - sectional running times and full sectional loads	49
UP – 91.080 km to Unanderra – Explanatory notes.....	50
Conditions of operation of freight trains - Unanderra and 91.080 km (en-route to and from Moss Vale).....	51
Operation of single pipe trains in excess of 2400 tonnes and up to 1500 metres long from Summit Tank to Unanderra.....	51
Conditions for the operation of self-propelled diesel trains - Unanderra and 91.080 km (en-route to and from Moss Vale)	53
16. Sydney Metropolitan Area pages	56
Maximum speed of locomotives and rolling stock - Sydney Metropolitan Area	56
Sydney Metropolitan Area - sectional freight loads.....	59

Superseded by TS TOC 2 v5.0

Sydney Metropolitan Area - freight and locomotive running times	60
Hours of signal boxes	61
■ Dangerous goods in the Sydney Underground.....	61
Tonnage signals	62
Bondi Junction – trains / vehicles less than 4 cars using diamond crossover	62
Main South – DOWN schedules and running times.....	63
Main South – DOWN sectional running times and full sectional loads	63
Main South – UP sectional running times and full sectional loads.....	64
Location of speed signs.....	65
Sydney Metropolitan Area - Division page references	66
17. Passenger train operating conditions.....	80
Introduction	80
Sydney Trains and NSW TrainLink.....	80
Sydney Metropolitan area - operation of wide gauge rolling stock	85
Specific localities.....	85
1 - City Circle.....	85
3 - Clyde to Carlingford	85
6 - Chatswood to Epping.....	85
7 - Strathfield to Hamilton	86
10 - Erskineville to Bondi Junction.....	87
12 - Central to Wollie Creek (Airport Line)	87
14 - Metropolitan freight lines	88
Passenger train running times.....	88
Western locomotive hauled running times	88
18. Coal train working.....	92
North coal train loads and running times	92
Western coal train loads and running times.....	94
Illawarra coal train loads and running times	95

Introduction

This document contains the Division pages of the Train Operating Conditions (TOC) Manual, which shall be read in conjunction with the relevant standard working timetables for the purpose of safe train operations and is applicable to all freight, passenger, and infrastructure maintenance operations on the RailCorp network.

The August 2015 issue of the TOC Manual comprises three parts:

- TS TOC.1: 2015 issue 2 *Train Operating Conditions (TOC) Manual – General Instructions*
- TS TOC.2: 2015 issue 2 *Train Operating Conditions (TOC) Manual – Division Pages*; this document
- TS TOC.3: 2015 issue 2 *Train Operating Conditions (TOC) Manual – Track Diagrams*

This document, TS TOC.2: 2015 issue 2, *Train Operating Conditions (TOC) Manual – Division Pages*, contains the following:

- Northern Division Pages
- Western Division Pages
- Illawarra Division Pages
- Sydney Metropolitan Area Division Pages
- Passenger Train Operating Condition Pages
- Coal Working Pages

TS TOC.1: 2015 issue 2, *Train Operating Conditions (TOC) Manual – General Instructions*, contains the following:

- General Instruction Pages

TS TOC.3: 2015 issue 2, *Train Operating Conditions (TOC) Manual – Track Diagrams* contains the following:

- Track Diagrams

Superseded by TS TOC 2 v5.0

Purpose

The TOC Manual specifies conditions for the operation of trains and rolling stock on the RailCorp network.

Scope

The TOC Manual describes the network, defines operating conditions for trains and rolling stock, and lists all rolling stock authorised to operate on the RailCorp network. The RailCorp network is bounded by Hamilton (163.981 km and 164.045 km), Bomaderry (153.630 km), Unanderra (91.080 km), Macarthur (57.965 km), and Bowenfels (158.800 km) but does not include the Metropolitan Freight network (bound by Marrickville 6.370 km, Flemington South Junction 18.909 km, and Sefton Park East Junction 21.285 km).

Application

The TOC Manual is to be used by train planners, train timetablers, train control personnel, and train crews, and shall be read in conjunction with the relevant Safeworking rules and procedures.

Reference documents

Transport Standards

*Available from the Asset Standards Authority web site;
www.asa.transport.nsw.gov.au.*

- TS TOC.1: 2015 issue 2 *Train Operating Conditions (TOC) Manual – General Instructions*
- TS TOC.3: 2015 issue 2 *Train Operating Conditions (TOC) Manual – Track Diagrams*

See TS TOC.1: 2015 issue 2 for further reference documents.

Terms and definitions

See TS TOC.1: 2015 issue 2 *Train Operating Conditions (TOC) Manual – General Instructions*.

Summary of changes

Table 1 provides a summary of changes to the content of this section of the manual since its previous publication. Changes to front matter, formatting, branding, and governance are not included.

Table 1 Summary of changes from 30 April 2015 ASA edition

Page	Section	Change
Northern Division		
16	Maximum speed of locomotives and rolling stock	Added TT100 details as per TW 203-336
22	Location of speed signs	Added 19 and 20 Pts labels at 164.310 km and 164.410km

Page	Section	Change
26	Transfer of 90, TT, TT100(139t), 5000 and 5020 class locomotives Woodville Junction – Enfield/Chullora and return for wheel lathe attention or maintenance	Added TT100 locomotives as per TW 203-336
Western Division		
28	Maximum speed of locomotives and rolling stock	Added TT100 (139/134t)
29	DOWN loads	Added load number 7 as per TW 204-112
Illawarra Division		
37	Maximum speed of locomotives and rolling stock	Added note (f) to clarify Omega Tunnel class 2 track status, added TT100 (139t/134t)
51	Operation of single pipe trains in excess of 2400 tonnes and up to 1500 metres long from Summit Tank to Unanderra	Corrected error of minimum vehicle mass from 215 to 25 tonnes.
Sydney Metropolitan		
56	Maximum speed of locomotives and rolling stock - Sydney Metropolitan Area	Added NSRU as per TW 203-361, added TT100 (134t)
59	Sydney Metropolitan Area - sectional freight loads	Added NSRU load as per TW 203-361
65	Location of speed signs	Updated Central to Homebush (2a) as per 15WN27. Updated Homebush to St Marys (2d) as per 15WN23. Amended Homebush to St Marys (2e) as per 14WN31/32 and 14WN35/36 at 14.400 km and 16.715 km. Updated St Marys to Penrith (2f) as per 14WN35/36 at 57.400 km. Updated Clyde to Carlingford (3a) as per 15WN21/22. Updated Blacktown to Richmond (4) as per 15WN21/22. Updated Strathfield to Hornsby (7a) as per 15WN21/22 and TW 203-361. Updated North Strathfield to Rhodes Relief Lines (7b) as per 15WN21/22 and TW 203-361. Updated West Ryde to Epping (7c) as per 15WN21/22. Updated Sutherland to Cronulla (9) as per 15WN24/25. Updated Metropolitan Freight Line (14f) as per TW 203-261 and 15WN21/22.
Passenger Train Operating Conditions		
80	Table 2 – Profile Track Gauge Groups and Speeds	Added group 3a as per TW 203-150
81	Speed signs - maximum kilometres per hour	Added OSC and Waratah / Millennium trains as per TW 203-150
83	Table 3 Maximum speed of Sydney Trains and NSW TrainLink rolling stock	Added Rhode to North Strathfield – NSRU Line as per TW 203-361, and added group 3a as per TW 203-150
84	Table 4 - Maximum speed of Sydney Trains and NSW TrainLink rolling stock	Added group 3a as per TW 203-150
85	3 - Clyde to Carlingford	Repeated note for Waratah Trains not to operate between Clyde and Carlingford
Coal train working		
92	North coal train loads and running times	Corrected error in table from April 2015 reprint.

FORMAT OF DIVISION PAGES

MAXIMUM SPEED OF LOCOMOTIVE AND ROLLING STOCK

ITEM 1
Sections → **14. Western Division pages**

Version December 2014

Maximum speed of locomotives and rolling stock

ITEM 2
Classification of tracks

ITEM 3
Maximum speed of locomotives

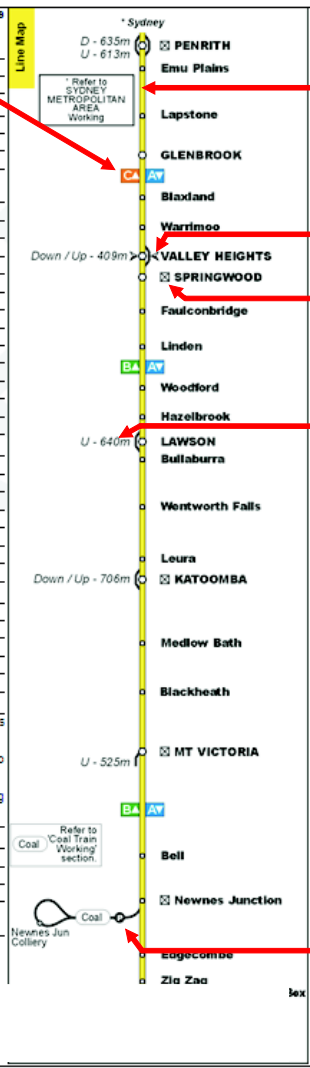
ITEM 4
Multiple locomotive working

ITEM 5
Classification of freight vehicles

ITEM 6
Classification of passenger vehicles

ITEM 7
Safeworking systems

Class of Line	Penrith – Lithgow	Lithgow – Valley Heights	Valley Heights – Penrith
	DOWN MAIN	UP MAIN	UP MAIN
Line Map Reference	A	B	C
LOCOMOTIVES			
Class	Max Speed km/h		
90, T1	N/A	N/A	N/A
31, L, LQ, LZ	100	100	100
92, 93, 8000, 8020, ACC, C, CEY, CF, GWA, GWU, LDP10, RL, SCT, TT100, WH, XRN	115	115	115
82, CLP, GLNR	115	115	115
14, 31, ALF, AN, BL, CLF, G, VL	115	115	115
42, 30, 30a, B, DL	115	115	115
T8	90	90	90
442, 442a, 700, GM(12), S, X	115	115	115
22, 421, 422, 44, 45, 45a, 800, DC, EL, FL, GM(1), HL	115	115	115
43, 44a, 930	115	115	115
423	80	80	80
D, K, T	100	100	100
47, 48, 48200, 43a, 49, 830, 900, GPU, MM, PL	100	100	100
73 (c)	70	70	70
48, 38 Electric	100(b)	100(b)	100(b)
Multiple Locomotive working	4	5	4
FREIGHT			
Class A	115	115	115
Class B	100	100	100
Class C	80	80	80
Class D	65	65	65
Class E	80	80	80
Class F	65	65	65
Class G	N/A	N/A	N/A
PASSENGER			
XPT	160	160	160
XPLORER	145	145	145
DIESEL RAILCARS	115	115	115
LOCO HAULED	115	115	115
	(a)		
NOTES			
(a) See instructions contained in General Instructions for operation of trains and light locomotives over the section Katoomba to Valley Heights.			
(b) Applies to SINGLE and distributed locomotives (separated by at least 70 metres of train). No OHW restrictions apply. Both pantographs may be raised.			
(c) Only locomotives fitted with vigilance control system are approved to operate outside shunting yards.			
SAFeworking SYSTEMS			
Penrith – Edgecombe	#Rail Vehicle Detection		
Edgecombe – Zig Zag	Rail Vehicle Detection (Bi-directional)		
Zig Zag – Lithgow Coal Stage Signal Box	Rail Vehicle Detection		
Lithgow Coal Stage Signal Box – Lithgow Yard	Rail Vehicle Detection		
Signal Box			
#Valley Heights to Springwood – Two way running Down Main			



ITEM 8
LINE MAP

— Double track
— Single track

Subsection break

Signal Box/ Control centre

Crossing loop length

ITEM 9
Private siding

Format of division pages – explanation

April 2015

Item	Label	Description
Item 1	Divisions	The Train Operating Conditional Manual comprises the Western, Northern, Illawarra, and Metropolitan Divisions. Each division provides the condition for operation of locomotives and rolling stock.
Item 2	Classification of track	The class of track will affect the speed and types of locomotives and rolling stock authorised to run over the various sections.
Item 3	Maximum speed of locomotives	Identifies locomotives and maximum speeds approved for that section of track. The letters N/A indicate these locomotives are not approved to run over this section of track.
	Operation of unlisted locomotives	Refer to the Asset Standards Authority for authorisation.
Item 4	Multiple locomotive working	The columns associated with locomotives headed "MULTIPLE LOCOS" shows the maximum number of locomotives powering that may run coupled together in a locomotive group on each relevant section of track. Up to a maximum of 5 locomotives total can be marshalled together in any locomotive group attached to a train. However, the number of locomotives that can be powering within each locomotive group at any given time is indicated in the multiple working section on the respective MAXIMUM SPEED OF LOCOMOTIVES AND ROLLING STOCK page.
Item 5	Classification of freight vehicles	Identifies freight vehicle class and maximum speeds approved for that section of track. The letters N/A indicate these vehicles are not approved to run over this section of track.
	Operation of unlisted freight vehicles	Refer to the Asset Standards Authority for authorisation.
Item 6	Classification of passenger vehicles	Identifies passenger vehicles and maximum speeds approved for that section of track. The letters N/A indicate these vehicles are not approved to run over this section of track. The grouping Diesel Railcars includes #self propelled diesel trains and Rail Motors. #Refer to Sydney Trains & NSW TrainLink pages for Endeavour/Hunter railcar approval.
	Operation of unlisted passenger rolling stock	Refer to the Asset Standards Authority for authorisation.
Item 7	Safeworking systems	This section indicates the safeworking system and the area controlled by that system. When words 'Yard Working' appear, the nominated section of track will be worked in accordance with the instructions contained in Sydney Trains Network Rule <i>NTR 418 Yard limits</i> .
Item 8	Line map	See list page 9 for details.
Item 9	Private line/siding	A Private (Non TfNSW owned) Line/Siding represented in the Division Pages (Line Map) by "P" is one that is not owned by TfNSW and therefore will not necessarily have operating conditions published in this Manual. Where this Manual contains information relating to the operating conditions for a private Line/siding, that information is published with the agreement or at the request of the owner/operator of that line/siding. For the purpose of train control, to and from a private Line/siding, the operator in securing a train path on the RailCorp Network has certified that there is an interface understanding/agreement between the operator and the owner/operator of the private Line/siding, which authorises the train/vehicles to operate within the confines of the private Line/siding. In providing an agreed train path in accordance with the operations protocol, Sydney Trains has certified that the operator's train will be accepted from or delivered to the boundary of the private Line/siding nominated in the operator's train path application.

Where can locomotives run?
Full Sectional Loads & Schedules
Running times

The **LOAD (L)** locomotive is determined by referring to the **General Instruction Pages - SECTION 10 Locomotive and Rolling Stock Data** or the table shown in **SECTION 2 Locomotive Operations**.

Where can locomotives run?

Where locomotives can run is indicated in the **MAXIMUM SPEED OF LOCOMOTIVES AND ROLLING STOCK** table located on the first page of the various subsections of each region.
 When a speed is shown this is the authorisation for that category of locomotive to operate. Where the letters N/A appear that category of locomotive is not approved to operate.

Table 65--Australia Western Railroad--Locomotives

Code	Load-Category	Description	Max.Speed (km/h)	Live Weight (t)	Length-Over-Coupling Faces (m)	Draw Capacity (MN)	Horse-power	Remarks	Notes
CLP	L6	Diesel	115	128	20.5	1.80	3000		R11
CLP	L6	Diesel	115	132	20.5	1.80	3000		R11
DC	L10	Diesel	115	110	18.4	1.80	2000	Ex-Pacific National 422 class	R11
LQ7/LZ	L5	Diesel	100	134	20.2	1.80	3000	Ex L31 class. Fuel tanks only to be filled to 10,000 litres	R11
22	L10	Diesel	115	110	18.4	1.80	2000	Ex-Pacific National 422 class	R11
31	L5	Diesel	100	137	20.2	1.80	3000	Ex L class.	R11

Schedules

Schedule loads are set so that the train can operate within a preferred timetable. They are normally set lighter than the Full Sectional Load so that full advantage can be taken of the high power to weight ratio.

14. Western-Division-pages
 Version December 2014
Maximum speed-of locomotives- and rolling-stock

DOWNloads

Version December 2014

SECTIONS	LOCOMOTIVE CLASS=L	LOAD--TONNES				TRAIN-DATA		NOTES
		SINGLE	DOUBLE	TRIPLE	QUAD	VEHICLE-CLASS	SECT-RUN-TIMES	
20 SYDNEY METROP--LITHGOW	L13	261	562	843	1124	ABCDE	C4	
21 SYDNEY METROP--LITHGOW	L3/L4	750	1500	2250	3000	ABCDE	D1	
22 SYDNEY METROP--LITHGOW	L5	700	1400	2100	2800	ABCDE	D1	

Indicates sections of track the schedule applies to.

Maximum trailing tonnage permitted per schedule where shown.

Speed Class of vehicle permitted on schedule.

Schedule subgrouping and speed.
Main Line
A = 115kmh
B = 100kmh
C = 80kmh
D = 65kmh

Full Sectional Loads

Indicates permitted trailing tonnage per nominated category of locomotive for the various sections of track. Where no loads appear that category of locomotive is not approved to operate.

UP--sectional running times and full-sectional loads

Version April 2015

	# SECTIONAL-RUNNING-TIMES					FULL-SECTIONAL-LOADS														GRADE				
	AT	A2	C1	C2	D1	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13		14			
LITHGOW																								
LITHGOW CSBOX	2	2	2	2	2	2	4407	3855	3582	3389	3171	2803	2726	2680	2295	2210	2036	1900	1326					1:150
ZIGZAG	5	6	6	7	10	7	4	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410				1:40

Section timing points. Stations in capitals are staff stations, lower case stations are intermediate locations.

Running Times

Sectional running times are related to the **LOADS & CONDITIONS** tables. Times listed with an 'a' (e.g. 8a) are arrival times i.e. time is allowed to stop from the previous station and starting time is allowed towards the next station. All other times are passing times. In columns where there are no running times and only two dots .. appear the next running time shown beneath the dots will be the total running time. When a train is required to stop at a location that has passing times, then add **ONE** minute to that locations passing time, then add a further **TWO** minutes into the next section.

Column used to determine trailing tonnage in conjunction with the **TRAILING TONNAGE TABLE** located page 2 **General Instructions - SECTION 4 Train Marshalling**. The letters **DG** in this column = Down Grade

HOW TO DETERMINE DRAW CAPACITY TONNAGE

1. Check vehicle draw capacity in **LOCOMOTIVE AND ROLLING STOCK DATA** table.

Table 107--Manildra Flour--Freight rolling-stock

Code	Description	Class	Max-Gross Mass (t)	Tare (t)	Length (m)	Draw Capacity (MN)	Brake Type	Notes
MBAX	Covered wagon (Ex-WBAX)	C	76 80	25	18.0	1.30	B3	R1
MHGX	Grain hopper (Ex-AHGX)	C	76	21	14.6	1.30	B2	
MQRF	Container flat (Ex-AQRF)	C	76	21	14.9	1.30	B1	
MGFH	Grain hopper	C	100	26.5	17.6	1.80	B4	1, 2, 3

UP--sectional running times and full-sectional loads

Version April 2015

	#SECTIONAL-RUNNING-TIMES					FULL-SECTIONAL-LOADS														GRADE	
	%A1	LOCOMOTIVE CATEGORIES=L				Loco	LOCOMOTIVE CATEGORIES=L														
		C1	C2	C4	C5		AC6	2	3	4	5	6	7	8	9	10	11	12	13		14
BOMADERRY	30	30	30	30	30	11a	2766	2227	2104	1976	1743	1699	1650	1422	1372	259	1175	820	1.80		
BERRY	12	13				10	2623	2111	1995	1872	1651	1610	1563	1346	1299	191	1112	776	1.76		
GERRINGONG	..	..				9a	2477	1992	1882	1766	1557	1519	1473	1268	1224				1.70
KIAMA	21	23																			

DRAW-CAPACITY	GRADES 1-X																				
	MN	30	35	40	45	48	50	55	60	66	70	75	77	80	85	90	95	100	110	120	
H 1.80	3583	3809	4019	4128					7196	7368	7623	7791	8040	8449	8848	9238	9621	10361	11071		
1.85	3489	3809	4019						88	7038	7396	7573	7835	8007	8264	8683	9094	9495	9888	10649	11379
1.90	3583	3912	4128						63	7228	7596	7777	8046	8224	8487	8918	9339	9752	10155	10937	11686

MAXIMUM LENGTH OF TRAINS / BRAKE TYPE

1. The length of a train is the overall length of a train including all locomotives whether powering, off line, dead attached or banking.
The train must also be covered by an access agreement between Sydney Trains and the Operator, which indicates the trains **maximum length, motive power and maximum speed**.
The maximum length of trains also depends upon **draw capacity** (see **HOW TO DETERMINE DRAW CAPACITY TONNAGE** table) and the **brake equipment type** (see **Step 2**) that is fitted to the vehicles.

2. Reference must be made to the **LOCOMOTIVE AND ROLLING STOCK DATA** pages to determine the brake type (i.e. B1, B2, B3 or B4). If no brake type is listed then assume B1 type. When a train is being marshalled at its point of origin, remarshalled or has vehicles attached en route the brake type list must be checked to ensure limits are not exceeded.

Table 107--Manildra Flour--Freight rolling-stock

Code	Description	Class	Max-Gross Mass (t)	Tare (t)	Length (m)	Draw Capacity (MN)	Brake Type	Notes
MBAX	Covered wagon (Ex-WBAX)	C	76 80	25	18.0	1.30	B3	R1
MHGX	Grain hopper (Ex-AHGX)	C	76	21	14.6	1.30	B2	
MQRF	Container flat (Ex-AQRF)	C	76	21	14.9	1.30	B1	
MGFH	Grain hopper	C	100	26.5	17.6	1.80	B4	1, 2, 3

3. Check this table to determine the allowable position of the vehicles in a train

Brake-type	Allowable vehicle position in train
B1	Any position in the first 900 metres of train
B2 & B3	Any position in the first 1500 metres of train
B4	Any position in train
E1	Any position in train (all locomotives and wagons ECP braked)

FORMAT OF LOCATION OF SPEED SIGN TABLE



Location-of-speed-signs
Version: April 2015

KILOM-ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
55.086	PENRITH					
55.500				75	75	80
56.794				80	75	80
57.350	100	100	100			
57.439	EMU-PLAINS					
58.882				60	85	85
58.883	75	75	80			
59.539	70	70	75	60	75	80
60.785	70	75	80			
60.965				60	70	75
61.703				40	70	75
61.988				40	60	60
62.046	70	70	75			
63.617	LAPSTONE					
65.105	65	65	65	70	70	75

KILOM-ETRAGE	DOWN			UP		
	99.726	75	75	80	60	60	65
102.251	55	55	60	60	75	75
102.614	WENTWORTHFALLS					
102.858				35	55	60
102.909	60	75	80			
104.735	60	60	65	60	75	80
107.299	55	55	60	60	60	65
107.592	LEURA					
107.651				55	55	60
107.739	55	60	65			
109.211				55	60	65
109.402	50	50	55			
109.943	KATOOMBA					
110.064				45	45	50
110.132	60	60	65			
113.607	70	70	75	60	60	65
114.116	80	85	100	70	70	75
115.727				80	100	115
115.803	MEDLOWBATH					
116.200	65	65	70			

Kilometrage from Sydney

Station, siding or location

Speed signs indicate the maximum speed between signs. 'X' speeds (e.g. X40) indicate the maximum speed throughout turnouts. The maximum speed throughout the sharp curves of junctions, crossovers and turnouts is 25 kilometres per hour, unless otherwise shown.

A white background speed sign with the letters MU alongside the numerals applies only to XPT, Xplorer, Endeavour trains, Hunter and Multiple unit trains (NSG604)

'Wrong Road' speed signs shown in italics.

'Normal' speed signs apply to all trains except for XPT, Xplorer, Endeavour and Hunter.

XPT, Xplorer, Endeavour and Hunter trains run to XPT speed signs to the maximum speed specified under the listing of **MAXIMUM SPEED OF LOCOMOTIVES AND ROLLING STOCK**. XPT, Xplorer, Endeavour and Hunter trains run to 'Normal' speed signs where XPT signs are not provided.



Location-of-speed-signs
Hornsby - --Hawkesbury- River

KILOM-ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
For previous speed signs refer to SYDNEY-METROPOLITAN section						
33.864	HORNSBY					
33.950	80	80	80			
33.950	X60		X65		520 Points	
34.100	535 Pt	Down Sign on Up Sidings	X15			

KILOM-ETRAGE	DOWN			UP		
	48.711				60	60	65
48.814	COWAN					
49.956				60	80	80
49.958	55	60	60			
51.375	X50		X50			
51.409				X50		X50
51.409	BORONIA					
51.739				60	60	60
52.479	55	70	75			
53.250	50	60	60			
53.742				60	65	65
53.745	50	55	55			

Kilometrage from Sydney

Station, siding or location

Speed signs indicate the maximum speed between signs. 'X' speeds (e.g. X40) indicate the maximum speed throughout turnouts. The maximum speed throughout the sharp curves of junctions, crossovers and turnouts is 25 kilometres per hour, unless otherwise shown.

'Wrong Road' speed signs shown in italics.

'General' speed signs apply to locomotive hauled passenger and freight trains, track maintenance vehicles, Rail Motors and 620 class diesel trains.

'High' speed signs apply to XPT, Xplorer, Endeavour and Hunter trains.

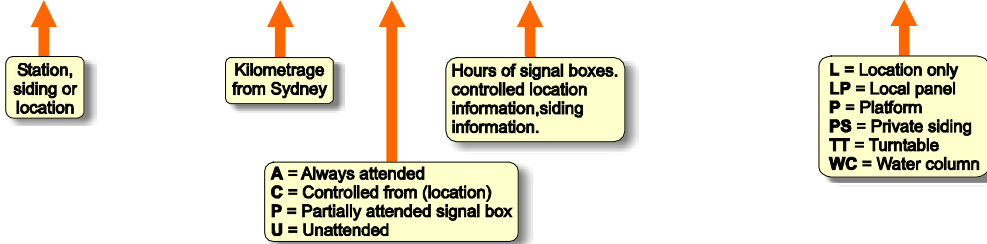
'Medium' speed signs apply to CityRail trains.

FORMAT OF STATION DATA TABLE

Station data

Version: 10.0 December 2012

Station	Kilo-metrage	Signal-Box-Status	Hours-of-Signal-Box	Facilities
Penrith	55.086	A	Always	P, WC
Emu-Plains	57.439		Controlled-from-Penrith	P
Lapstone	63.617			P

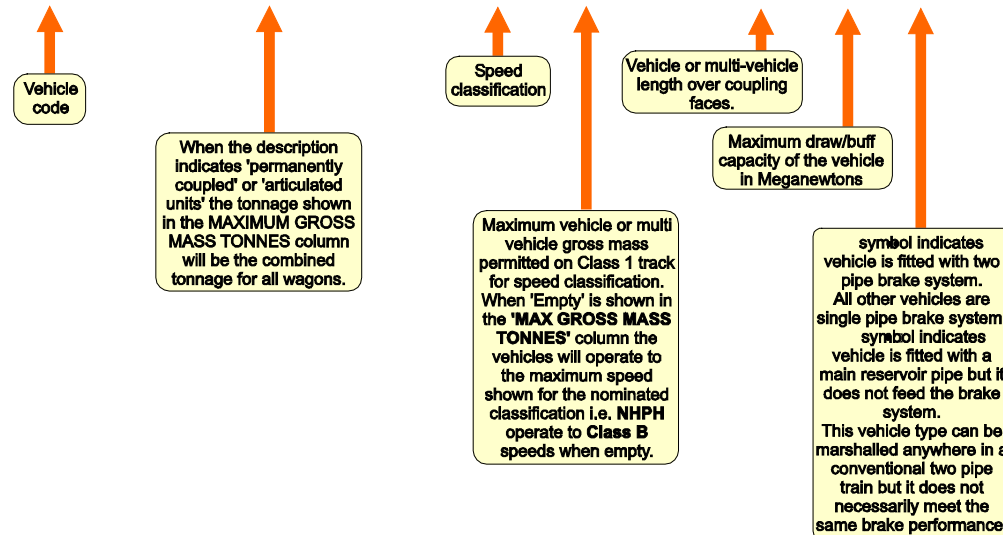


FORMAT OF ROLLING STOCK DATA PAGES

Pacific-National--Freight-rolling-stock--grain-hoppers

Table 124--Pacific-National--Freight-rolling-stock--grain-hoppers

Code	Description	Class	Max-Gross Mass-(t)	Tare-(t)	Length (m)	Draw Capacity (MN)	Brake-Type	Notes
NGDX	Grain	C	73	18.5	14.3	0.90	•□B3	
NGFF	Grain	C	76		4.6	0.75	B2	
NGGF	Grain	A	78		4.3	1.80	B3	
	When loaded from 78 up to a maximum of 81-tonnes gross mass Class E speeds will apply.							
NGHF	Grain	C	76	17.8	14.4	1.80	**B4	



Superseded by TS TOC 2 v5.0

Section 13

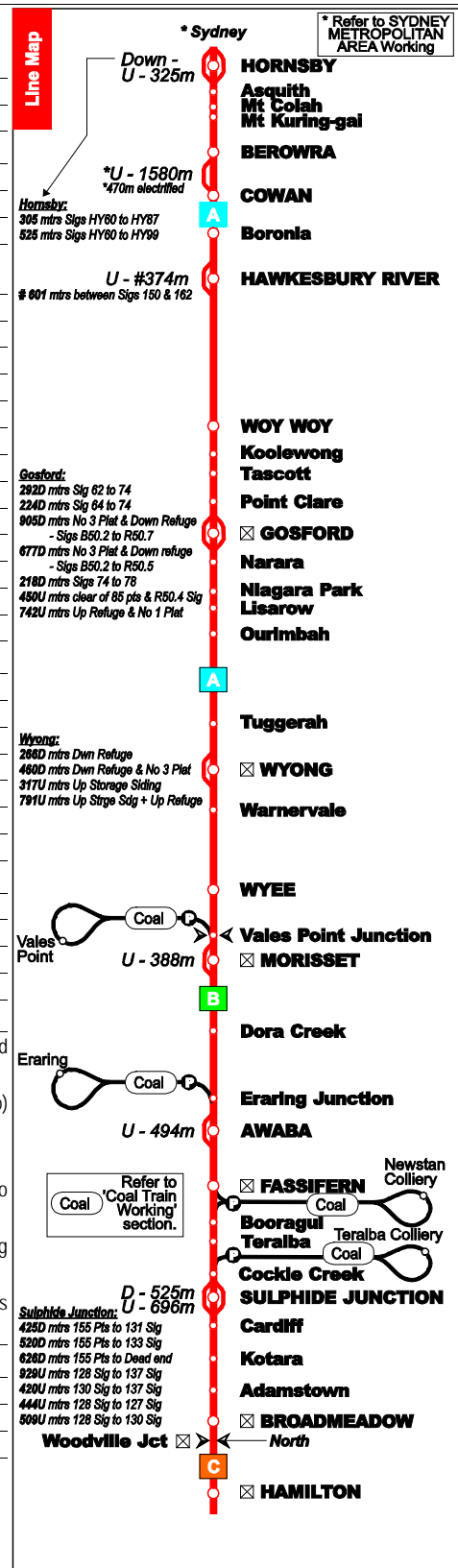
Northern Division pages

13. Northern Division pages

Version August 2015

Maximum speed of locomotives and rolling stock

	Hornsby – Vales Point	Vales Pt – Woodville Junction	Woodville Junction – Hamilton
Class of Line	1	1	1
Line Map Reference	A	B	C
LOCOMOTIVES			
Class	Max Speed Km/h		
90, TT, TT100 (139t)	(a)	60(a,f)	20(c)
31, L, LQ, LZ	100	100	20(c)
92, 93, 6000, 6020, ACC, C, CEY, CF, GWA, GWU, LDP, LDP10, RL, SCT, TT100 (134t), WH, XRN	115	115	20(c)
82, CLP, GL, NR	115(b)	115	20(c)
14, 81, ALF, AN, BL, CLF, G, VL	115	115	50
42, 80, 80s, B, DL	115	115	50
18	90	90	50
442, 442s, 700, GM(12), S, X	115	115	50
22, 421, 422, 44, 45, 45s, 600, DC, EL, FL, GM(1), HL	115	115	50
43, 44s, 930	115	115	50
423	80	80	50
D, K, T	100	100	50
47, 48, 48200, 48s, 49, 830, 900, GPU, MM, PL	100	100	50
73 (e)	70	70	50
46, 86 Electric	100(d)	100(d)	50(d)
Multiple Locomotive working	4	4	4
FREIGHT			
Class A	115	115	50
Class B	100	100	50
Class C	80	80	50
Class D	65	65	50
Class E	80	80	50
Class F	65	65	50
Class G	N/A	60(f)	N/A
PASSENGER			
XPT	160	160	80
XPLORER	145	145	80
DIESEL RAILCARS	115	115	80
LOCO HAULED	115	115	50
NOTES			
(a)	When operating light 90, TT, or TT100 class locomotives between Woodville Junction and Enfield, see Special conditions Page 26 of this section.		
(b)	NR locomotive maximum speed of 40 km/h through Boronia Tunnel No 3 (Down and Up) 54.300km to 54.500km.		
(c)	Woodville Junction to Hamilton Junction ONLY		
(d)	Applies to SINGLE and distributed locomotives (separated by at least 70 metres of train). No OHW restrictions apply. Both pantographs may be raised.		
(e)	Only locomotives fitted with vigilance control system are approved to operate outside shunting yards		
(f)	Maximum speed of 40 km/h (Down and Up) when 90 class locomotives or 'G' class vehicles cross the bridge at 160.300km (Northcott Drive) between Kotara and Adamstown		
SAFeworking SYSTEMS			
Hornsby – Cowan	Rail Vehicle Detection		
Cowan – Boronia	Rail Vehicle Detection		
Boronia – Hawkesbury River	Rail Vehicle Detection (Bi-directional)		
Hawkesbury River – Hamilton	Rail Vehicle Detection (Bi-directional)		



DOWN loads

Version December 2014

	SECTIONS	LOCOMOTIVE CLASS = L	LOAD – TONNES				TRAIN DATA			NOTES
			SINGLE	DOUBLE	TRIPLE	QUAD	VEHICLE CLASS	SECT RUN TIMES		
1	SYDNEY METROP. – BROADMEADOW	L2	1000	2000	3000	4000	A	A1		
2	SYDNEY METROP. – BROADMEADOW	L7	735	1470	2205	2940	A	A1		
3	SYDNEY METROP. – BROADMEADOW	AC6	1000	2000	3000	--	A	A1		
4	SYDNEY METROP. – BROADMEADOW	AC6 + #L2	--	2750	--	--	AB	B1	#NR only	
5	SYDNEY METROP. – BROADMEADOW	AC6 + 2 x #L2	--	--	4050	--	AB	B1	#NR only	
6	SYDNEY METROP. – BROADMEADOW	2 x AC6 + #L2	--	--	4200	--	AB	B1	#NR only	
7	SYDNEY METROP. – BROADMEADOW	L2	1300	2600	3900	5200	AB	B1		
8	SYDNEY METROP. – BROADMEADOW	L4	970	1940	2910	3880	AB	B1		
9	SYDNEY METROP. – BROADMEADOW	L7	909	1818	2727	3636	AB	B1		
10	SYDNEY METROP. – BROADMEADOW	AC6	1500	3000	4600	--	AB	B1		
11	SYDNEY METROP. – BROADMEADOW	L8+L8+L13	--	--	600	--	ABC	C		
12	SYDNEY METROP. – BROADMEADOW	L2	1300	2600	3900	5200	ABCE	C1		
13	SYDNEY METROP. – BROADMEADOW	L4	970	1940	2910	3880	ABCE	C1		
14	SYDNEY METROP. – BROADMEADOW	L7	909	1818	2727	3636	ABCE	C1		
15	SYDNEY METROP. – BROADMEADOW	L9	590	1180	1770	2360	ABCE	C1		
16	SYDNEY METROP. – BROADMEADOW	AC6	1500	3000	4600	--	ABCE	C1		
17	SYDNEY METROP. – BROADMEADOW	AC6 + #L2	--	2750	--	--	ABCE	C1	#NR only	
18	SYDNEY METROP. – BROADMEADOW	AC6 + 2 x #L2	--	--	4050	--	ABCE	C1	#NR only	
19	SYDNEY METROP. – BROADMEADOW	2 x AC6 + #L2	--	--	4200	--	ABCE	C1	#NR only	
20	SYDNEY METROP. – BROADMEADOW	L3	1200	2400	3600	4800	ABCE	C2	a	
21	SYDNEY METROP. – BROADMEADOW	L4	1131	2262	3393	4524	ABCE	C2		
22	SYDNEY METROP. – BROADMEADOW	L5	1056	2112	3168	4224	ABCE	C2		
23	SYDNEY METROP. – BROADMEADOW	L6	926	1852	2778	3704	ABCE	C2		
24	SYDNEY METROP. – BROADMEADOW	L7	909	1818	2727	3636	ABCE	C2		
25	SYDNEY METROP. – BROADMEADOW	L8	875	1750	2625	3500	ABCE	C2		
26	SYDNEY METROP. – BROADMEADOW	L9	750	1500	2250	3000	ABCE	C2		
27	SYDNEY METROP. – BROADMEADOW	L10	725	1450	2175	2900	ABCE	C2		
28	SYDNEY METROP. – BROADMEADOW	L11	660	1320	1980	2640	ABCE	C2		
29	SYDNEY METROP. – BROADMEADOW	L12	615	1230	1845	2460	ABCE	C2		
30	SYDNEY METROP. – BROADMEADOW	L13	310	615	925	1230	ABCE	C2		
31	SYDNEY METROP. – BROADMEADOW	L4	1131	2262	3393	4524	ABCDE	D1		
32	SYDNEY METROP. – BROADMEADOW	L10	725	1450	2175	2900	ABCDE	D1		
33	SYDNEY METROP. – BROADMEADOW	L13	410	820	1230	1640	ABCDE	D1		
34	SYDNEY METROP. – BROADMEADOW	L3	1200	--	--	--	ABCDE	D1		

For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' Sydney Metropolitan Area - freight and locomotive running times (page 60).

a Single load CM locomotive not permitted.

DOWN – sectional running times and full sectional loads

Version April 2015

	# SECTIONAL RUNNING TIMES										FULL SECTIONAL LOADS														GRADE
											LOCOMOTIVE CATEGORIES = L														
	A1	B1	C	C1	C2	D1	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13	14				
% CHULLORA JCT to:	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%			
SOUTH JCT	8	8	8	8	8	8	5	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100			
MIDDLE JCT	1	1	1	1	1	1	1	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100			
FLEM MKETS 625 PTS	5	5	5	5	5	5	4	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100			
NTH STRATHFIELD JCT	5	5	5	5	5	5	4	2904	2536	2339	2211	2077	1833	1786	1736	1495	1442	1324	1236	862		1:85			
CONCORD WEST	3	3	3	3	3	3	3	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		Level			
RHODES	2	2	2	2	2	2	2	4102	3587	3314	3134	2949	2607	2535	2472	2133	2055	1892	1766	1232		1:134			
WEST RYDE	2	2	2	2	2	2	2	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636		1:60			
EPPING	6	7	5	8	9	11	4	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410		1:40			
THORNLEIGH	9	11	7	12	13	16	5	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410		1:42			
HORNSBY	4	5	4	5	5	6	4	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410		1:40			
BEROWRA	9	10	9	10	12	16	9	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410		1:40			
COWAN	4	4	4	4	4	4	4	2985	2607	2405	2274	2136	1885	1837	1785	1539	1484	1363	1272	887		1:87			
Boronia X/Over	3	3	3	3	3	3	3	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG			
HAWKESBURY RIVER	7	7	7	7	7	6	6	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG			
WONDABYNE X/OVER	7	7	7	7	7	8	6	2623	2289	2111	1995	1872	1651	1610	1563	1346	1299	1191	1112	776		1:75			
WOY WOY	7	8	7	8	8	10	6	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410		1:40			
GOSFORD	7	7	7	7	7	9	7	2326	2028	1869	1766	1656	1459	1425	1380	1188	1147	1051	980	684		1:65			
WYONG	14	15	16	16	17	20	13	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731		1:71			
WYEE	9	10	11	12	12	15	8	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636		1:58			
MORISSET	6	6	7	8	8	10	6	1846	1607	1479	1396	1307	1149	1125	1085	933	902	823	768	536		1:50			
AWABA	13	14	12	15	16	20	12	1676	1458	1341	1265	1183	1040	1018	980	842	815	743	693	483		1:44			
FASSIFERN	4	4	4	4	5	5	4	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636		1:60			
SULPHIDE JUNCTION	10	11	10	9	11	14	9	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410		1:40			
ADAMSTOWN	10	10	10	10	10	13	9	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820		1:80			
BROADMEADOW	3	3	3	3	3	3	3	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG			
WOODVILLE JCT	4	4	4	4	4	4	3	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		Level			
HAMILTON	2	2		2	2	2	1	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		Level			

For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' Sydney Metropolitan Area - freight and locomotive running times (page 60).

% Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant operating information.

UP loads

SECTIONS	LOCOMOTIVE CLASS = L	LOAD – TONNES				TRAIN DATA			NOTES
		SINGLE	DOUBLE	TRIPLE	QUAD	VEHICLE CLASS	SECT RUN TIMES		
1 BROADMEADOW – SYDNEY METROP.	L2	1000	2000	3000	4000	A	A1		
2 BROADMEADOW – SYDNEY METROP.	L7	735	1470	2205	2940	A	A1		
3 BROADMEADOW – SYDNEY METROP.	AC6	1000	2000	3000	--	A	A1		
4 BROADMEADOW – SYDNEY METROP.	L2	1230	2460	3690	4920	AB	B1		
5 BROADMEADOW – SYDNEY METROP.	L4	970	1940	2910	3880	AB	B1		
6 BROADMEADOW – SYDNEY METROP.	L7	909	1818	2727	3636	AB	B1		
7 BROADMEADOW – SYDNEY METROP.	AC6	1500	3000	4600	--	AB	B1		
8 BROADMEADOW – SYDNEY METROP.	AC6 + #L2	--	2500	--	--	AB	B1	#NR only	
9 BROADMEADOW – SYDNEY METROP.	AC6 + 2 x #L2	--	--	3650	--	AB	B1	#NR only	
10 BROADMEADOW – SYDNEY METROP.	2 x AC6 + #L2	--	--	3850	--	AB	B1	#NR only	
11 BROADMEADOW – SYDNEY METROP.	L2	1230	2460	3690	4920	ABCE	C1		
12 BROADMEADOW – SYDNEY METROP.	L4	970	1940	2910	3880	ABCE	C1		
13 BROADMEADOW – SYDNEY METROP.	L7	909	1818	2727	3636	ABCE	C1		
14 BROADMEADOW – SYDNEY METROP.	L9	590	1180	1770	2360	ABCE	C1		
15 BROADMEADOW – SYDNEY METROP.	AC6	1500	3000	4600	--	ABCE	C1		
16 BROADMEADOW – SYDNEY METROP.	AC6 + #L2	--	2500	--	--	ABCE	C1	#NR only	
17 BROADMEADOW – SYDNEY METROP.	AC6 + 2 x #L2	--	--	3650	--	ABCE	C1	#NR only	
18 BROADMEADOW – SYDNEY METROP.	2 x AC6 + #L2	--	--	3850	--	ABCE	C1	#NR only	
19 BROADMEADOW – SYDNEY METROP.	L3	1200	2400	3600	4800	ABCE	C2		
20 BROADMEADOW – SYDNEY METROP.	L4	1131	2262	3393	4524	ABCE	C2		
21 BROADMEADOW – SYDNEY METROP.	L5	1056	2112	3168	4224	ABCE	C2		
22 BROADMEADOW – SYDNEY METROP.	L6	926	1852	2778	3704	ABCE	C2		
23 BROADMEADOW – SYDNEY METROP.	L7	909	1818	2727	3636	ABCE	C2		
24 BROADMEADOW – SYDNEY METROP.	L8	875	1750	2625	3500	ABCE	C2		
25 BROADMEADOW – SYDNEY METROP.	L9	750	1500	2250	3000	ABCE	C2		
26 BROADMEADOW – SYDNEY METROP.	L10	725	1450	2175	2900	ABCE	C2		
27 BROADMEADOW – SYDNEY METROP.	L11	660	1320	1980	2640	ABCE	C2		
28 BROADMEADOW – SYDNEY METROP.	L12	615	1230	1845	2460	ABCE	C2		
29 BROADMEADOW – SYDNEY METROP.	L13	310	615	925	1230	ABCE	C2		
30 BROADMEADOW – SYDNEY METROP.	L4	1131	2262	3393	4524	ABCDE	D1		
31 BROADMEADOW – SYDNEY METROP.	L10	725	1450	2175	2900	ABCDE	D1		
32 BROADMEADOW – SYDNEY METROP.	L13	410	820	1230	1640	ABCDE	D1		

For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' Sydney Metropolitan Area - freight and locomotive running times (page 60).

UP – sectional running times and full sectional loads

Version April 2015

	# SECTIONAL RUNNING TIMES										FULL SECTIONAL LOADS														GRADE
											LOCOMOTIVE CATEGORIES = L														
	A1	B1	C1	C2	D1	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13	14					
HAMILTON to:	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻	↻				
WOODVILLE JCT	3	3	3	3	3	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600	Level					
* BROADMEADOW	4	4	4	4	4	3	5057	4426	4090	3869	3645	3223	3132	3060	2641	2542	2344	2188	1527	1:185					
ADAMSTOWN	3	3	3	3	3	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600	Level					
SULPHIDE JCT	8	9	9	10	11	7	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:70					
FASSIFERN	10	10	10	10	13	8	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:69					
AWABA	4	4	4	5	6	4	2357	2080	1894	1789	1678	1479	1444	1399	1204	1163	1065	994	693	1:66					
MORISSET	12	14	14	15	20	11	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:72					
WYEE	6	7	7	8	10	6	2623	2289	2111	1995	1872	1650	1610	1563	1345	1300	1191	1110	775	1:73					
WYONG	9	9	12	12	16	9	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:72					
GOSFORD	14	14	16	16	20	14	2623	2289	2111	1995	1872	1651	1610	1563	1346	1299	1191	1112	776	1:75					
WOY WOY	8	8	8	8	9	7	3039	2654	2449	2315	2175	1920	1870	1818	1567	1511	1388	1295	904	1:90					
WONDABYNE X/OVER	7	7	7	7	9	6	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636	1:60					
HAWKESBURY RIVER	7	8	8	8	9	7	3195	2791	2576	2435	2289	2021	1968	1915	1650	1591	1462	1365	952	1:94					
BORONIA X/OVER	11	15	15	17	21	8	1500	1230	1200	1131	1056	926	909	875	750	725	660	615	410	1:40					
\$ COWAN	5	7	7	8	9	3	1676	1458	1341	1265	1183	1040	1018	980	842	815	743	693	483	1:45					
BEROWRA	5	7	7	7	9	4	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:72					
HORNSBY	10	11	10	11	11	9	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:68					
THORNLEIGH	4	4	4	4	5	4	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:72					
EPPING	7	7	7	7	6	5	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1:72					
WEST RYDE	5^	5^	5^	5^	5^	4^	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600	DG					
RHODES	3	3	3	3	3	3	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600	DG					
CONCORD WEST	2	2	2	2	3	2	4102	3587	3314	3134	2949	2607	2535	2472	2133	2055	1892	1766	1232	1:132					
NTH STRATHFIELD JCT	3	3	3	3	3	3	4102	3587	3314	3134	2949	2607	2535	2472	2133	2055	1892	1766	1232	1:132					
FLEM MKETS 625 Pts	5	5	5	5	5	4	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820	1:80					
MIDDLE JCT	5	5	5	5	5	4	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984	1:100					
SOUTH JCT	1	1	1	1	1	1	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984	1:100					
% CHULLORA JCT	8	8	8	8	8	5	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984	1:100					

- # For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' Sydney Metropolitan Area - freight and locomotive running times (page 60).
- * Up trains starting from Broadmeadow yards via 409 crossover are to use the Broadmeadow to Adamstown Through running times i.e. no additional starting times required.
- \$ Allow three minutes from pass Cowan to stop in Up Refuge loop at Signal C.4. Up trains starting from Cowan Up Refuge Loop via 60 points are to use the Cowan to Berowra through running times i.e. no additional starting times required.
- ^ Additional one minute to traverse Epping – West Ryde on Up Main.
- % Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant operating information.

Location of speed signs

Version August 2015

Hornsby – Hawkesbury River

KILOM-ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
For previous speed signs refer to SYDNEY METROPOLITAN section						
HORNSBY						
33.864						
33.950	80	80	80	..	..	..
33.950	X60	..	X65	..	..	520 Points
34.100	535 Pts Down Sign on Up Sidings			X15	..	..
34.100	Maximum Speed Up Yard			15	..	..
34.100	Max Speed app Buffers Up Yard			8	..	..
34.110	X45	..	..	..	..	540A Points
34.120	Up Sign on Down Main			70	70	70
34.135	X45	541A Points		Down Sign on Up Main		
34.155	60	80	80	Down Sign on Up Main		
34.230	540B Pts Up Sign on Turnback 1			X45	..	..
34.244	543B Pts Up Sign on Down Relief			X60	..	..
34.245	541B Up Sign on Down Main			X45	..	..
34.360	X45	..	..	..	..	552A Points
34.365	551B Pts Up Sign on Down Relief			X25	..	..
34.378	60	60	60	Down Relief		
34.455	552B Points			X40	..	..
34.500	X60	..	X70	560 Pts Down Relief		
34.510	Up Sign on Down Relief			60	60	60
34.510	Up Sign on Turnback 1			60	60	60
34.590	90	90	100	..	..	..
34.595	X60	..	..	569A Pts Down Relief		
34.605	560 Pts Up Sign on Down Relief			X60	..	..
34.675	Up Sign on Down Relief			60	60	60
34.710	Up Sign on Down Relief			15	15	15
34.735	569B Pts Up Sign on Down Main			X60	..	..
34.816	571B Points			X25	..	..
34.926	..	..	..	60	80	80
34.950	75	75	75	Down Relief		
35.000	115	115	115	..	..	..
35.010	X55	..	X65	573A Pts Down Sign Up Main		
35.260	X75	..	..	574B Pts Down Relief		
35.260	Up Sign on Down Relief			25	25	25
ASQUITH						
35.694	..	..	..	70	100	100
37.444	85	85	90	70	115	115
MT COLAH						
37.880	..	..	..	95	95	95
37.932	100	100	105	..	..	..
40.178	75	75	80	95	100	100
40.509	..	..	..	80	80	80
MT KURING-GAI						
41.054	70	70	75	..	..	..
42.030	85	90	90	..	..	..
42.065	..	..	..	70	70	75
42.632	..	..	..	85	90	90
44.030	..	..	..	60	90	90
44.390	X50	..	X50	51 Points		
44.576	..	..	..	85	90	90
BEROWRA						
44.710	X50	..	..	On Down Loop		
44.823	90	115	115	..	..	..
44.909	..	..	..	85	85	85
45.500	..	..	..	85	90	90
46.995	On Up Loop			X50	..	..
47.041	..	..	..	85	100	100
47.155	80	80	85	..	..	..
47.191	On Up Loop			50	..	..
47.423	60	60	65	..	..	..
47.526	..	..	..	80	80	80
48.555	X25	..	X35	..	..	..
48.557	On Up Loop			35	..	..

KILOM-ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
48.660	..	..	..	X35	..	..
48.670	60	80	85	..	..	..
48.711	..	..	..	60	60	65
COWAN						
49.956	..	..	..	60	80	80
49.958	55	60	60	..	..	..
51.375	X50	..	X50	..	..	..
51.409	..	..	..	X50	..	X50
BORONIA						
51.739	..	..	..	60	60	60
52.479	55	70	75	..	..	..
53.250	50	60	60	..	..	..
53.742	..	..	..	60	65	65
53.745	50	55	55	..	..	..
54.859	55	55	60	..	..	..
55.840	60	60	65	..	..	..
55.841	..	..	..	55	55	55
56.499	65	65	65	..	..	..
56.590	X50	..	X50	..	..	..
56.780	..	..	..	X50	..	X50
57.176	..	..	..	55	60	65
HAWKESBURY RIVER						
57.527	..	..	..	55	55	60

Bi-directional speed signs Cowan – Hawkesbury River

KILOM-ETRAGE	DOWN SIGNS ON UP MAIN			UP SIGNS ON DOWN MAIN		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
COWAN						
48.814	..	..	..	..	..	..
48.890	..	..	..	X25	..	X35
48.960	60	80	85	..	..	..
49.958	55	60	60	60	75	80
51.230	X50	..	X50	..	..	..
BORONIA						
51.409	..	..	..	X50	..	X50
51.510	..	..	..	60	60	60
51.751	..	..	..	..	..	..
52.513	55	70	75	..	..	..
53.250	50	60	60	..	..	..
53.742	..	..	..	60	65	65
53.745	50	55	55	..	..	..
54.859	55	55	60	..	..	..
56.499	..	..	..	55	55	55
56.700	X50	..	X50	..	..	..
HAWKESBURY RIVER						

Hawkesbury River – Gosford

KILOM-ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
57.555	80	80	85	..	..	..
58.127	80	100	100	..	..	..
58.130	..	..	..	75	75	85
60.897	80	95	100	..	..	..
60.927	..	..	..	80	100	100
61.625	70	70	75	80	95	100
62.321	65	65	70	..	..	..
63.358	..	..	..	70	70	70
65.146	WONDABYNE					
65.290	60	60	65	..	..	..
65.611	60	75	80	..	..	..
65.615	..	..	..	65	65	70
66.586	..	..	..	65	75	80
66.658	60	60	65	..	..	..
66.894	80	115	115	..	..	..
66.995	..	..	..	60	60	65
69.239	80	105	110	80	115	115
69.488	80	115	125	..	..	..
69.489	..	..	..	80	105	110
72.253	..	..	..	80	115	125
72.378	75	75	85	..	..	..
72.617	WOY WOY					
72.949	..	..	..	70	80	90
73.193	90	95	100	..	..	..
74.713	90	90	100	..	..	..
74.819	KOOLEWONG					
75.359	70	70	75	..	..	..
75.362	..	..	..	80	90	100
75.905	..	..	..	70	70	75
75.907	85	85	95	..	..	..
76.906	TASCOTT					
77.230	85	90	95	85	85	90
78.050	POINT CLARE					
78.207	85	115	120	85	90	95
80.077	..	..	..	85	115	120
80.078	60	60	60	..	..	..
80.579	..	..	..	85	90	95
80.791	..	..	..	60	60	60
80.908	GOSFORD					

Gosford – Hamilton

KILOM-ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
80.908	GOSFORD					
81.045	50	60	60	..	..	..
81.465	<i>85B Pts Up Refuge</i>			X50	..	..
81.635	60	60	60	<i>Down Refuge</i>		
81.640	..	..	..	50	60	60
81.800	80	85	90	..	..	..
81.825	75	75	75	<i>Down Refuge</i>		
82.000	<i>Up Refuge</i>			60	60	60
83.407	X75	..	..	<i>201A Pts Down Refuge</i>		
83.440	<i>Up Refuge</i>			75	75	75
83.620	<i>202B Pts</i>			X75	..	..
83.974	75	75	80	80	85	90
84.597	NARARA					
84.754	..	..	..	75	75	80
84.820	75	90	100	..	..	..
85.845	..	..	..	75	90	100
86.111	75	75	80	..	..	..
86.193	NIAGARA PARK					
86.800	100	100	105	..	..	..
86.802	..	..	..	75	75	80
87.729	LISAROW					
87.983	110	115	125	100	100	105

KILOM-ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
90.004	..	..	..	110	115	125
90.031	110	110	120	..	..	..
90.607	OURIMBAH					
92.231	..	..	..	110	110	120
92.231	115	115	145	..	..	..
95.334	115	115	135	115	115	145
97.104	110	110	115	..	..	..
97.143	..	..	..	115	115	135
97.676	..	..	..	110	110	115
98.540	TUGGERAH					
99.088	90	90	100	..	..	..
99.400	100	100	105	..	..	..
100.089	..	..	..	115	115	150
100.641	..	..	..	115	115	135
101.082	WYONG					
101.291	60	60	60	<i>Down Sign on Up Main</i>		
101.291	115	115	115	90	90	95
101.419	<i>Up Sign on Down Main</i>			45	60	60
102.491	X60	<i>107 Points</i>		<i>Down Sign on Up Main</i>		
102.558	<i>Up Sign on Down Main</i>			60	60	60
102.760	<i>108 Points</i>			X60	..	..
103.084	..	..	..	95	95	105
103.687	115	115	160	..	..	..
105.896	WARNERVALE					
106.488	110	110	115	..	..	..
111.803	..	..	..	110	115	115
113.009	105	105	115	110	115	135
114.532	115	115	140	..	..	..
114.534	..	..	..	105	105	115
114.864	WYEE					
115.115	..	..	..	115	115	130
116.801	115	115	130	115	115	140
117.436	110	110	120	115	115	130
118.106	105	105	115	110	110	120
119.545	85	85	90	105	105	115
120.265	..	..	..	80	80	85
120.502	115	115	120	..	..	..
123.146	110	110	120	..	..	..
123.189	..	..	..	115	115	125
123.334	MORISSET					
124.478	70	70	75	..	..	..
124.480	..	..	..	110	110	115
125.255	80	80	85	..	..	..
125.303	..	..	..	75	75	80
125.680	..	..	..	80	80	85
125.680	95	95	105	..	..	..
126.137	110	115	120	..	..	..
126.139	..	..	..	95	95	105
127.232	DORA CREEK					
127.931	110	110	115	..	..	..
127.998	..	..	..	105	115	115
128.364	..	..	..	105	110	115
129.519	85	85	95	..	..	..
129.521	..	..	..	105	105	115
130.447	85	85	90	..	..	..
131.217	70	70	75	..	..	..
131.219	..	..	..	85	90	95
131.638	70	75	80	..	..	..
133.039	70	70	75	70	75	80
134.080	..	..	..	70	70	75
134.838	75	75	80	..	..	..
134.840	..	..	..	65	65	70
136.195	..	..	..	70	70	75
137.231	70	70	80	..	..	..
137.305	AWABA					
137.778	100	115	130	70	70	80
140.162	..	..	..	115	115	130
140.165	95	95	105	..	..	..
141.102	75	75	80	95	95	100
142.313	FASSIFERN					
142.388	..	..	..	75	75	80

KILOM- ETRAGE	DOWN			UP		
142.498	75	100	105	..	..	..
142.510	X25	..	..	51 Points		
142.710	10	..	..	On South Fork		
142.710	On South Fork			25	..	..
143.496	..	..	..	75	100	105
143.496	70	70	75	..	..	..
143.913	70	70	80	..	..	..
144.302	..	..	..	65	75	80
144.819	..	..	..	70	70	75
144.874	75	80	85	..	..	..
146.194	..	..	..	75	80	85
146.392	BOORAGUL					
146.869	75	75	80	..	..	..
147.540	..	..	..	75	75	80
147.565	TERALBA					
147.770	75	115	130	..	..	..
149.544	..	..	..	75	115	130
149.544	75	100	105	..	..	..
150.361	75	110	115	..	..	..
150.364	..	..	..	75	95	105
150.626	COCKLE CREEK					
152.264	65	110	115	..	..	..
153.451	SULPHIDE JUNCTION					
153.546	75	75	85	75	110	115
153.908	..	..	..	75	80	85
154.845	65	65	70	..	..	..
154.897	..	..	..	75	75	80
155.083	CARDIFF					
155.512	70	70	75	..	..	..
156.399	85	85	95	..	..	..
156.400	..	..	..	70	70	75
158.339	..	..	..	85	85	90
158.498	60	85	90	..	..	..
158.922	KOTARA					
159.045	60	90	90	..	..	..
160.144	60	90	90	..	..	..
160.536	..	..	..	90	100	110
161.120	ADAMSTOWN					
162.033	..	..	..	90	90	100
162.804	60	60	60	..	..	..
162.935	BROADMEADOW					
163.670	X30	..	X30	..	..	..
163.685	WOODVILLE JUNCTION					
163.690	WOODVILLE JUNCTION SIGNAL BOX					
163.910	40	..	45	On Down Islington Loop		
163.910	On Up Islington Loop			X30	..	X30
Note: General only speed signs between 163.913 km and Hamilton						
163.913	..	..	..	80	80	80
163.938	40	..	..	..	..	..
164.310	X25	..	..	20 Points		
164.330	..	..	..	40	..	..
164.395	25	..	..	..	..	..
	# To Hamilton			@ From Hamilton		
164.410	19 Points			X25	..	..
164.555	..	..	..	75	..	..
164.633	HAMILTON					

Up Main to Hamilton
 @ Down Main from Hamilton

Station data

Station	Kilo – metrage	Signal Box Status	Hours of Signal Box	Facilities
Hornsby	33.864	A	Controlled from Homebush	P
Asquith	35.694			P
Mt Colah	37.675			P
Mt Kuring-gai	40.667			P
Berowra	44.661	C	Controlled from Homebush	P
Cowan	48.814	C	Controlled from Homebush	LP, P
Boronia	51.409	C	Controlled from Homebush	L
Hawkesbury River	57.397	C	Controlled from Homebush	P
Wondabyne	65.146			P
Woy Woy	72.617			P
Koolewong	74.819			P
Tascott	76.906			P
Point Clare	78.050			P
Gosford	80.908	A	Always	P, TT, WC
Narara	84.597			P
Niagara Park	86.193			P
Lisarow	87.729			P
Ourimbah	90.607			P
Tuggerah	98.540			P
Wyong	101.082	A	Always	P
Warnervale	105.896			P
Wye	114.864			P
Vales Point Coal	119.230	C	Controlled from Morisset	L
Morisset	123.334	A	Always	P
Eraring Coal	132.590	C	Controlled from Broadmeadow Signal Control Centre	L
Dora Creek	127.232			P
Awaba	137.305	C	Controlled from Broadmeadow Signal Control Centre	LP, P
Fassifern	142.313		Attended as required for Newstan Colliery	P
Booragul	146.392			P
Teralba	147.565			P
Teralba Colliery				L
Cockle Creek	150.626			P
Sulphide Junction	153.451	C	Controlled from Broadmeadow Signal Control Centre	
Cardiff	155.083			P
Kotara	158.922			P
Adamstown	161.120	C	Controlled from Broadmeadow Signal Control Centre	P
Broadmeadow	162.935	C	Controlled from Broadmeadow Signal Control Centre	P
Woodville Junction	163.690	A	Always	
Hamilton	164.633	A	Always	P

Advisory speed signs

Special advisory speed signs have been positioned approaching signals at the locations shown below. Drivers of trains (except XPT's / Xplorer, Endeavour, Hunter trains and EMU's) are required to regulate the speed of their train at such locations to ensure that before reaching the signal indicated the speed is not in excess of that figure shown on the special advisory sign. If at any point approaching the signal it is seen to be exhibiting a full clear indication, normal track speed for the train concerned may be resumed.

Location	Signal number	Speed shown on sign
141.540 km	Fassifern No 48 Down Home, Main (88.1)	60
142.145 km	Fassifern Down Second Home, Main (88.5)	60

Tonnage signals

Certain signals listed herein are treated as **Tonnage Signals**, that is to say, in order to avoid the risk of trains over a certain tonnage being brought to a stand at signals where it would be difficult for them to restart, these tonnage signals shall not be passed by trains conveying loads in excess of 75% of the prescribed load (i.e. 75% of Full Sectional Load) unless the Tonnage signal is in the clear position (or by telephone instructions in the case of failure).

The following signals are to be treated as a Tonnage signal, in accordance with Sydney Trains Network Rule *NSG 608 Passing signal at STOP*.

Kilometrage	Signal number	Section located
Refer to Sydney Metropolitan Section		
<i>Tonnage signals (page 62) for Tonnage Signals between Sydney and Hornsby</i>		
57.290	# 146	Hawkesbury River
57.295	# 148	Hawkesbury River
57.300	# 150	Hawkesbury River
57.420	# 148 Repeater	Hawkesbury River
65.804	40.9	Wondabyne – Woy Woy
126.900	78.8	Dora Creek – Morisset
128.420	79.9	Dora Creek – Awaba

The signals at Hawkesbury River are fitted with a notice plate that reads as follows:

TONNAGE SIGNAL
 TRAINS OVER
 PRESCRIBED
 LOAD TO WAIT
 UNTIL SIGNAL IS
 AT FULL CLEAR
 OR 'T' INDICATOR
 IS ILLUMINATED

Transfer of 90, TT, TT100(139t), 5000 and 5020 class locomotives Woodville Junction – Enfield/Chullora and return for wheel lathe attention or maintenance

Version August 2015

90, TT, TT100(139t), 5000, and 5020 Class locomotives may be transferred from Woodville Junction to Flemington South Junction (for Enfield or Chullora) and return for wheel lathe attention or maintenance as a light locomotive movement in each direction subject to the following conditions:

1. Single or multiple 90/TT/TT100(139t) class locomotives are permitted, or a 90/TT/TT100(139t) class locomotive can be transferred in multiple with any other Pacific National locomotive.
2. Single or multiple 5000/5020 class locomotives shall be hauled dead attached by 423 and/or 6000 class locomotives. The mass of the 5000/5020 class locomotives shall not exceed 167 tonnes.
3. The axle loads are to be decreased by ensuring the locomotive has a reduced fuel load (do not fill fuel tank prior to transfer).
4. The locomotives shall reduce its speed to 20 km/h when traversing the following bridges:
 - Main North: 12.628 km (Parramatta Rd)
 - Bankstown Line: 19.202 km (Marion St)
 - In addition, the speed of 5000/5020 class locomotives shall be reduced to 40 km/h when traversing the following bridge:
 - Main North: 160.300 km (Kotara – Northcott Drive)
5. The maximum track speed shall be as detailed in the table below:

Maximum track speeds

Location	90, TT and TT100(139t) Class	5000 and 5020 Class
Between Woodville Junction – Vales Point Junction	60 km/h	50 km/h
Between Flemington South Junction – Vales Point Junction	50 km/h	45 km/h

6. Sector Civil Engineers to be advised at least 48 hours in advance.
7. Transfer of these locomotives from Woodville Junction to Flemington South Junction (for Enfield/Chullora) is to be done under block working conditions as per *NSY 512 Manual block working*.
Transfer of these locomotives from Flemington South Junction (from Enfield/Chullora) to Woodville Junction shall be blocked worked where specified in the *General Instruction Pages of the Train Operating Conditions Manual, Locomotive Operations*.

Superseded by TS TOC 2 v5.0

Section 14

Western Division pages

14. Western Division pages

Version August 2015

Maximum speed of locomotives and rolling stock

	Penrith – Lithgow DOWN MAIN	Lithgow – Valley Heights UP MAIN	Valley Heights – Penrith UP MAIN
Class of Line	1	1	1
Line Map Reference	A	B	C

LOCOMOTIVES

Class	Max Speed km/h		
90, TT, TT100 (139t)	N/A	N/A	N/A
31, L, LQ, LZ	100	100	100
92, 93, 6000, 6020, ACC, C, CEY, CF, GWA, GWU, LDP10, RL, SCT, TT100 (134t), WH, XRN	115	115	115
82, CLP, GL NR	115	115	115
14, 81, ALF, AN, BL, CLF, G, VL	115	115	115
42, 80, 80s, B, DL	115	115	115
18	90	90	90
442, 442s, 700, GM(12), S, X	115	115	115
22, 421, 422, 44, 45, 45s, 600, DC, EL, FL, GM(1), HL	115	115	115
43, 44s, 930	115	115	115
423	80	80	80
D, K, T	100	100	100
47, 48, 48200, 48s, 49, 830, 900, GPU, MM, PL	100	100	100
73 (c)	70	70	70
46, 86 Electric	100(b)	100(b)	100(b)
Multiple Locomotive working	4	5	4

FREIGHT

Class A	115	115	115
Class B	100	100	100
Class C	80	80	80
Class D	65	65	65
Class E	80	80	80
Class F	65	65	65
Class G	N/A	N/A	N/A

PASSENGER

XPT	160	160	160
XPLOER	145	145	145
DIESEL RAILCARS	115	115	115
LOCO HAULED	115	115	115

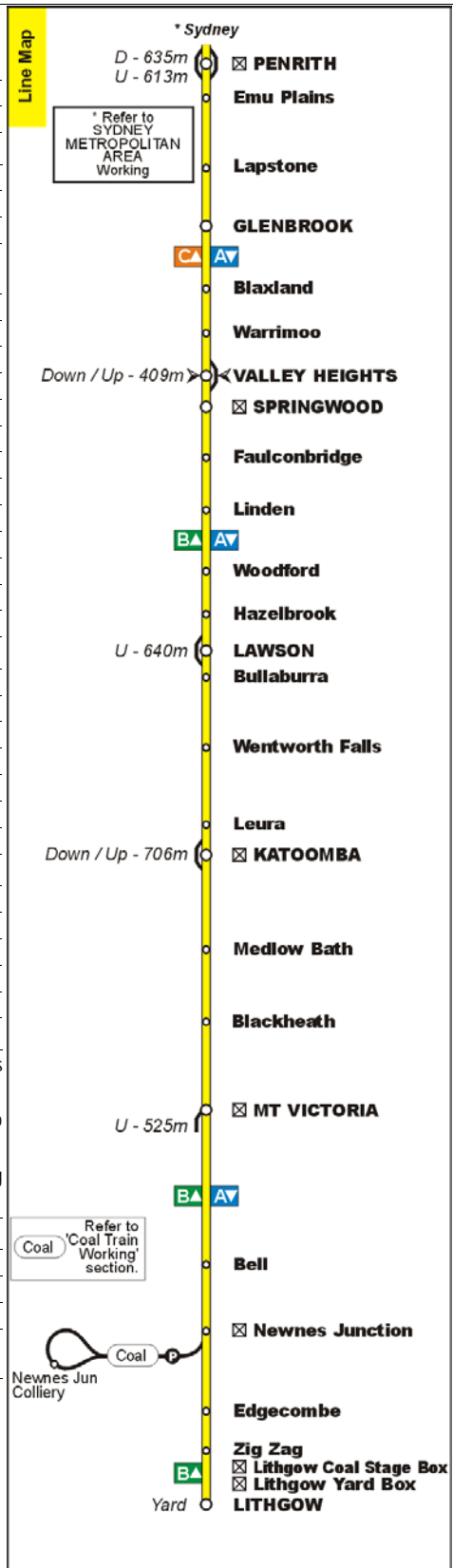
NOTES

- (a) See instructions contained in *General Instructions* for operation of trains and light locomotives over the section Katoomba to Valley Heights.
- (b) Applies to SINGLE and distributed locomotives (separated by at least 70 metres of train). No OHW restrictions apply. Both pantographs may be raised.
- (c) Only locomotives fitted with vigilance control system are approved to operate outside shunting yards.

SAFeworking SYSTEMS

Penrith – Edgecombe	#Rail Vehicle Detection
Edgecombe – Zig Zag	Rail Vehicle Detection (Bi-directional)
Zig Zag – Lithgow Coal Stage Signal Box	Rail Vehicle Detection
Lithgow Coal Stage Signal Box – Lithgow Yard Signal Box	Rail Vehicle Detection

#Valley Heights to Springwood – Two way running Down Main



DOWN loads

Version August 2015

SECTIONS	LOCOMOTIVE CLASS = L	LOAD - TONNES				TRAIN DATA			NOTES
		SINGLE	DOUBLE	TRIPLE	QUAD	VEHICLE CLASS	SECT RUN TIMES		
1 SYDNEY METROP - LITHGOW	L2	900	1800	2700	3600	A	A1		
2 SYDNEY METROP - LITHGOW	L3/L4	550	1100	1650	2200	A	A1		
3 SYDNEY METROP - LITHGOW	AC6	900	1800	2700	--	A	A1		
4 SYDNEY METROP - LITHGOW	AC6 + #L2	--	1950	--	--	A	A1	# NR Only	
5 SYDNEY METROP - LITHGOW	AC6 + 2 x #L2	--	--	2850	--	A	A1	# NR Only	
6 SYDNEY METROP - LITHGOW	2 x AC6 + #L2	--	--	3000	--	A	A1	# NR Only	
7 SYDNEY METROP - LITHGOW	AC6	--	1130	--	--	ABC	C1		
8 SYDNEY METROP - LITHGOW	L3/L4	450	900	1350	1800	ABCE	C1		
9 SYDNEY METROP - LITHGOW	L4 + L11	--	691	--	--	ABCE	C1	G + 442 Only	
10 SYDNEY METROP - LITHGOW	L4 + 2 x L11	--	--	932	--	ABCE	C1	G + 442 Only	
11 SYDNEY METROP - LITHGOW	3 x L11	--	--	723	--	ABCE	C1	G + 442 Only	
12 SYDNEY METROP - LITHGOW	2 x L11 + L12	--	--	723	--	ABCE	C1	G + 442 Only	
13 SYDNEY METROP - LITHGOW	4 X L11	--	--	--	964	ABCE	C1	G + 442 only	
14 SYDNEY METROP - LITHGOW	3 x L11 + L12	--	--	--	964	ABCE	C1	G + 442 only	
15 SYDNEY METROP - LITHGOW	L2	900	1800	2700	3600	ABCDE	C2		
16 SYDNEY METROP - LITHGOW	L3/L4	550	1100	1650	2200	ABCE	C2		
17 SYDNEY METROP - LITHGOW	AC6	900	1800	2700	--	ABCDE	C2		
18 SYDNEY METROP - LITHGOW	AC6 + #L2	--	1950	--	--	ABCDE	C2	# NR Only	
19 SYDNEY METROP - LITHGOW	AC6 + 2 x #L2	--	--	2850	--	ABCDE	C2	# NR Only	
20 SYDNEY METROP - LITHGOW	2 x AC6 + #L2	--	--	3000	--	ABCDE	C2	# NR Only	
21 SYDNEY METROP - LITHGOW	L13	281	562	843	1124	ABCDE	C4		
22 SYDNEY METROP - LITHGOW	L3/L4	750	1500	2250	3000	ABCDE	D1		
23 SYDNEY METROP - LITHGOW	L5	700	1400	2100	2800	ABCDE	D1		
24 SYDNEY METROP - LITHGOW	L6/L7	599	1198	1497	2396	ABCDE	D1		
25 SYDNEY METROP - LITHGOW	L8	573	1146	1719	2292	ABCDE	D1		
26 SYDNEY METROP - LITHGOW	L9/L10	450	900	1350	1800	ABCDE	D1		
27 SYDNEY METROP - LITHGOW	L11/L12	402	804	1206	1608	ABCDE	D1		
28 SYDNEY METROP - LITHGOW	AC6	1246	2492	3738	--	ABCDE	D1		

DOWN - sectional running times and full sectional loads

Version April 2015

	# SECTIONAL RUNNING TIMES						FULL SECTIONAL LOADS														GRADE		
	A\$	A1	C1	C2	C4	D1	LOCOMOTIVE CATEGORIES = L																
							Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13	14		
% CHULLORA JCT																							
SOUTH JCT		8	8	8	8	8	5	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100	
LIDCOMBE	3	3	3	3	3	3	2	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100	
AUBURN	3	3	3	3	3	3	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
CLYDE	3	3	3	3	3	3	2	3542	3096	2858	2702	2541	2245	2185	2128	1835	1768	1627	1518	1059		1:110	
GRANVILLE	1	1	2	2	2	2	1	3775	3300	3047	2882	2711	2395	2330	2271	1959	1887	1737	1621	1131		1:120	
PARRAMATTA	3	2	2	2	2	2	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		Level	
WESTMEAD	2	2	2	2	2	2	2	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820		1:80	
SEVEN HILLS	7	6	6	6	6	7	6	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731		1:70	
BLACKTOWN	3	2	2	2	3	3	2	2904	2536	2339	2211	2077	1833	1786	1736	1495	1442	1324	1236	862		1:85	
ST MARYS	12	12	10	10	11	12	10	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820		1:80	
PENRITH	7	7*	6*	7*	7*	8*	6*	2623	2289	2111	1995	1872	1651	1610	1563	1346	1299	1191	1112	776		1:75	
EMU PLAINS	3	2	2	2	2	2	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		Level	
GLENBROOK	12	12	10	12	19	14	11	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636		1:60	
VALLEY HEIGHTS	14	14	12	13	23	16	13	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636		1:60	
SPRINGWOOD	4	4	3	4	7	5	4	1246	900	750	750	700	610	599	573	490	476	431	402	281		1:33	
LAWSON	29	29	24	29	47	36	23	1246	900	750	750	700	610	599	573	490	476	431	402	281		1:33	
WENTWORTH FLS	12	12	9	12	18	14	11	1246	900	750	750	700	610	599	573	490	476	431	402	281		1:33	
KATOOMBA	12	11	10	12	20	15	12	1246	900	750	750	700	610	599	573	490	476	431	402	281		1:33	
MT VICTORIA	22	20	17	18	19	19	16	2357	2055	1894	1789	1678	1479	1444	1399	1204	1163	1065	994	693		1:66	
NEWNES JCT	18	16	14	15	19	17	15	2623	2289	2111	1995	1872	1651	1610	1563	1346	1299	1191	1112	776		1:75	
EDGECOMBE	5	4	4	4	4	4	4	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
ZIG ZAG	9	8	5	6	6	6	5	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
LITHGOW CS BOX	6	5	5	5	5	5	4	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
LITHGOW	3	3	2	2	2	2	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	

For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' Sydney Metropolitan Area - freight and locomotive running times (page 60).

* Additional one minute to be added when traversing the Down Main between Blacktown and St. Marys.

\$ This schedule is for 1500 m trains.

% Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant operating information.

UP loads

Version 10.0 December 2012

SECTIONS	LOCOMOTIVE CLASS = L	LOAD - TONNES				TRAIN DATA			NOTES
		SINGLE	DOUBLE	TRIPLE	QUAD	VEHICLE CLASS	SECT RUN TIMES		
1 LITHGOW - SYDNEY METROP	L2	850	1700	2550	3400	A	A1		
2 LITHGOW - SYDNEY METROP	L3/L4	550	1100	1650	2200	A	A1		
3 LITHGOW - SYDNEY METROP	AC6	850	1700	2550	--	A	A1		
4 LITHGOW - SYDNEY METROP	L2	1300	2600	3900	5200	A	A2		
5 LITHGOW - SYDNEY METROP	L3/L4	1000	2000	3000	4000	A	A2		
6 LITHGOW - SYDNEY METROP	AC6	1500	3000	4600	--	A	A2		
7 LITHGOW - SYDNEY METROP	AC6 + #L2	--	2750	--	--	A	A2	# NR Only	
8 LITHGOW - SYDNEY METROP	AC6 + 2 x #L2	--	--	4050	--	A	A2	# NR Only	
9 LITHGOW - SYDNEY METROP	2 x AC6 + #L2	--	--	4200	--	A	A2	# NR Only	
10 LITHGOW - SYDNEY METROP	L2	1300	2600	3900	5200	ABCE	C1		
11 LITHGOW - SYDNEY METROP	L3/L4	1000	2000	3000	4000	ABCE	C1		
12 LITHGOW - SYDNEY METROP	AC6	1500	3000	4600	--	ABCE	C1		
13 LITHGOW - SYDNEY METROP	AC6 + #L2	--	2750	--	--	ABCE	C2	# NR Only	
14 LITHGOW - SYDNEY METROP	AC6 + 2 x #L2	--	--	4050	--	ABCE	C2	# NR Only	
15 LITHGOW - SYDNEY METROP	2 x AC6 + #L2	--	--	4200	--	ABCE	C2	# NR Only	
16 LITHGOW - SYDNEY METROP	L3/L4	1400	2800	--	--	ABCE	C2	*	
17 LITHGOW - SYDNEY METROP	L4 + L13	--	1800	--	--	ABCE	C2	*	
18 LITHGOW - SYDNEY METROP	L3/L4	1131	2262	3393	4524	ABCE	C2		
19 LITHGOW - SYDNEY METROP	L5	1056	2112	3168	4224	ABCE	C2		
20 LITHGOW - SYDNEY METROP	L6	926	1852	2778	3704	ABCE	C2		
21 LITHGOW - SYDNEY METROP	L7	909	1818	2727	3636	ABCE	C2		
22 LITHGOW - SYDNEY METROP	L8	875	1750	2625	3500	ABCE	C2		
23 LITHGOW - SYDNEY METROP	L9	750	1500	2250	3000	ABCE	C2		
24 LITHGOW - SYDNEY METROP	L10	725	1450	2175	2900	ABCE	C2		
25 LITHGOW - SYDNEY METROP	L11	640	1280	1920	2560	ABCE	C2		
26 LITHGOW - SYDNEY METROP	L12	615	1230	1845	2460	ABCE	C2		
27 LITHGOW - SYDNEY METROP	L13	410	820	1230	1640	ABCE	C3		
28 LITHGOW - SYDNEY METROP	L3/L4	1131	2262	3393	4524	ABCDE	D1		

* This train shall be given a clear run from Bowenfels to Zig Zag. The train shall not stop at Lithgow.

For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' *Sydney Metropolitan Area - freight and locomotive running times.*

UP – sectional running times and full sectional loads

Version April 2015

	# SECTIONAL RUNNING TIMES						FULL SECTIONAL LOADS														GRADE		
							LOCOMOTIVE CATEGORIES = L																
	A1	A2	C1	C2	C3	D1	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13		14	
LITHGOW	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	
LITHGOW CS BOX	2	2	2	2	2	2	2	4407	3855	3562	3369	3171	2803	2726	2660	2295	2210	2036	1900	1326		1:150	
ZIG ZAG	5	6	6	7	10	7	4	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410		1:40	
EDGECOMBE	7	10	10	12	14	12	6	3039	2654	2449	2315	2175	1920	1870	1818	1567	1511	1388	1295	904		1:90	
NEWNES JCT	3	4	4	5	5	5	3	3039	2654	2449	2315	2175	1920	1870	1818	1567	1511	1388	1295	904		1:90	
MT VICTORIA	16	17	17	18	21	17	14	3039	2654	2449	2315	2175	1920	1870	1818	1567	1511	1388	1295	904		1:90	
KATOOMBA	17	18	18	19	21	20	17	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820		1:80	
WENTWORTH FALLS	16	16	16	16	16	16	8	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
LAWSON	14	14	14	14	14	14	7	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
SPRINGWOOD	27	27	27	27	27	27	17	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
VALLEY HEIGHTS	4	4	4	4	4	4	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
GLENBROOK	11	11	11	11	11	15	10	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
EMU PLAINS	12	12	12	12	12	10	9	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		Level	
PENRITH	3	3	3	3	3	4	2	5057	4426	4090	3869	3645	3223	3132	3060	2641	2542	2344	2188	1527		1:186	
ST MARYS	7	8	8	10	10	8	6	2357	2055	1894	1789	1678	1479	1444	1399	1204	1163	1065	994	693		1:66	
BLACKTOWN	9*	10*	11*	12*	12*	13*	10*	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820		1:80	
SEVEN HILLS	3	3	3	3	3	2	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
WESTMEAD	6	6	6	6	6&	7	4	3195	2791	2576	2435	2289	2021	1968	1915	1650	1591	1462	1365	952		1:95	
PARRAMATTA	2	2	2	2	3	3	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
GRANVILLE	3	3	3	3	3	2	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
CLYDE	1	1	1	1	1	2	1	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600		DG	
AUBURN	3	3	3	3	3	3	2	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100	
LIDCOMBE	3	3	3	3	3	3	2	3775	3300	3047	2882	2711	2395	2330	2271	1959	1887	1737	1621	1131		1:120	
SOUTH JCT	3	3	3	3	3	3	2	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100	
% CHULLORA JCT	8	8	8	8	8	8	5	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984		1:100	

For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' Sydney Metropolitan Area - freight and locomotive running times (page 60).

* Additional one minute to be added when traversing the Up Main between St. Marys and Blacktown.

& Additional one minute to be added when traversing the Up Main between Seven Hills and Westmead.

% Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant operating information.

Assisting Lithgow to Zig Zag

December 2013

The assist locomotive can be marshalled either on the front or on the rear of the train depending upon operational requirements and vehicle gross masses in the trailing 1/3 of the train mass as outlined in General Instruction Pages, Section 2 Locomotive Operations, Assisting (banking) locomotives.

When trains are **assisted in the lead** from Lithgow, the assist locomotives are to remain on the train until it arrives at Mt. Victoria. This is to avoid the situation of removing the assist locomotives from the train at Zig Zag whilst a portion of the train is still on the rising 1 in 40 grade.

When trains are **assisted in the rear** from Lithgow, bank locomotive traction motor currents shall not exceed 250 amps on diesel locomotives, until all the bank locomotives are on the Main line and completely clear of the crossovers in Lithgow yard.

Bank Locomotive working between Lithgow Coal Stage and Zig Zag is to be carried out as outlined in Sydney Trains Network Local Appendices *NLA 218 Lithgow*.

Location of speed signs

Version April 2015

KILOM- ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
55.086	PENRITH					
55.500	..	..	..	75	75	80
56.794	..	..	..	60	75	80
57.350	100	100	100	..	..	..
57.439	EMU PLAINS					
58.882	..	..	..	60	85	85
58.883	75	75	80	..	..	..
59.539	70	70	75	60	75	80
60.785	70	75	80	..	..	..
60.965	..	..	..	60	70	75
61.703	..	..	..	40	70	75
61.988	..	..	..	40	60	60
62.046	70	70	75	..	..	..
63.617	LAPSTONE					
65.105	65	65	65	70	70	75
65.563	65	70	75	..	..	..
65.793	..	..	..	65	65	65
66.800	65	65	70	..	..	..
66.926	..	..	..	65	70	75
67.080	GLENBROOK					
67.147	70	70	75	65	65	70
69.144	..	..	..	50	70	75
71.427	70	80	85	..	..	..
71.484	BLAXLAND					
71.484	..	..	..	70	70	75
72.744	65	65	70	..	..	..
72.780	..	..	..	70	80	85
73.085	65	80	85	65	65	70
74.035	65	65	70	65	80	85
74.296	WARRIMOO					
75.313	..	..	..	65	65	70
76.259	65	70	75	..	..	..
77.040	Up Sign on Down West Main			X15	..	X25
77.278	60	60	65	..	..	..
77.410	VALLEY HEIGHTS					
77.563	..	..	..	70	70	75
79.294	Up Sign on Down West Main			60	60	65
79.419	50	50	55	..	..	..
79.460	..	..	..	X25	..	X25
79.566	..	..	..	65	65	70
79.669	SPRINGWOOD					
79.776	..	..	..	60	60	65
80.263	60	65	65	..	..	..
80.449	..	..	..	65	65	70
81.657	60	60	65	..	..	..
81.722	..	..	..	65	70	75
82.546	55	55	60	60	60	65
82.916	60	60	65	55	55	60
82.962	FAULCONBRIDGE					
83.195	65	65	70	..	..	..
84.617	..	..	..	60	65	70
84.761	..	..	..	60	60	65
86.073	55	60	65	60	65	70
86.805	LINDEN					
87.810	60	60	65	..	..	..
88.752	..	..	..	60	60	65
89.950	55	55	55	..	..	..
90.366	WOODFORD					
90.579	60	65	70	..	..	..
90.629	..	..	..	55	55	60
90.836	60	70	75	..	..	..
90.910	..	..	..	60	65	70
92.099	60	60	65	60	70	75
92.733	..	..	..	60	60	65
93.411	55	55	60	..	..	..
93.473	HAZELBROOK					
93.671	60	60	65	..	..	..
94.256	..	..	..	60	65	70
95.177	60	70	75	60	60	65
96.033	LAWSON					
96.749	60	60	65	60	70	75
97.685	BULLABURRA					
97.760	..	..	..	60	60	65
98.107	..	..	..	40	60	65

KILOM- ETRAGE	DOWN			UP		
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
99.726	75	75	80	60	60	65
102.251	55	55	60	60	75	75
102.614	WENTWORTH FALLS					
102.858	..	..	..	35	55	60
102.909	60	75	80	..	..	..
104.735	60	60	65	60	75	80
107.299	55	55	60	60	60	65
107.592	LEURA					
107.651	..	..	..	55	55	60
107.739	55	60	65	..	..	..
109.211	..	..	..	55	60	65
109.402	50	50	55	..	..	..
109.943	KATOOMBA					
110.064	..	..	..	45	45	50
110.132	60	60	65	..	..	..
113.607	70	70	75	60	60	65
114.116	80	85	100	70	70	75
115.727	..	..	..	80	100	115
115.803	MEDLOW BATH					
116.200	65	65	70	..	..	..
116.219	..	..	..	80	80	80
116.853	55	55	60	65	65	75
117.243	75	75	80	55	55	60
119.467	60	60	65	75	75	80
120.724	BLACKHEATH					
121.600	65	65	70	..	..	..
121.655	..	..	..	60	60	65
124.455	40	65	75	..	..	..
124.519	..	..	..	65	65	70
125.050	65	65	75	..	..	..
126.595	..	..	..	70	70	75
126.720	MT. VICTORIA					
126.860	60	60	65	..	..	..
127.135	65	65	70	..	..	..
127.580	..	..	..	40	40	40
128.023	..	..	..	65	65	70
128.091	85	85	90	..	..	..
129.233	85	95	95	85	85	90
131.958	80	80	85	95	100	105
132.635	..	..	..	60	60	65
132.829	75	75	80	..	..	..
137.126	BELL					
137.387	..	..	..	75	75	80
137.920	100	100	110	..	..	..
138.152	..	..	..	45	75	80
139.770	70	70	75	95	95	100
140.854	60	60	70	..	..	..
141.099	..	..	..	70	70	75
141.484	65	65	70	60	60	70
141.763	NEWNES JUNCTION					
143.549	..	..	..	65	65	70
143.554	70	80	85	..	..	..
145.240	X25	..	X35	..	..	..
145.240	Up Sign on Down West Main			X25	..	X35
145.394	65	65	70	Down Sign on Up West Main		
145.406	65	65	70	70	80	85
150.520	X25	..	X35	Down Sign on Up West Main		
150.587	Up Sign on Down West Main			65	65	70
150.700	..	..	..	X25	..	X35
150.937	ZIG ZAG					
150.998	..	..	..	65	65	70
151.150	45	45	50	..	..	..
152.268	60	70	70	45	45	50
153.144	..	..	..	50	75	80
154.175	LITHGOW COAL STAGE BOX					
155.224	LITHGOW YARD BOX					
154.305	70	75	75	..	..	..
155.479	..	..	..	50	90	90
155.781	LITHGOW					
END GENERAL/MEDIUM/HIGH SIGNS - START NORMAL/XPT SIGNS						
155.986	..	..	..	#60	..	%70
156.016	#70	..	%80	..	..	..
158.753	#80	..	%90	#70	..	%85

Down/Up Normal Signs
% Down/Up XPT signs

Station data

Version 10.0 December 2012

Station	Kilo – metrage	Signal Box Status	Hours of Signal Box	Facilities
Penrith	55.086	A	Always	P, WC
Emu Plains	57.439		Controlled from Penrith	P
Lapstone	63.617			P
Glenbrook	67.080			P
Blaxland	71.484			P
Warrimoo	74.296			P
Valley Heights	77.410	C	Controlled from Springwood	P
Springwood	79.669	A	Always	P
Falconbridge	82.962			P
Linden	86.805			P
Woodford	90.366			P
Hazelbrook	93.473			P
Lawson	96.033	C	Controlled from Springwood	P
Bullaburra	97.685			P
Wentworth Falls	102.614			P
Leura	107.592			P
Katoomba	109.943	A	Always	P
Medlow Bath	115.803			P
Blackheath	120.724			P
Mt. Victoria	126.720	A	Always	P
Bell	137.126			P
Newnes Junction	141.763	U	Attended as required for Clarence Colliery	P, S
Edgecombe	145.200	C	Controlled from Lithgow Coal Stage Signal Box	
Zig Zag	150.937	C	Controlled from Lithgow Coal Stage Signal Box	P, LP
Lithgow Coal Stage Signal Box	154.175	A	Always	
Lithgow Yard Signal Box	155.224	A	Always	
Lithgow	155.781			P, TT

Tonnage signals

Version 10.0 December 2012

Certain signals listed herein are treated as **Tonnage Signals**, that is to say, in order to avoid the risk of trains over a certain tonnage being brought to a stand at signals where it would be difficult for them to restart, these tonnage signals shall not be passed by trains conveying loads in excess of 75% of the prescribed load unless the Tonnage signal is in the clear position (or by telephone instructions in the case of failure).

The following signals are to be treated as a Tonnage signal, in accordance with Sydney Trains Network Rule *NSG 608 Passing signal at STOP*.

Kilometrage	Signal Number	Section located
77.500	SD 21 Valley Heights	Valley Heights – Springwood
77.574	SD 23 Valley Heights	Valley Heights – Springwood
93.331	58.1	Springwood – Lawson

Freight train braking requirements

Version 10.0 December 2012

■ Conditions for freight trains – Down direction

- (a) Ballast and work trains, with less than 80% of vehicles fitted with fixed exhaust chokes, operating from the Metropolitan area beyond Valley Heights and terminating before Lithgow then returning **LOADED** to the Metropolitan area are required to have a HP grade inspection carried out on the train.

■ Conditions for freight trains – Up direction

The following conditions apply to loaded freight trains operating between Katoomba and Valley Heights:

- (a) Braking requirements
 - (1) Unless at least 80% of the train mass is fitted with approved fixed exhaust chokes, freight trains are required to have a HP grade inspection.
 - (2) Grade control valves (where fitted) are to be set in the IP position at the inspection location or other approved location.
 - (3) Dynamic / Regenerative brake shall be used if available.
 - (4) Maximum length of train with single piped vehicles is **1100 metres**.
 - (5) A HP grade inspection does not apply to ECP braked trains.

Refer also to TS TOC.1 General Instruction Pages – Section 3 Train Operations.

Superseded by TS TOC 2 v5.0

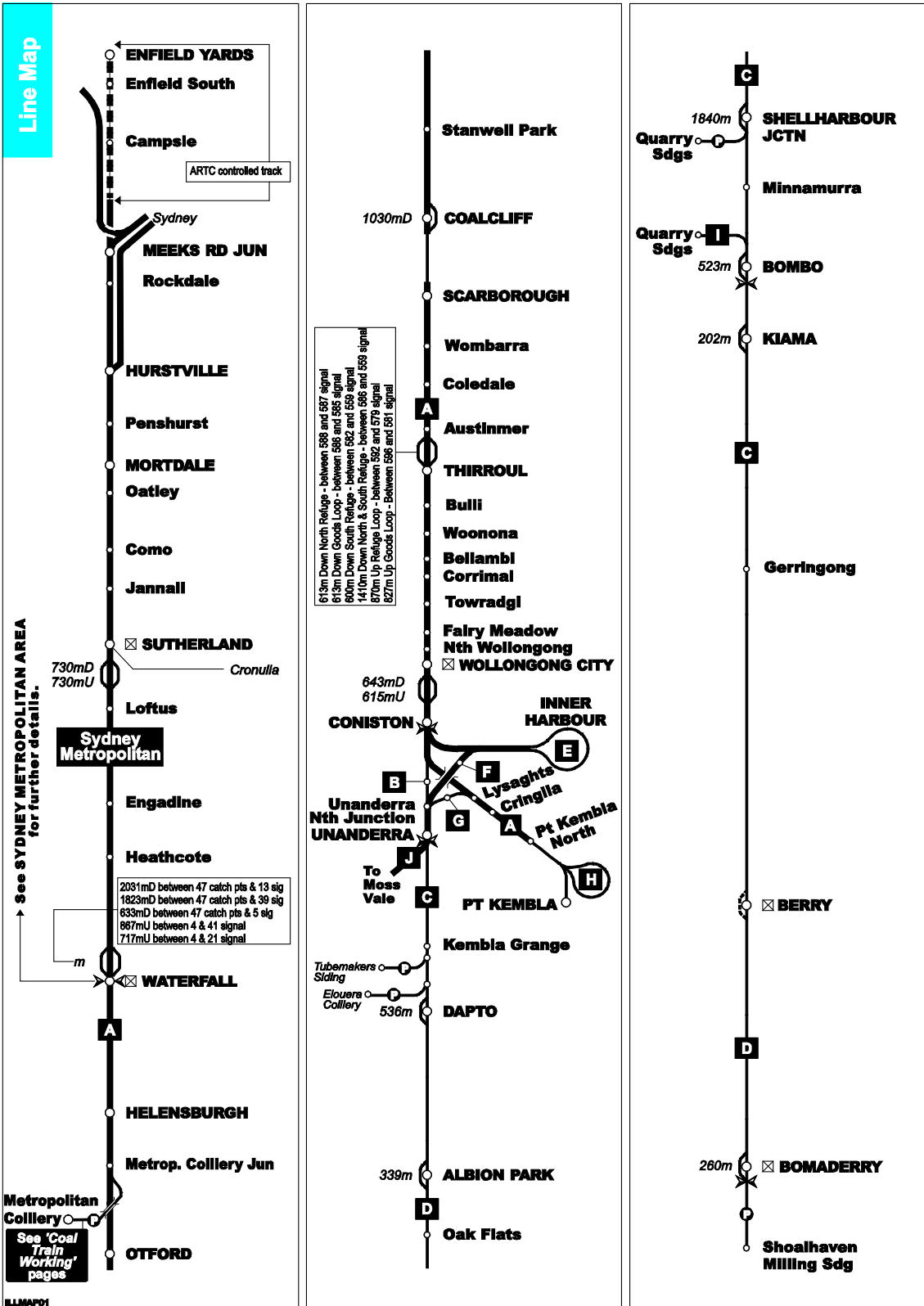
Section 15

Illawarra Division pages

15. Illawarra Division pages

April 2015

ILLAWARRA Meeks Rd Jctn - Pt Kembla - Bomaderry



April 2015

UNCONTROLLED WHEN PRINTED

Maximum speed of locomotives and rolling stock

Version August 2015

	Waterfall - Port Kembla	Coniston- Unanderra	Unanderra - Berry	Berry - Bomaderry	Coniston - Inner Harbour	South Frk Unanderra North Junction	Allans Creek - Unanderra North Junction	Port Kembla Balloon Loop	Quarry Siding Bombo 2	Unanderra - 91.0km Moss Vale line
Class of Line	1	1	1(f)	2(f)	1	1	1	1	2	1
Line Map Reference	A	B	C	D	E	F	G	H	I	J

LOCOMOTIVES

Class	Maximum Speed km/h									
90, TT, TT100 (139t)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
31, L, LQ, LZ	100	100	100	70(e)	25	35	60	25	15	50
92, 93, 6000, 6020, ACC, C, CEY, CF, GWA, GWU, LDP, RL, LDP10, SCT, TT100 (134t), WH, XRN	115	100	80	80(e)	25	35	60	25	15	50
82, CLP, GL, NR	115	100	80(a)	N/A	25	35	60	25	15	50
14, 81, ALF, AN, BL, CLF, G, VL	115	100	80	80	25	35	60	25	15	50
42, 80, 80s, B, DL	115	100	80	80	25	35	60	25	15	50
18	90	90	80	80	25	35	60	25	15	50
442, 442s, 700, GM(12), S, X	115	100	80	80	25	35	60	25	15	50
22, 421, 422, 44, 45, 45s, 600, DC, EL, FL, GM(1), HL	115	100	100	100	25	35	60	25	15	50
43, 44s, 930	115	100	100	100	25	35	60	25	15	50
423	80	80	80	80	25	35	60	25	15	50
D, K, T	100	100	100	100	25	35	60	25	15	50
47, 48, 48200, 48s, 49, 830, 900, GPU, MM, PL	100	100	100	100	25	35	60	25	15	50
73 (d)	70	70	70	70	25	35	60	25	15	50
46, 86 Electric	100(b)	100(b)	100(b,c)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Multiple Locomotive working	4	4	4	4	4	4	4	4	4	4

FREIGHT

Class A	115	115	100	100	25	35	60	25	15	50
Class B	100	100	80	80(e)	25	35	60	25	15	50
Class C	80	80	80	80	25	35	60	25	15	50
Class D	65	65	60	60	25	35	60	25	15	50
Class E	80	80	70	70	25	35	60	25	15	50
Class F	65	65	65	N/A	25	35	60	25	15	50
Class G	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PASSENGER

XPT	160	160	140	140	25	35	60	25	15	50
XPLORER	145	145	140	140	25	35	60	25	15	50
DIESEL RAILCARS	115	115	100	100	25	35	60	25	15	50
LOCO HAULED	115	115	100	100	25	35	60	25	15	50

NOTES

- (a) NR locomotives restricted to operate between **Unanderra** and **Dunmore**.
- (b) Applies to SINGLE and distributed locomotive (separated by at least 70 metres of train). No OHW restrictions apply. Both pantographs may be raised.
- (c) Unanderra to Kiama only.
- (d) Only locomotives fitted with vigilance control system are approved to operate outside shunting yards.
- (e) These locomotives and freight vehicles when loaded to axle loads greater than 22 tonnes are NOT permitted to use Berry Down Siding.
- (f) Class 2 line includes Omega Tunnels 121.000km to 125.000km.

SAFEWORKING SYSTEMS

WATERFALL TO BOMADERRY			
Waterfall to Coal Cliff	Rail Vehicle Detection (Bi directional)	Unanderra to Dapto	Rail Vehicle Detection
Coal Cliff to Scarborough	Rail Vehicle Detection	Dapto to Albion Park	Rail Vehicle Detection
Scarborough to Wollongong – WG466D, WG468U	Rail Vehicle Detection (Bi directional)	Albion Park to Dunmore	Rail Vehicle Detection
Austinmer to Bulli	Thirroul Yard area	Dunmore to Bombo	Rail Vehicle Detection
Wollongong (Unanderra North – WG1001, WG1003, WG1005, WG1007) to Unanderra	Rail Vehicle Detection (Bi directional)	Bombo to Kiama	Rail Vehicle Detection
		Kiama to Berry	Rail Vehicle Detection
		Berry to Bomaderry	Rail Vehicle Detection
INNER HARBOUR			
Wollongong (WG121D) to Inner Harbour Balloon Loop	Wollongong Yard Area	Unanderra North (WG1003, WG1005) to Inner Harbour Balloon Loop	Wollongong Yard Area
PORT KEMBLA BRANCH			
Wollongong to Port Kembla	Rail Vehicle Detection		

DOWN loads

	SECTIONS	LOCOMOTIVE CLASS = L	SINGLE	LOAD – TONNES			TRAIN DATA		NOTES
				DOUBLE	TRIPLE	QUAD	VEHICLE CLASS	SECT RUN TIMES	
1	SYDNEY METROP – UNANDERRA	L2	--	--	2700	--	ABC	A1	%
2	SYDNEY METROP – UNANDERRA	AC6	--	--	2700	--	ABC	A1	
3	SYDNEY METROP – BOMADERRY	L2/L3/L4	--	606	--	--	ABC	C1	
4	SYDNEY METROP – BOMADERRY	L4/L5 + L2	--	606	--	--	ABC	C1	
5	SYDNEY METROP – BOMBO	L13	--	--	500	--	ABC	C1	1
6	SYDNEY METROP – BOMADERRY	AC6	1500	3000	4600	--	ABC	C2	
7	SYDNEY METROP – PT KEMBLA (3)	AC6 + #L2	--	2750	--	--	ABC	C2	#NR only
8	SYDNEY METROP – PT KEMBLA (3)	AC6 + 2 X #L2	--	--	4050	--	ABC	C2	#NR only
9	SYDNEY METROP – PT KEMBLA (3)	2 X AC6 + #L2	--	--	4200	--	ABC	C2	#NR only
10	SYDNEY METROP – PT KEMBLA (3)	L2	1300	2600	--	--	ABCE	C2	2
11	SYDNEY METROP – BOMADERRY	L3/L4	1131	2262	3393	4524	ABCE	C2/C3	4
12	SYDNEY METROP – BOMADERRY	L5	1056	2112	3168	4224	ABCE	C2/C3	4
13	SYDNEY METROP – BOMADERRY	L6	926	1852	2778	3704	ABCE	C2/C3	4
14	SYDNEY METROP – BOMADERRY	L7	909	1818	2727	3636	ABCE	C2	
15	SYDNEY METROP – BOMADERRY	L8	875	1750	2625	3500	ABCE	C2	
16	SYDNEY METROP – BOMADERRY	L9	750	1500	2250	3000	ABCE	C2	
17	SYDNEY METROP – BOMADERRY	L10	805	1610	--	--	ABCE	C2	
18	SYDNEY METROP – BOMADERRY	L11	660	1320	1980	2640	ABCE	C2	
19	SYDNEY METROP – BOMADERRY	L12	615	1230	--	--	ABCE	C2	
20	PORT KEMBLA – BOMADERRY	L3/L4	1200	2400	3600	--	ABC	C4	2

Notes:

1. Empty ballast train.
 2. Includes Inner Harbour.
 3. Includes Unanderra.
 4. C3 Schedule Additional running time between Kiama – Berry – Bomaderry when conveying 100 tonne MGFH and NGXH vehicles. Only the following locomotive classes are permitted for the conveying of 100 tonne MGFH and NGXH vehicles: GWA, LDP, LDP10, SCT, TT, TT100, WH, 81, GL, CLF, CLP, 82, 31, L, LQ, LZ. A 50km/h speed restriction applies between 121.000 km and 125.000km (due to track restrictions).
- \$ Trains conveying D classification vehicles to run to C Schedule without loss of time.
- # For other Sydney Metropolitan area running times, refer to diagram in the ‘Sydney Metropolitan Division Pages’ *Sydney Metropolitan Area - freight and locomotive running times.*

DOWN – sectional running times and full sectional loads

Version April 2015

Superseded by TS TOC 2 v5.0

	# SECTIONAL RUNNING TIMES					FULL SECTIONAL LOADS														GRADE							
	%A1	C1	C2	C3	C4	LOCOMOTIVE CATEGORIES = L																					
						Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13		14						
@ MARRICKVILLE JCT	☞	☞	☞	☞		☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	
MEEKS RD JCT	3	3	3	3		3	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							DG	
WOLLI CREEK JCT	3	2	2	2		2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							DG	
HURSTVILLE	11	10	12	12		7	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636							1:60	
MORTDALE	3	3	3	3		2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							DG	
SUTHERLAND	10	8	13	13		7	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410							1:40	
WATERFALL	13	12	22	22		12	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410							1:40	
HELENSBURGH	10	10	10	10		9	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							DG	
METROP. COLL JCT	11	3	3	3		3	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							DG	
OTFORD	8	5	5	5		5	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984							1:100	
\$ COALCLIFF	23	8	9	9		8	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820							1:80	
SCARBOROUGH	11	5	5	5		4	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984							1:100	
THIROUL	9	8	8	8		8	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							DG	
CORRIMAL	6	6	6	6		6	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820							1:80	
WOLLONGONG	5	5	5	5		5	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820							1:80	
CONISTON	2	2	2	2		2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							Level	
UNANDERRA NORTH JCT	4	4	4	4		1	3775	3300	3047	2882	2711	2395	2330	2271	1959	1887	1737	1621	1131							1:120	
UNANDERRA	4	4*	4	4		3	3775	3300	3047	2882	2711	2395	2330	2271	1959	1887	1737	1621	1131							1:120	
WONGAWILLI JCT	To	--	--	--	--	--	3887	3398	3138	2968	2792	2467	2400	2340	2018	1944	1790	1670	1166							1:125	
DAPTO	Moss	6	7	7	8	6	3887	3398	3138	2968	2792	2467	2400	2340	2018	1944	1790	1670	1166							1:125	
ALBION PARK	Vale	7	7	7	7	8	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820							1:80	
SHELLHARBOUR JCT		4	5	5	5	5	1676	1458	1341	1265	1183	1040	1018	980	842	815	743	693	483							1:44	
DUNMORE		2	2	2	2	2	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							DG	
BOMBO		7	7	7	7	6	1846		1479	1396	1307	1149	1125	1085	933	902	823	768	536							1:50	
KIAMA		3	3	3	3	3a	3297		2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984							1:100	
GERRINGONG	--	--	--	--	--	9	2011		1613	1523	1427	1256	1228	1186	1020	986	901	841	587							1:55	
BERRY		22	24	26	24	10a	2326		1869	1766	1656	1459	1425	1380	1188	1147	1051	980	684							1:65	
BOMADERRY		12	13	18	13	10a	2623		2111	1995	1872	1651	1610	1563	1346	1299	1191	1112	776							1:75	
Coniston – Inner Harbour																											
CONISTON		☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	
INNER HARBOUR		5a	3775	3300	3047	2882	2711	2395	2330	2271	1959	1887	1737	1621	1131											1:120	
Coniston – Port Kembla																											
CONISTON		☞	☞			☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	
CRINGILA		5	5			4	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							Level	
PT KEMBLA NTH		3	3			2	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984							1:100	
PT KEMBLA YARD		4a	4a			3a	5283	4624	4274	4044	3809	3369	3274	3199	2761	2658	2452	2288	1600							Level	
Unanderra – 91.000km (Moss Vale Line)																											
UNANDERRA		☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	
89.200km		Refer to Coal Train Working Pages				3	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984							1:100	
91.000km		Section 18 pages (page 91) for running times.				3	1133	903	791	750	696	551	543	517	442	430	388	362	253							1:30	

- % A1 refers to Interstate Container trains conveying High Containers – refer to page 48.
- \$ Down trains starting from Down Refuge via 353 points to Scarborough are to use Coalcliff to Scarborough through running times i.e. no additional starting times required.
- * From Port Kembla Yard allow 18 minutes.
- # For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' *Sydney Metropolitan Area - freight and locomotive running times* (page 60).
- @ Marrickville Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant operating information.

UP loads

SECTIONS	LOCOMOTIVE CLASS = L	LOAD – TONNES				TRAIN DATA			NOTES
		SINGLE	DOUBLE	TRIPLE	QUAD	%VEHICLE CLASS	SECT RUN TIMES		
1 UNANDERRA – SYDNEY METROP	L2	--	--	2700	--	ABC	A1	%	
2 UNANDERRA – SYDNEY METROP	AC6	--	--	2700	--	ABC	A1	%	
3 BOMADERRY- SYDNEY METROP	L3/L4	750	1500	2250	--	ABC	C1		
4 BOMADERRY- SYDNEY METROP	L3/L4	1140	2280	3420	4560	ABCE	C2		
5 BOMADERRY- SYDNEY METROP	L6	1062	2124	3186	4248	ABCE	C2		
6 BOMADERRY- SYDNEY METROP	L7	1040	2080	3120	4160	ABCE	C2		
7 BOMADERRY- SYDNEY METROP	L8	1002	2004	3006	4008	ABCE	C2		
8 BOMADERRY- SYDNEY METROP	L9	860	1720	2580	3440	ABCE	C2		
9 BOMADERRY- SYDNEY METROP	L11	759	1518	2277	3036	ABCE	C2		
10 BOMADERRY- SYDNEY METROP	L12	708	1416	2124	2832	ABCE	C2		
11 DUNMORE – SYDNEY METROP	L2/L3/L4	1400	2800	--	--	ABCE	C2		
12 DUNMORE – SYDNEY METROP	L4/L5 + L2	--	2760	--	--	ABCE	C2		
13 DUNMORE – SYDNEY METROP	L5	--	2780	--	--	ABCE	C2	2	
14 PT KEMBLA –SYDNEY METROP (3)	L10	805	1610	--	--	ABCE	C2	1	
15 PT KEMBLA –SYDNEY METROP (3)	L2	2230	4460	6690	--	ABC	C4	1	
16 PT KEMBLA –SYDNEY METROP (3)	AC6	2623	5246	7869	--	ABC	C4	1	
17 PT KEMBLA –SYDNEY METROP (3)	AC6 + #L2	--	4200	--	--	ABC	C4	#NR only	
18 PT KEMBLA –SYDNEY METROP (3)	AC6 + 2 X #L2	--	--	6150	--	ABC	C4	#NR only	
19 PT KEMBLA –SYDNEY METROP (3)	2 X AC6 + #L2	--	--	6450	--	ABC	C4	#NR only	
20 PORT KEMBLA –SYDNEY METROP	L4	2000	4000	6000	--	ABC	C5	1	
21 PORT KEMBLA –SYDNEY METROP	L5	1850	3700	5550	--	ABC	C5	1	

Notes:

- 1 Includes Inner Harbour.
- 2 Tested and approved double unit load.
- 3 Includes Unanderra.
- % Trains conveying D classification vehicles to run to C Schedule without loss of time.
- # For other Sydney Metropolitan area running times, refer to diagram in the 'Sydney Metropolitan Division Pages' Sydney Metropolitan Area - freight and locomotive running times.

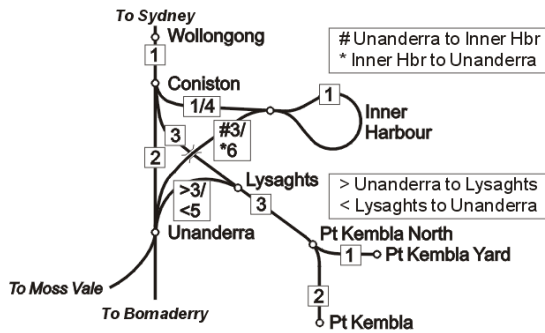
Wollongong local area – loads

WOLLONGONG - PORT KEMBLA - INNER HARBOUR - UNANDERRA -

Local area Full sectional Loads

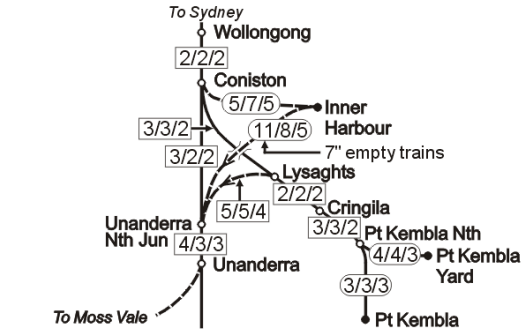
FULL LOAD TABLE	LOCOMOTIVE CATEGORY												
	①	AC6	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
1	3775	3300	3047	2882	2711	2395	2330	2271	1959	1887	1737	1621	1131
2	3542	3096	2858	2702	2541	2245	2185	2128	1835	1768	1627	1518	1059
3	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984
4	3039	2654	2449	2315	2175	1920	1870	1818	1567	1511	1388	1295	904
5	2011	1752	1613	1523	1427	1256	1228	1186	1020	986	901	841	587
6	1846	1607	1479	1396	1307	1149	1125	1085	933	902	823	768	536

Refer to table for loads. Where only one figure is shown e.g. ① this represents the Down load and Up load. Where two figures are shown the first figure represents the Down load and the second figure represents the Up load e.g. ③/⑤. This table does not give the authority for all classes of locomotives to run on all sections of line. Refer to MAXIMUM SPEED OF LOCOMOTIVES AND ROLLING STOCK table for authority to run on each section



August 2012

Local area Sectional Running Times



KEY

- Down full sectional load running times
- Up full sectional load running times
- Loco running times
- Arrow indicates Down direction (for this map only)
- Running times indicated between dots
- Passing times. (Square box)
- Arrival/departure times. (Rounded box)
- Starting and terminating running time included. i.e. additional time for starting and terminating included. Black dot indicates location.
- Non electrified lines

Location of speed signs

Waterfall to Thirroul

LOCATION	KILO-METRAGE	DOWN MAIN						UP MAIN					
		▼ DOWN SIGNS▼			▲ UP SIGNS▲			▲ UP SIGNS▲			▼ DOWN SIGNS▼		
		GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
WATERFALL	38.741												
	38.800	..	..	..	..	..	..	X50	60B Points Up Refuge				
	38.835	..	..	..	..	..	..	57B Points Up Refuge		X50	..	..	..
	38.910	..	..	..	..	..	..	X50	57B points Up Refuge				
	39.174	..	..	..	..	..	..	50	55	60	60	75	80
	39.234	60	75	80	55	55	60	..	..	..	..	..	..
	40.605	60	60	65	60	75	80	60	75	80	60	60	65
	40.930	55	55	55	60	60	65	..	..	..	55	55	55
	40.980	..	..	..	..	..	..	60	60	65	..	..	..
	41.602	..	..	..	..	..	..	55	55	55	..	..	..
	41.656	60	60	65	55	55	55	..	..	..	60	60	65
	45.718	50	50	55	60	60	65	60	60	65	50	50	55
HELENSBURGH	46.384												
	46.549	..	..	..	..	..	..	50	50	55	60	60	60
	46.571	60	60	60	50	50	55	..	..	..	..	..	..
Metropolitan Coll. Jct	48.947												
	49.977	55	55	60	60	60	60	60	60	60	55	55	60
	50.578	60	80	85	55	55	60	55	55	60	60	80	85
	51.832	..	..	..	60	80	85	60	80	85	50	50	55
	51.886	50	50	55	..	..	..	..	..	..	..	..	..
	52.520	..	..	..	50	50	55	..	..	..	..	..	..
OTFORD	52.639												
	52.932	60	60	65	55	55	55	..	..	..	..	..	..
	52.967	..	..	..	..	..	..	50	50	55	60	60	65
	54.197	60	70	70	..	..	..	..	..	..	60	70	70
	54.199	..	..	..	60	60	65	60	60	65	..	..	..
	55.426	60	60	60	60	70	70	60	70	70	60	60	60
STANWELL PARK	55.950												
Stanwell Park Viaduct	56.725	40	60	60	60	60	60	60	60	60	40	60	60
Stanwell Park Viaduct	56.877	60	60	60	40	60	60	40	60	60	60	60	60
	58.508	60	70	75	60	60	60	60	60	60	60	75	80
	58.870	50	70	75	..	..	..	..	..	..	50	75	80
COALCLIFF	59.273												
	59.829	X40	358 Points		..	..	..	..	..	..	..	..	..
	59.870	..	..	..	60	70	75	..	..	..	..	..	..
	59.919	..	..	..	..	..	..	60	75	80	..	..	..
	59.948	^50	^50	^50	^Single line sign			..	..	..	50	50	50
	60.310	^Single line sign			^50	^50	^50	50	50	50	..	..	..
	60.338	50	80	80	..	..	..	^Single line sign			^50	^80	^80
	61.337	^Single line sign			^50	^80	^80	50	80	80	..	..	..
	61.360	50	50	50	..	..	..	^Single line sign			^50	^50	^50
	61.797	X50	351 Points		..	..	..	..	..	..	..	..	..
	61.868	..	..	..	50	50	50	..	..	..	..	..	..
	61.898	75	75	80	..	..	..	..	..	..	..	..	..
	61.898	..	..	..	X50	351 Points			..	..	..	..	..
	61.916	..	..	..	..	..	..	50	50	50	75	75	80
	62.340	..	..	..	50	70	70	65	70	70	..	..	..
SCARBOROUGH	62.529												
	63.805	65	65	70	..	..	..	..	..	..	65	65	70
	63.806	..	..	..	65	75	80	65	75	80	..	..	..
WOMBARRA	64.335												
	65.735	70	80	85	65	65	70	65	65	70	70	95	100
COLEDALE	66.233												
	67.109	70	70	75	..	..	..	..	..	..	70	70	75
	67.176	..	..	..	70	80	85	70	95	100	..	..	..
	67.496	100	115	115	70	70	75	70	70	75	100	115	115
	68.366	60	85	85	..	..	..	..	..	..	..	..	..

		DOWN MAIN						UP MAIN					
AUSTINMER	68.585												
	68.706	100	115	115	..	..	..	..	..	..	..	..	..
	68.985	..	..	..	100	115	115	..	..	..	..	..	..
	69.283	..	..	..	50	90	100	..	..	..	..	..	..
THIRROUL	70.237												

Thirroul to RailCorp Boundary (Unanderra – Moss Vale Line)

		DOWN MAIN						UP MAIN					
LOCATION	KILO-METRAGE	▼ DOWN SIGNS▼			▲ UP SIGNS▲			▲ UP SIGNS▲			▼ DOWN SIGNS▼		
		GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH
	70.359	70	70	75	..	..	..	..	..	..	70	70	75
	70.625	..	..	..	100	115	115	100	100	100	..	..	..
	70.982	80	80	80	70	70	75	60	70	75	80	80	80
	71.630	..	..	..	80	80	90	80	80	90	..	..	..
BULLI	72.151												
	72.421	80	80	80	80	80	80	80	80	80	80	80	80
	73.076	75	75	85	60	85	90	60	85	85	75	75	85
	73.610	85	100	100	75	75	85	75	75	85	95	100	100
	73.899	..	..	..	..	..	..	90	90	90	..	..	..
WOONONA	73.993												
	75.472	85	90	95	85	100	100	..	..	..	..	..	..
BELLAMBI	75.547												
	75.630	90	95	95	85	90	95	..	..	..	..	..	..
	76.859	..	..	..	..	..	..	..	..	..	90	100	100
CORRIMAL	76.989												
	77.378	..	..	..	90	100	100	95	100	100	..	..	..
TOWRADGI	78.021												
	78.184	90	90	90	..	..	..	..	..	..	90	90	90
	78.452	..	..	..	90	95	95	95	95	95	..	..	..
	78.720	..	..	..	80	95	95	80	95	95	..	..	..
FAIRYMEADOW	79.358												
NORTH WOLLONGONG	81.320												
	81.438	75	90	90	..	..	..	..	..	..	75	90	90
	82.490	60	90	90	..	..	..	..	..	..	60	90	90
	82.782	..	..	..	..	..	..	95	95	95	..	..	..
	82.784	..	..	..	95	95	95	..	..	..	..	..	..
WOLLONGONG CITY	82.919												
	83.446	..	..	..	70	90	90	70	90	90	..	..	..
	83.801	..	..	..	60	90	90	60	90	90	60	65	70
CONISTON	84.097												
	84.190	X25	206 Points										
	84.190										X25	205 Points	
	84.200	60	65	65				..	..	..	..	..	..
	84.298	X25	204 Points					..	..	..	..	..	..
	84.368	..	..	..	..	..	..	60	65	65	..	..	..
	84.382	..	..	..	..	..	..	X25	204 Points			..	..
	84.382	..	..	..	..	..	..	..	..	..	X25	203 Points	
	84.431	..	..	..	..	..	..	X25	203 Points			..	..
	84.488	50	65	65	..	..	..	..	..	..	..	..	..
	85.199	..	..	..	..	..	..	65	65	65	..	..	..
	85.199	X50	1101 Points					..	..	..	..	..	..
	85.333	..	..	..	..	..	..	..	..	..	X50	1103 Points	
	85.335	..	..	..	..	..	..	X50	1101 Points			..	..
	85.435	..	..	..	X50	1103 Points			..	..	..	..	..
	85.478	100	100	100	..	..	..	..	..	..	100	100	100
Unanderra North Jct	86.541												
	87.727	..	..	..	100	100	100	100	100	100	..	..	..
	87.727	..	..	..	..	..	..	..	..	..	X50	1105 Points	
	87.850	X50	1106 Points			..	..	..	..	..	..	..	..
	87.850	..	..	..	X50	1105 Points			..	..	..	..	..

		DOWN MAIN						UP MAIN					
UNANDERRA	88.273	..	...	..	..	..	..	..	..	..	..	..	..
	88.390	..	..	..	80	85	90	..	..	..	..	..	..
	88.403	..	..	..	..	..	..	80	..	90	..	..	..
	88.845	..	..	..	..	..	..	..	..	..	60	..	60
	88.853	60	..	60	..	..	..	..	..	..	..	..	..
	90.920	..	..	..	..	..	..	..	..	..	40	..	40
	90.928	40	..	40	..	..	..	..	..	..	..	..	..
	90.997	..	..	..	50	..	60	50	..	60	..	..	..
RAILCORP BOUNDARY	91.080												

Unanderra to Bomaderry

KILO METRAGE	DOWN			UP			KILO METRAGE	DOWN			UP			
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH		GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	
87.924	X50	1106 Points			114.758	75	75	80
87.924	50	50	50				114.806	..	..	..	75	90	95
88.273	UNANDERRA						116.166	50	50	60	..	..	..
88.661	100	100	100	..	..	..	116.209	..	..	..	75	75	80
88.743	X50	1115 Points			116.816	60	80	85	50	50	60
88.870	X50	1115 Points			117.160	40	80	85	60	80	80
89.174	..	..	..	80	85	90	117.292	60	80	85	40	80	80
91.586	KEMBLA GRANGE						117.551	BOMBO						
93.151	85	100	100	..	..	..	117.940	..	..	..	60	80	80
93.618	100	100	100	..	..	..	117.985	60	60	60	..	..	..
94.500	..	..	..	100	100	100	118.946	25	25	25	..	..	..
95.047	DAPTO						118.955	..	..	..	60	60	60
							119.160	KIAMA						
95.300	..	..	..	90	100	100							
95.862	80	80	80	..	..	..	119.430	..	..	..	25	..	25
96.813	..	..	..	100	100	100	119.473	100	..	100	..	..	..
96.873	100	115	140	..	..	..	123.210	45	..	45	75	..	95
97.847	..	..	..	80	80	80	123.800	..	..	..	45	..	45
101.804	80	100	100	..	..	..	123.814	60	..	60	..	..	..
102.203	90	100	100	..	..	..	124.360	100	..	100	60	..	60
102.857	90	90	100	..	..	..	125.696	90	..	90	..	..	..
102.932	..	..	..	100	115	140	126.434	..	..	..	100	..	100
103.341	ALBION PARK						126.457	100	..	125				
							127.221	..	..	..	90	..	90
103.746	100	100	100	..	..	..	128.560	GERRINGONG					
103.755	..	..	..	40	40	40	129.171	100	..	100	100	..	125
105.194	100	100	110	..	..	..	131.620	100	..	140	..	..	..
105.522	OAK FLATS						131.997	..	..	..	100	..	100
							134.877	100	..	100	100	..	140	
106.085	..	..	..	100	100	100	139.063	80	..	80	100	..	100
107.930	..	..	..	100	100	110	139.473	..	..	..	80	..	80
107.940	80	80	85	..	..	..	140.629	..	..	..	90	..	90
108.750	X60	51A Points			..	..	..	140.760	@40				
108.790	..	..	..	80	80	85	140.844	BERRY					
108.832	100	100	100	..	..	..	141.200	..	..	..	@50	..	..
108.887	SHELLHARBOUR JUNCTION						141.250	90	..	95	..	..	..
108.890	60	60	60	..	..	On Loop	141.720	..	..	..	@50	..	80
108.890	On Loop			X60	51B Points			142.272	100	..	100	90	..	95
110.657	DUNMORE (NOT IN SERVICE)						145.886	90	..	90	100	..	100	
110.860	On Loop			60	60	60	146.436	100	..	100	90	..	90	
111.668	80	80	80	..	..	..	150.540	100	..	140	..	..	..
112.078	..	..	..	100	100	100	151.000	..	..	..	100	..	100
112.270	75	75	80	..	..	..	152.290	80	..	80	..	..	..
112.776	75	90	95	..	..	..	153.169	50	..	50	100	..	140
113.040	..	..	..	75	75	75	153.348	BOMADERRY					
113.372	MINNAMURRA													

@ Level crossing sign NGE216

Coniston to Port Kembla

KILO METRAGE	DOWN			UP			KILO METRAGE	DOWN			UP				
	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH		GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH		
84.097	CONISTON						86.422	X45	195A Points			Down Sign Up Main			
84.190	X25	206 Points			86.543	Up Sign Down Main			X45	195B Points		

KILO	DOWN			UP			KILO	DOWN			UP		
84.190	X25	205 Points		Down Sign Up Main			87.238	..	..	..	55	75	75
84.200	60	65	65	On Main Line			87.650	CRINGILA					
84.298	X25	204 Points		..	..	..	88.280	55	60	60	..	..	..
84.382	..	..	..	X25	204 Points		88.583	..	..	..	45	65	65
84.382	X25	203 Points		Down Sign Up Main			88.667	..	..	..	X30	186 Points	
85.045	45	75	75	55	65	65	88.771	PORT KEMBLA NORTH					
86.267	LYSAGHTS						89.697	..	..	..	45	60	60
86.385	55	80	80	..	..	..	89.950	25	25	25	..	..	..
86.386	..	..	..	X45	197 Points		90.015	..	..	..	25	25	25
							90.239	PORT KEMBLA					

Unanderra North Junction to Inner Harbour (via Flyover)

DOWN SOUTH FORK						UP SOUTH FORK							
KILO-	▼ DOWN SIGNS▼			▲ UP SIGNS▲			▲ UP SIGNS▲			▼ DOWN SIGNS▼			
METRAGE	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	
85.133	100	..	..	40	..	..	40	..	..	100	..	..
85.318				X25	1102 Points								

Unanderra North Junction to Lysaghts

KILO	DOWN			UP			
METRAGE	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	
#85.318	# Illawarra Line Km			X25	1102 Points		
+84.843	X25	1102 Points		+ Triangle Loop Line			
+84.840	50	..	..	+ Triangle Loop Line		
+84.860	+ Triangle Loop Line			30	..	..
+86.282	+ Triangle Loop Line			50	..	..
+86.321	X45	197 Points		+ Triangle Loop Line			
86.386	Port Kembla Line			X45	197 Points		

+ Kilometrage measured back from Port Kembla Line

Coniston to Inner Harbour

KILO	DOWN			UP			
METRAGE	GENERAL	MEDIUM	HIGH	GENERAL	MEDIUM	HIGH	
84.097	CONISTON						
84.190	#X25	206 Points		# On Main Line			
84.190	X25	205 Points		Down Sign Up Main			
84.296	Up Sign Up Fork			X25	206 Points		
84.296	Up Sign Down Fork			X25	205 Points		

Station data

Station	Kilo – metrage	Signal Box Status	Hours of Signal Box	Facilities
Waterfall	38.627	A	Always	P,WC
Helensburgh	46.384	C	Controlled from Wollongong Signal Box	P,LP
Metropolitan Coll Jct	48.947	C	Controlled from Wollongong Signal Box	L
Metropolitan Colliery	*50.221	C	* On Branch	PS
Otford	52.639	C	Controlled from Wollongong Signal Box	P,LP
Stanwell Park	55.950			P
Coalcliff	59.273	C	Controlled from Wollongong Signal Box	P,LP
Scarborough	62.529	C	Controlled from Wollongong Signal Box	P,LP
Wombarra	64.335			P
Coledale	66.233			P
Austinmer	68.585	C	Controlled from Wollongong Signal Box	P
Thirroul	70.237	C	Controlled from Wollongong Signal Box	P,LP
Bulli	72.151	C	Controlled from Wollongong Signal Box	P
Woonona	73.993			P
Bellambi	75.547			P
Corrimal	76.989	C	Controlled from Wollongong Signal Box	P
Towradgi	78.021			P
Fairy Meadow	79.358			P
North Wollongong	81.320			P
Wollongong	82.919	C	Controlled from Wollongong Signal Box	P
Wollongong Sig Box	83.250	A	Always	
Coniston	84.097	C	Controlled from Wollongong Signal Box	P,LP
Unanderra Nth Jct	86.541	C	Controlled from Wollongong Signal Box	L
Unanderra	88.273	C	Controlled from Wollongong Signal Box	P,LP
Kembla Grange	91.586			P
Tubemakers Siding				PS
Dapto	95.047	C	Controlled from Wollongong Signal Box	P,LP
Albion Park	103.341	C	Controlled from Wollongong Signal Box	P
Oak Flats	105.522			P
Shellharbour Jct	108.887			P
Dunmore (not in service)	110.657	C	Controlled from Wollongong Signal Box	P
Quarry Siding	*112.060		* On Branch	PS
Minnamurra	113.372			P
Bombo Quarry Siding	*117.212		* On Branch	PS
Bombo	117.551	C	Controlled from Wollongong Signal Box	P
Kiama	119.160	P	Controlled from Wollongong Signal Box	P,TT
Gerringong	128.560			P
Berry	140.844	P	Monday to Friday: 0430 – 2000 Saturday, Sunday, and Public Holidays: 0510 – 2105	P
Bomaderry	153.348	A	Always	P,TT
Mill Siding	*155.913		* On Branch	PS
Port Kembla Branch				
Allans Creek	86.267	C	Controlled from Wollongong Signal Box	L
Cringila	87.650	C	Controlled from Wollongong Signal Box	P
Port Kembla North	88.771	C	Controlled from Wollongong Signal Box	P
Port Kembla	90.239	C	Controlled from Wollongong Signal Box	P
Inner Harbour Branch				
Inner Harbour	84.488	C	Controlled from Wollongong Signal Box	G, L

Emergency working or diversion of container trains Tempe – Unanderra (en-route to and from Moss Vale)

The operation of container trains, on the UP and DOWN tracks between Unanderra and Tempe, (en-route to and from Moss Vale), shall comply with the following special working conditions.

These conditions shall apply to all container trains because of the potential for any vehicle in the consist to be loaded to the maximum allowable height above rail of 4050 mm, as published in the *TOC manual General Instructions, Section 5 Loading Restrictions* covering vehicles subject to Note R10.

As the UP and DOWN tracks between Tempe and Unanderra are presently only authorised for container traffic operating to a maximum height of 3916 mm above rail, all trains conveying container traffic shall operate as an out of gauge train. Note that this gauge infringement is in height only and does not affect passing traffic.

Therefore, the following operating conditions shall apply:

- A maximum speed limit of **15 km/h** is imposed on all tunnels between Unanderra and Tempe.
- The speed limit shall apply for the full length of the train (excluding locomotives).
- Train to run to the fastest schedule applicable to the class of rolling stock (for example Schedule A1 for A class rolling stock) shown in *DOWN – sectional running times and full sectional loads* (page 39) *UP – sectional running times and full sectional loads* (page 41).

Train Control is to ensure that crews operating the relevant container trains on this route are aware of the above conditions of operation.

Loads and conditions between Unanderra and 91.080 km (Unanderra – Moss Vale line)

DOWN loads

SECTIONS	LOCOMOTIVE CLASS = L	LOAD - TONNES				TRAIN DATA		NOTES
		SINGLE	DOUBLE	TRIPLE	QUAD	VEHICLE CLASS	SECT RUN TIMES	
1 UNANDERRA – (#91.080 km)	AC6	1130	2260	3390	4520	ABCDEF	%	
2 UNANDERRA – (#91.080 km)	L3/L4	500	1000	1500	--	ABCDEF	%	1
3 UNANDERRA – (#91.080 km)	L2	900	1800	2700	3600	ABCDEF	%	
4 UNANDERRA – (#91.080 km)	L3/L4	750	1500	2250	3000	ABCDEF	%	
5 UNANDERRA – (#91.080 km)	L5	690	1380	2070	2760	ABCDEF	%	
6 UNANDERRA – (#91.080 km)	L6	551	1102	1653	2204	ABCDEF	%	
7 UNANDERRA – (#91.080 km)	L7	543	1086	1629	2172	ABCDEF	%	
8 UNANDERRA – (#91.080 km)	L8	517	1034	1551	2068	ABCDEF	%	
9 UNANDERRA – (#91.080 km)	L9	485	970	1455	1940	ABCDEF	%	
10 UNANDERRA – (#91.080 km)	L10	430	860	1290	1720	ABCDEF	%	
11 UNANDERRA – (#91.080 km)	L11	388	776	1164	1552	ABCDEF	%	
12 UNANDERRA – (#91.080 km)	L12	362	724	1086	1448	ABCDEF	%	

Notes:

1. Empty wheat / coal vehicles.

91.080 km RailCorp/ARTC boundary.

% ARTC Unanderra to Dombarton running times to apply.

DOWN - sectional running times and full sectional loads

	#SECTIONAL RUNNING TIMES						FULL SECTIONAL LOADS														GRADE		
							LOCOMOTIVE CATEGORIES = L																
	1	2	3	4	5	6	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13		14	
UNANDERRA	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
ARTC boundary (91.080 km)	%	%	%	%	%	%	%	1130	903	791	745	696	551	543	517	442	430	388	362	253		1:30	

% ARTC Unanderra to Dombarton running times to apply.

UP loads

SECTIONS	LOCOMOTIVE CLASS = L	LOAD - TONNES				TRAIN DATA		NOTES
		SINGLE	DOUBLE	TRIPLE	QUAD	VEHICLE CLASS	SECT RUN TIMES	
1 (#91.080 km) - UNANDERRA	AC6	--	--	--	--	ABCDEF	%	1, 2
2 (#91.080 km) - UNANDERRA	AC6	--	--	4600	--	ABCDEF	%	3
3 (#91.080 km) - UNANDERRA	L2	--	3600	--	--	ABCDEF	%	2, 4
4 (#91.080 km) - UNANDERRA	L4/L9	--	3300	--	--	ABCDEF	%	2, 4
5 (#91.080 km) - UNANDERRA	L2	2080	2400	--	--	ABCDEF	%	1, 4
6 (#91.080 km) - UNANDERRA	L3/L4	1840	2400	--	--	ABCDEF	%	1, 4
7 (#91.080 km) - UNANDERRA	L5	1872	2400	--	--	ABCDEF	%	1, 4
8 (#91.080 km) - UNANDERRA	L6	1651	2400	--	--	ABCDEF	%	1, 4
9 (#91.080 km) - UNANDERRA	L7	1610	2400	--	--	ABCDEF	%	1, 4
10 (#91.080 km) - UNANDERRA	L8	1563	2400	--	--	ABCDEF	%	1, 4
11 (#91.080 km) - UNANDERRA	L9/L10	1200	2400	--	--	ABCDEF	%	1, 4
12 (#91.080 km) - UNANDERRA	L11	1191	2382	2400	--	ABCDEF	%	1, 4
13 (#91.080 km) - UNANDERRA	L12	1112	2224	2400	--	ABCDEF	%	1, 4
14 (#91.080 km) - UNANDERRA	L13	500	1000	1500	2000	ABCDEF	%	4

% ARTC Unanderra to Dombarton running times to apply.

UP - sectional running times and full sectional loads

Single Pipe Trains – See Note 1:

	#SECTIONAL RUNNING TIMES						FULL SECTIONAL LOADS														GRADE		
							LOCOMOTIVE CATEGORIES = L																
	1	2	3	4	5	6	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13		14	
ARTC boundary (91.080 km)	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
UNANDERRA	%	%	%	%	%	%	%	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	DG

% ARTC Unanderra to Dombarton running times to apply

Two Pipe Trains – See Note 2:

	#SECTIONAL RUNNING TIMES						FULL SECTIONAL LOADS														GRADE		
							LOCOMOTIVE CATEGORIES = L																
	1	2	3	4	5	6	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13		14	
ARTC boundary (91.080 km)	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
UNANDERRA	%	%	%	%	%	%	%	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	DG

ECP Braking Trains – See Note 3:

	#SECTIONAL RUNNING TIMES						FULL SECTIONAL LOADS														GRADE		
							LOCOMOTIVE CATEGORIES = L																
	1	2	3	4	5	6	Loco	AC6	2	3	4	5	6	7	8	9	10	11	12	13		14	
ARTC boundary (91.080 km)	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
UNANDERRA	%	%	%	%	%	%	%	2657	--	--	--	--	--	--	--	--	--	--	--	--	--	--	DG

% ARTC Unanderra to Dombarton running times to apply

\$ ARTC approved full sectional loads between Moss Vale and 91.080 km to apply

UP – 91.080 km to Unanderra – Explanatory notes

Note 1 – Single pipe trains:

On steeply falling grades between 91.080 km and Unanderra, loads for single pipe trains are limited due to air brake capacity to a **maximum load of 2400 tonnes**. The combination of loaded and empty vehicles in a train shall not exceed that listed in the table below. For multipack/articulated vehicles, the number of platforms shall be counted instead of vehicles; i.e. an RRAY 5 pack shall count as 5 vehicles.

For trains over 2400 tonnes see section **Operation of Single Pipe Trains in Excess of 2400 tonnes and up to 1500 metres long from Summit Tank to Unanderra** on page 51.

Loaded Vehicles	Maximum empties	Loaded Vehicles	Maximum empties	Loaded Vehicles	Maximum empties
0	45	12	29	24	14
1	43	13	28	25	12
2	42	14	27	26	11
3	41	15	25	27	10
4	39	16	24	28	9
5	38	17	23	29	7
6	37	18	21	30	6
7	36	19	20	31	5
8	34	20	19	32	3
9	33	21	18	33	3
10	32	22	16	34	1
11	30	23	15	35	0

Note 2 – Two pipe trains:

Two pipe vehicles have a main reservoir that recharges the air brake system. These vehicles listed in the General Instruction Pages, **Section 10 Locomotive and Rolling Stock Data** and are identified by ●● in the Brake Type column.

The maximum train length of two pipe vehicles on a train is 46 vehicles. Up to 6 empty or loaded single pipe vehicles may be attached to the **REAR** of a loaded or empty two pipe train. The two pipe portion shall not exceed 40 wagons.

Note 3 – ECP braked trains:

The maximum train length of trains operating under ECP brakes is 46 vehicles. This is the approved load for ECP trains operating from the western coal fields.

Note 4 – Pressure maintaining brake valves:

Lead locomotives on freight trains operating from 91.080 km to Unanderra should have pressure maintaining brake valves (26L brake equipment or equivalent).

Where the lead locomotive is not fitted with a pressure maintaining brake valve, and the train is to be held stationary on the grade for periods in excess of ten (10) minutes, handbrakes shall be applied in accordance with the requirements in the **General Instructions Pages, Section 3 train Operations, Holding a train stationary on a grade.**

Conditions of operation of freight trains - Unanderra and 91.080 km (en-route to and from Moss Vale)

Braking requirements – DOWN direction:

- Freight trains with grade control valves are required to have a HP grade inspection carried out on the train.
- Grade control valves are to be set in the **EX position**.

Braking requirements – UP direction:

- Unless at least 80% of the train mass is fitted with fixed exhaust chokes, freight trains are required to have a HP grade inspection carried out on the train.
- Grade control valves (where fitted) are to be set in the **IP position** at the inspection location or other approved location.
- Dynamic brake shall be used if available.

Operation of single pipe trains in excess of 2400 tonnes and up to 1500 metres long from Summit Tank to Unanderra

Single pipe trains between **2400 and 4000 tonnes and up to 1500 metres long** may operate from the **ARTC/RailCorp boundary** to Unanderra under mandatory dynamic brake conditions as follows:

- These trains shall have a HP grade Inspection and grade control valves set in 'IP'.
- The minimum allowable vehicle mass for vehicles in the front third of a train shall not be less than 25 tonnes. In the case of multipack vehicles the minimum allowable vehicle mass shall be the gross mass divided by the number of platforms (decks).
- There shall not be any empty platforms (decks).
- Maximum train length 1500 metres plus locomotives.
- Maximum train mass 4000 tonnes plus locomotives.
- Train shall have three (3) locomotives at the front of the train and up to two (2) locomotives at the rear of the train from the **ARTC/RailCorp boundary** to Unanderra.
- One locomotive shall be provided for each 800 tonnes or part thereof of train load.
- All locomotives shall have operable extended range dynamic brake and a minimum mass of 129 tonnes.

- The speed of the train shall be controlled by dynamic brake supplemented by use of air brake as required.
- The speed of the train shall not exceed 25 km/h.
- Crews shall have clear understanding of procedures for operating these trains in the event of loss of radio communication.

If the dynamic brake fails on one locomotive only after departing the ARTC/RailCorp boundary the train may continue under the control of the remaining dynamic brake and supplemented by the air brake.

- If the driver has any trouble in adequately recharging the brake pipe, the train shall be brought to a stand and held on the locomotive independent brake and sufficient handbrakes and the brake pipe fully recharged.
- The grade control valves shall be placed in the **"HP" position**.
- The train may then continue under the control of the remaining dynamic brake and supplemented by the air brake.
- If the driver again has trouble in adequately recharging the brake pipe, the train shall be brought to a stand and secured by handbrakes.
- The train may be subsequently moved only by dividing the train or attaching additional locomotive/s with operable dynamic brake.

If the dynamic brake fails on more than one locomotive only after departing the ARTC/RailCorp boundary the train shall be brought to a stand and secured by hand brakes. The train may be subsequently moved only by dividing the train or attaching additional locomotive/s with operable dynamic brake.

- If the train is required to be divided as above, each portion of the train shall comply with the single pipe train load and length limits as specified in Note 1 above.

Conditions for the operation of self-propelled diesel trains - Unanderra and 91.080 km (en-route to and from Moss Vale)

XPT	Xplorer, Endeavour	Conditions of Operation – Down Direction
√	--	All power cars operating
--	√	All engines operating
√	--	Maximum 7 trailer cars with 2 power cars or 3 trailer cars with 1 power car
√	√	All compressors operating
√	√	Emergency coupler available
√	√	No brake cut outs permitted
√	√	Electro-pneumatic (EP) brake, automatic brake, hand and all spring parking brakes fully operational

XPT	Xplorer, Endeavour	Conditions of Operation – UP Direction
√	--	One or two power cars operating
√	--	All engines operating
--	√	At least half of traction motors working. Single car not permitted.
√	--	Maximum 7 trailers with 2 power cars or 3 trailer cars with 1 power car
√	√	All compressors operating (compressor on any dead power car to be switched to hotel supply)
√	√	Emergency coupler available
√	√	No brake cut outs permitted
√	√	Electro-pneumatic (EP) brake, automatic brake, hand and all spring parking brakes fully operational

Superseded by TS TOC 2 v5.0

Superseded by TS TOC 2 v5.0

Section 16

Sydney Metropolitan Area pages

16. Sydney Metropolitan Area pages

Maximum speed of locomotives and rolling stock - Sydney Metropolitan Area

Version August 2015

SECTION	Notes	LOCOMOTIVES															FREIGHT VEHICLES						PASSENGER VEHICLES					
		^1	^2	^3	^4	^5	^6	^7	^8	^9	^10	^11	^12	^13	Class						XPT	Xplorer	Loco Hauled	Diesel Railcars				
Class of Line		L, LQ, LZ, 31	Note O lists applicable locomotives	82, CLP, GL, NR	14, 81, ALF, AN, BL, CLF, G, VL	42, 80, 80s, B, DL	18	442, 442s, 700, GM12, S, X	22, 421, 422, 44, 45, 45s, 600, DC, EL, FL, GMT, HL	43, 44s, 930	423	D, K, T	47, 48, 48200, 48s, 49, 830, 900, GPU, MM, PL	73, (K)	46, 86	Multi, Loco, W/kg	A	B	C	D	E	F						
City Circle																												
Central-Quay-Central (Inner)	1	A,B,C,H	40	40	40	40	40	40	40	40	40	40	40	40	40	4	40	40	40	40	N/A	N/A	40	40	40	40	40	40
Central-Quay-Central (Outer)	1	A,B,H	40	40	40	40	40	40	40	40	40	40	40	40	40	4	40	40	40	40	N/A	N/A	40	40	40	40	40	40
Main Suburban/West																												
Sydney Terminal-Granville (Main)	1		100	100	100	100	90	100	100	100	80	100	100	70	100	4	100	100	80	65	80	65	100	100	100	100	100	100
Granville-St Marys (West Sub/Sub)	1		100	115	115	115	90	115	115	115	80	100	100	70	100	4	115	100	80	65	80	65	160	145	115	115	115	
St Marys-Penrith (Main)	1		100	115	115	115	90	115	115	115	80	100	100	70	100	4	115	100	80	65	80	65	160	145	115	115	115	
Central-Homebush (Suburban)	1	D	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	50	50	100	100	50	100	100	
Homebush-Granville (Suburban)	1	D	80	80	80	80	80	80	80	100	100	80	100	100	70	80	4	100	100	80	65	80	65	100	100	100	100	
Granville-St Marys (West Main/Main)	1		100	115	115	115	90	115	115	115	80	100	100	70	100	4	115	100	80	65	80	65	160	145	115	115		
Central-Homebush (Local)	1	D,H	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	N/A	100	100	50	100	100	
Carlingford																												
Clyde-Carlingford	2	H	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	N/A	60	60	50	60	60	
Rosehill-Sandown	2	H,J	20	20	20	20	20	20	20	20	20	20	20	20	N/A	4	20	20	20	20	N/A	N/A	20	20	20	20	20	
Richmond																												
Blacktown-Richmond	1	H	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	N/A	115	115	50	115	115	
Seven Hills-Blacktown (Down Bch)	1	H	70	70	70	70	70	70	70	70	70	70	70	70	70	4	70	70	70	70	N/A	N/A	70	70	70	70	70	
Main North																												
Strathfield-Hornsby (Main)	1		100	115	115	115	90	115	115	115	80	100	100	70	100	4	115	100	80	65	80	65	115	115	115	115	115	
Strathfield-North Strath Jct (Flyovers)	1	H	40	40	40	40	40	40	40	40	40	40	40	40	40	4	40	40	40	40	N/A	N/A	40	40	40	40	40	
Nth Strath Jct-Rhodes (Down Relief)	1		80	80	80	80	80	80	80	80	80	80	80	70	80	4	80	80	80	65	80	65	80	80	80	80	80	
West Ryde-Epping (Down Suburban)	1		90	90	90	90	90	90	90	90	80	90	90	70	90	4	90	90	80	65	80	65	90	90	90	90	90	
Epping-West Ryde (Up Suburban)	1		90	90	90	90	90	90	90	90	80	90	90	70	90	4	90	90	80	65	80	65	90	90	90	90	90	
Thornleigh-Pennant Hills (Up Relief)	1		50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	50	50	50	50	50	50	50	
Rhodes-Nth Strath Jct (Up Relief / NSRU)	1		75	75	75	75	75	75	75	75	75	75	75	70	75	4	75	75	75	65	75	65	75	75	75	75	75	
North Shore																												
Central-North Sydney	1	A,C,H	50	50	50	50	50	50	50	50	50	50	50	50	50	4	40	40	40	40	N/A	N/A	80	80	50	80	80	
North Sydney-Hornsby	1	H	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	N/A	80	80	50	80	80	
Chatswood - Epping																												
Chatswood - Epping	1	M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50	N/A	N/A	4	50	50	50	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

		LOCOMOTIVES										FREIGHT VEHICLES					PASSENGER										
Main South																											
Lidcombe-Campbelltown (via Regents Pk)	1		100	115	115	115	115	90	115	115	115	80	100	100	70	100	4	115	100	80	65	80	65	160	145	115	115
Granville-Cabramatta	1		100	100	100	100	100	90	100	100	100	80	100	100	70	100	4	100	100	80	65	80	65	100	100	100	100
Lidcombe Triangle Loop	1		35	35	35	35	35	35	35	35	35	35	35	35	35	4	35	35	35	35	35	35	35	35	35	35	35
Granville Y-Link	1		75	75	75	75	75	75	75	75	75	75	75	75	75	4	75	75	75	65	75	65	75	75	75	75	75
Illawarra																											
Central-Hurstville (Illawarra)	1	D	100	100	100	100	100	90	100	100	100	80	100	100	70	100	4	100	100	80	65	80	65	100	100	100	100
Hurstville-Waterfall (Main)	1		100	115	115	115	115	90	115	115	115	80	100	100	70	100	4	115	100	80	65	80	65	115	115	115	115
Central-Meeks Rd Jct (Illawarra Local)	1	D	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	65	100	100	50	100	
Meeks Rd Jct-Hurstville (Illawarra Local)	1	D	100	100	100	100	100	90	100	100	100	80	100	100	70	100	4	100	100	80	65	N/A	65	100	100	100	100
Up Engine Dive Redfern-Acdep	1	H	10	10	10	10	10	10	10	10	10	10	10	10	10	4	10	10	10	10	N/A	N/A	10	10	10	10	10
Illawarra Dives Redfern-Illawarra Jct	1	I	30	30	30	30	30	30	30	30	30	30	30	30	30	4	30	30	30	30	N/A	N/A	30	30	30	30	30
Eastern Suburbs																											
Erskineville Junction-Martin Place	1	A,L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	40	40	40	40	4	N/A	N/A	N/A	N/A	N/A	N/A	40	40	N/A	N/A
Martin Place-Bondi Junction	1	A,L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15	15	15	15	4	N/A	N/A	N/A	N/A	N/A	N/A	15	15	N/A	N/A
Bankstown																											
Sydenham-Regents Park	1	G,H	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	N/A	80	80	50	60	
Airport / East Hills																											
Central - Wolli Creek Junction	1	D, H	50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	N/A	80	80	50	80	
Wolli Creek Junction-Glenfield	1	H	100	100	100	100	100	90	100	100	100	80	100	100	70	100	4	100	100	80	65	N/A	N/A	160	145	60	60
Leppington																											
Glenfield-Leppington	1	H, N	N/A	N/A	N/A	35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35	N/A	N/A	4	35	35	35	N/A	N/A	N/A	115	115	N/A	N/A
Cronulla																											
Sutherland-Cronulla	1	H	N/A	N/A	N/A	N/A	50	50	50	50	50	50	50	50	50	4	50	50	50	50	N/A	N/A	100	100	50	60	
Freight Lines																											
North Strathfield-Flemington South Jct	1		50	50	50	50	50	50	50	50	50	50	50	50	50	4	50	50	50	50	50	50	50	50	50	50	50
Flem Middle Junction-Flem West Jct	1		35	35	35	35	35	35	35	35	35	35	35	35	35	4	35	35	35	35	35	35	35	50	50	35	35
Flem East Jct/Flem Middle Junction-Homebush Bay Loop (Olympic Park)	1	H	20	20	20	20	20	20	20	50	50	50	50	50	20	2	20	20	20	20	N/A	N/A	50	50	20	20	
Lidcombe Goods Jct-ARTC Boundary	1		70	70	70	70	70	70	70	70	70	70	70	70	70	4	70	70	70	65	70	65	70	70	60	60	
ARTC Boundary-Sefton Park Sth Jct	1		80	80	80	80	80	80	80	80	80	80	80	80	80	4	80	80	80	65	80	65	80	80	60	60	
Chullora North Jct-Chullora West Jct	1	P	Refer to ARTC for operating conditions																								
Chullora West Jct-Pac. Nat. Depot	1	P	Refer to ARTC for operating conditions																								
Chullora NRC Jct-Industrial Siding	1	P, H	Refer to ARTC for operating conditions																								
Chullora Sth Jct - Wardell Rd West Jct	1	P	Refer to ARTC for operating conditions																								
ARTC Boundary-Meeks Rd Tempe Jct	1		40	40	40	40	40	40	40	40	40	40	40	40	N/A	4	40	40	40	40	40	40	40	40	40	40	40
Meeks Rd Syd'ham Jct-Meeks Rd Wst Jctn	1	I	25	25	25	25	25	25	25	25	25	25	25	25	N/A	4	25	25	25	25	N/A	N/A	25	25	25	25	
Meeks Rd Sth Jct-Meeks Rd Nth Jct	1	I	25	25	25	25	25	25	25	25	25	25	25	25	N/A	4	25	25	25	25	N/A	N/A	25	25	25	25	
Marrickville Junction-Cooks River	1	I, P	Refer to ARTC for operating conditions																								
Cooks River-10.410km Botany	1	I, P	Refer to ARTC for operating conditions																								

For note details, see notes on page 58, 'Notes for Maximum speed of locomotives and rolling stock - Sydney Metropolitan Area'.

Notes for *Maximum speed of locomotives and rolling stock - Sydney Metropolitan Area*

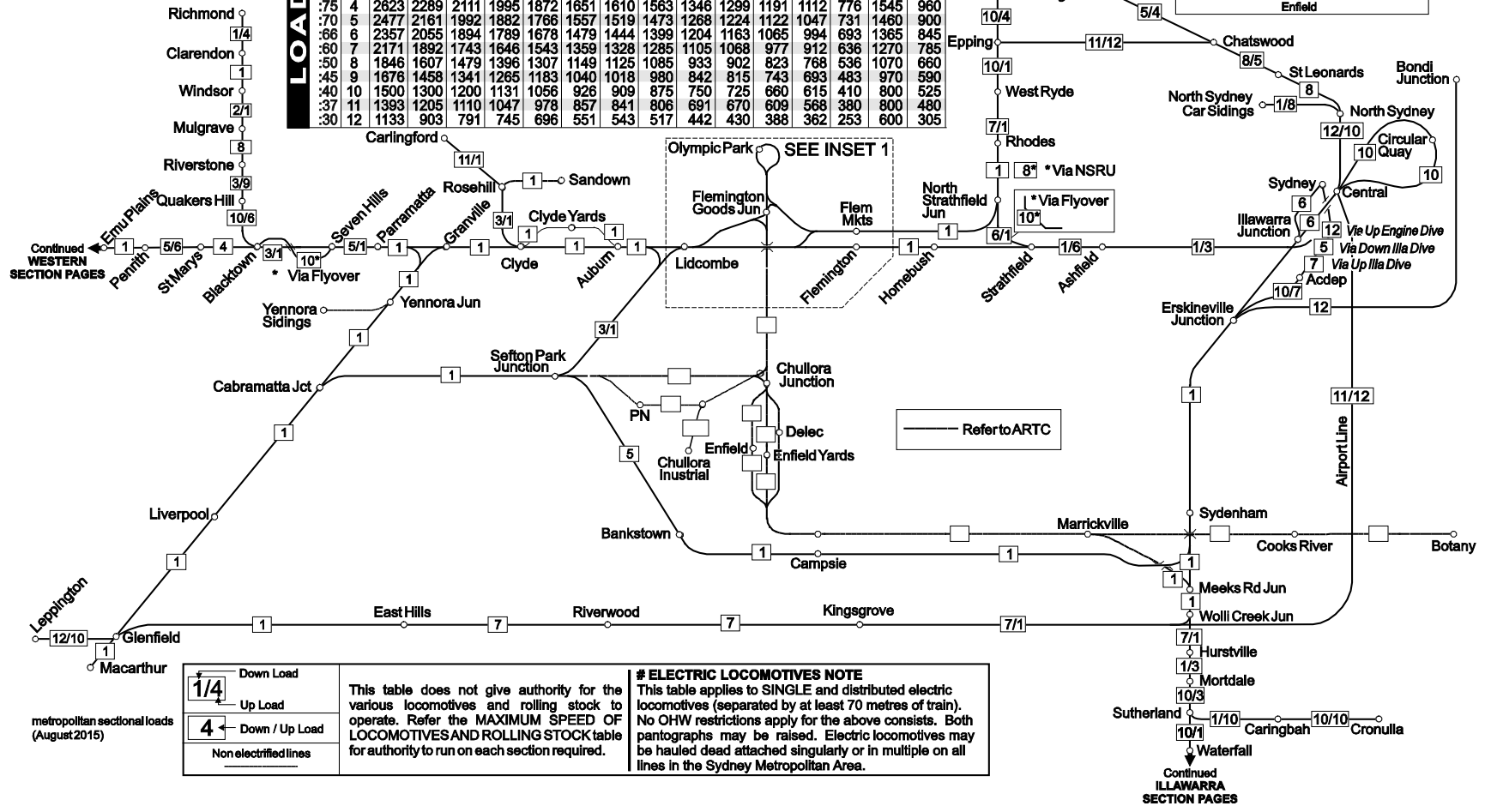
- N/A Not allowed to run on this section under normal working conditions.
- ^ Numbered columns represent axle loadings. Column 1 heaviest to column 13 lightest.
- A The maximum speed for all non-stopping trains, for all underground platforms, is 10 km/h in the tunnel before the platform and 15 km/h through the platform.
- B The max speed for all locomotives in the Circular Quay area, outside of the platform, between the Harrington St and the Macquarie St portals is 25 km/h.
- C Heavy axle loads and unscrubbed diesel locomotives (i.e. diesel locomotives not fitted with approved exhaust conditioners) are only approved for restricted operation in the city underground as follows :-
 (a) Locomotives designated in columns numbered 1 to 6 (Includes 86 class) above and freight vehicles heavier than 76 tonnes gross are not permitted to run through platforms at: (1) Wynyard station, Up and Down Shore, and (2) Town Hall station, Up and Down Shore and City Inner except in an emergency and only when issued with a current TOC waiver covering each movement.
 (b) Unscrubbed diesel locomotives are also permitted to operate in the city underground but only when issued with a current TOC waiver covering each movement.
- D The following rolling stock is not allowed to run over the Flying Junctions between Redfern and Central in the Up direction:
Locomotives designated in columns numbered 1 to 6 above and freight vehicles heavier than 76 tonnes gross.
- E Not used.
- F Electric locomotives are allowed on the **UP NORTH FORK** between Meeks Road West Junction and Meeks Road Sydenham Junction **ONLY**.
- G 81/82/NR class locomotives and E/F class freight vehicles allowed between Sefton Park North Junction and Sefton Park East Junction at a max speed of 25 km/h.
- H Freight vehicles loaded greater than 20 tonnes axle load NOT PERMITTED, unless authorised by a **TOC Waiver**.
- I Freight vehicles loaded greater than 23 tonnes axle load NOT PERMITTED, unless authorised by a **TOC Waiver**.
- J Electrified between Rosehill & Electric train Stop sign located at location CC22+736 (Overhead Wire Structure).
- K Only locomotives fitted with vigilance control system are approved to operate outside shunting yards.
- L **Maximum load**
 Freight trains shall not contain any freight vehicles with a **gross mass exceeding 73 tonnes**.
Operational requirements
 Between Martin Place and Bondi Jct to conform to structure loading limits on the viaducts the following conditions shall be obeyed:
 The only time that simultaneous movements are permitted on adjacent tracks over this section is when the freight trains are in the **empty** condition.
All trains when passing each other on the above section shall not exceed a **maximum speed of 15 km/h**.
- M Freight vehicles loaded greater than 20 tonnes axle load and unscrubbed diesel locomotives (i.e. diesel locomotives not fitted with approved exhaust conditioners) are NOT PERMITTED, unless authorised by a TOC Waiver.
- N 81 Class and 48 Class locomotives only.
- O 92, 93, 6000, 6020, ACC, C, CF, CM, CEY, FIE, GWA, GWU, LDP, LDP10, RL, SCT, TT100 (134t), WH, XRN, SSR.
- P Refer to ARTC for operating conditions.

Sydney Metropolitan Area - sectional freight loads

Version August 2015

Sydney Metropolitan Area Sectional Freight Loads

GRADE 1: xx	LOCOMOTIVE CATEGORY													85 # See Note below	86 # See Note below	46
	AC6	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13			
:100	1	3297	2881	2659	2514	2363	2086	2032	1975	1704	1643	1511	1410	984	1950	1225
:90	2	3039	2654	2449	2315	2175	1920	1870	1818	1567	1511	1388	1295	904	1715	1070
:80	3	2766	2414	2227	2104	1976	1743	1699	1650	1422	1372	1259	1175	820	1630	1015
:75	4	2623	2289	2111	1995	1872	1651	1610	1563	1346	1299	1191	1112	776	1545	960
:70	5	2477	2161	1992	1882	1766	1557	1519	1473	1268	1224	1122	1047	731	1460	900
:66	6	2357	2055	1894	1789	1678	1479	1444	1399	1204	1163	1065	994	693	1365	845
:60	7	2171	1892	1743	1646	1543	1359	1328	1285	1105	1068	977	912	636	1270	785
:50	8	1846	1607	1479	1396	1307	1149	1125	1085	933	902	823	768	536	1070	660
:45	9	1678	1458	1341	1265	1183	1040	1018	980	842	815	743	693	483	970	590
:40	10	1500	1300	1200	1131	1056	926	909	875	750	725	660	615	410	800	525
:37	11	1393	1205	1110	1047	978	857	841	806	691	670	609	568	380	800	480
:30	12	1133	903	791	745	696	551	543	517	442	430	388	362	253	600	305

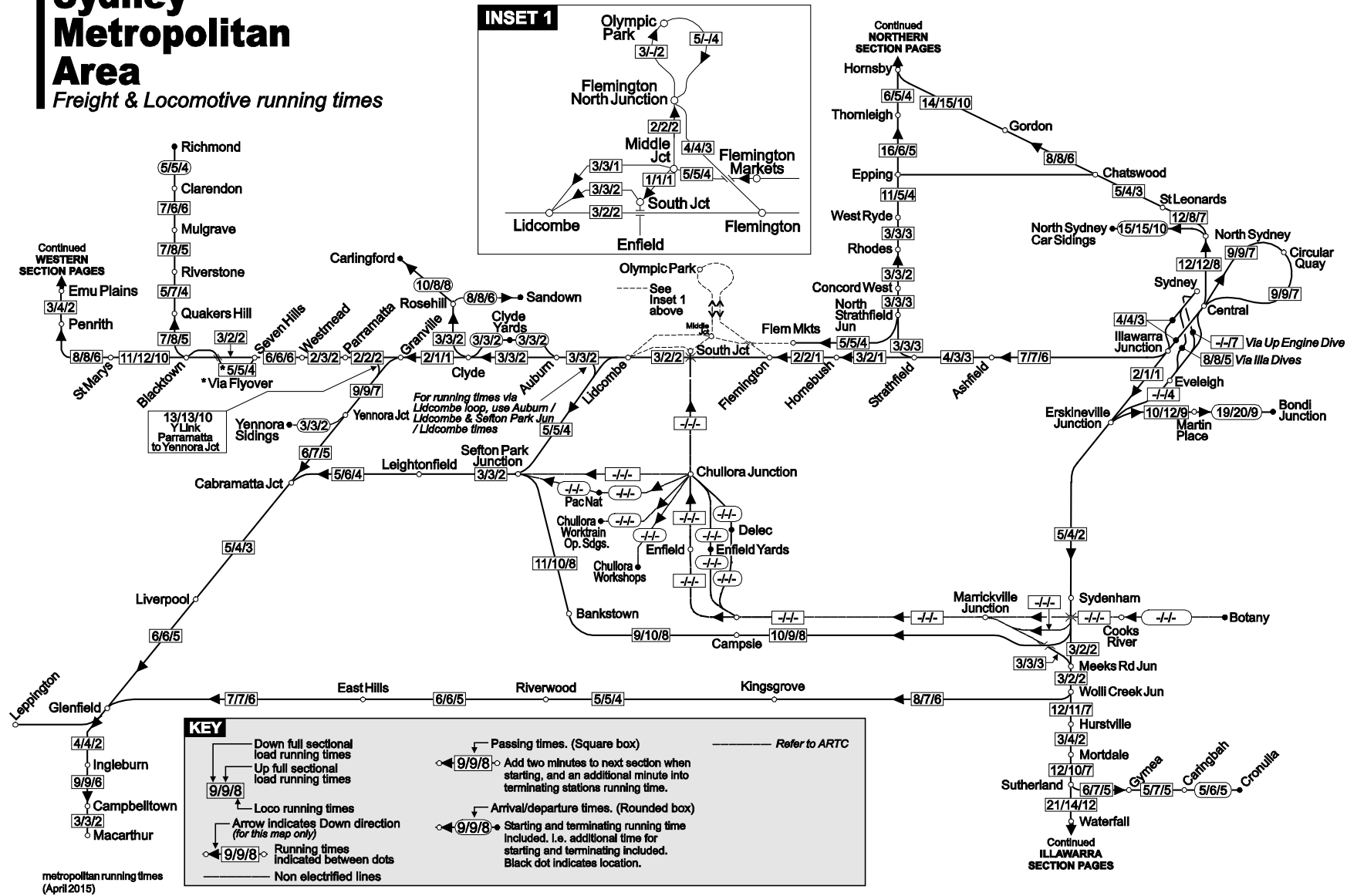


1/4	Down Load	This table does not give authority for the various locomotives and rolling stock to operate. Refer the MAXIMUM SPEED OF LOCOMOTIVES AND ROLLING STOCK table for authority to run on each section required.	# ELECTRIC LOCOMOTIVES NOTE This table applies to SINGLE and distributed electric locomotives (separated by at least 70 metres of train). No OHW restrictions apply for the above consists. Both pantographs may be raised. Electric locomotives may be hauled dead attached singularly or in multiple on all lines in the Sydney Metropolitan Area.
4	Up Load		
4	Down / Up Load		
Non electrified lines			

Sydney Metropolitan Area - freight and locomotive running times

April 2015

Sydney Metropolitan Area Freight & Locomotive running times



Hours of signal boxes

Version December 2014

	Signal Box / Complex	Hours of duty
	Sydney	Always
	Strathfield / Homebush	Always
Illawarra	Sydenham	Always
	Waterfall	Always
Southern	# Fairfield	Always
	Campbelltown	Always
Western	Auburn	Always
	Clyde	Always
	Parramatta Road	Always
	Granville	Always
	Blacktown	Always
	St Marys	Always
	Penrith	Always
Freight Lines	Enfield Control Centre	Refer ARTC network control centre south (June)

This location is manned by a qualified employee for station duties, which includes switching in for timetabled movements through the interlocking or to meet operational requirements as per requests from the Train Controller.

Dangerous goods in the Sydney Underground

Version 15.0 December 2012

The following goods are totally banned from being carried by freight trains through the Sydney Underground lines (Central to North Sydney; City Inner and City Outer; Redfern to Bondi Junction; Central to Wollie Creek Junction), Chatswood to Epping:

CLASS 1	Explosives in any quantity that requires marking of freight containers
CLASS 2.1	Flammable gas in bulk tankers
CLASS 2.3	Poison gas in any quantity which requires marking of freight containers
CLASS 3	Flammable liquids in bulk tanks where the hazchem code includes the letter E (this includes petrol tankers returning unpurged)

Tonnage signals

Version 15.0 December 2012

Certain signals listed herein are treated as **Tonnage Signals**, that is to say, in order to avoid the risk of trains over a certain tonnage being brought to a stand at signals where it would be difficult for them to restart, these tonnage signals shall not be passed by trains conveying loads in excess of 75% of the prescribed load (i.e. 75% of Full Sectional Load) unless the Tonnage signal is in the clear position (or by telephone instructions in the case of failure).

The following signals are to be treated as a Tonnage signal, in accordance with Sydney Trains Network Rule *NSG 608 Passing signal at STOP*.

	Kilometrage	Signal number	Section located
North	17.880	WR1	Meadowbank – West Ryde
	22.308	EG21 – Down Suburban	Eastwood – Epping
	22.308	EG23 – Down Main	Eastwood – Epping
	23.745	EG45 – Down Main	Epping – Cheltenham
	23.759	EG43 – Down Suburban	Epping – Cheltenham
	32.051	HY13	Normanhurst – Hornsby
Illawarra	26.025	SD71 DI Down Home & Starting	Sutherland
	26.055	SD69 DR Down starting Refuge to Down Main	Sutherland
West	17.506	ST420M Up Home	Up Main Lidcombe
	17.506	ST422S Up Home	Up Suburban Lidcombe

Bondi Junction – trains / vehicles less than 4 cars using diamond crossover

Version 15.0 December 2012

Whenever a train or vehicle less than 4 cars in length has to traverse the diamond crossing at Bondi Junction, through points 907 in the reverse position it shall be block worked in accordance with Sydney trains Network Rule *NSY 512 Manual block working between SY767 and SY783 or SY770 and ES6.48 signals*.

Trains or vehicles shorter than 4 cars in length may not reliably operate the track circuits.

Main South – DOWN schedules and running times

Version 15.0 December 2012

	DOWN LOADS SECTIONS	LOCOMOTIVE CLASS = L	LOAD - TONNES				VEHICLE CLASS	SECT RUN TIMES	NOTES
			SINGLE	DOUBLE	TRIPLE	QUAD			
1	SYDNEY METROP – MACARTHUR	L4	675	1350	2025	2700	A	A	
2	SYDNEY METROP – MACARTHUR	L4	800	1600	2400	3200	A	A1	
3	SYDNEY METROP – MACARTHUR	L8	650	1300	--	--	A	A1	
4	SYDNEY METROP – MACARTHUR	L9	500	1000	1500	2000	A	A1	
5	SYDNEY METROP – MACARTHUR	L2	1300	2600	3900	5200	A	A2	
6	SYDNEY METROP – MACARTHUR	L4	970	1940	2910	3880	A	A2	
7	SYDNEY METROP – MACARTHUR	L8	875	1750	2625	3490	A	A2	
8	SYDNEY METROP – MACARTHUR	L9/L10	610	1220	1830	2440	A	A2	
9	SYDNEY METROP – MACARTHUR	AC6	1500	3000	4600	--	A	A2	
10	SYDNEY METROP – MACARTHUR	AC6 + #L2	--	2750	--	--	A	A2	#NR only
11	SYDNEY METROP – MACARTHUR	AC6 + 2 x #L2	--	--	4050	--	A	A2	#NR only
12	SYDNEY METROP – MACARTHUR	2 x AC6 + #L2	--	--	4200	--	A	A2	#NR only
13	SYDNEY METROP – MACARTHUR	AC6 + #L2	--	2750	--	--	ABCE	C1	#NR only
14	SYDNEY METROP – MACARTHUR	L2	1300	2600	3900	5200	ABCE	C1	
15	SYDNEY METROP – MACARTHUR	L4	970	1940	2910	3880	ABCE	C1	
16	SYDNEY METROP – MACARTHUR	L8	875	1750	2625	3490	ABCE	C1	
17	SYDNEY METROP – MACARTHUR	L9/L10	610	1220	1830	2440	ABCE	C1	
18	SYDNEY METROP – MACARTHUR	L11	550	1100	1650	2200	ABCE	C1	
19	SYDNEY METROP – MACARTHUR	AC6	1500	3000	4600	--	ABCE	C2	
20	SYDNEY METROP – MACARTHUR	L3	1200	2400	3600	4800	ABCE	C2	
21	SYDNEY METROP – MACARTHUR	L4	1130	2260	3390	4520	ABCE	C2	
22	SYDNEY METROP – MACARTHUR	L5	1047	2094	3141	4188	ABCE	C2	
23	SYDNEY METROP – MACARTHUR	L6	926	1852	2778	3704	ABCE	C2	
24	SYDNEY METROP – MACARTHUR	L7	909	1818	2727	3636	ABCE	C2	
25	SYDNEY METROP – MACARTHUR	L8	875	1750	2625	3490	ABCE	C2	
26	SYDNEY METROP – MACARTHUR	L9	750	1500	2250	3000	ABCE	C2	
27	SYDNEY METROP – MACARTHUR	L10	725	1450	2175	2900	ABCE	C2	
28	SYDNEY METROP – MACARTHUR	L11	640	1280	1920	2560	ABCE	C2	
29	SYDNEY METROP – MACARTHUR	L12	615	1230	1845	2460	ABCE	C2	
30	SYDNEY METROP – MACARTHUR	L13	310	615	925	1230	ABCE	C2	

All the above published loads in the Down direction can depart Metropolitan sites via the Main or East Hills.

Refer to table of Sydney Metropolitan Area – freight and locomotive running times.

For trains via the East Hills line refer to Note H, Notes for Maximum speed of locomotives and rolling stock - Sydney Metropolitan Area (page 58) of this section.

Main South – DOWN sectional running times and full sectional loads

Version April 2015

DOWN	SECTIONAL RUNNING TIMES					Loco	FULL SECTIONAL LOADS LOCOMOTIVE CATEGORIES = L														GRADE
	A	A1	A2	C1	C2		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
% CHULLORA JCT	☺	☺	☺	☺	☺		Refer to Sydney Metropolitan Area - sectional freight loads (page 59) for Full Sectional Freight loads														
SEFTON PRK JCT	11	11	11	11	11																
LEIGHTONFIELD	3	3	3	3	3																
CLYDE YARDS	..	..	..	..	..											
GRANVILLE	..	..	..	..	..											
FAIRFIELD	..	..	..	..	..											
CABRAMATTA JCT	4	4	4	4	4																
LIVERPOOL	4	4	4	4	4																
GLENFIELD	5	5	5	6	6																
INGLEBURN	3	3	3	3	3																
CAMPBELLTOWN	7	7	7	8	8																
MACARTHUR	2	2	2	2	2																

Refer to Sydney Metropolitan Area - freight and locomotive running times (page 60) for running times

% Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant operating information.

Main South – UP schedules and running times

Version April 2015

SECTIONS	UP LOADS	LOCO-MOTIVE CLASS = L	SINGLE	DOUBLE	TRIPLE	QUAD	TRAIN DATA		NOTES
							VEHICLE CLASS	SECT RUN TIMES	
1	MACARTHUR - SYDNEY METROP	L4	675	1350	2025	2700	A	A	
2	MACARTHUR - SYDNEY METROP	L4	800	1600	2400	3200	A	A1	
3	MACARTHUR - SYDNEY METROP	L8	650	1300	--	--	A	A1	
4	MACARTHUR - SYDNEY METROP	L9/L10	500	1000	1500	2000	A	A1	
5	MACARTHUR - SYDNEY METROP	L2	1300	2600	3900	5200	A	A2	
6	MACARTHUR - SYDNEY METROP	L4	970	1940	2910	3880	A	A2	
7	MACARTHUR - SYDNEY METROP	L8	822	1644	--	--	A	A2	
8	MACARTHUR - SYDNEY METROP	L8+L10	--	1360	--	--	A	A2	
9	MACARTHUR - SYDNEY METROP	L9/L10	610	1220	1830	2440	A	A2	
10	MACARTHUR - SYDNEY METROP	AC6	1500	3000	4500	--	A	A2	
11	MACARTHUR - SYDNEY METROP	AC6 + #L2	--	2750	--	--	A	A2	#NR only
12	MACARTHUR - SYDNEY METROP	AC6 + 2 x #L2	--	--	4050	--	A	A2	#NR only
13	MACARTHUR - SYDNEY METROP	2 x AC6 + #L2	--	--	4200	--	A	A2	#NR only
14	MACARTHUR - SYDNEY METROP	L2	1500	3000	4500	6000	AB	B1	
15	MACARTHUR - SYDNEY METROP	AC6	1500	3000	4500	--	AB	B1	
16	MACARTHUR - SYDNEY METROP	AC6 + #L2	--	3000	--	--	AB	B1	#NR only
17	MACARTHUR - SYDNEY METROP	AC6 + 2 x #L2	--	--	4050	--	AB	B1	#NR only
18	MACARTHUR - SYDNEY METROP	L2	1100	2200	3300	4400	ABCE	C1	
19	MACARTHUR - SYDNEY METROP	L4	970	1940	2910	3880	ABCE	C1	
20	MACARTHUR - SYDNEY METROP	L8	875	1750	2625	3490	ABCE	C1	
21	MACARTHUR - SYDNEY METROP	L9/L10	610	1220	1830	2440	ABCE	C1	
22	MACARTHUR - SYDNEY METROP	AC6	1100	2200	3300	--	ABCE	C1	
23	MACARTHUR - SYDNEY METROP	L2	1600	3200	4800	6400	ABCE	C2	
24	MACARTHUR - SYDNEY METROP	L3/L4	1200	2400	3600	4800	ABCE	C2	
25	MACARTHUR - SYDNEY METROP	L5	1047	2094	3141	4188	ABCE	C2	
26	MACARTHUR - SYDNEY METROP	L6	926	1852	2778	3704	ABCE	C2	
27	MACARTHUR - SYDNEY METROP	L7	909	1818	2727	3636	ABCE	C2	
28	MACARTHUR - SYDNEY METROP	L8	875	1750	2625	3490	ABCE	C2	
29	MACARTHUR - SYDNEY METROP	L9	750	1500	2250	3000	ABCE	C2	
30	MACARTHUR - SYDNEY METROP	L10	725	1450	2175	2900	ABCE	C2	
31	MACARTHUR - SYDNEY METROP	L11	640	1280	1920	2560	ABCE	C2	
32	MACARTHUR - SYDNEY METROP	L12	615	1230	1845	2460	ABCE	C2	
33	MACARTHUR - SYDNEY METROP	L13	310	615	925	1230	ABCE	C2	
34	MACARTHUR - SYDNEY METROP	L3/L4	1650	3250	--	--	ABCE	C3	
35	MACARTHUR - SYDNEY METROP	L10	1290	2580	--	--	ABCE	C3	
36	MACARTHUR - SYDNEY METROP	L11	1020	2040	3200	--	ABCE	C4	
47	MACARTHUR - SYDNEY METROP	L13	510	1020	1530	2040	ABCE	C4	

All the above published loads in the Up direction may enter Metropolitan sites via the Main or East Hills line with the following conditions:

Clear run shall be given Revesby to Narwee.

Refer to table of Sydney Metropolitan Area – freight and locomotive running times.

For trains via the East Hills line refer to Note H, Notes for Maximum speed of locomotives and rolling stock - Sydney Metropolitan Area (page 58) of this section.

Main South – UP sectional running times and full sectional loads

Version April 2015

UP	SECTIONAL RUNNING TIMES						Loco	FULL SECTIONAL LOADS LOCOMOTIVE CATEGORIES = L														GRADE
	A/A1/A2	B1	C1	C2	C3	C4		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
MACARTHUR	3	3	3	3	3	3	Refer to Sydney Metropolitan Area - freight and locomotive running times (page 60) for running times	Refer to Sydney Metropolitan Area - sectional freight loads (page 59) for Full Sectional Freight loads														
CAMPBELLTOWN	3	3	3	3	3	3																
INGLEBURN	8	8	9	9	9	9																
GLENFIELD	3	3	3	3	3	4																
LIVERPOOL	5	5	5	5	5	5																
CABRAMATTA JCT	4	4	4	4	4	4																
LEIGHTONFIELD	5	5	6	6	6	6																
SEFTON PRK JCT	3	3	3	3	3	3																
% CHULLORA JCT	8	8	8	8	8	8																

% Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant operating information.

Location of speed signs

Version August 2015: Section 2a, 2d, 2e, 2f, 3a, 4, 7a, 7b, 7c, 9, 14f

Version April 2015: Section 2c, 2d, 2e, 2f, 4, 5a, 6a, 8a, 8b, 8c, 8d, 9, 11, 14a, 14b, 14d, 14e

Speed signs for the area bounded by Hornsby, Penrith, Macarthur and Waterfall

For speed signs beyond **Hornsby** refer to **Northern Division Pages** Location of speed signs (page 21).

For speed signs beyond **Penrith** refer to **Western Division Pages** Location of speed signs (page 32).

For speed signs beyond **Waterfall** refer to **Illawarra Division Pages** Location of speed signs (page 43).

	Sub Section	Area	Tracks
City	1	City Circle	City Outer, City Inner
West Suburban	2a	Central - Homebush	Main
	2b	Central - Homebush	Suburban
	2c	Central - Homebush	Local
	2d	Homebush - St Marys	Main, West Suburban, Suburban
	2e	Homebush - St Marys	Suburban, West Main, Main
West Suburban	2f	St Marys - Penrith	Down and Up Main lines
West Suburban	2g	Eveleigh - Redfern	Up Engine Dive
	2h	Illawarra Dive	Down and Up Illawarra line
	2i	Strathfield Flyover	Down and Up North Suburban
	2j	Lidcombe Loop	Single line loop
	2k	Y Link Granville	South - West Inner and Outer
Carlingford	3a	Clyde - Carlingford	Down and Up lines (Single/Double)
Richmond	4	Blacktown - Richmond	Single line
South	5a	Lidcombe - Macarthur	Down and Up Main line
	5b	Granville - Cabramatta	Down and Up Old South lines
	5d	Glenfield	Turnback Road
North Shore	6a	Central - Hornsby	Down and Up Shore lines
	6b	Chatswood – Epping Line	Down and Up Main Lines
	6c	Waverton - North Sydney Car Sidings	Single line
North	7a	Strathfield - Hornsby	Down and Up Main lines
	7b	Nth Strathfield - Rhodes	Down Relief
	7c	West Ryde - Epping	Down and Up Suburban
Illawarra	8a	Central - Hurstville	Down and Up Illawarra lines
	8b	Central - Hurstville	Down and Up Illawarra Local lines
	8c	Hurstville - Waterfall	Down and Up Main lines
	8d	Hurstville – Sutherland Bi Directional	Down and Up Main lines
	8e	Eveleigh Yard	Yard
	9	Sutherland - Cronulla	Double line
Eastern Suburbs	10	Ersleville Junction - Bondi Junction	Down and Up Eastern Suburbs Down and Up Illawarra Relief
Bankstown	11	Sydenham - Regents Park	Down and Up lines
Airport Line	12	Central – Wollie Creek	Down and Up lines
East Hills	13	Wollie Creek Junction - Glenfield	Down and Up lines
	13a	Turrella – Revesby	Down and Up Local lines
Metropolitan Freight	14a	ARTC Boundary - Flemington West Jct	Refer to ARTC for Boundary to Meeks Rd
	14b	Marrickville - Botany	Deleted - Refer to ARTC
	14d	ARTC Boundary - Sefton Park Jct	Refer to ARTC for Boundary to Chullora Jt
	14e	Flemington East Jun - Flemington Sth Jn	Metropolitan Freight Lines
	14f	Nth Strathfield Jun - Flemington Mkts Jn	Metropolitan Freight Lines
	14g	Flemington Goods Jun - Olympic Park	Metropolitan Freight Lines
Leppington	15	Glenfield – Leppington	Down and Up lines
	15a	Glenfield - Leppington	Down and Up loop lines

Sydney Metropolitan Area - Division page references

Section 1 City Circle.....	67
Section 2a Central – Homebush Sydney Yard.....	67
Section 2a Central – Homebush Main lines	67
Section 2b Central – Homebush Suburban Lines	67
Section 2c Central – Homebush Local Lines.....	67
Section 2d Homebush – St Marys	68
Section 2e Homebush – St Marys Suburban / Main.....	68
Section 2f St Marys – Penrith	68
Section 2g Up Engine Dive Eveleigh – Redfern	69
Section 2h Illawarra Dive Down – Up	69
Section 2i Strathfield Flyovers Down / Up North Suburban.....	69
Section 2j Lidcombe Loop	69
Section 2k Y Link Granville.....	69
Section 3a Clyde – Carlingford.....	69
Section 4 Blacktown – Richmond	69
Section 5a Lidcombe - Macarthur.....	70
Section 5b Granville – Cabramatta.....	70
Section 5d Turnback Rd Glenfield.....	70
Section 6a Central – Hornsby (Shore).....	70
Section 6b Chatswood – Epping.....	71
Section 6c Waverton – North Sydney Car Sidings	71
Section 7a Strathfield – Hornsby	71
Section 7b North Strathfield – Rhodes Relief Lines	72
Section 7c West Ryde – Epping Suburban Lines.....	72
Section 8a Central – Hurstville Illawarra Line.....	72
Section 8b Central – Hurstville Illawarra Local Line	72
Section 8c Hurstville – Waterfall.....	73
Section 8d Hurstville – Sutherland Bi-directional – Illawarra Line	73
Section 8e Eveleigh Yard	73
Section 9 Sutherland - Cronulla.....	73
Section 10 Erskineville Junction – Bondi Junction	73
Section 11 Sydenham – Regents Park.....	74
Section 12 Central – Wolli Creek (Airport Line).....	74
Section 13 Wolli Creek Junction - Glenfield	74
Section 13a Turrella – Revesby Local Line	75
Section 14a Metropolitan Freight Lines	75
Section 14d Metropolitan Freight Lines	75
Section 14e Metropolitan Freight Lines	75
Section 14f Metropolitan Freight Lines	75
Section 14g Metropolitan Freight Lines	75
Section 15 Glenfield - Leppington.....	76
Section 15a Glenfield – Leppington (Loop Lines).....	76

Section 1 City Circle

KILO-MET-RAGE	OUTER		INNER	
	Nor-mal	XPT	Nor-mal	XPT
5.895#	Central			
0.270	..	..	40	..
0.440	30	..	..	..
0.660	..	..	30	..
0.885	40	..	..	..
1.176	Town Hall			
1.680	..	..	40	..
1.851	40	..	..	..
2.047	Wynyard			
2.974	Circular Quay			
4.401	St James			
4.990	Museum			
5.310	30	..	..	..
5.437	40	..	..	..
5.895#	Central			

Via City Outer

Section 2a Central – Homebush Sydney Yard

Location	K/M	DWN		UP	
		Nor-mal	XPT	Nor-mal	XPT
	0.000	Sydney			
	0.060	X15	..	..	..
Road 1, P1 points to Middle Road	0.060	X15	..	..	..
Road 2, P2 points to Middle Road	0.120	..	X15	..	..
Mdle Rd, P1/P2 points to Road 1/2	0.200	X15	..	..	..
Mdle Rd, 151/154 points to Road 1/2	0.250	..	X15	..	..
Road 1, 151 points to Mdle Road	0.250	..	X15	..	..
Rd 2, 154 points to Middle Road	0.270	X40	..	..	..
Road 9, 154 points to Road 9	0.275	X15	..	..	..
Rd 15, 208 points to Up/Dn Bank'n	0.300	X15	..	..	..
Dn Bank'n, 203 points to Up Bank'n	0.300	..	X40	..	..
Road 9, 195 points to Road 9	0.305	X40	..	..	..
Road 5, 238 points to Road 6	0.310	X40	..	..	..
Road 9, 192 points to Road 10	0.335	..	X40	..	..
Road 3, 166 points to Road 4	0.340	X15	..	..	..
Road 3, 161 points to Road 4	0.350	..	X15	..	..
Up Bank'n, 203 points to Dn Bank'n	0.365	X40	..	..	..
Road 7, 183 points to Down Yd Subn	0.370	X15	..	..	..
Road 2, 157 points to Up Main	0.380	X15	..	..	..
Road 10, 193 points to Up Bank'n	0.390	..	X15	..	..

Location	K/M	DWN	UP
Up Main, 160 points to Road 2	0.395	..	X40
Dn Sub Yard, 183 points to Road 7	0.395	X40	..
Rd 2/4, 162 points to Down Main	0.395	..	X15
Road 4, 161 points to Road 3	0.400	X40	..
Road 8, 182 points to Dn Yard Subn	0.400	..	X15
Up Bank'n, 193 points to Road 10	0.425	..	X40
Up Main, 157 points to Road 1/3	0.430	..	X40
Dn Sub Yard, 182 points to Road 8	0.455	X40	..
Dn Bank'n, 240 points to Dn Sub Yrd	0.465	X40	..
Dn Sub Yd, 235 points to Dn Sub Yd	0.465	X40	..
Up Main, 234 points to Down Main	0.535	..	X40
Up Sub Yd, 235 points to Dn Sub Yd	0.565	..	X40
Up Sub Yd, 239 points to Up Bank'n	0.575	X40	..
Down Sub Yd, 241 points to Dn Main	0.640	X40	..
Dn Sub Yd, 243 points to Dn Sub Yd	0.670	..	X40
Up Main, 247 points to Up Sub Yard	0.670	..	X40
Up Sub Yard, 242 points to Up Bank'n	0.670	X15	..
Up Sub Yard, 246 points to Dn Sub Yd	0.695	..	15
Mortuary / Goods line	0.730	..	X15
Dn Sub Yard, 246 points to Up Sub Yd	0.935	..	X40
Up Main, 264 points to Up Sub Yard	0.960	X40	..
Dn Sub Yard, 265 points to Dn Main	0.980	..	40

Section 2a Central – Homebush Main lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
1.080	X15	..	..	..
	Up Main 266A points			
1.025	80	..	..	..
1.299	Redfern			
1.330	X15	..	..	..
	Up Main 647 crossover			
1.405	..	..	50	..
2.235	667 Pts	X25	..	..
2.476	Macd'town			
3.100	Newtown			
4.005	..	..	70	..
4.671	Stanmore			
5.499	Petersham			
6.246	Lewisham			
6.255	100	..	80	..
7.032	Summer Hill			
8.376	Ashfield			
9.424	Croydon			
10.060	80	..	..	..

KILO-	DOWN	UP
10.624	Burwood	
11.530	80	.. 90 ..
11.806	Strathfield	
12.030	X25	.. ..
12.030	65	.. ..
12.130	80	.. ..
12.195	..	.. 50 ..
12.742	Homebush	

Section 2b Central – Homebush Suburban Lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
0.000	Central			
0.211	..	..	45	..
0.513	65	..	..	..
1.299	Redfern			
1.351	..	..	60	..
1.655	80	..	..	..
2.476	Macd'town			
3.040	..	..	80	..
3.100	Newtown			
3.200	50	..	..	..
3.270	-	..	50	..
3.360	80	..	..	..
4.671	Stanmore			
5.499	Petersham			
6.246	Lewisham			
7.032	Summer Hill			
7.750	50	..	80	..
8.290	80	..	50	..
8.376	Ashfield			
9.424	Croydon			
10.624	Burwood			
11.200	..	..	80	..
11.344	60	..	..	..
11.630	..	..	60	..
11.806	Strathfield			
11.930	X25	..	..	..
11.930	55	..	..	..
12.470	..	..	80	..
12.575	602 Pts	X25	..	..
12.600	80	..	..	..
12.602	..	..	55	..
12.742	Homebush			

Section 2c Central – Homebush Local Lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
0.000	Central			
0.900	50	..	..	..
1.299	Redfern			
2.476	Macd'town			
3.100	Newtown			
3.315	..	..	50	..
4.000	70	..	..	..
4.671	Stanmore			
5.499	Petersham			
5.600	75	..	..	..
6.140	..	..	60	..
6.246	Lewisham			
7.032	Summer Hill			

KILO-	DOWN			UP		
7.725	70	..	..	..	..	..
7.750	..	..	..	75	..	..
8.200	50	..	..	50	..	..
8.200	X25	..	..	521B Pts	..	..
8.376	Ashfield					
8.460	25	..	..	Term. Rd	..	..
8.460	25	..	..	..	..	..
8.580	50	..	..	..	..	..
8.700	70	..	..	..	..	..
9.424	Croydon					
10.624	Burwood					
11.000	..	..	..	70	..	..
11.335	50	..	..	..	..	..
11.733	..	..	..	50	..	..
11.806	Strathfield					
12.500	45	..	..	70	..	..
12.500	X35	..	..	603B Pts	..	..
12.600	..	..	..	45	..	..
#12.654	Homebush					
12.770	40	..	..	..	..	..
12.774	X35	..	..	617A Pts	..	..
Local terminal Road						
12.890	X40	..	..	618B Pts	..	..

Down Local Platform KM only

Section 2d Homebush – St Marys

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
	Main Lines					
12.742	Homebush					
12.873	..	..	..	70	70	70
14.324	Flemington					
14.605	632B Pts			X25	..	..
14.615	X35	..	..	635 Pts		
14.882	Flem CS Jun					
15.290	X40	..	..	699A Pts		
16.130	702 Pts			X35	..	..
16.195	X40	..	..	703A Pts		
16.606	Lidcombe					
16.695	60	80	80	..	..	..
16.775	..	..	..	80	80	80
17.450	60	100	100	..	..	..
18.625	Auburn					
19.575	..	..	..	60	100	100
19.700	60	80	80	..	..	..
20.660	Clyde					
21.224	Granville					
21.465	70	70	75	60	80	80
Suburban Lines						
21.540	X50	..	..	711 Pts		
21.645	712 Pts			X50	..	..
21.850	..	..	..	70	70	75
22.000	80	80	85	..	..	..
22.533	Harris Park					
22.800	..	..	..	80	80	85
23.040	60	60	65	..	..	..
23.204	Parramatta					
23.350	..	..	..	60	60	65
23.550	80	85	90	..	..	..
24.660	..	..	..	60	75	75
24.800	X50	..	..	728A Pts		
25.000	..	..	..	80	100	105
25.050	80	100	105	..	..	..
25.162	Westmead					

KILO-	DOWN			UP		
25.300	80	115	115	..	..	..
26.637	Wentworthville					
28.294	Pendle Hill					
29.962	Toongabbie					
31.500	80	100	100	80	115	115
32.060	Seven Hills					
32.410	X40	..	..	304A Pts		
33.231	80	115	115	..	..	..
34.000	..	..	..	80	105	105
34.048	80	100	115	..	..	..
34.075	X35	..	..	306A Pts		
34.210	X40	..	..	307A Pts		
34.210	80	100	100	U	U	U
34.710	X35	..	..	311A Pts		
34.801	..	..	..	80	100	100
34.874	Blacktown					
35.000	80	115	115	..	..	..
35.747	..	..	..	70	100	100
35.830	X25	..	..	319A Pts		
35.835	X40	..	..	320A Pts		
35.895	318B Pts			X25	..	..
38.592	Doonside					
40.905	Rooty Hill					
41.226	..	..	..	80	115	115
42.537	..	..	..	75	115	115
43.291	Mt DrUITT					
46.715	805B Pts			X50	..	..
47.000	..	..	..	80	115	115
47.420	St Marys					
47.580	X40	..	..	811A Pts		

U Down sign on Up Suburban
 U Up sign on Down Suburban

Section 2e Homebush – St Marys Suburban / Main

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
	Suburban Lines					
12.742	Homebush					
12.986	80	80	80	..	..	..
14.324	Flemington					
14.400	X25	..	..	631A Pts		
14.882	Flem CS Jun					
15.501	700B Pts			X40	..	..
16.331	704B Pts			X40	..	..
16.350	45	45	45	..	..	..
16.606	Lidcombe					
16.715	..	..	..	80	80	80
16.715	X25	..	..	713A Pts		
16.800	714 Pts			X35	..	..
16.890	60	80	80	..	..	..
18.625	Auburn					
20.570	..	..	..	60	80	80
20.660	Clyde					
21.224	Granville					
21.465	X40	..	..	708A Pts		
21.465	75	75	75	55	55	55
Main Lines						
21.510	709Pts			X40	..	..
21.547	X40	..	..	710A Pts		
21.640	710A Pts			X35	..	..
21.685	..	..	..	50	50	50
21.685	X35	..	..	713A Pts		
21.800	714B Pts			X50	..	..

KILO-	DOWN			UP		
21.850	80	80	80	..	..	..
22.190	U	U	U	50	50	50
22.190	715 Pts			X75	..	..
22.360	716B Pts			X75	..	..
22.400	75	75	80	..	..	..
22.533	Harris Park					
23.206	Parramatta					
24.000	..	..	..	75	75	80
24.635	..	..	..	60	60	65
25.000	60	60	65	..	..	..
25.100	730B Pts			X40	..	..
25.162	Westmead					
25.300	80	100	100	..	..	..
25.350	..	..	..	80	80	85
26.637	Wentworthville					
28.045	..	..	..	80	115	115
28.294	Pendle Hill					
28.365	..	..	..	80	100	100
28.252	80	115	115	..	..	..
29.962	Toongabbie					
31.500	..	..	..	80	115	115
32.060	Seven Hills					
32.220	80	90	90	..	..	..
32.220	X50	..	..	301 Pts		
33.380	X65	..	..	305A Pts		
34.000	..	..	..	80	105	105
34.265	307B Pts			X40	..	..
34.265	80	100	100	U	U	U
34.720	X40	..	..	312A Pts		
34.801	..	..	..	80	100	100
34.835	312B Up Relief			X40	..	..
34.874	Blacktown					
35.000	80	115	115	..	..	..
35.745	..	..	..	70	100	100
35.780	317B Pts			X25	..	..
38.592	Doonside					
39.476	X25	..	..	50A Pts		
40.600	80	95	95	..	..	..
40.905	Rooty Hill					
41.226	..	..	..	80	115	115
41.250	80	115	115	..	..	..
42.537	..	..	..	75	115	115
43.291	Mt DrUITT					
46.696	..	..	..	80	115	115
47.250	80	95	95	..	..	..
47.280	..	..	..	80	105	105
47.420	St Marys					
47.670	810B Pts			X40	..	..

U Down sign on Up Main
 U Up sign on Down Main

Section 2f St Marys – Penrith

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
	Suburban Lines					
47.420	St Marys					
47.580	X40	..	..	809B Pts		
47.670	810B Pts			X40	..	..
47.900	80	115	115	..	..	..
49.084	Werrington					
49.300	..	..	..	80	115	115
50.567	..	..	..	80	105	105
52.030	115	115	115	..	..	..
52.702	Kingswood					
53.990	100	100	115	..	..	..

KILO-	DOWN		UP	
54.700	75	80	80	115
54.970	61 Pts		X35	..
55.086	Penrith			

⬇ Up sign on Down Main

Section 2g Up Engine Dive Eveleigh – Redfern

KILO-MET-RAGE	DOWN		UP	
	Normal	XPT	Normal	XPT
1.100	15	..	..	..
1.490	..	..	15	..

Section 2h Illawarra Dive Down – Up

KILO-MET-RAGE	DOWN		UP	
	Normal	XPT	Normal	XPT
1.299	..	Redfern	..	..
1.540	X30	..	..	..
2.260	X25	..	..	..
2.300	..	..	30	..

Section 2i Strathfield Flyovers Down / Up North Suburban

KILO-MET-RAGE	DOWN		UP	
	Normal	XPT	Normal	XPT
12.028	35	..	..	..
12.454	..	..	35	..

Section 2j Lidcombe Loop

KILO-MET-RAGE	DOWN		UP	
	Normal	XPT	Normal	XPT
Down and Up				
17.140	15	..	..	..

Section 2k Y Link Granville

KILO-MET-RAGE	SOUTH WEST OUTER		SOUTH WEST INNER	
	Normal	XPT	Normal	XPT
21.530	..	..	X75	..
21.730	50	..	..	..
22.530	70	..	..	..
22.620	..	..	50	..

Section 3a Clyde – Carlingford

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
	20.660	Clyde				
20.980	40	..	..	..	..	..
21.175	..	..	..	40	..	..
21.265	60	..	..	..	..	..
22.100	X15	..	..	1034 Pts		
22.180	..	..	..	60	..	..
22.422	Rosehill					
22.530	45	..	..	..	..	..
22.952	Camellia					
23.000	..	..	..	45	..	..
23.025	60	..	..	..	..	..
23.930	..	..	..	60	..	..
24.013	Rydalmere					
24.030	50	..	..	..	..	..
24.836	Dundas					
26.342	Telopea					
35.345	..	..	..	50	..	..
35.370	Carlingford					

Section 4 Blacktown – Richmond

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
	32.060	Seven Hills Branch				
32.400	70	..	..	..	..	..
32.850	309A Pts			X70	..	..
34.685	70	..	..	⬇	..	..
34.720	X40	..	..	314A Pts		
34.765	50	..	..	..	..	..
34.874	Blacktown					
35.085	X25	..	..	321A Pts		
35.335	115	..	..	..	..	..
35.345	⬇	..	..	50	..	..
35.370	..	..	..	70	..	..
35.660	100	..	..	⬇	..	..
36.265	375B Pts			X20	..	..
36.895	X40	..	..	335A Pts ⬇		
36.895	..	..	..	100	..	..
37.000	335B Pts ⬇			X40	..	..
37.190	100	..	..	..	..	..
37.406	Marayong					
37.620	⬇	..	..	100	..	..
37.620	..	..	..	100	..	..
37.920	80	..	..	⬇	..	..
37.960	80	..	..	..	..	..
38.240	..	..	..	80	..	..
38.245	⬇	..	..	80	..	..
38.540	85	..	..	⬇	..	..
38.585	85	..	..	..	..	..
39.520	⬇	..	..	100	..	..
39.785	..	..	..	100	..	..
39.810	80	..	..	⬇	..	..
39.970	Quakers Hill					
40.115	..	..	..	80	..	..
40.115	100	..	..	⬇	..	..

KILO-	DOWN		UP	
40.450	100	..	..	..
40.450	⬇	..	..	85
42.205	..	..	..	100
42.205	115	..	..	⬇
42.250	115	..	..	..
42.250	⬇	..	..	100
42.250	X60	..	..	51A Pts
42.345	51B Pts		X60	..
42.360	X60	..	..	52A Pts ⬇
42.485	52B Pts ⬇		X60	..
42.855	Schofields			
43.215	..	..	..	115
43.215	60	..	..	⬇
43.215	X60	..	..	53 Pts ⬇
43.265	..	..	..	60
43.335	115	..	..	..
43.335	53 Pts		X60	..
45.310	60	..	..	..
45.650	..	..	..	115
45.959	Riverstone			
46.260	X35	..	..	42B Pts
46.340	85	..	..	..
46.345	42B Pts		X35	..
46.410	..	..	..	60
46.840	20	..	..	⊗
46.840	⊗	..	..	20
47.480	115	..	..	85
49.225	Vineyard			
52.586	Mulgrave			
52.915	75	..	..	115
54.940	60	..	..	75
54.979	Windsor			
55.280	105	..	..	..
55.640	..	..	..	60
56.160	..	..	..	115
56.190	115	..	..	..
56.865	X50	..	..	51A Pts
57.020	100	..	..	115
57.100	50	..	..	^
57.100	51A Pts ^		X50	..
57.218	Clarendon			
57.405	X50	..	..	53B Pts ^
57.405	^	..	..	50
57.435	115	..	..	100
57.555	53B Pts		X50	..
59.645	50	..	..	..
59.810	..	..	..	115
59.996	East Richmond			
60.415	..	..	..	40
60.585	..	..	..	40
60.681	Richmond			

⬇ Down sign on Up Main.

⬇ Up sign on Down Main.

⊗ Level crossing sign NGE 216 Level crossings.

^ On Loop.

**Section 5a
Lidcombe -
Macarthur**

KILO- MET- RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
16.606	Lidcombe					
16.715	..	..	..	#80	#80	#80
	# On Suburban Line					
16.715	X35	..	..	713A Pts		
16.815	X35	..	..	^708B Pts		
	^ Down sign on Turnback Road					
16.853	708B Pts			X15	..	..
16.853	⬇	⬇	⬇	30	30	30
17.035	709B Pts			X30	..	..
17.420	..	..	..	45	45	45
17.468	70	80	80	..	..	..
18.357	Berala					
19.760	..	..	..	60	85	85
19.859	Regents Park					
19.925	50	50	50	..	..	..
20.035	X25	..	..	207 Pts		
	+ Kilometrage via Regents Park					
+20.657	Sefton park Jct					
+20.700	80	100	100	..	..	..
+20.701	211 Pts			X50	..	..
+20.814	..	..	..	50	50	50
+21.192	Sefton					
+21.493	..	..	..	70	85	85
+22.309	Chester Hill					
+23.665	Leightonfield					
+24.160	25	25	25	⬇	⬇	⬇
+24.496	Villawood					
25.655	..	..	..	80	100	100
+25.892	Carramar					
+26.088	..	..	..	75	100	100
+27.578	80	80	80	80	100	100
+28.065	X70	..	..	121 Pts		
31.820	122 Pts			X70	..	..
31.832	80	100	100	..	..	..
31.991	Cabramatta					
32.236	..	..	..	70	80	80
34.158	Warwick Farm					
34.509	60	75	75	..	..	..
34.509	X60	..	..	260A Pts		
34.604	..	..	..	80	100	100
34.670	*60	*60	*60	..	..	..
	* On Transit Road					
35.266	75	75	75	..	..	..
35.325	X40	..	..	265A Pts		
35.521	\$30	\$30	\$30	..	..	..
	\$ On No. 3 Platform Road					
35.681	Liverpool					
35.785	X40	..	..	\$ 270A Pts		
	\$ On No. 3 Platform Road					
35.940	*60	*60	*60	..	..	..
	* On Transit Road					
36.200	X60	..	..	* 275A Pts		
	* On Transit Road					
36.333	..	..	..	65	75	75
36.400	80	95	95	..	..	..
38.642	80	90	95	..	..	..
38.801	Casula					
39.774	80	115	115	..	..	..
41.064	..	..	..	80	115	115

KILO- MET- RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
41.081	Glenfield North Junction					
41.082	60	100	100	..	..	..
41.300	60	100	100	..	..	..
41.343	..	..	..	80	115	115
41.359	X60	..	..	53A Pts		
41.640	54B Pts			X60	..	..
41.925	Glenfield					
42.017	X45	..	..	60A Pts		
42.020	..	..	..	60	115	115
42.670	Glenfield South Junction					
42.701	80	115	115	..	..	..
42.730	58 Pts			X60	..	..
43.703	..	..	..	60	115	115
43.802	Macquarie Fields					
44.560	70	115	115	..	..	..
45.109	100	115	115	..	..	..
45.646	Ingleburn					
46.670	..	..	..	95	115	115
47.032	..	..	..	70	115	115
49.534	..	..	..	95	115	115
49.671	Minto					
52.634	Leumeah					
53.052	..	..	..	95	105	105
53.712	75	115	115	..	..	..
54.015	..	..	..	60	105	105
54.476	75	85	85	..	..	..
54.714	Campbelltown					
55.251	..	..	..	60	100	100
55.367	95	100	105	..	..	..
56.280	..	..	..	70	100	100
56.356	41 Pts			X35	..	..
	Up Sign on Turnback Road					
56.733	Macarthur					
56.776	..	..	..	70	100	100
57.800	95	95	105	..	..	..
57.965	95	..	105	100	100	100
57.965	RailCorp / ARTC Boundary					

⬇ Down sign on Up Main
⬆ Up sign on Down Main

**Section 5b
Granville –
Cabramatta**

KILO- MET- RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
21.224	Granville					
21.600	X15	⬇	..	750A Pts		
21.655	X15	..	..	751A Pts		
21.655	750B Pts			X15	⬆	..
21.725	751B Pts			X15	..	..
	On Loop					
22.038	75	75	75	..	..	..
22.447	..	..	..	60	80	80
22.690	..	..	..	50	50	50
	⬆	⬆	⬆
22.705	X70	..	..	756 Pts		
22.825	756 Pts			X50	⬆	..
22.875	757 Pts			X50	X70MU.	
22.935	758B Pts			X50	..	..
23.081	75	75	75	..	..	..
23.221	..	..	..	50	70	70
23.472	Merrylands					
24.632	75	90	95	..	..	..
24.887	..	..	..	60	75	75

KILO- MET- RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
25.490	..	..	..	60	75	80
25.723	Guildford					
26.335	70	100	100	..	..	..
26.722	80	100	100	..	..	..
27.103	90	100	100	..	..	..
27.438	Yennora					
28.142	40	⊗	..	..	..	..
28.355	..	..	..	40	⊗	..
28.997	Fairfield					
29.208	..	..	..	80	100	100
30.695	75	90	90	..	..	..
30.979	Canley Vale					
31.399	..	..	..	80	90	90
31.506	80	80	80	..	..	..
31.626	X80	..	..	121 Pts		
31.820	122 Pts			X70*	X80MU*.	
31.991	Cabramatta					





* Applies to trains to Canley Vale
⬇ Down sign on Up Old South
⬆ Up sign on Down Old South
⊗ Level crossing sign NGE 216 Level crossings



**Section 5d
Turnback Rd
Glenfield**

KILO- MET- RAGE	DOWN		UP	
	Nor- mal	XPT	Nor- mal	XPT
41.261	46 Pts		X75	..
41.359	60	..	..	..
41.359	52 Pts		X60	..
41.800	..	..	60	..
41.925	Glenfield			

**Section 6a
Central – Hornsby
(Shore)**

KILO- MET- RAGE	DOWN		UP	
	Nor- mal ↓	Up signs ↑	Nor- mal ↑	Dwn signs ↓
0.000	Central			
0.270	..	..	40	..
0.440	30	..	..	..
0.590	..	..	30	..
0.785	40	..	..	..
1.176	Town Hall			
2.047	Wynyard			
2.173	60	..	..	..
2.982	..	..	40	..
3.340	55	..	..	..
4.435	Milsons Point			
4.880	30	..	50	..
5.134	North Sydney			
5.200	..	..	30	..
5.215	10	..	..	..
	No 2 & 3 Road Tunnel			
5.300	60	..	..	..
5.676	..	..	10	..
	No 2 & 3 Road Tunnel			
5.895	50	..	..	..
6.110	Waverton			
6.225	..	..	50	..
6.480	50	..	..	..

	DOWN	UP
7.175	Wollstonecraft	
7.505	.. ..	50 ..
7.645	50 ..	.. ..
8.100	80 ..	.. ..
8.410	St Leonards	
8.629	.. ..	50 ..
10.160	50 ..	.. ..
10.295	Artarmon	
10.560	80 ..	.. ..
11.287	80 ..	80 ..
11.287	X80 ..	84 Pts
11.595	.. ..	80 ..
11.682	Chatswood	
11.770	.. 	.. 40
11.920	.. 40	 ..
11.920	.. ..	60 ..
11.930	93A Pts 	.. X40
11.930	X40 ..	92A Pts
12.168	96D Pts	X40 ..
12.860	.. ..	80 ..
13.273	Roseville	
13.320	.. ..	75 ..
14.290	50 ..	80 ..
14.540	.. ..	45 ..
14.604	Lindfield	
14.725	80 ..	.. ..
15.889	Killara	
16.880	X40 ..	50 Pts
16.900	50 ..	.. ..
17.035	51 Pts	X40 ..
<i>On Platform Road</i>		
17.118	Gordon	
17.250	X25 ..	 52 Pts
17.298	70 ..	.. ..
17.300	.. ..	80 ..
17.345	.. ..	X40 ..
18.710	.. ..	70 ..
18.896	Pymble	
19.070	80 ..	.. ..
20.760	50 ..	.. ..
20.818	Turrumurra	
20.920	80 ..	.. ..
21.810	70 ..	80 ..
21.886	Warrawee	
22.090	.. ..	75 ..
22.774	Wahroonga	
23.010	80 ..	.. ..
24.100	50 ..	.. ..
24.208	Waitara	
24.740	.. ..	80 ..
24.840	40 ..	.. ..
25.090	.. ..	40 ..
25.150	X8 ..	X8 ..
25.255	Hornsby	

 Down sign on Up Shore
 Up sign on Down Shore

Section 6b Chatswood – Epping

	DOWN		UP	
KILO-MET-RAGE	Nor- mal ↓	Up signs ↑	Nor- mal ↑	Dwn signs ↓
11.350	Trn'Back Rd		20	40
11.420	86B Pts		X75	..
11.433	87A Pts		..	X40
11.540	..	X40	87B Pts	

	DOWN	UP
11.682	Chatswood	
11.770	80 ..	.. 80
11.792	X40 ..	91A Pts
11.860	91D Pts	X40 ..
11.996	93D Pts	X40 ..
11.996	.. X40	92D Pts
12.015	94A Pts	.. X40
12.082	.. X40	94D Pts
12.100	X40 ..	95A Pts
12.256	.. 80	.. ..
12.490	.. 75	.. ..
16.000	X40 ..	301A Pts
16.240	301B Pts	X40
17.970	.. 80	.. ..
17.980	.. ..	80 ..
18.030	60 ..	.. ..
18.098	.. ..	.. 60
18.220	North Ryde	
18.370	75 60	.. ..
18.430	.. ..	60 75
18.554	80 75	.. ..
18.553	.. ..	75 80
19.453	60 80	.. ..
19.500	.. ..	80 60
19.625	Macquarie Park	
19.731	302A Pts	.. X40
19.800	80 60	.. ..
19.815	.. ..	60 80
19.920	.. X40	302B Pts
20.760	60 80	.. ..
20.770	.. ..	80 60
20.910	Macquarie University	
21.060	80 60	.. ..
21.073	.. ..	60 80
24.425	X40 ..	303A Pts
24.660	303B Pts	X40 ..
24.660	.. ..	80 60
24.672	60 ..	.. ..
24.742	.. 80	.. ..
24.825	Epping	
24.916	.. ..	.. 65
24.921	65 ..	.. ..
24.960	.. ..	60 ..
25.475	55 ..	.. ..
25.484	.. ..	65 55
25.545	X55 ..	112 Pts
*25.638	.. X25	112 Pts
*25.638	111 Pts	X55 ..

* 24.090 Via Strathfield

Section 6c Waverton – North Sydney Car Sidings

KILO-MET-RAGE	DOWN		UP	
	Nor- mal	XPT	Nor- mal	XPT
6.110	Waverton			
6.410	40	..	..	..
7.670	..	..	40	..
7.845	North Sydney CS			

Section 7a Strathfield – Hornsby

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
11.806	Strathfield					
12.145	538A Pts			X25	..	..
12.162	60	60	60	..	..	..
12.333	80	80	80	..	..	..
12.333	..	..	..	60	60	60
12.837	..	..	..	70	70	70
13.382	North Strathfield					
13.559	80	115	115	..	..	..
14.544	Concord West					
15.110	584B Pts			X80	..	..
15.890	50B Pts			X75	..	..
16.576	Rhodes					
16.718	..	..	..	80	115	115
16.817	80	115	115	..	..	..
18.183	Meadowbank					
18.761	60	100	100	..	..	..
18.761	..	..	..	60	115	115
18.910	..	..	..	X25	..	..
19.196	West Ryde					
19.295	60	90	90	..	..	..
19.295	X50			..	..	..
20.069	60	100	100	..	..	..
20.155	Denistone					
20.678	..	..	..	60	90	90
21.392	Eastwood					
22.642	60	90	90	..	..	..
23.004	..	..	..	60	80	80
23.030	X25			..	..	104A Pts
23.115	103B Pts			X35	..	..
23.135	50	60	60	..	..	..
23.230	X15			..	..	105B Pts
Up sign on Down Main						
23.233	25	25	25	..	..	..
Up sign on Down Main						
23.391	Epping					
23.475	X25			..	..	107A Pts
23.570	107B Pts			X25	..	..
23.570	108 Pts			X15	..	..
Down sign on Up Main						
23.595	..	..	..	60	60	60
Down sign on Up Main						
23.880	..	..	..	60	60	60
23.880	X60			..	..	109 Pts
24.089	60	60	60	..	..	..
24.089	..	..	..	60	60	60
Down sign on Up Main						
24.090	X25			..	..	112 Pts
Up sign on Down Main						
24.090	111 Pts			X55	..	..
24.460	70	90	90	..	..	..
24.563	113A Pts			X60	..	..
Down sign on Up Main						
24.565	25	25	25	..	..	..
Up sign on Down Main						
24.601	..	..	..	60	80	80
24.695	X25			..	..	113B Pts
Up sign on Down Main						
25.376	Cheltenham					
26.255	70	70	75	..	..	..
26.257	..	..	..	60	90	90
26.904	Beecroft					

	DOWN			UP		
27.938	..	..	..	60	70	75
27.948	80	80	85	..	..	..
28.266	80	115	115	..	..	..
28.579	Pennant Hills					
29.431	Thornleigh					
29.947	..	..	..	60	95	95
30.489	80	85	90	..	..	..
30.764	80	90	90	..	..	..
31.562	..	..	..	80	95	95
31.720	Normanhurst					
31.811	80	80	80	..	..	..
32.818	X75	..	..	500A Pts		
32.967	75	80	80	Dwn Relief		
33.375	60	80	80	Dwn Relief		
33.495	..	..	..	80	80	80
33.539	X75	..	..	501B Pts		
Up sign on Down Main						
33.539	X25	..	..	502A Pts		
33.864	Hornsby					

**Section 7b
North Strathfield –
Rhodes Relief Lines**

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
12.528	55	55	60	..	..	..
12.750	557B Pts			X50	..	..
13.382	North Strathfield					
13.619	80	85	90	..	..	..
13.619	☺	☺	☺	55	55	55
13.873	..	..	..	55	55	55
14.544	Concord West					
14.726	☺	☺	☺	80	80	80
14.785	X80	..	..	581A Pts		
15.753	..	..	..	75	75	75
16.503	70	70	75	..	..	..
16.576	Rhodes					
16.680	X70	..	..	53B Pts		

☺ Up sign on Down Relief

**Section 7c
West Ryde – Epping
Suburban Lines**

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
19.196	West Ryde					
19.204	..	..	..	60	80	90
19.401	60	75	80	..	..	..
20.127	60	85	90	..	..	..
20.155	Denistone					
21.314	60	65	70	..	..	..
21.392	Eastwood					
21.668	60	90	95	..	..	..
23.004	..	..	..	60	90	90
23.100	50	60	60	..	..	..
23.117	105A Pts			X15	..	..
Down sign on Up Suburban						
23.391	Epping					

**Section 8a
Central – Hurstville
Illawarra Line**

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
1.100	35	..	..	..
1.299	Redfern			
1.390	X25	..	..	..
1.510	..	..	35	..
2.213	Illawarra Junction			
2.300	..	..	50	..
2.360	..	..	X25	..
2.390	50	..	..	..
2.808	Erskineville Junction			
2.820	..	..	X25	..
2.881	Erskineville			
2.970	65	..	..	..
3.020	..	..	65	..
3.809	St Peters			
3.950	..	..	70	..
4.930	X25	..	..	..
5.040	..	..	80	..
5.308	Sydenham			
5.470	..	..	75	..
5.730	90	..	50	..
6.410	65	..	..	..
6.450	..	..	70	..

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
6.451	Meeks Road Stn Jun					
6.453	60	65	65	..	..	..
6.517	..	..	..	65	70	70
6.720	60	80	85	60	65	70
6.842	Tempe					
7.093	65	100	100	..	..	..
7.279	Wolli Creek Jct					
7.310	Wolli Creek					
7.445	X40	..	..	755A Pts		
8.350	65	75	80	..	..	..
8.420	Arncliffe					
8.610	..	..	..	60	70	70
8.687	65	100	100	..	..	..
9.510	60	80	80	..	..	..
9.604	Banksia					
9.763	..	..	..	60	90	95
10.200	60	60	65	..	..	..
10.406	Rockdale					
10.633	70	100	100	..	..	..
11.607	Kogarah					
11.746	70	80	85	60	100	100
12.741	Carlton					
13.534	70	75	80	..	..	..
13.692	Allawah					
14.265	X50	..	..	980A Pts		
14.370	..	..	..	60	80	85
14.680	60	80	80	☺	☺	☺
14.837	Hurstville					
14.950	60	65	65	..	..	..
15.060	..	..	..	65	70	70
15.060	985C Pts			X50	..	..
15.155	65	100	100	..	..	..
15.178	60	75	80	..	..	..

☺ Down sign on Up Main

**Section 8b
Central – Hurstville
Illawarra Local Line**

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
0.000	Central			
0.814	60	..	..	..
1.299	Redfern			
2.213	Illawarra Jun			
2.808	Erskineville Jun			
2.881	Erskineville			
3.240	70	..	..	..
3.809	St Peters			
4.700	..	..	65	..
5.050	734 Pts		X25	..
5.100	50	..	..	..
5.100	X20	..	737 Pts	
5.200	..	..	50	..
5.308	Sydenham			
5.410	65	..	..	..
5.670	..	..	65	..
5.770	75			
6.410	65	..	..	..

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
6.451	Meeks Rd South Jun					
6.480	747B Pts			X15	..	..
6.540	X15	..	..	749A Pts		
6.660	65	70	75	60	65	70
6.842	Tempe					
7.172	65	85	85	..	..	..
7.218	..	..	..	60	75	80
7.270	X35	..	..	753 Pts		
7.279	Wolli Creek Jct					
7.645	756B Pts			X40	..	..
8.140	..	..	..	60	80	80
8.420	Arncliffe					
8.501	..	..	..	60	60	60
9.604	Banksia					
9.740	65	80	80	..	..	..
10.210	..	..	..	60	80	85
10.406	Rockdale					
10.501	..	..	..	60	80	80
10.583	70	80	85	..	..	..
11.607	Kogarah					
12.741	Carlton					
13.692	Allawah					
14.260	X50	..	..	981A Pts		
14.323	..	..	..	60	80	85
14.370	55	55	65	..	..	..
14.600	50	50	50	☺	☺	☺
14.622	..	..	..	55	55	65
14.695	982B Pts			X25	..	..
14.710	..	..	..	45	45	50
14.837	Hurstville					
14.890	..	..	..	50	50	50
14.950	X50	..	..	988A Pts		
15.554	..	..	..	50	50	55
15.565	X50	..	..	991B Pts		

☺ Down sign on Up Local

☺ Up sign on Down Local

Section 8c

Hurstville – Waterfall

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
14.837	Hurstville					
15.661	..	..	..	60	70	75
15.665	991B Pts			X50	..	..
16.125	Penshurst					
16.760	X25			1080A Pts		
16.835	1080B Pts			X25	..	..
16.903	..	..	..	80	85	90
17.095	Mortdale					
17.060	55	55	65	..	..	..
17.110	X25			1082A Pts		
17.208	55	55	65	..	..	..
17.210	X35			1084A Pts		
17.300	..	..	..	80	80	80
18.063	65	65	65	..	..	..
18.081	..	..	..	75	75	85
18.105	1096B Pts			X25	..	..
18.282	Oatley					
18.535	80	80	85	..	..	..
18.535	..	..	..	70	70	75
19.438	80	100	110	..	..	..
19.438	..	..	..	75	80	85
20.643	80	85	90	..	..	..
20.711	..	..	..	80	100	100
21.080	..	..	..	65	85	85
21.103	80	80	90	..	..	..
21.237	Como					
21.371	70	70	75	..	..	..
21.916	80	90	90	..	..	..
21.916	..	..	..	65	70	75
22.546	..	..	..	65	95	100
22.723	Jannali					
23.319	70	70	70	..	..	..
24.388	X40			151A Pts		
24.641	Sutherland					
24.726	80	90	90	..	..	..
25.800	167B Pts			X25	..	..
26.288	Loftus					
26.368	85	85	95	..	..	..
26.368	..	..	..	65	100	100
27.327	100	115	115	..	..	..
27.327	..	..	..	65	85	95
28.392	..	..	..	70	85	95
30.753	Engadine					
31.990	85	100	110	..	..	..
32.306	100	100	110	..	..	..
32.306	..	..	..	80	115	115
33.020	100	115	115	..	..	..
33.020	..	..	..	80	100	110
33.153	Heathcote					
36.302	70	95	95	..	..	..
36.700	X50			47A Pts		
36.850	50	50	50	Down Refuge		
37.574	70	80	80	..	..	..
37.725	⬇️	..	..	X50		
37.800	Up Refuge			X50	..	..
37.820	⬇️ Up Refuge			X50	..	..
37.895	⬇️	⬇️	⬇️	50	50	50
37.895	Up Refuge			X50	..	..
38.207	..	..	..	80	115	115
38.652	40	55	60	..	..	..
38.725	⬇️ Up Refuge			X50	..	..
38.725	Up Refuge			50	50	50

KILO-	DOWN	UP
38.741	Waterfall	
⬇️	Down sign on UP Main.	
⬆️	Up sign on Down Main.	

Section 8d Hurstville – Sutherland Bi- directional – Illawarra Line

KILO-MET-RAGE	DOWN MAIN UP Direction			UP MAIN Down Direction		
	General	Medium	High	General	Medium	High
14.950	..	..	..	60	65	65
15.060	988A Pts			X50	..	..
15.090	..	..	..	60	75	80
15.090	989A Pts			X35	..	..
15.155	X50			998B Pts		
15.660	60	70	75	..	..	..
15.665	992A Pts			X50	..	..
15.830	X50			992B Pts		
16.125	Penshurst					
16.860	1081A Pts			X15	..	..
16.900	70	70	75	..	..	..
16.950	X15			1081B Pts		
16.970	..	..	..	55	55	65
17.059	Mortdale					
17.125	1083A Pts			X40	..	..
17.203	..	..	..	55	55	65
17.210	X40			1083B Pts		
17.383	55	55	65	..	..	..
18.065	75	75	80	..	..	..
18.081	..	..	..	70	70	75
18.081	1098A Pts			X15	..	..
18.170	X15			1098B Pts		
18.282	Oatley					
18.535	65	65	65	80	80	85
19.438	75	80	85	80	100	110
20.643	..	..	..	80	85	90
20.711	80	100	100	..	..	..
21.080	65	85	85	70	70	75
21.237	Como					
21.916	65	70	75	80	90	90
22.546	65	95	100	..	..	..
22.723	Jannali					
23.318	..	..	..	70	70	70
24.270	150A Pts			X40	..	..
24.388	60	85	95	..	..	..
24.388	X40			150B Pts		
24.410	152A Pts			X40	..	..
24.500	X40			152B Pts		
24.641	Sutherland					
24.726	60	85	85	..	..	..

Section 8e Eveleigh Yard

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
*2.197	⊗ 8	..	..	..
*2.233	..	..	⊗ 8	..
*2.353	⊗ 8	..	..	..
*2.394	..	..	⊗ 8	..

* Overhead wiring mast number.
⊗ Level crossing sign NGE 216 Level crossings.

Section 9 Sutherland - Cronulla

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
24.460	151A Pts			X40	..	..
On Back Platform Road						
24.641	Sutherland					
24.690	X25			155A Pts		
24.885	35	..	..	..	..	..
25.005	159A Pts			X35	..	..
25.015	55	..	..	..	..	..
25.535	80	..	..	..	..	..
25.540	..	..	..	55	..	..
26.310	..	..	..	75	..	..
26.475	65	..	..	..	..	..
26.680	..	..	..	65	..	..
26.694	Kirrawee					
26.795	80	..	..	..	..	..
27.944	Gynea					
29.509	Miranda					
31.509	Caringbah					
31.885	100	..	..	..	..	..
31.950	..	..	..	80	..	..
33.405	65	..	..	..	..	..
33.410	..	..	..	100	..	..
33.601	Woolooware					
34.160	45	..	..	..	..	..
34.160	X45			51A Pts		
34.375	..	..	..	65	..	..
34.375	45	..	..	⬇️	..	..
34.375	52B Pts ⬆️			X45		
34.625	25	..	..	⬇️	..	..
34.680	..	..	..	45	..	..
34.745	8	..	..	..	..	..
Yard Speed Sign for 1, 2, 3 Sdgs						
34.790	..	..	..	35	..	..
34.808	Cronulla					
⬇️	Down sign on UP Main.					
⬆️	Up sign on Down Main.					

Section 10 Erskineville Junction – Bondi Junction

KILO-MET-RAGE	UP ILLA RELIEF		DOWN ILLA RELIEF	
	Nor-mal	XPT	Nor-mal	XPT
3.108+	Erskineville Jun			
2.970+	..	..	X25	..
2.870+	..	..	45	..
2.760+	60	..	..	..
1.299+	Redfern			
DOWN ESR				
UP ESR				
0.100	Central			
0.770	..	..	60	..
0.920	50	..	..	..
1.176	Town Hall			
1.390	..	..	50	..

KILO-MET-RAGE	UP ILLA RELIEF	DOWN ILLA RELIEF
1.560	60 .. ..	.. ..
2.102	Martin Place	
3.410	Kings Cross	
4.530	60 .. ..	.. ..
4.823	Edgecliff	
5.000	50 .. 60	.. ..
6.000	60 .. 50	.. ..
6.340	.. .. 60	.. ..
6.444	X35 .. 908 Pts	
6.640	.. .. 60	.. ..
6.665	X25 .. 911 Pts	
<i>Up Sign on Down ESR</i>		
6.757	Bondi Junction	

+ Kilometrage via ESR from Central.

**Section 11
Sydenham – Regents Park**

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
5.170	738 Points		X25	..
5.308	Sydenham			
5.411	.. ..	15	..	
<i>Up sign on Down Bankstown</i>				
5.510	40	.. ..	..	..
6.040	70	.. 40	..	..
6.575	Marrickville			
7.540	.. ..	70	..	
7.750	60	.. ..	..
7.872	Dulwich Hill			
8.797	Hurlstone Park			
10.020	.. ..	60	..	
10.163	Canterbury			
10.360	65	.. ..	..
11.340	X50	.. 262 Points		
11.420	261 Points		X50	..
11.697	Campsie			
12.130	X25	.. 263 Points		
<i>Down sign on Up Bnkstwn line</i>				
12.270	X50	.. 264 Points		
<i>Down sign on Up Bnkstwn line</i>				
13.000	.. ..	65	..	
13.140	40	.. ..	..
13.250	Belmore			
13.400	.. ..	40	..	
13.580	80	.. ..	..
14.200	.. ..	80	..	
14.340	60	.. ..	..
14.481	Lakemba			
14.640	.. ..	50	..	
14.800	80	.. ..	..
15.346	Wiley Park			
16.290	65	.. 80	..	
16.447	Punchbowl			
16.880	.. ..	65	..	
17.020	80	.. ..	..
18.600	.. ..	80	..	
18.715	Bankstown			
18.750	.. ..	60	..	
18.813	40	.. ..	..
18.860	.. ..	60	..	
19.140	55	.. ..	..
19.546	65	.. ..	..
20.060	.. ..	60	..	

KILO-	DOWN	UP
20.556	Yagoona	
22.106	Birrong	
22.130	.. ..	65 ..
22.290	40 ..	.. ..
22.670	X25 ..	201 Pts
22.750	X10 X20MU	203 Pts
22.765	Sefton Pk EastJun	
22.765	202 Pts	X35 ..
22.825	.. ..	X25 ..
23.305	X25	.. ..
23.392	+Sefton Pk North Jun	
20.062	+ Via Lidcombe	

**Section 12
Central – Wollie Creek (Airport Line)**

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
0.100	Central			
0.183	45	.. ..	..	..
<i>Airport Turnback</i>				
0.270	X55	.. 636 Points		
0.271	.. ..	25	..	
<i>Up Sign on Airport Turnback</i>				
0.271	X45	.. ..	..
<i>Airport Turnback</i>				
0.353	635B Pts		X40	..
0.390	.. ..	X45	..	
<i>Up Sign on Dwn Airport</i>				
0.420	.. ..	45	..	
0.432	80	.. ..	..
0.896	.. ..	80	..	
<i>Up Sign on Down Airport</i>				
1.052	850B Pts		X75	..
2.070	.. ..	80	..	
2.240	60	.. ..	..
2.714	Green Square			
2.998	.. ..	60	..	
3.172	80	.. ..	..
4.935	.. ..	80	..	
5.105	60	.. ..	..
5.191	Mascot			
5.275	.. ..	60	..	
5.445	80	.. ..	..
6.480	.. ..	80	..	
6.655	60	.. ..	..
6.743	Domestic			
6.825	.. ..	60	..	
7.000	80	.. ..	..
7.935	.. ..	80	..	
8.110	60	.. ..	..
8.271	International			
8.280	.. ..	60	..	
8.460	80	.. ..	..
9.024	.. ..	80	..	
9.200	60	.. ..	..
9.489	Wollie Creek			
9.680	.. ..	60	..	
9.855	80	.. ..	..

**Section 13
Wollie Creek Junction - Glenfield**

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
7.279	Wollie Creek Jct					
7.361	754 Pts			X50	..	..
7.450	.. ..	..	50	50	55	
7.528	50	50	55	..	..	..
7.829	80	80	85	..	..	..
8.213	X70	.. ..	501A Pts			
8.220	.. ..	..	80	80	85	
8.343	80	80	85	..	..	..
8.618	504B Pts			X70	..	..
8.633	# Turrella					
9.276	60	80	85	80	80	90
9.867	80	80	85	..	..	..
9.902	.. ..	..	60	80	90	
10.095	# Bardwell Park					
11.368	# Bexley North					
11.679	.. ..	..	80	80	90	
11.745	80	100	115	..	..	..
12.624	# Kingsgrove					
13.160	60	100	115	..	..	..
13.902	.. ..	..	80	100	115	
13.964	X60	.. ..	511A Pts			
14.589	.. ..	..	60	100	115	
14.646	# Beverly Hills					
14.733	60	100	110	..	..	..
15.302	.. ..	..	60	95	105	
15.533	60	100	100	..	..	..
15.785	# Narwee					
16.153	.. ..	..	60	100	105	
16.339	60	115	115	..	..	..
17.497	# Riverwood					
17.752	60	105	110	..	..	..
18.131	.. ..	..	60	100	110	
18.138	60	115	125	..	..	..
18.805	.. ..	..	60	115	125	
19.340	# Padstow					
20.230	80	115	125	..	..	..
20.306	.. ..	..	80	115	125	
20.430	51B Pts			X60	..	..
20.964	Revesby					
21.392	80	105	115	60	115	115
21.663	55B Pts			X60	..	..
21.700	80	105	115	..	..	..
21.992	.. ..	..	70	115	115	
22.554	Panania					
23.560	.. ..	..	80	115	115	
23.647	X25	.. ..	31A Pts			
23.880	80	115	115	..	..	..
23.882	.. ..			X25	..	..
<i>On Up Terminal Road</i>						
24.028	East Hills					
26.755	Holsworthy					
31.303	80	105	115	..	..	..
31.360	.. ..	..	80	115	115	
32.200	Glenfield North Jct					
%41.081	Glenfield North Jct					
%41.082	60	100	100	..	..	..
%41.095	X60	.. ..	50A Pts			
%41.359	.. ..	..	80	80	80	
%41.359	52B Pts			X60	..	..

	DOWN			UP		
%41.560	60	100	100	..	..	..
%41.813	..	..	..	60	80	80
%41.925	Glenfield					
%42.017	X60	..	..	62A Pts		
%42.020	..	..	..	60	60	80
%42.100	61 Pts			X60	..	..
%42.112	60	75	75	..	..	..
%42.240	..	..	..	60	60	60
%42.540	..	..	..	60	75	75
%42.592	X75	..	..	57 Pts		
%42.670	Glenfield South Jct					

No platforms on Main lines.
% Kilometrage via Main South.

Section 13a Turrella – Revesby Local Line

KILO-MET-RAGE	DOWN			UP		
	General	Medium	High	General	Medium	High
8.380	502B Pts			X70	..	..
8.388	X70	..	..	503A Pts		
8.544	60	80	85	..	..	..
8.633	Turrella					
9.900	..	..	..	60	80	85
10.095	Bardwell Park					
11.368	Bexley North					
12.624	Kingsgrove					
12.793	X25	..	..	508A Pts		
12.800	..	..	..	80	80	85
13.160	70	100	115	..	..	..
13.902	..	..	..	80	100	115
14.194	512B Pts			X75	..	..
14.646	Beverly Hills					
14.733	70	80	85	..	..	..
15.785	Narwee					
15.880	..	..	..	60	85	90
16.153	..	..	..	60	95	100
16.339	60	90	100	..	..	..
17.497	Riverwood					
17.900	..	..	..	60	100	110
18.547	70	110	115	..	..	..
19.340	Padstow					
20.008	..	..	..	20	100	110
20.133	60	60	60	..	..	..
20.335	X60	..	..	52A Pts		
20.574	X45	⤵	..	53A Pts		
20.700	53B Pts			X45	⤴	..
20.835	54B Pts			X45	..	..
20.964	Revesby					
21.392	..	..	..	60	80	80
21.414	X60	..	..	56B Pts		

⤵ Down sign on Up Local.
⤴ Up sign on Down Local.

Section 14a Metropolitan Freight Lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
ARTC Boundary - Flemington West Junction				
18.909	ARTC Boundary			
19.000	..	..	70	..
19.160	50	..	..	..
19.440	..	..	50	..
19.785	..	..	X40	..
Up Sign Dwn Gds				
19.790	X35	..	..	..
19.813	Flemington South Jun			
19.870	..	..	X35	..
20.334	Flemington West Jun			

Section 14d Metropolitan Freight Lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
ARTC Boundary - Sefton Park Junction				
21.285	ARTC Boundary			
21.330	..	..	80	..
21.585	X35	..	..	..
21.635	..	..	25	..
21.658	Sefton Park East Jn			
21.780	..	..	X35	..
22.245	X50	..	..	..
22.270	Sefton Pk South Jn			

Section 14e Metropolitan Freight Lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
Flemington Goods Junction - Flemington South Junction				
Down Goods				
14.630	40	..	35	..
14.670	X20	..	..	..
14.750	..	..	X20	..
15.100	X35	..	40	..
15.190	40	..	..	..
Flemington Middle Jun				
<19.850	..	..	X35	..
NOTE: At Middle Junction the Down Flemington Goods becomes Up Enfield East Fork.				
Up Enfield East Fork				
<19.813	Flemington Sth Jun			
18.909	ARTC Boundary			
Flemington Car Sheds Transfer Road				
14.800	..	..	X20	..
640 crossover				
Up Goods				
14.615	X20	..	..	..
14.630	40	..	20	..

KILO-	DOWN		UP	
	X35	..	..	..
15.170	X35	..	..	..
15.190	35	..	..	..
15.205	..	..	X35	..
15.235	..	..	X35	..
15.290	..	..	35	..
15.330	X35	..	35	..
Flemington Middle Jun				
15.465	..	..	X35	..
NOTE: At Middle Junction the Up Flemington Goods becomes Down Enfield East Fork.				
< Km from ARTC Boundary				

Section 14f Metropolitan Freight Lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
North Strathfield Junction – Flemington Markets Junction				
#12.744	North Strathfield Jun			
*12.210	557A Pts		X50	..
*12.240	50	..	..	..
*13.735	35	..	50	..
Up Goods 625 crossover				
*13.810	20	..	..	..
*14.770	Flemington Mkts Jun			
For speed signs Markets Junction to East Junction see Section 14g.				
For speed signs East Junction to South Junction see Section 14e.				

* Main Suburban kilometrage.
Main North kilometrage.

Section 14g Metropolitan Freight Lines

KILO-MET-RAGE	DOWN		UP	
	Nor-mal	XPT	Nor-mal	XPT
Flemington Goods Junction - Olympic Park				
^14.567	Flemington Gds Jun			
(1)14.595	..	..	X35	..
(1)14.650	35	..	..	..
(1)14.910	40	..	..	..
(1)15.390	..	..	40	..
(1)15.610	50	..	..	..
15.840	Flemington Nth Jun			
(2)15.850	X30	..	..	..
(2)15.880	..	..	X50	..
(2)16.040	50	..	..	..
(2)16.920	X50	..	..	..
(3)17.230	40	..	..	..
(4)17.230	40	..	..	..
17.330	Olympic Park			
(3)17.640	50	..	..	..
(4)17.640	50	..	..	..
(4)17.640	X50	..	..	..
15.840	# Flemington Nth Jun			
(5)15.785#	..	..	X50	..
(6)15.780#	50	..	..	..
(5)15.530#	..	..	X40	..
(5)14.870#	..	..	50	..
(6)15.050%	40	..	..	..
(5)15.070%	35	..	..	..

KILO-	DOWN		UP	
(5)15.145%	..	..	X40	..
(7)15.285%	X35	..	35	..
(5)15.330%	..	..	40	..
(6)15.350%	X35	..	X35	..
(8)15.390	..	..	X35	..
(8)15.490	50	..	..	..
(8)15.815	X45	..	50	..
(9)15.905	..	..	50	..
(9)15.925	X20	..	X40	..
(8)15.960	X35	X40MU	..	..
16.030	Flem West Jun			
(9)16.050	..	..	X35	X40MU
(8)16.090	X35	X40MU	..	..
Lidcombe Shuttle Road				
15.995	..	..	X35	..
16.020	20	..	..	..
16.330	..	..	20	..

- #Km via H'bush Bay East Fork.
%Km via H'bush Bay Line.
(1) Homebush Bay East Fork.
(2) Homebush Bay Loop.
(3) Inner Platform Road.
(4) Outer Platform Road.
(5) Up Homebush Bay West Fork.
(6) Down Homebush Bay West Fork.
(7) Homebush Bay connection.
(8) Down Homebush Bay Line.
(9) Up Homebush Bay Line.

Section 15 Glenfield - Leppington

KILO- MET- RAGE	DOWN		UP	
	Nor- mal ↓	Up signs ↑	Nor- mal ↑	Down signs ↓
41.925	Glenfield			
42.017	X45	..	60A Pts	..
42.017	X60	..	62A Pts	..
42.200	75	63B Pts	X60	..
42.910	115	..	75	..
45.040	95	..	115	..
45.390	Edmondson Park			
45.620	115	..	..	..
50.293	60	..	..	..
50.293	X60	200A Pts	..	..
50.430	..	..	115	60
50.740	201B Pts	X60	..	..
51.057	Leppington			
51.390	60	60	..	..
51.511	204 Pts	X60	X60	205 Pts
52.290	X40	210A Pts	209A Pts	X40
52.539	209B Pts	X40	X40	210B Pts
52.705	13	..	..	13
52.705	X13	211A Pts	212A Pts	X13
52.710	..	60	60	..
53.000	All Sidings	25	25	All Sidings

- # Down Main South.
% Down East Hills.

Section 15a Glenfield – Leppington (Loop Lines)

KILO- MET- RAGE	DOWN		UP	
	Nor- mal ↓	Up signs ↑	Nor- mal ↑	Down signs ↓
50.293	X60	200A Pts	..	..
50.740	203 Pts	X60	X60	202 Pts
51.057	Leppington			
51.390	X60	204 Pts	205 Pts	X60
51.511	..	..	X60	205 Pts

Superseded by TS TOC 2 v5.0

Superseded by TS TOC 2 v5.0

Section 17

Passenger train operating conditions

17. Passenger train operating conditions

Version August 2015

Introduction

This section of the Train Operating Conditions Manual contains specific operating conditions for passenger trains which include Sydney Trains, NSW TrainLink, privately owned diesel railcars, heritage trains and locomotive hauled trains.

Sydney Trains and NSW TrainLink

As Sydney Trains and NSW TrainLink operate similar types of rolling stock, the following sections refer to both Sydney Trains and NSW TrainLink.

Designation of rolling stock

All rolling stock have been classified as **Narrow, Medium, Extended Medium or Wide gauge** rolling stock as outlined TOC Manual, General Instructions, Section 10 Locomotive and Rolling Stock Data.

In Table 3 and Table 4 - Maximum speed of Sydney Trains and NSW TrainLink rolling stock (pp 83-84) the various sections of track have designated **Narrow, Medium, Extended Medium or Wide gauge**.

Table 2 – Profile Track Gauge Groups and Speeds

PROFILE	# GROUP	MAX SPEED	DESIGN SPEED	AREA OF OPERATION
Narrow gauge rolling stock	1 & 6	115	115	may run on Narrow, Medium, Extended medium or Wide gauge track areas
Medium width gauge rolling stock	2	115	115	may run on Medium, Extended medium or Wide gauge track areas
Medium width gauge rolling stock	3	130	130	may run on Medium, Extended medium or Wide gauge track areas
Medium width gauge rolling stock	3a	* 115	* 130	may run on Medium, Extended medium or Wide gauge track areas
Extended Medium stock gauge rolling stock	4	115	115	may only run on Extended medium or Wide gauge track areas or where authorised herein or other authority i.e. TOC Waiver
Wide gauge rolling stock	5	80	80	may only run on Wide gauge track areas with a further restriction of 20km/h through ALL PLATFORMS (unless otherwise specified in TOC Waiver authority)

For group categories, refer to General Instructions, Section 10 Locomotive and Rolling Stock Data.

* Maximum speed limited to 115 km/h compared to the design speed of 130 km/h, refer to *Speed signs - maximum kilometres per hour* in this section for further details.

For trains requiring to run in areas outside their rolling stock boundaries (e.g. rolling stock transfers, special working etc.), permission shall be obtained from Lead Engineer Rolling Stock, Asset Standards Authority and all special requirements necessary for the movement are to be included on a Special Train Notice or 'Tables' telegram. The following table includes certain authorised working for special movements (e.g. movement of nominated Extended Medium gauge rolling stock Sydney - Broadmeadow).

Speed signs - maximum kilometres per hour

Speed signs indicate the maximum speed permitted between a speed sign and the next in advance. Drivers shall make sure that the front of the train passes a sign at or below the speed given by the sign.

If speed signs allow an increase in speed, Drivers shall not increase speed until the rear of the train has passed the speed sign. (Sydney Trains Network Rule *NSG 604 Indicators and signs*).

The maximum speed through the curved portion of the turnout is **25 km/h** unless otherwise shown. An 'X' speed sign applies to crossovers and turnouts, e.g. X30.

A white background speed sign with the letters "MU" alongside the numerals, by itself or under a yellow background speed sign, applies to XPT, Xplorer, Endeavour, Hunter trains and Multiple Unit trains (Sydney Trains Network Rule *NSG 604 Indicators and signs*).

Speed signs - Endeavour / Hunter / Xplorer Trains

Endeavour / Hunter / Xplorer trains are to run to normal speed signs (black numbers on a yellow background). Where XPT or High speed signs are provided (black numbers on a white background), Endeavour / Hunter trains will run to these speed signs up to a maximum speed of 145 km/h.

Speed signs – OSC (Outer Suburban Cars)

OSC trains are to run to normal speed signs (black numbers on a yellow background). Where Multiple Unit speed signs are provided (black MU numbers on a white background) OSC trains will run to these speed signs up to a maximum speed of 115 km/h. Where XPT or High speed signs are provided (black numbers on a white background) OSC trains will run to these speed signs up to a maximum speed of 130 km/h.

Speed signs – Millennium / Waratah

Millennium / Waratah trains are to run to normal speed signs (black numbers on a yellow background). Where Multiple Unit or Medium speed signs are provided (black MU numbers on a white background or white numbers on blue background) Millennium / Waratah trains will run to these speed signs up to a maximum speed of 115 km/h.

Maximum speed of Sydney Trains and NSW TrainLink rolling stock

Table 3 and Table 4 - Maximum speed of Sydney Trains and NSW TrainLink rolling stock (pp 83-84) show the maximum speed of Sydney Trains and NSW TrainLink rolling stock over the various sections of lines. These speeds are subject to permanent speed signs and temporary speeds that may be in force.

The approval applies to Down and Up directions unless specified.

Where speeds are shown in the following table, these are to be taken as authority for these trains to operate on the designated section of line.

Where the letters N/A are shown, trains are not permitted to travel over that section of line under normal conditions. When the letters N/A are shown and a train is required to travel over that section of line, permission shall be obtained from Lead Engineer Rolling Stock, Asset Standards Authority before the movement commences.

Table 3 Maximum speed of Sydney Trains and NSW TrainLink rolling stock

AREA / SECTION	TRACK WIDTH CLASS	ELEC-TRIFIED	SPEED-SIGNS Y/N	INTER-CITY		SUBURBAN					DIESEL RAILCARS			NOTES Locality working
				Double Deck	Double Deck	Double Deck	Double Deck	Double Deck	Single Deck	Endeavour / Xplorer	Hunter	XPT		
Train Type ⇨				Double Deck	Double Deck	Double Deck	Double Deck	Double Deck	Double Deck	Single Deck	Endeavour / Xplorer	Hunter	XPT	
Train Width ⇨				Narrow	Medium	Medium	Medium	Extended + Medium	Wide	Narrow	Narrow	Narrow		
++Group				1	2	3	3a	4	5	6	6			
City Circle														
CENTRAL - CIRCULAR QUAY - CENTRAL - City Inner and Outer	Wide	Yes	Yes	40	40	40	40	40	40	40	N/A	N/A	1a	
Sydney to Lithgow														
SYDNEY <> GRANVILLE - Main	Wide	Yes	Yes	100	100	100	100	100	80	100	100	100		
GRANVILLE <> ST MARYS - West Sub/Sub	Wide	Yes	Yes	115	115	115	115	115	80	115	115	115		
CENTRAL <> GRANVILLE - Suburban	Wide	Yes	Yes	100	100	100	100	100	80	100	100	100		
GRANVILLE <> ST MARYS - West Main/Main	Wide	Yes	Yes	115	115	115	115	115	80	115	115	115		
CENTRAL <> HOMEBUSH - Local	Wide	Yes	Yes	75	75	75	75	75	75	75	75	75		
ST MARYS <> EMU PLAINS	Wide	Yes	Yes	115	115	115	115	115	80	115	115	115		
EMU PLAINS <> SPRINGWOOD	Medium	Yes	Yes	85	85	85	85	N/A	N/A	85	85	85		
SPRINGWOOD <> LITHGOW	Narrow	Yes	Yes	115	N/A	N/A	N/A	N/A	N/A	115	115	115		
Power House Museum Siding	Narrow	No	No	N/A	N/A	N/A	N/A	N/A	N/A	10	10	N/A		
Regent Street- Mortuary Platform	Wide	Yes	No	10	10	10	10	10	10	10	10	N/A		
Eveleigh > Redfern - Up Engine Dive	Wide	Yes	Yes	15	15	15	15	15	15	15	15	15		
Redfern - Illawarra Dives	Wide	Yes	Yes	30	30	30	30	30	30	30	30	30		
Clyde to Carlingford/Sandown														
CLYDE <> CARLINGFORD	Wide	Yes	Yes	60	60	60	60%	60	60	60	N/A	60	3a	
ROSEHILL <> SANDOWN	Wide	^Yes	No	10	10	10	10	10	10	10	N/A	10		
Blacktown to Richmond														
BLACKTOWN <> RICHMOND	Wide	Yes	Yes	115	115	115	115	115	80	115	N/A	115		
SEVEN HILLS > BLACKTOWN >- Down Branch	Wide	Yes	Yes	70	70	70	70	70	70	70	N/A	70		
Lidcombe/Granville to Macarthur														
GRANVILLE <> CABRAMATTA	Wide	Yes	Yes	100	100	100	100	100	80	100	100	100		
LIDCOMBE <> MACARTHUR (Via Regents Prk)	Wide	Yes	Yes	115	115	115	115	115	80	115	115	115		
Lidcombe <> Loop Line	Wide	Yes	Yes	40	40	40	40	40	40	40	40	40		
Granville <> Y Link	Wide	Yes	Yes	70	70	70	70	70	70	70	70	70		
Central to Hornsby (Via North Shore)														
CENTRAL <> NORTH SYDNEY	Wide	Yes	Yes	60	60	60	60	60	60	60	N/A	60	1a	
NORTH SYDNEY <> HORNSBY	Wide	Yes	Yes	80	80	80	80	80	80	80	80	80		
Waverton <> North Sydney Car Sidings	Wide	Yes	Yes	40	40	40	40	40	40	40	40	N/A		
Chatswood to Epping														
CHATSWOOD <> EPPING	Ext Med	Yes	Yes	80#	80#@\$	80*@	80*@	80#@	N/A	N/A	N/A	N/A	6b	
Strathfield to Hamilton														
STRATHFIELD <> COWAN (Main)	Wide	Yes	Yes	115	115	115	115	115	80	115	115	115		
COWAN <> HAMILTON	Medium	Yes	Yes	115	115(7a)	130(7a)	115(7a)	115(7b)	N/A	145	145	145	7a, 7b	
Strathfield <> Nth Strathfield - Flyover	Wide	Yes	No	40	40	40	40	40	40	40	40	40		
Rhodes>Nth Strathfield - Up Relief / NSRU	Ext Med	Yes	Yes	75	75	75	75	75	N/A	75	75	75		
North Strathfield <> Rhodes - Down Relief	Wide	Yes	Yes	80	80	90	80	80	80	90	90	90		
West Ryde > Epping - Down Suburban	Wide	Yes	Yes	90	90	90	90	90	80	90	90	90		
Epping > West Ryde - Up Suburban	Wide	Yes	Yes	90	90	90	90	90	80	90	90	90		
Thornleigh > Pennant Hills - Up Relief	Wide	Yes	No	50	50	50	50	50	50	50	50	50		
Berowra > Down Relief	Wide	Yes	Yes	50	50	50	50	50	50	50	50	50		

% Waratah sets (A) not permitted between Clyde and Carlingford (Electrical restrictions).
 + See Sydney Metropolitan area - operation of wide gauge rolling stock (page 85) re operation of Wide Gauge rolling stock in the Metropolitan area.
 ++ Refer to Section General Instructions, Section 10 Locomotive and Rolling Stock Data for group categories.
 ^ Electrified between Rosehill and Electric Train Stop sign located at location CC22+736 (Overhead wiring structure).
 #, @, \$, * - See detail 6b in 6 - Chatswood to Epping (page 85) for further information.

For all operational requirements outside the RailCorp network, refer to the CRN and ARTC Train Operating Conditions Manuals.

Superseded by TS TOC 2 v5.0

Table 4 - Maximum speed of Sydney Trains and NSW TrainLink rolling stock

AREA / SECTION	TRACK WIDTH CLASS	ELEC-TRIFIED	SPEED-SIGNS Y/N	INTER-CITY	SUBURBAN					DIESEL RAILCARS			NOTES Locality working	
					Double Deck	Double Deck	Double Deck	Double Deck	Double Deck	Single Deck	Endea-vour / Xplorer	Hunter		XPT
Train Type →					Double Deck	Double Deck	Double Deck	Double Deck	Double Deck	Single Deck	Endea-vour / Xplorer	Hunter	XPT	
Train Width →					Narrow	Medium	Medium	Medium	Extended Medium	+ Wide	Narrow	Narrow	Narrow	
++Group					1	2	3	3a	4	5	6	6		
Sydney to Port Kembla/Bomaderry														
CENTRAL <> HURSTVILLE - Illawarra Line	Wide	Yes	Yes	100	100	100	100	100	100	80	100	100	100	
CENTRAL <> HURSTVILLE - Illawarra Local	Wide	Yes	Yes	80	80	80	80	80	80	80	80	80	80	
HURSTVILLE <> HELENSBURGH	Wide	Yes	Yes	115	115	115	115	115	80	115	115	115		
HELENSBURGH <> PORT KEMBLA	Medium	Yes	Yes	115	115	115	115	N/A	N/A	115	115	115		
CONISTON <> KIAMA	Medium	Yes	Yes	115	115	130	115	N/A	N/A	140	140%	140		
KIAMA <> BOMADERRY	Narrow	No	Yes	N/A	N/A	N/A	N/A	N/A	N/A	140	N/A	140		
Redfern <> Down and Up Illawarra Dive	Wide	Yes	Yes	30	30	30	30	30	30	30	30	30	30	
Meeks Road - XPT Depot	Narrow	No	No	N/A	N/A	N/A	N/A	N/A	N/A	15	15	15		
Allans Creek - Unanderra North Junction	Narrow	No	Yes	N/A	N/A	N/A	N/A	N/A	N/A	60	60	60		
Sutherland to Cronulla														
SUTHERLAND <> CRONULLA	Wide	Yes	Yes	100	100	100	100	100	80	100	N/A	100		
Erskineville Junction to Bondi Junction														
ERSKINEVILLE JUNCTION <> BONDI JUNCTION	Wide	Yes	Yes	60	60	60	60	60	60	60	N/A	N/A	15	10a
Sydenham to Regents Park														
SYDENHAM <> REGENTS PARK	Wide	Yes	Yes	80	80	80	80	80	80	80	80	80	80	
Central to Wollli Creek (Airport Line)														
CENTRAL <> WOLLI CREEK	Wide	Yes	Yes	80	80	80	80	80	80	80	80	80	80	12a
Wollli Creek to Glenfield														
WOLLI CREEK JCT <> TURRELLA	Wide	Yes	Yes	80	80	85	80	80	80	80	85	85	85	
TURRELLA<>REVESBY - Main Line	Wide	Yes	Yes	115	115	125	115	115	115	80	125	125	125	
TURRELLA<>REVESBY - Local Line	Wide	Yes	Yes	110	110	110	110	110	110	80	110	110	110	
REVESBY <> GLENFIELD	Wide	Yes	Yes	115	115	115	115	115	115	80	115	115	115	
Glenfield to Leppington														
GLENFIELD <> LEPPINGTON - Main Line	Wide	Yes	Yes	115	115	115	115	115	115	N/A	115	115	115	
GLENFIELD <> LEPPINGTON - Loop Line	Wide	Yes	Yes	115	115	115	115	115	115	N/A	115	115	115	
Metropolitan Freight Lines														
NORTH STRATH JCT <> FLEM MARKETS JCT	Wide	Yes	Yes	50	50	50	50	50	50	50	50	50	50	
FLEMINGTON GOODS JCT <> FLEM STH JCT	Wide	Yes	Yes	40	40	40	40	40	40	40	40	40	40	
FLEMINGTON STH JCT <> LIDCOMBE GDS JCT	Wide	Yes	Yes	40	40	40	40	40	40	40	40	40	40	
FLEMINGTON MIDDLE JCT <> FLEM WEST JCT	Wide	Yes	Yes	50	50	50	50	50	50	50	50	50	50	
FLEM EAST JCT/ FLEM MIDDLE JCT <> HOME BUSH BAY LOOP Olympic Park	Ext Med	Yes	Yes	50	50	50	50	50	50	N/A	50	50	50	
FLEMINGTON STH JCT <> ARTC BOUNDARY	Wide	* Yes	Yes	70	70	70	70	70	70	70	70	70	70	
ARTC BOUNDARY <> SEFTON PK EAST JCT	Wide	* Yes	Yes	80	80	80	80	80	80	80	80	80	80	
SEFTON PARK EST JCT <> SEFTON PK STH JCT	Wide	* Yes	Yes	35	35	35	35	35	35	35	35	35	35	
CHULLORA NTH JCT <> CHULLORA WEST JCT				Refer to ARTC for operating conditions										
CHULLORA WEST JCT <> PAC. NAT. DEPOT				Refer to ARTC for operating conditions										
CHULLORA TRACKFAST JCT <> INDUST SDGS				Refer to ARTC for operating conditions										
CHULLORA SOUTH JCT <> ENFIELD STH MAIN				Refer to ARTC for operating conditions										
ENFIELD SOUTH <> CAMPSIE				Refer to ARTC for operating conditions										
CAMPSIE <> WARDELL ROAD WEST JCT				Refer to ARTC for operating conditions										
ARTC BOUNDARY <> MEEKS RD WEST JCT	Narrow	No	Yes	40	N/A	N/A	N/A	N/A	N/A	40	40	40		
MEEKS RD WEST JCT > MEEKS RD/ SYDENHAM UP LINE Up North Fork	Narrow	* Yes	Yes	25	N/A	N/A	N/A	N/A	N/A	25	25	25		
SYDENHAM/MEEKS RD DOWN LINE Dwn North Fork <> MEEKS RD WEST JCT	Narrow	No	Yes	N/A	N/A	N/A	N/A	N/A	N/A	25	25	25		
MEEKS RD STH JN <> MEEKS RD NORTH JCT	Narrow	No	No	N/A	N/A	N/A	N/A	N/A	N/A	25	25	25		
MEEKS ROAD WEST JCT <> TEMPE JCT	Narrow	* Yes	Yes	25	N/A	N/A	N/A	N/A	N/A	25	25	25	14a	
MARRICKVILLE JCT <> COOKS RIVER				Refer to ARTC for operating conditions										
COOKS RIVER <> BOTANY (10.410km)				Refer to ARTC for operating conditions										

+ See Sydney Metropolitan area - operation of wide gauge rolling stock (page 85) re operation of Wide Gauge rolling stock in the Metropolitan area.

++ Refer to General Instructions, Section General Instructions, Section 10 Locomotive and Rolling Stock Data for group categories.

% Hunter cars not permitted beyond Dunmore.

* This section of track may be 'Unavailable for electric traction'. Refer to the 1500-volt sectioning diagrams for the current status.

For all operational requirements outside the RailCorp network refer to the CRN and ARTC Train Operating Conditions Manuals.

Superseded by TS TOC 2 v5.0

Local area working - special instructions

When a number appears in the *Notes* column of the Table 3, or Table 4 (pp 83-84), the pages referring to the specific locality should be examined for any special instructions or conditions that may be in force for the relevant section of line.

Sydney Metropolitan area - operation of wide gauge rolling stock

Due to a reduction of platform clearances, all trains containing **WIDE WIDTH (Group 5)** rolling stock as designated in *General Instructions, Section 10 Locomotive and Rolling Stock Data* shall reduce speed to **20 km/h through all platforms** and not accelerate until the last car has left the platform.

Specific localities

1 - City Circle

1a - Non stopping trains at City Circle stations.

Non stopping trains are to reduce to a speed not exceeding 10 km/h in the tunnel before the platform and then proceed through the platform at a speed not exceeding 15 km/hr. Station staff are to announce that passengers are to stand clear, as the next train will not stop at that station.

3 - Clyde to Carlingford

3a - Maximum length of stopping trains.

Due to short platforms between Clyde and Carlingford only four car or less suburban trains may operate on stopping services.

Rosehill Racecourse platform can accommodate eight car trains.

% Due to electrical restrictions, Waratah (A sets) not permitted between Clyde and Carlingford.

6 - Chatswood to Epping

6b – Operational restrictions for Sydney Trains rolling stock – Chatswood to Epping line.

All through services, which do not reverse at Epping or Chatswood, may operate with up to 25% of traction motors cut out.

* **H** sets that, after entering ECRL, require up to 50% of traction motors to be cut out are allowed, upon reaching this condition, to make only one (1) station stop within ECRL then are only allowed to continue with passengers non-stop to any station no more than 10 km before such trains shall be removed from service (refer OMET 351).

\$ **T** Sets that have arrived at either Epping or Chatswood after just travelling through the ECRL tunnel are not to be turned back unless passengers are removed from the train for the return trip through the tunnel. **T** sets may be turned back and carry passengers providing the layover time at Chatswood or Epping is not less than 35 minutes.

A, C, K, S, T, V set cars are not to be used for Epping – Chatswood shuttle services. These sets may operate unrestricted on through services, with passengers on-board, and stopping at any stations, whether diverted or timetabled.

@ Extended shuttle runs between Hornsby – Epping – Chatswood and return are only allowed to be operated by **A, H, K, M S, or T** sets.

The following operating restrictions apply to this working:

- All traction motors shall be operative on **A, K and S** sets before entering the tunnel. If one of these types of trains requires no more than 25 % of its motors to be cut-out while in the ECRL tunnel then it may complete its journey through the tunnel but not re-enter for further shuttle service.
- T sets operating on the Hornsby – Epping – Chatswood shuttle shall have a minimum layover time (time between arriving and departing) at Chatswood of 35 minutes.

7 - Strathfield to Hamilton

7a - Operation of Medium Width rolling stock between Sydney and the Hamilton area.

(The following conditions apply to Up and Down directions)

Medium width rolling stock may operate under normal conditions between Sydney and Hamilton (both directions) except as shown below:

1. The instructions contained in the Sydney Trains Network Local Appendices *NLA 312 Gosford* regarding the operation of Medium Width rolling stock in Gosford interlocking will apply.
2. The cars may pass upgrading operations and associated ballast trains at speeds not exceeding 10km/h provided that the train is safely piloted past ballast trains and machines in the non-operable position and stationary, and all staff are standing well clear.
3. In the event the cars will have to be locomotive hauled and a 48/80/81/86 class locomotive is used, the locomotive can be directly coupled to the leading car. (Tangara trains use special transition couplers).
Prior to coupling locomotive, the brake pipe pressure on the locomotive shall be reduced to 425Kpa (60psi) and automatic brake applied and released on the locomotive a number of times.
4. If the cars are being locomotive hauled, the crew shall be made aware of the above mentioned conditions.
5. The Train Controller shall inform the signaller at Gosford when additional trains consisting of medium width electric suburban rolling stock are required to operate or out-of-course running occurs in order to enable the signaller at Gosford to take the necessary precautions to prevent trains consisting of medium width electric suburban rolling stock passing or being passed on an adjacent line between 81.027km and 82.174 km by a similar train.

7b - Transfer of Extended Medium Width rolling stock between Sydney and the Hamilton area destinations.

(The following conditions apply to Up and Down directions)

Approval for the restricted movement of limited *extended medium width* suburban rolling stock outside the Wide Electric area from Cowan to Broadmeadow is given subject to the following conditions:

1. Approval applies to rolling stock with a maximum width of *3077mm ONLY* as listed in Table 3, or Table 4 (pp 83-84).
2. Approval applies to the area Cowan to Broadmeadow and Goninans Workshops only.
3. Approval applies for the purpose of transferring double deck suburban cars for the purpose of refurbishment or major repair only.

4. Normal track speed is permitted on all track, platforms, and tunnels with the exception that a reduced speed of **30 km/h** is required through the following platforms in both the Down and Up directions:
Gosford, Wyong, Fassifern, Cardiff, and Broadmeadow.
5. All restrictions applying to the movement of Medium Width rolling stock in the area of Gosford Yard (as outlined in the Sydney Trains Network Local Appendices *NLA 312 Gosford* shall apply to these movements.
6. The Extended Medium width Electric rolling stock as nominated in Table 3, or Table 4 (pp 83-84) below may pass or be passed by other passenger trains, freight trains, locomotives or other rolling stock to a maximum width of 3077mm wide travelling in the same or opposite directions, except as nominated in clause 5.
7. If the movement consists of extended medium and medium width cars, the above instructions will apply.
8. The extended medium width double deck suburban cars may pass upgrading operations and associated ballast trains at speeds not exceeding 10km/h provided that the train is safely piloted past ballast trains and machines in the non-operable position and stationary, and all staff are standing well clear.
9. Authority is given for the nominated rolling stock to pass the notice board 'WIDE GAUGE ROLLING STOCK MUST NOT PASS THIS POINT' located at Signal C19DM or C21UM at Cowan (Kilometrage 48.969km).
10. A portable headlight shall be fitted to the leading car in accordance with *NTR 406 Using train lights*.

Table 1:

For the complete list of 3077mm wide Suburban electric rolling stock approved to operate between Cowan and Goninans Broadmeadow under the conditions outlined above, refer to the *General Instructions, Section 10 Locomotive and Rolling Stock Data Group 4 Extended Medium Width Cars*.

NOTE: The above approval **does not apply** to **Tulloch type trailers**.

10 - Erskineville to Bondi Junction

10a – Bondi Junction – Block working of trains less than 4 cars in length.

Whenever a train or vehicle has to traverse the diamond crossing at Bondi Junction through 908/912 or 911/907 points in the reverse position and if the train or vehicle is less than 4 cars in length, it shall be block worked in accordance with Sydney Trains Network Rule *NSY 512 Manual block working* between SY767 and SY783 signals or SY770 and ES6.48 signals respectively.

Trains or vehicles shorter than 4 cars in length may not reliably operate the track circuits.

12 - Central to Wollie Creek (Airport Line)

12a – Restriction of locomotive hauled services and non electric powered vehicles.

Under normal working conditions, diesel passenger services and non – electric powered vehicles are not permitted to operate on the Airport line.

Notice boards inscribed: *Drivers of locomotive hauled services and non-electric powered vehicles proceeding to the Airport line must not pass this point until authorised by the signaller.*

Refer to Sydney Trains Network Local Appendix *NLA 108 Central - Sydenham (via Green Square)* for further information.

14 - Metropolitan freight lines

14a - Restrictions for Medium, Extended Medium and Wide gauge trains at Meeks Road junction.

At Meeks Road junction trains of Medium, Extended Medium or Wide rolling stock outline may occupy either the Up Goods between 747 points and 774 points (West junction) or Down Goods between 746 catch points and 773 points (West junction). Only trains of Narrow rolling stock outline are allowed on the adjacent track.

Signaller at Sydenham Signal Control Centre is to ensure the above instructions are carried out.

Passenger train running times

Version 3.0 August 2009

Western locomotive hauled running times

COLUMN	AREA		COMPOSITION	
Column 1 Down/Up	Sydney – Lithgow - Sydney		1 x NR 850 tonnes	
Column 2 Down/Up	Sydney – Lithgow - Sydney		2 x NR 1280 tonnes	

	Down		Up	
	1	2	1	2
Sydney	↻	↻	Lithgow	↻
Illawarra Jun	4	4	Lithgow CS Box	2
Ashfield	5	5	Newnes Jun	13
Strathfield	3	3	Mt Victoria	14
Homebush	1	1	Katoomba	18a
Flem CS Jun	2	2	Wentworth Falls	9
Lidcombe	1	1	Lawson	6
Auburn	1	1	Springwood	17
Clyde	2	2	Valley Heights	2
Granville	1	1	Glenbrook	10
Parramatta	2	1	Emu Plains	10
Westmead	1	1	Penrith	2
Seven Hills	4	4	St Marys	5
Blacktown	2	2	Blacktown	7
St Marys	7	7	Seven Hills	2
Penrith	5	5	Westmead	4
Emu Plains	2	2	Parramatta	2
Glenbrook	11	10	Granville	2
Valley Heights	13	10	Clyde	1
Springwood	4	3	Auburn	1
Lawson	26	22	Lidcombe	1
Wentworth Falls	11	9	Flem Cs Jun	2
Katoomba	12	10	Homebush	2
Mt Victoria	18	18	Strathfield	1
Newnes Junction	14	14	Ashfield	3
Lithgow CS Box	13a	13a	Illawarra Jun	5
Lithgow	2	2a	Sydney	4a

a = To arrive. All other times are passing.

Superseded by TS TOC 2 v5.0

Superseded by TS TOC 2 v5.0

Section 18

Coal train working

18. Coal train working

Version August 2015

North coal train loads and running times

DOWN	LOADED					EMPTY			UP	LOADED					EMPTY		
Sect Run Times	2	4	6	8	8G	1	3	5	Sect Run Times	2	4	6	8	1	3	5	
% Chullora Jct	☺	☺				☺			Woodville Jct	☺	☺	☺	☺	☺	☺	☺	
Flemington South Jct	8	8				8			Broadmeadow	4	4	4	4	4	4	4	
Middle Jct	1	1				1			Adamstown	3	3	3	3	3	3	3	
Flemington Markets	5	5				5			Sulphide Jct	10	11	15	15	9	11	11	
Nth Strathfield Jct	5	5				5			(1) Teralba Coll Jct	☺	3	3	3	3	3	4	
Concord West	3	3				3			(2) (3) Newstan Coll Jct	☺	7	9	9	11	7	6	
Rhodes	3	3				3			Fassifern	1	1	1	1	1	1		
West Ryde	2	2				2			Awaba	5	6	5	6	4	4		
Epping	9	11				7			(4) Eraring Jct	☺	5	7	8	8	4		
Thornleigh	13	16				12			Morisset	10	13	14	14	10			
Hornsby	5	6				5			(5) Vales Point Jct	☺	4	5	4	5	3		
Mt Kuring-gai x/over	7	10				6			Wyee	4	5			4			
Berowra	5	6				4			Wyong	12	16			12			
Cowan	4	4				4			Gosford	16	20			16			
Boronia x/over	3	3				3			Woy Woy	9	9			8			
Hawkesbury River	7	6				6			Wondabyne x/over	7	9			7			
Wondabyne x/over	7	8				7			Hawkesbury River	8	9			8			
Woy Woy	8	12				9			Boronia x/over	17	21			16			
Gosford	7	7				7			Cowan	8\$	9\$			7\$			
Wyong	17	20				16			Berowra	7	9			6			
Wyee	12	15				12			Mt Kuring-gai x/over	5	5			4			
(1) Vales Point Jct	4	5				4	☺	☺	Hornsby	6	6			5			
Morisset	4	5				4	7	7	Thornleigh	4	5			4			
(2) Eraring Jct	☺	11	14			11	8	11	Epping	7	7			7			
Awaba	5	6				5	4	4	West Ryde	5*	5*			4*			
Fassifern	5	5				4	6	4	Rhodes	3	3			3			
(3) (4) Newstan Coll Jct	1	1	☺			1	1	1	Concord West	2	3			3			
(5) Teralba Coll Jct	6	8	12	☺	☺	6	8	6	Nth Strathfield Jct	3	3			3			
Sulphide Junction	4	5	3	6	7	3	4	3	Flemington Markets	5	5			5			
Adamstown	10	13	11	17	19	10	10	10	Middle Jct	5	5			5			
Broadmeadow	3	3	3	3	5	3	3	3	Flemington South Jct	1	1			1			
Woodville Jct	4	4	4	4	4	4	4	4	% Chullora Jct	8	8			8			

Notes:

- (1) 5 minutes from Vales Point.
- (2) 5 minutes from Eraring.
- (3) 6 minutes to/from Newstan Colliery (Empty Arriving).
- (4) 10 minutes to/from Newstan Colliery (Loaded Departing).
- (5) 10 minutes from Teralba Colliery.
- % Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for further information.

Notes:

- (1) 12 minutes to Teralba Colliery (To clear Down Main).
- (2) 6 minutes to Newstan Colliery (Empty Arriving).
- (3) 10 minutes to Newstan Colliery (Loaded Departing).
- (4) 4 minutes to Eraring.
- (5) 5 minutes to Vales Point.
- \$ See footnote Northern Section, UP – sectional running times and full sectional loads (page 20).
- * Additional one minute to traverse Epping – West Ryde on Up Main.
- % Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for further information.

Loaded - DOWN

	Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1	Sydney Metrop – Woodville Jct	L3/L4	--	--	--	4500	C	2
2	Sydney Metrop – Woodville Jct	L3/L4	--	--	--	4500	F	4
3	Sydney Metrop – Woodville Jct	AC6	--	--	4600	--	C	2
4	Sydney Metrop – Woodville Jct	AC6	--	--	4600	--	F	4
5	Newstan - Woodville Jct	L1	1650	3300	--	--	C/G	6
6	Newstan - Woodville Jct	L1+L3	--	2700	--	--	F	6
7	Newstan - Woodville Jct	L1+L3+L3	--	--	3700	--	F	6
8	Newstan - Woodville Jct	L3/L4	--	2100	--	4200	F/G	6
9	Teralba – Woodville Jct	L1	3150	5925 (1)	--	--	C	8
10	Teralba – Woodville Jct	L3/4	2100	4200	5925 (1)	--	F	8
11	Teralba – Woodville Jct	AC6	2623	5246	7369 (2)	--	C	8
12	Teralba – Woodville Jct	AC6	2623	5246	7369 (2)	--	G	8G
13	Teralba – Woodville Jct	L1	--	--	7369 (2)	--	G	8G
14	Teralba – Woodville Jct	L1+L1+L3/4	--	--	7369 (2)	--	G	8G
15	Teralba – Woodville Jct	L1	--	6521 (3)	--	--	G	8G
16	Teralba – Woodville Jct	L3/4	--	--	6521 (3)	--	G	8G

(1) To allow for greater flexibility, train of 72 vehicles can run into Teralba, however due to length restraints under the loader, only the first 55 vehicles are to be loaded. In this instance the total load will be 5925 tonnes.

(2) To allow for greater flexibility, train of up to 80 vehicles can run into Teralba, however due to length restraints under the loader, only the first 57 vehicles are to be loaded. In this instance the total load will be 7369 tonnes.

(3) To allow for greater flexibility, train of up to 60 vehicles can run into Teralba, however due to length restraints under the loader, only the first 53 vehicles are to be loaded. In this instance the total load will be 6521 tonnes.

Empty - DOWN

	Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1	Sydney Metrop - Woodville Jct	L3/L4	--	1300	--	--	C	1
2	Sydney Metrop - Woodville Jct	AC6	--	1300	--	--	C	1
3	Vales Point - Newstan	L6 + L12	--	900	--	--	C	3
4	Vales Point – Woodville Jct	L3/L4	--	1300	--	--	C	3
5	Vales Point – Woodville Jct	L1	--	1400	--	--	G	5
6	Vales Point – Woodville Jct	AC6	--	1300	--	--	C	3
7	Vales Point – Woodville Jct	AC6	--	1400	--	--	G	5
8	Eraring – Woodville Jct	L3/L4	--	1300	--	--	C	5

Loaded - UP

	Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1	Woodville Jct – Sydney Metrop	L3/L4	--	--	--	4200	C	2
2	Woodville Jct – Sydney Metrop	L3/L4	--	--	--	4200	F	4
3	Woodville Jct – Sydney Metrop	AC6	--	--	4600	--	C	2
4	Woodville Jct – Sydney Metrop	AC6	--	--	4600	--	F	4
5	Woodville Jct – Vales Pt	L3/L4	--	4200	--	--	C	6
6	Woodville Jct – Vales Pt	L3/L4	--	4200	--	--	F	8
7	Woodville Jct – Vales Pt	AC6	2623	5246	7869	--	C	6
8	Woodville Jct – Vales Pt	AC6	2623	5246	7869	--	F/G	8
9	Woodville Jct – Eraring	L1	3150	6300	--	--	C	6
10	Woodville Jct – Eraring/Vales Point	L1	3150	6300	--	--	F/G	8
11	Woodville Jct – Eraring	L1+L3	--	4800	--	--	C	6
12	Woodville Jct – Eraring	L1+L3	--	4800	--	--	F	8
13	Woodville Jct – Eraring	L3/L4	2100	4200	--	--	C	6
14	Woodville Jct – Eraring/Vales Point	L3/L4	2100	4200	--	--	F/G	8
15	Woodville Jct – Eraring	L1+L3+L3	--	--	6600	--	C	6
16	Woodville Jct – Eraring	L1+L3+L3	--	--	6600	--	F	8
17	Newstan – Vales Point	L6 + L12	--	2888	--	--	C	8

Empty - UP

	Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1	Woodville Jct - Sydney Metrop	L3/L4	--	1300	--	--	C	1
2	Woodville Jct - Sydney Metrop	AC6	--	1300	--	--	C	1
3	Woodville Jct - Teralba	L3/L4	--	1800	--	--	C	3
4	Woodville Jct - Teralba	L1	--	1800	--	--	C	3
5	Woodville Jct - Teralba	AC6	--	1800	--	--	C	3
6	Woodville Jct - Newstan	L1	--	1300	--	--	C	5
7	Woodville Jct - Newstan	L3/L4	--	1300	--	--	C	5

Western coal train loads and running times

DOWN		EMPTY	UP		LOADED	
	COLUMN	1	COLUMN	%2	#4	
# Chullora Junction		↻	Lithgow Yard	↻	↻	
Flemington South Jct	8		Zig Zag	--	--	
Lidcombe	3		Newnes Junction	21	21	
Auburn	3		Mt Victoria	19	19	
Clyde	3		Katoomba	19	19	
Granville	2		Wentworth Falls	17	11	
Parramatta	2		Lawson	10	11	
Westmead	2		Springwood	31	25	
Seven Hills	5		Valley Heights	3	4	
Blacktown	2		Glenbrook	10	10	
St Marys	10		Emu Plains	12	12	
Penrith	6*		Penrith	4	4	
Emu Plains	2		St Marys	7	7	
Glenbrook	10		Blacktown	12*	12*	
Valley Heights	11		Seven Hills	3	3	
Springwood	3		Westmead	6	6	
Lawson	23		Parramatta	3	3	
Wentworth Falls	9		Granville	3	3	
Katoomba	10		Clyde	1	1	
Mt Victoria	18		Auburn	3	3	
Newnes Junction	14		Lidcombe	3	3	
Zig Zag	9		Flemington South Jct	3	3	
Lithgow Yard	5/6a		# Chullora Junction	8	8	

% Air brake or # Dynamic brake for planning purposes only between Katoomba and Valley Heights.

* Additional one minute to be added when traversing the Down/Up West Main between Blacktown and St. Marys.

Chullora Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant information.

Empty - DOWN

	Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Column
1	Sydney Metrop – Newnes Jct/Lithgow	L3/L4 (3)	--	--	--	1125	C	1
2	Sydney Metrop – Newnes Jct/Lithgow	(1)	--	--	--	1125	C	1
3	Sydney Metrop – Newnes Jct/Lithgow	L3/L4 (4)	--	--	784	--	C	1
4	Sydney Metrop – Newnes Jct/Lithgow	L3/L4	--	--	--	908	C	1
5	Sydney Metrop – Newnes Jct/Lithgow	(2)	--	--	--	908	C	1
6	Sydney Metrop – Newnes Jct/Lithgow	AC6	--	1300	--	--	C	1

(1) 2xL3/L4+2xDL or 3xL3/L4 + 1xDL.

(2) 1xL3/L4+3xDL.

(3) 1x L3/L4 locomotive may be placed off line.

(4) 2xL3/L4 + 1xDL.

Loaded - UP

	Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Column
1	Lithgow/Newnes Jct – Sydney Metrop	L3/L4	--	--	--	4500	C/F	%2/#4
2	Lithgow/Newnes Jct – Sydney Metrop	(1)	--	--	--	4500	C/F	%2/#4
3	Lithgow/Newnes Jct – Sydney Metrop	L3/L4 (3)	--	--	3344	--	C/F	%2/#4
4	Lithgow/Newnes Jct – Sydney Metrop	L3/L4	--	--	--	3876	C/F	%2/#4
5	Lithgow/Newnes Jct – Sydney Metrop	(2)	--	--	--	3876	C/F	%2/#4
6	Lithgow/Newnes Jct – Sydney Metrop	AC6	--	--	4600	--	C/F	%2/#4

(1) 2x L3/L4+2xDL or 3x L3/L4 + 1xDL.

(2) 1x L3/L4+3xDL.

(3) 2x L3/L4 + 1xDL.

% Air brake or # Dynamic brake for planning purposes only between Katoomba and Valley Heights.

Illawarra coal train loads and running times

DOWN	LOADED	EMPTY	UP	LOADED	EMPTY
Sect Run Times	2 4	1 2	Sect Run Times	2 4	1
% Marrickville Jct	↻		Inner Harbour		↻
Meeks Road Junction	3		Coniston		7
Wolli Creek Junction	2		Wollongong		2
Hurstville	12		Corrimal		5
Mortdale	3		Thirroul		6
Sutherland	13		Scarborough		8
Waterfall	22		Coal Cliff		4
Helensburgh	10		Otford		9
(1) Metrop Coll Jct	4 ↻		(1) Metrop Coll Jct		4
Otford	4 6		Helensburgh		4
#Coal Cliff	9 14		Waterfall		9
Scarborough	5 10		Sutherland		12
Thirroul	8 8		Mortdale		7
Corrimal	6 7		Hurstville		3
Wollongong	5 6		Wolli Creek Junction		7
Coniston	2 2		Meeks Road Junction		2
Inner Harbour	5a 5a		% Marrickville Jct		3
Inner Harbour		↻	Wongawilli Junction		↻
Unanderra North Jct		7	Unanderra	↻	10
Unanderra		3 ↻	Unanderra North Jct	3	
Wongawilli Junction		10	Inner Harbour	8a	

Notes:

(1) 5 minutes to/from Metrop Colliery.
 % Marrickville Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant information.

Notes:

(1) 5 minutes from/to Metrop Colliery.
 % Marrickville Jct published for reference only, this location is within the ARTC Network, refer to ARTC for all relevant information.

DOWN	LOADED
Sect Run Times	4
Coniston	↻
Unanderra North Jct	2
Unanderra	5
++89.200km	4
++91.000km	4

Loaded - DOWN

Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1 Sydney Metrop – Inner Harbour	L3/L4	--	--	--	4500	C/F	2
2 Sydney Metrop – Inner Harbour	(1)	--	--	--	4500	C/F	2
3 Sydney Metrop – Inner Harbour	L3/L4 (3)	--	--	3344	--	C/F	2
4 Sydney Metrop – Inner Harbour	L3/L4	--	--	--	3876	C/F	2
5 Sydney Metrop – Inner Harbour	(2)	--	--	--	3876	C/F	2
6 Sydney Metrop – Inner Harbour	AC6	--	--	4600	--	C/F	2
7 Metrop Colliery - Inner Harbour	L3/L4	--	4500	--	--	C/F	4
8 Metrop Colliery - Inner Harbour	AC6	--	5200	--	--	C/F	4

- (1) 2xL3/L4+2xDL or 3xL3/L4 + 1xDL.
- (2) 1 x L3/L4+3 x DL.
- (3) 2 x L3/L4 + 1xDL.

Empty - DOWN

Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1 Inner Harbour- Unanderra	L3/L4	--	825	--	--	C/F	1
2 Inner Harbour- Unanderra	L3/L4	--	1050	--	--	C/F	1
3 Inner Harbour- Unanderra	L3/L4	--	1125	--	--	C/F	1
4 Unanderra – Wongawilli Junction	L4	1600	--	--	--	C/F	2

Loaded – UP

Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1 Unanderra – Inner Harbour	L3/L4	--	3300	--	--	C/F	2
2 Unanderra – Inner Harbour	L4	--	4200	--	--	C/F	2
3 Unanderra – Inner Harbour	L3/L4	--	4500	--	--	C/F	2
4 Wongawilli Junction – Unanderra	L4	1600	--	--	--	C/F	4

Empty - UP

	Section	Loco type	Single	Double	Triple	Quad	Vehicle Class	Sect Run Times
1	Inner Harbour – Sydney Metrop	L3/L4	--	--	--	1125 (3)	C	1
2	Inner Harbour – Sydney Metrop	(1)	--	--	--	1125	C	1
3	Inner Harbour – Sydney Metrop	L3/L4 (4)	--	--	784	--	C	1
4	Inner Harbour – Sydney Metrop	L3/L4	--	--	--	908	C	1
5	Inner Harbour – Sydney Metrop	(2)	--	--	--	908	C	1
6	Inner Harbour – Sydney Metrop	AC6	--	--	1300 (5)	--	C	1
7	Inner Harbour – Metrop Colliery	L3/L4	--	1125 (4)	--	--	C	1
8	Inner Harbour – Metrop Colliery	AC6	--	1300	--	--	C	1

- (1) 2xL3/L4+2xDL or 3xL3/L4 + 1xDL.
- (2) 1 x L3/L4+3 x DL.
- (3) 1 x L3/L4 locomotive may be placed off line.
- (4) 2 x L3/L4 + 1xDL.
- (5) 1 x AC6 off line.