Brisbane Metropolitan System Information Pack

Version Information

Version 3: 05/10/2016

- Updated References QR Network to Queensland Rail
- Updated References Queensland Transport to DTMR
- Removed references 2005 Access Undertaking
- EPA changed to Department
- Updated Standards references
- Updated Line Diagrams
- Updated Climate Information
- Updated Track Grade
- Updated Network Control Regions & Singalling Centres
- Updated Safeworking Systems
- Updated Level Crossing Information
- Updated Description of Railway

Table of Contents

Introduction

The detail provided in this pack relates to infrastructure and operational information necessary to develop a conceptual operating plan/Access Application. It is envisaged that Access Seekers will liaise closely with Queensland Rail to formulate a detailed operating specification as part of a full access agreement negotiation. Operational parameters outlined in this pack may be varied by mutual agreement with **Queensland Rail**.

All railway operators, wishing to operate in Queensland, require Accreditation under the Transport Infrastructure Act 1994 (Qld) and need to consider, but not limited to, the following aspects of typical rail operations:-

- Provisioning, stabling or stowing areas for rollingstock
- Train crewing
- Safeworking
- Training
- Route knowledge
- Environmental requirements
- Track standards
- Signalling and traction systems standards and constraints
- Safety training
- Management of risk
- Rollingstock registration and Train authorisation
- Legal issues as contained in Queensland Rail's Access Undertaking, Access Agreements and information contained in this pack.

Operators will be required to have accreditation with the Department of Transport and Main Roads, hold an Access Agreement with **Queensland Rail** and meet any conditions and precedents specified in the Access Agreement prior to commencing operations.

Accreditation means an applicant has confirmed that they are able to meet the requirements to carry out railway operations in Queensland. The Director-General, the Department of Transport and Main Roads, must be satisfied that the applicant has demonstrated:

- Effective management and control of rolling stock
- Competence and capacity to manage risks to safety associated with railway operations
- Competence and capacity to implement the required safety management system and has met the legislative requirements
- Financial capacity, or public risk insurance arrangements for potential liabilities.

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Fortitude Valley QLD 4006
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Operators need to be aware of and comply with other general legislation such as but not limited to Workplace Health & Safety, Environmental legislation and Heritage legislation.

This package is issued to railway operators as an UNCONTROLLED DOCUMENT and is reviewed annually. It is the onus of railway operators to ensure they are using the current version of this document.

It is anticipated that information relating to the Varsity Lakes, the Springfield and Redcliffe Peninsula lines are to be added in Version 3.1.

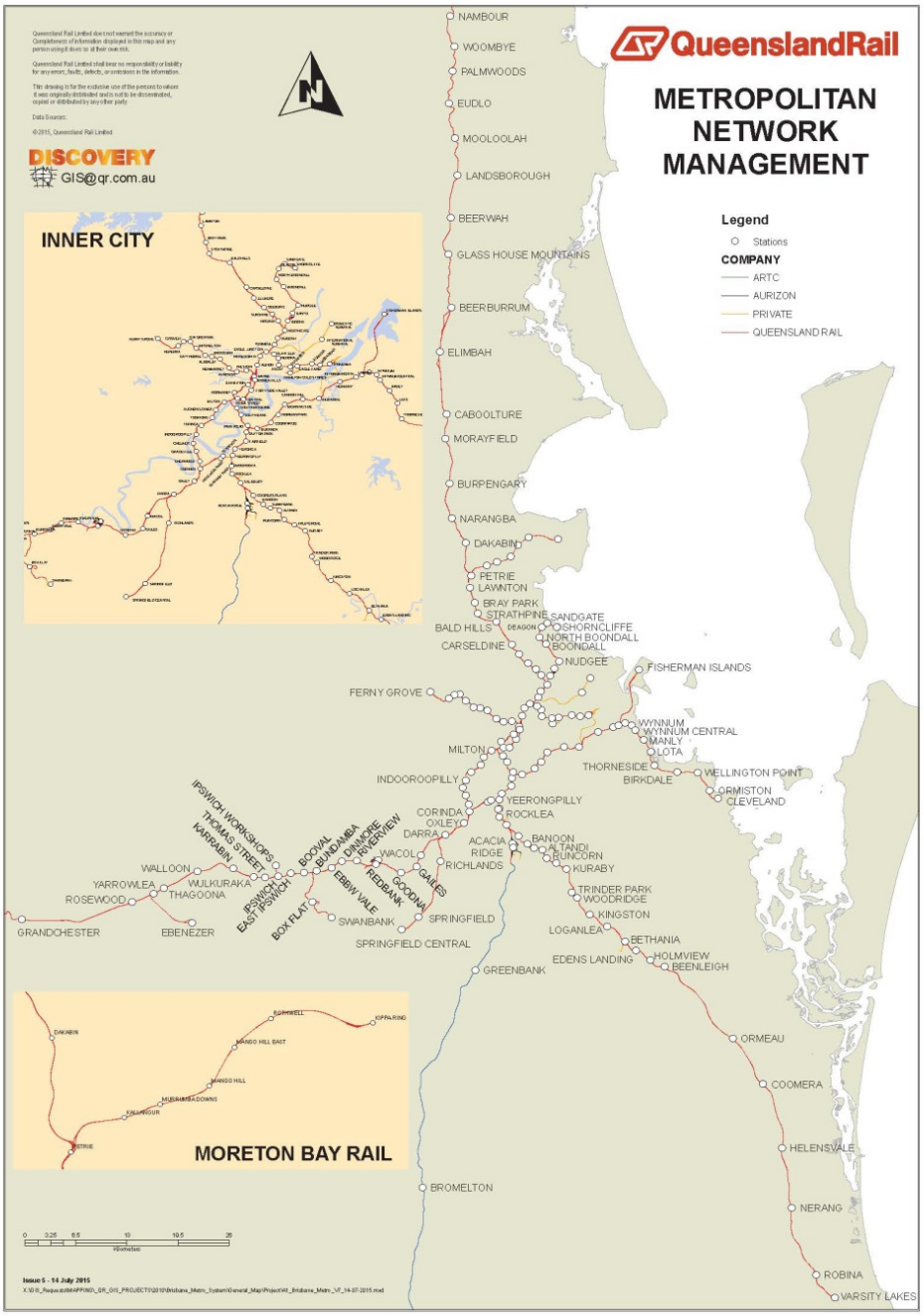
This Information Pack is provided for information purposes only and Queensland Rail does not make any representation or warranty, express or implied, as to the accuracy, suitability or completeness of the information. To the extent that any inconsistency arises between this Information Pack and the Access Agreement or Queensland Rail's Access Undertaking, the provisions of the Access Agreement and Queensland Rail's Access Undertaking shall prevail.

General Information

The Brisbane Metropolitan System comprises a number of commuter branch lines as well as major trunk routes that provide access to regional and interstate areas.

The system caters for all traffic tasks encompassing high speed commuter trains, Tilt Trains services, general freight and block trains.

Descriptive distances within this document are plan kilometres and correspond with those contained in Queensland Rail's Working Timetable and are general only (i.e. do not include equalities resulting from deviations), for accurate distances refer to relevant Working Plan and Sections. Generally distances originate from the junction of the branch and commence at 0 km. The origin of "through distances" on the Queensland Rail Network is at Roma Street.



General Climate

The Brisbane Metropolitan system lies within a warm to hot temperature climate.

The following sub-sections specify general climatic parameters. For latest and more specific information potential railway operators should consult The Australian Bureau of Meteorology at its Internet Website: http://www.bom.gov.au/climate

Cyclones

Tropical lows, which develop from November to April, occasionally deepen to cause tropical cyclones. Tropical cyclones frequently foster high winds, heavy flood-producing rainfall and coastal storm surges. The high wind risk does not usually extend further inland than 50 km. Inland movement reduces the inflow of moisture and cyclone intensity declines often within a few hours.

Not all cyclones are severe.

The impact of cyclones on this System varies depending on the “tracking” of each cyclone.

Humidity

This region could experience prolonged periods of high humidity and potential railway operators should consider this when planning / designing rollingstock and machinery to operate on this rail system.

Rainfall

The wettest places in Queensland are located on the tropical coast between Innisfail and Cairns. Highest rainfall occurs on the seaward side of the Great Divide.

However, at times in summer the inland extension of low-level moist airflow, in combination with intense surface heating, produces significant thunderstorm activity.

Rainfall is mostly confined to summer months in the northern tropics, where in excess of 90% of the annual total is recorded between November and April.

In the north, rain is mostly associated with monsoonal troughs.

The wet season in Queensland is predominantly from January to April when monthly rain falls of 400 mm or more can occur.

Flooding of low lying areas is likely to occur as a direct result of cyclones and heavy coastal rains. In these instances floodwaters can affect this System by causing delays to traffic on average 4 hours per year depending on severity of the incident.

This is an average figure and closure periods of greater duration are possible in any one year.

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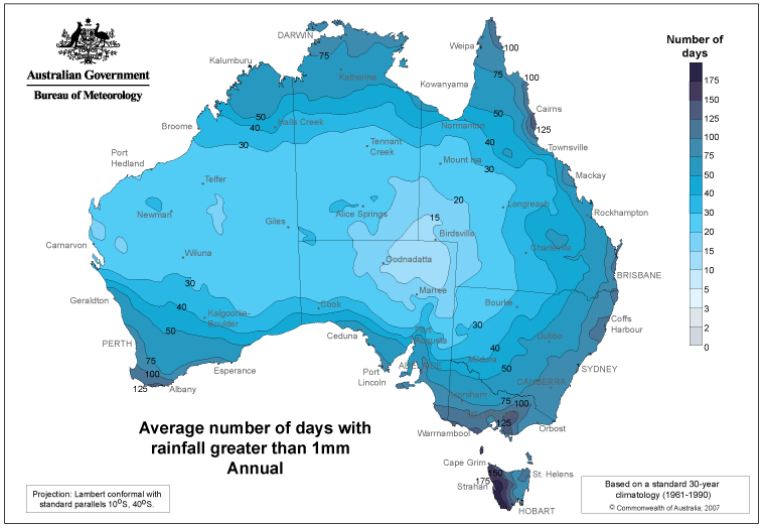
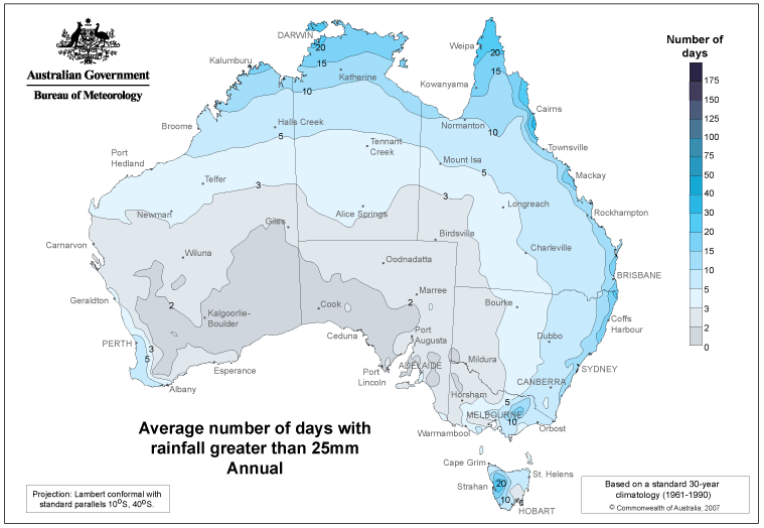
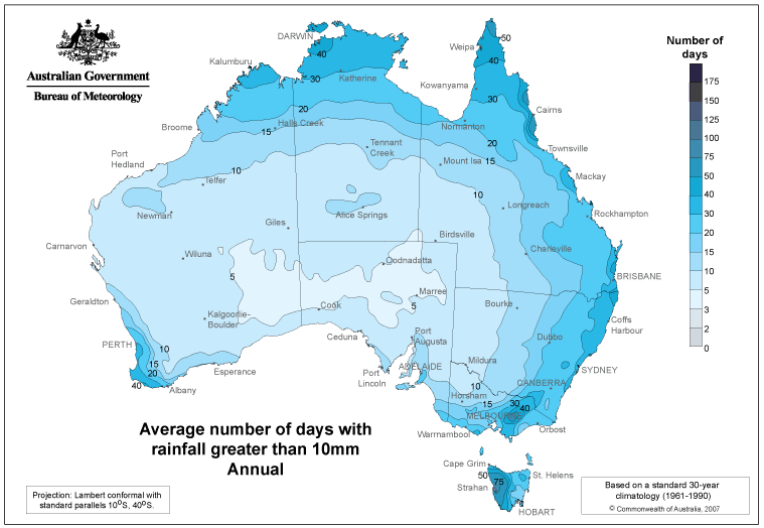
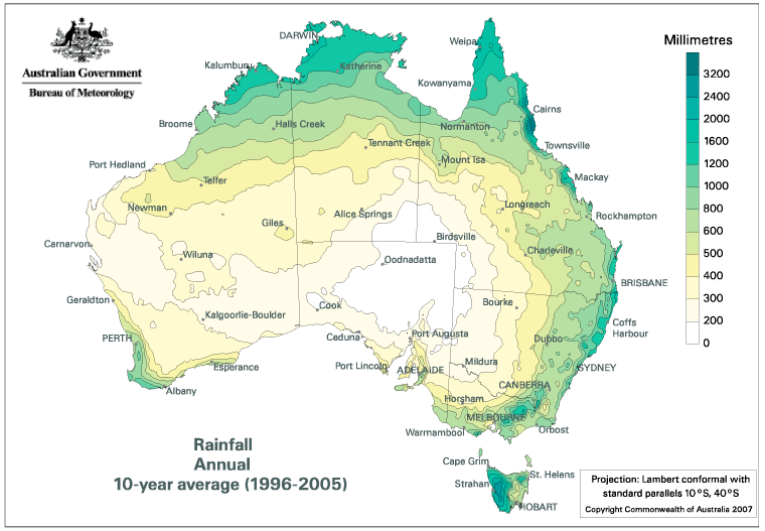
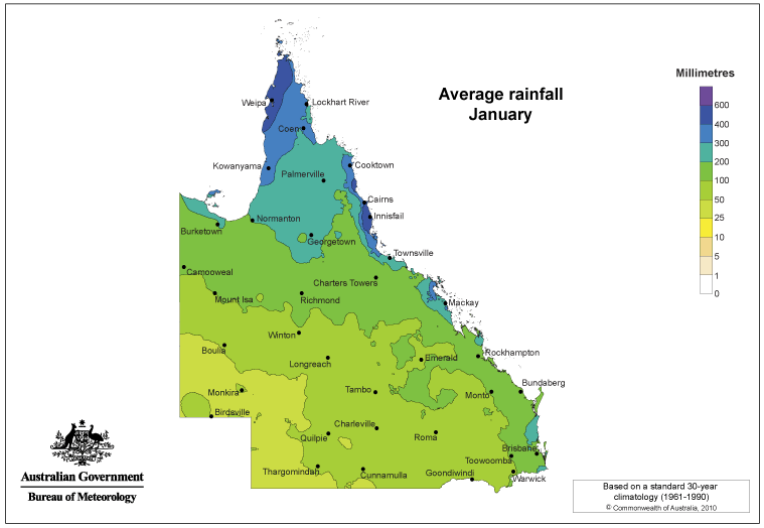
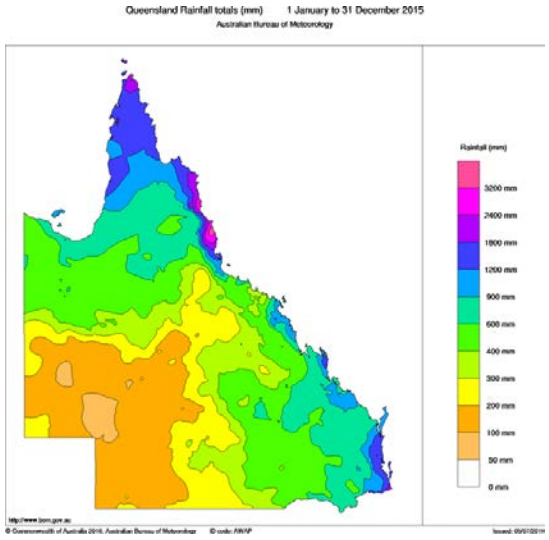

Australian Government
Bureau of Meteorology
Number of days
175
150
125
100
75
50
40
30
20
15
10
5
3
2
0
Average number of days with rainfall greater than 1mm
Annual
Projection: Lambert conformal with standard parallels 10°S, 40°S.
Based on a standard 30-year climatology (1961-1990)
© Commonwealth of Australia, 2007
DARWIN
Kalumburu
Katherine
Weipa
Kowanyama
Cairns
Broome
Halls Creek
Normanton
Tennant Creek
Mount Isa
Townsville
Port Hedland
Telfer
Mackay
Newman
Giles
Alice Springs
Longreach
Rockhampton
Carnarvon
Wiluna
Birdsville
Charleville
Oodnadatta
BRISBANE
Geraldton
Marree
Cook
Bourke
Kalgoorlie-Boulder
Coffs Harbour
PERTH
Ceduna
Port Augusta
Dubbo
Esperance
Port Lincoln
ADELAIDE
Mildura
SYDNEY
Albany
CANBERRA
Horsham
Warrnambool
Orbost
Cape Grim
St. Helens
Strahan
HOBART

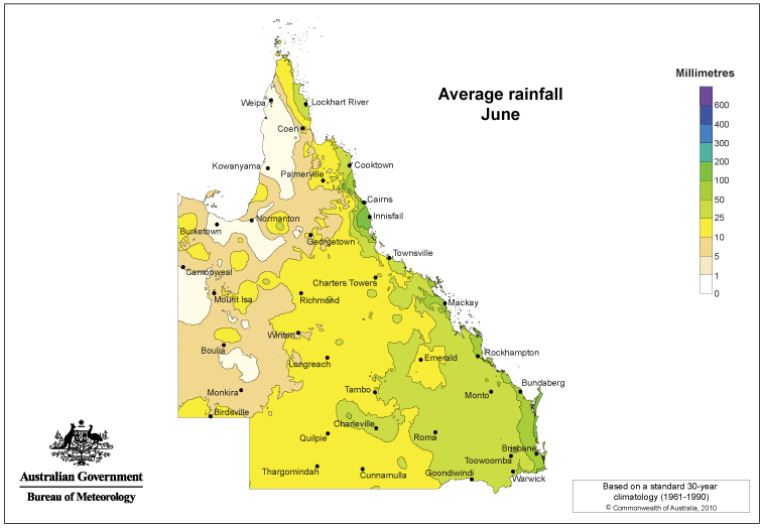

Australian Government
Bureau of Meteorology
Number of days
175
150
125
100
75
50
40
30
20
15
10
5
3
2
0
Average number of days with rainfall greater than 25mm
Annual
Projection: Lambert conformal with standard parallels 10°S, 40°S.
Based on a standard 30-year climatology (1961-1990)
© Commonwealth of Australia, 2007
DARWIN
Kalumburu
Katherine
Weipa
Kowanyama
Cairns
Broome
Halls Creek
Normanton
Tennant Creek
Mount Isa
Townsville
Port Hedland
Telfer
Mackay
Newman
Giles
Alice Springs
Longreach
Rockhampton
Carnarvon
Wiluna
Birdsville
Charleville
Oodnadatta
BRISBANE
Geraldton
Marree
Cook
Bourke
Kalgoorlie-Boulder
Coffs Harbour
PERTH
Ceduna
Port Augusta
Dubbo
Esperance
Port Lincoln
ADELAIDE
Mildura
SYDNEY
Albany
CANBERRA
Horsham
MELBOURNE
Warrnambool
Orbost
Cape Grim
St. Helens
Strahan
HOBART


Australian Government
Bureau of Meteorology
Number of days
175
150
125
100
75
50
40
30
20
15
10
5
3
2
0
Average number of days with rainfall greater than 10mm
Annual
Projection: Lambert conformal with standard parallels 10°S, 40°S.
Based on a standard 30-year climatology (1961-1990)
© Commonwealth of Australia, 2007
DARWIN
Kalumburu
Katherine
Weipa
Kowanyama
Cairns
Broome
Halls Creek
Normanton
Tennant Creek
Mount Isa
Townsville
Port Hedland
Telfer
Mackay
Newman
Giles
Alice Springs
Longreach
Rockhampton
Carnarvon
Wiluna
Birdsville
Charleville
Oodnadatta
BRISBANE
Geraldton
Marree
Cook
Bourke
Kalgoorlie-Boulder
Coffs Harbour
PERTH
Ceduna
Port Augusta
Dubbo
Esperance
Port Lincoln
ADELAIDE
Mildura
SYDNEY
Albany
CANBERRA
Horsham
MELBOURNE
Warrnambool
Orbost
Cape Grim
St. Helens
Strahan
HOBART


Australian Government
Bureau of Meteorology
Millimetres
3200
2400
2000
1600
1200
1000
800
600
500
400
300
200
0
Rainfall
Annual
10-year average (1996-2005)
Projection: Lambert conformal with standard parallels 10°S, 40°S
Copyright Commonwealth of Australia 2007
DARWIN
Kalumburu
Katherine
Weipa
Kowanyama
Cairns
Broome
Halls Creek
Normanton
Tennant Creek
Mount Isa
Townsville
Port Hedland
Telfer
Mackay
Newman
Giles
Alice Springs
Longreach
Rockhampton
Carnarvon
Wiluna
Birdsville
Charleville
Oodnadatta
BRISBANE
Geraldton
Bourke
Kalgoorlie-Boulder
Cook
Coffs Harbour
PERTH
Ceduna
Port Augusta
Dubbo
Esperance
Port Lincoln
Mildura
ADELAIDE
SYDNEY
Albany
CANBERRA
Horsham
MELBOURNE
Warrnambool
Orbost
Cape Grim
St. Helens
Strahan
HOBART


Average rainfall
January
Millimetres
600
400
300
200
100
50
25
10
5
1
0
Weipa
Lockhart River
Coen
Kowanyama
Palmerville
Cooktown
Cairns
Innisfail
Normanton
Burketown
Georgetown
Townsville
Camooweal
Charters Towers
Mount Isa
Richmond
Mackay
Winton
Boulia
Longreach
Emerald
Rockhampton
Monkira
Tambo
Monto
Bundaberg
Birdsville
Charleville
Quilpie
Roma
Brisbane
Toowoomba
Thargomindah
Cunnamulla
Goondiwindi
Warwick
Australian Government
Bureau of Meteorology
Based on a standard 30-year climatology (1961-1990)
© Commonwealth of Australia, 2010


Queensland Rainfall totals (mm) 1 January to 31 December 2015
Australian Bureau of Meteorology
Rainfall (mm)
3200 mm
2400 mm
1800 mm
1200 mm
900 mm
600 mm
400 mm
300 mm
200 mm
100 mm
50 mm
0 mm


Average rainfall
June
Millimetres
600
400
300
200
100
50
25
10
5
1
0
Weipa
Lockhart River
Coen
Kowanyama
Palmerville
Cooktown
Cairns
Innisfail
Normanton
Burketown
Georgetown
Townsville
Camooweal
Charters Towers
Mount Isa
Richmond
Mackay
Winton
Boulia
Longreach
Emerald
Rockhampton
Monkira
Tambo
Monto
Bundaberg
Birdsville
Charleville
Quilpie
Roma
Brisbane
Toowoomba
Thargomindah
Cunnamulla
Goondiwindi
Warwick
Australian Government
Bureau of Meteorology
Based on a standard 30-year climatology (1961-1990)
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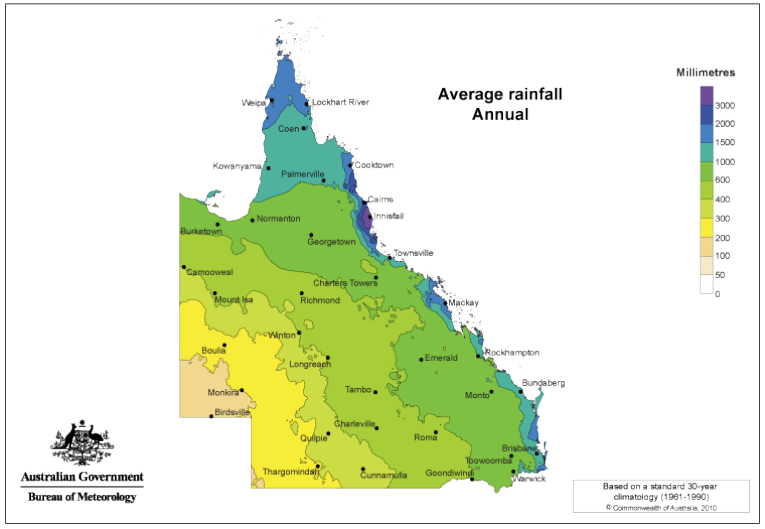
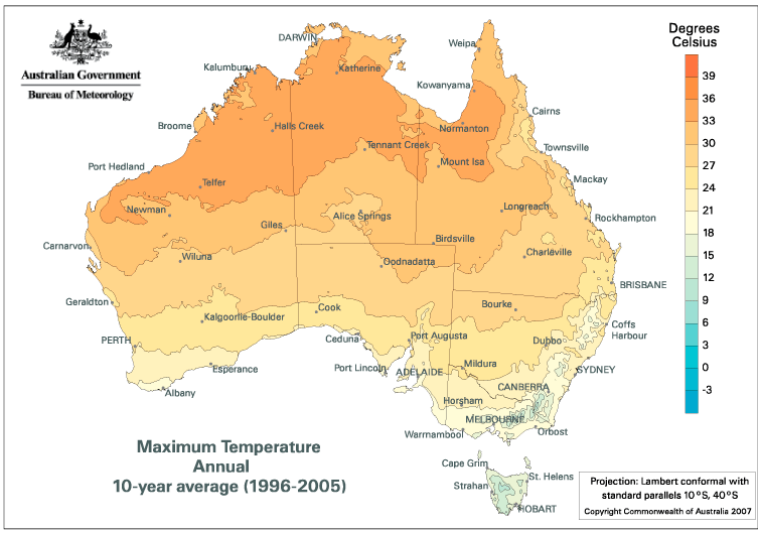
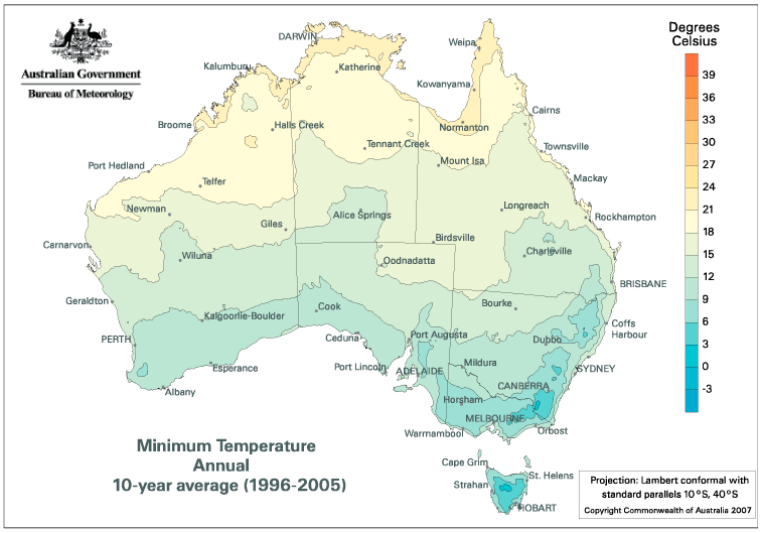

Average rainfall
Annual
Millimetres
3000
2000
1500
1000
600
400
300
200
100
50
0
Weipa
Lockhart River
Coen
Kowanyama
Palmerville
Cooktown
Cairns
Innisfail
Normanton
Burketown
Georgetown
Townsville
Camooweal
Charters Towers
Mount Isa
Richmond
Mackay
Winton
Boulia
Longreach
Emerald
Rockhampton
Monkira
Tambo
Monto
Bundaberg
Birdsville
Charleville
Quilpie
Roma
Brisbane
Toowoomba
Thargomindah
Cunnamulla
Goondiwindi
Warwick
Australian Government
Bureau of Meteorology
Based on a standard 30-year climatology (1961-1990)
© Commonwealth of Australia, 2010

Temperatures

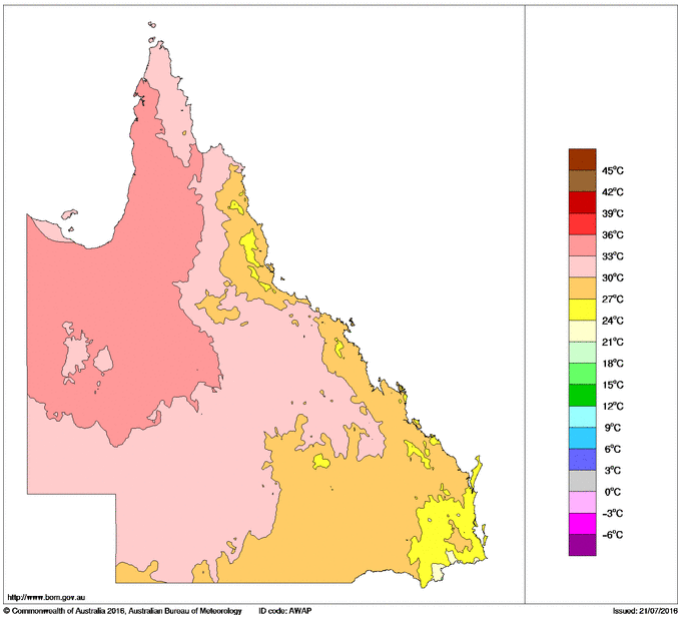
The average annual values of the daytime maximum of the hottest (January) and night-time minimum of the coldest (July) months are indicated on the climatic maps.

During the period of peak temperature, it may be an operational requirement that Line Speed be reduced to minimise the risk of incident (refer Operational Constraints).

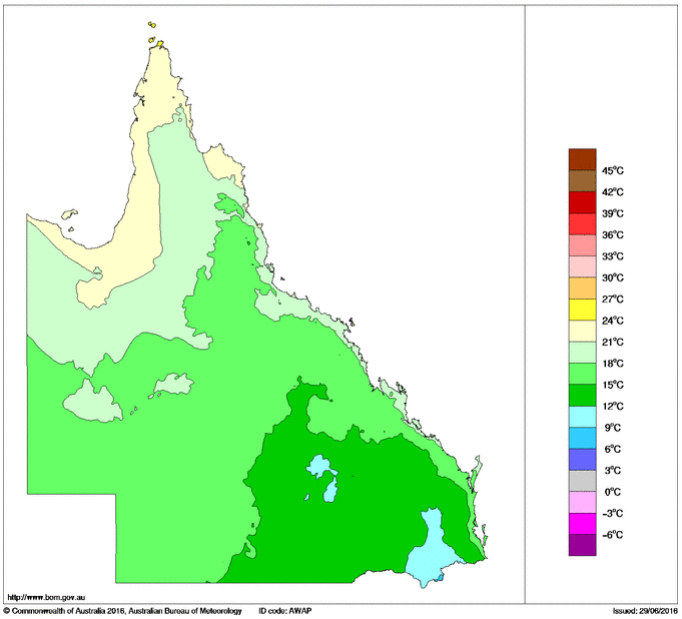




Maximum Temperature (°C) 1 July 2015 to 30 June 2016
Australian Bureau of Meteorology



Minimum Temperature (°C) 1 January to 31 December 2015
Australian Bureau of Meteorology



Description of the Railway

The track (1067 mm gauge) on the Brisbane Metropolitan System is a mix of 60, 53, 50, 47 and 41 kg/m rail on concrete, steel and timber sleepers.

Axle Loadings

Maximum axle loads used throughout this document have been determined by either the track configuration or the railway structures below rail. Railway structures were designed for axle loads, axle spacings and vehicle lengths that produce bending moments roughly equivalent to the moments for metric Cooper's loadings as follows :-

Maximum axle load	Metric Cooper's Loading
26 tal	M 220
20 tal	M 160
15.75 tal	M 130

For rollingstock of different configuration, e.g. in respect of axle spacing and vehicle lengths, lesser axle loads and/or speed

Roma Street to Northgate

Brisbane's Metropolitan Rail Network radiates from Roma Street (elevation 18 m), the largest station on the Network (ten platforms), the terminus for Interstate Passenger Rail Services and terminus for long distance bus services. The North Coast Line, starts at Roma Street and heads north by-passing to the west of the Brisbane Central Business District, travelling via Normanby, rejoining the commuter network at Mayne. This corridor comprises two tracks and caters generally for freight traffic and long distance passenger trains. During a 10 day period in August of each year, this section carries increased commuters as they attend the Royal National Show.

The corridor through Brisbane's Central Business District carries four tracks through three tunnels, before servicing the six platforms at Central Station (elevation 13 m). From Central the tracks proceed via three tunnels to Brunswick Street (elevation 5.8 m) and then onto Bowen Hills (elevation 8 m) before joining with the western by-pass at Mayne.

From Mayne, the four tracks continue north to Eagle Junction (elevation 19 m) and the junction for the Pinkenba Branch, past the junction to the Brisbane Airport (Private Railway) on to Toombul and finally Northgate (elevation 7 m), the junction of the Shorncliffe Branch.

The Suburban tracks are signalled for uni-directional train running whilst the Mains are signalled for bi-directional train running.

There are no passing loops on this section.

Track structure is a mix of 47, 50 and 60 kg/m rail on timber, steel and concrete sleepers.

The maximum allowable axle load is 20 tonnes. A 15.75 tal restriction applies to the bridge over Breakfast Creek (between Bowen Hills and Albion) that carries the Up and Down Suburban tracks.

The maximum allowable speed between Roma Street and Northgate, both routes is 80 km/h with Mayne to Northgate at 100 km/h for EMU's. The Inner Metropolitan Area which extends from Northgate - Roma Street - Corinda - Park Road is further limited to 60 km/h for freight trains as an anti SPAD (Signals Passed At Danger) measure.

Corridor			Roma Street to Mayne (via Exhibition)	Roma Street to Bowen Hills	Bowen Hills to Eagle Junction	Eagle Junction to Northgate
			134, 820, 525, 125	522	308, 309, 310, 860, 313	319, 320
			Brisbane Metropolitan	Brisbane Metropolitan	Brisbane Metropolitan	Brisbane Metropolitan
No. of Tracks			2	4	4	4
			4.444	3.669	5.364	3.353
			8.663	14.676	18.384	13.412
Electrified			Yes	Yes	Yes	Yes
Safeworking System			RCS	RCS	RCS	RCS
			Mayne	Mayne	Mayne	Mayne
Crossing Loops	No.		0	7	0	0
	Location and length		-	ROMA STREET - Platform 2 (370m), Platform 3 (370m), Platform 7 (190m), Platform 10 (550m), Run Around (550m) CENTRAL - Platform 2 (340m), Platform 3 (340m)	-	-
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0	0	0	0
		No. of Spans	0	0	0	0
		Length (m)	0	0	0	0
	Steel	No. of Bridges	1	0	2	1
		No. of Spans	2	0	7	2
		Length (m)	19	0	121.1	18.2
	Concrete	No. of Bridges	0	0	1	1
		No. of Spans	0	0	4	4
		Length (m)	0	0	57.8	36.4
Overbridges (No. of Bridges)		Timber	0	0	0	0
		Steel	0	0	2	3
		Concrete	3	7	0	2
Tunnels		Number	0	8	0	0
		Length (m)	0	756	0	0
Curves (% of total track)	<80km/h		53	26	43	53
	<60km/h		19	13	15	23
Level Crossings	Public (includes Pedestrian)		2	0	0	0
	Occupation		6	2	4	0
	Fl. Lights		1	0	0	0
	Boom gate		1	0	0	0
Track Structure	Rail Mass		47 kg	50/47 kg	47 kg (Subs), 60 kg (Mains)	47/50 kg (Up&Dn Subs), 60 kg (mains)
	Jointed		LWR	LWR	LWR (Subs), CWR (Mains)	LWR, CWR
	Sleeper Type		S, T	T(Up&Dn Subs), Steel(Up&Dn Mains)	T (Subs), C(Mains)	T, C
Maximum Allowable Axle Load		(tal)	20	20	20	20
Route Speed km/h	Pass		80	80	100	100
	Frt		80	80	80	80
	Block		80		80	80
			3.05	3.05	3.05	3.05
Allowable Gross Tonnes p.a.("000")			predominately passenger	predominately passenger	predominately passenger	predominately passenger

The maximum grade (not compensated for horizontal alignment) that a northbound (Down) train will encounter is 1 in 70 (Northgate) whilst for a southbound (Up) train the maximum grade is 1 in 47 (Exhibition).

Existing minimum nominal horizontal curve radii are as follows :-

running line 175 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected where exceedance of noise level criteria has been identified.

Northgate to Caboolture

Corridor			Northgate to Caboolture
Line Section Code			823, 824
System			Brisbane Metropolitan
No. of Tracks			3 (Northgate to nth of Lawnton)/2
Route Km			39.389
Track Km			95.718
Electrified			Yes
Safeworking System			RCS
Control Centre			Mayne
Crossing Loops	No.		3
	Location and length		Petrie (920m), Narangba (890m), Caboolture (510m)
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0
		No. of Spans	0
		Length (m)	0
	Steel	No. of Bridges	3
		No. of Spans	46
		Length (m)	452.7
	Concrete	No. of Bridges	7
		No. of Spans	20
		Length (m)	213.2
Overbridges (No. of Bridges)		Timber	2
		Steel	1
		Concrete	11
Tunnels		Number	0
		Length (m)	0
Curves (% of total track)	<80km/h		5
	<60km/h		1
Level Crossings	Public (includes Pedestrian)		10
	Occupation		5
	Fl. Lights		0
	Boom gte		10
Track Structure	Rail Mass		60/50/47 kg
	Jointed		CWR, LWR
	Sleeper Type		C, T
Maximum Allowable Axle Load (tal)			20
Route Speed km/h	Pass		100
	Frt		80
	Block		80
	Max Container Height - (m)		3.05
Allowable Gross Tonnes p.a.("000")			predominately passenger

Between Northgate and Virginia the four tracks converge into three with the outside Mains continuing to be uni-directional whilst the Middle Road becomes bi-directional. This signalling / traffic configuration continues until just past Lawnton where the three tracks converge into two bi-directional tracks before crossing over the North Pine River to Petrie (elevation 7 m).

Leaving Petrie, the railway continues north to Caboolture (elevation 13 m) which ends the duplicated track.

There are three passing loops on this section namely Petrie, Narangba and Caboolture.

Track structure is a mix of 47, 50 and 60 kg/m rail on concrete and timber sleepers. The maximum allowable axle load is 20 tal.
The maximum allowable speed is 100 km/h.

The maximum grade (not compensated for horizontal alignment) that a northbound (Down) train will encounter is 1 in 58 (Zillmere) whilst for a southbound (Up) train the maximum grade is 1 in 49 (Bald Hills).

Existing minimum nominal horizontal curve radii are as follows :-

running line 199 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected where exceedance of noise level criteria has been identified.

Caboolture to Nambour

Caboolture marks the northern boundary of the Traction Power Autotransformer Supply and the beginning of the Booster Transformer System (refer Overhead Line Equipment) as well as being the junction for the mothballed Wamuran Branch. The railway continues north skirting the Glasshouse Mountains, passing through tunnels either side of Mooloolah, passing over the Blackall Range to Nambour (elevation 15 m).

There are ten passing loops on this section namely Elimbah, Beerburrum, Glasshouse Mountains, Beerwah, Landsborough, Mooloolah, Eudlo, Palmwoods, Woombye, Nambour.

Track structure is a mix of 41, 47, 50, 53 and 60 kg/m rail on concrete, steel and timber sleepers.

The maximum allowable axle load is 20 tonnes.

The maximum allowable speed is 160 km/h for Tilt Trains and 100 km/h for Freight and locomotive hauled Passenger Services.

The maximum grade (not compensated for horizontal alignment) that a northbound (Down) train will encounter is 1 in 46 (Beerburrum) whilst for an southbound (Up) train the maximum grade is 1 in 45 (Mooloolah).

Existing minimum nominal horizontal curve radii are as follows :-

running line 230 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected where exceedance of noise level criteria has been identified.

Corridor			Caboolture to Nambour
Line Section Code			400
System			Brisbane Metropolitan
No. of Tracks			1
Route Km			54.064
Track Km			55.122
Electrified			Yes
Safeworking System			RCS
Control Centre			Mayne/5th Floor RC1
Crossing Loops	No.		11
	Location and length		Elimbah (715pp), Beerburrum (720pp), Glasshouse Mountains (690pp), Beerwah (717pp), Landsborough (716pp), Mooloolah (717pp), Eudlo (952pp), Palmwoods Main (676pp), Palmwoods Up Loop (689pp), Palmwoods Down Loop (681pp), Woombye (713pp), Nambour Main (712pp), Nambour Loop (779pp).
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0
		No. of Spans	0
		Length (m)	0
	Steel	No. of Bridges	12
		No. of Spans	52
		Length (m)	650
	Concrete	No. of Bridges	9
		No. of Spans	37
		Length (m)	440
Overbridges (No. of Bridges)		Timber	2
		Steel	1
		Concrete	1
Tunnels		Number	0
		Length (m)	0
Curves (% of total track)	<80km/h		27
	<60km/h		7
Level Crossings	Public (includes Pedestrian)		13
	Occupation		18
	Fl. Lights		1
	Boom gate		7
Track Structure	Rail Mass		47/50/60kg
	Jointed		CWR
	Sleeper Type		C,S,T
Maximum Allowable Axle Load (tal)			20
Route Speed km/h	Pass		100/120/160
	Frt		100
	Block		100
	Max Container Height - (m)		3.05
Allowable Gross Tonnes p.a.("000")			10,000

Northgate to Shorncliffe

From Northgate this double track railway heads north-east to Nudgee (elevation 5 m) then winds its way to the seaside suburbs of Sandgate (elevation 2 m) and Shorncliffe (elevation 2 m). The section from Sandgate to Shorncliffe is single track.

Track structure is 47 kg/m rail on steel and timber sleepers. The maximum allowable axle load is 15.75 tonnes.
The maximum allowable speed is 100 km/h.

The maximum grade (not compensated for horizontal alignment) that a westbound (Up) train will encounter is 1 in 107 (Northgate) whilst for an eastbound (Down) train the maximum grade is 1 in 108 (Deagon).

Corridor			Northgate to Shorncliffe
Line Section Code			531
System			Brisbane Metropolitan
No. of Tracks			2 (Sandgate) / 1
Route Km			11.068
Track Km			21.238
Electrified			Yes
Safeworking System			RCS
Control Centre			Mayne
Crossing Loops	**No.**		1
	Location and length		Shorncliffe (367m)
Bridges (no. of spans)/Length (m)	**Timber**	No. of Bridges	0
		No. of Spans	0
		Length (m)	0
	Steel	No. of Bridges	4
		No. of Spans	26
		Length (m)	166.1
	Concrete	No. of Bridges	0
		No. of Spans	0
		Length (m)	0
Overbridges (No. of Bridges)		Timber	0
		Steel	0
		Concrete	4
Tunnels		Number	0
		Length (m)	0
Curves (% of total track)	**<80km/h**		11
	<60km/h		8
Level Crossings	**Public (includes Pedestrian)**		6
	Occupation		1
	Fl. Lights		1
	Boom gate		4
Track Structure	**Rail Mass**		47 kg
	Jointed		LWR
	Sleeper Type		T, 100% Steel
Maximum Allowable Axle Load		**(tal)**	15.75
Route Speed km/h	**Pass**		100
	Frt		80
	Block		
	Max Container Height - (m)		2.65
Allowable Gross Tonnes p.a.("000")			no freight

Existing minimum nominal horizontal curve radii are as follows :-

running line 236 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected where exceedance of noise level criteria has been identified.

Brisbane Airport Rail Line

This is a privately owned and operated railway that junctions with the Up and Down Suburban tracks between Eagle Junction and Toombul and as such is not part of this Information Pack.

Corridor			Eagle Junction to Doomben	Doomben to Pinkenba
Line Section Code			529	530, 707, 978, 323
System			Brisbane Metropolitan	Brisbane Metropolitan
No. of Tracks			1	1
Route Km			3.767	8.14
Track Km			3.767	8.14
Electrified			Yes	Yes - Doomben only / No to Pinkenba.
Safeworking System			RCS	S&T
Control Centre			Mayne	Mayne
Crossing Loops	No.		2	0
	Location and length		Ascot (470m) - Spiked Over, Doomben (620m)	-
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0	0
		No. of Spans	0	0
		Length (m)	0	0
	Steel	No. of Bridges	2	0
		No. of Spans	2	0
		Length (m)	23.7	0
	Concrete	No. of Bridges	0	0
		No. of Spans	0	0
		Length (m)	0	0
Overbridges (No. of Bridges)		Timber	0	1
		Steel	0	0
		Concrete	1	1
Tunnels		Number	0	0
		Length (m)	0	0
Curves (% of total track)	<80km/h		35	11
	<60km/h		23	5
Level Crossings	Public (includes Pedestrian)		2	15
	Occupation		2	21
	Fl. Lights		0	5
	Boom gate		2	0
Track Structure	Rail Mass		47 kg	41/47 kg
	Jointed		LWR	LWR
	Sleeper Type		T	T
Maximum Allowable Axle Load (tal)			15.75	15.75
Route Speed km/h	Pass		100	80
	Frt		80	80
	Block		80	80
	Max Container Height - (m)		2.9	2.74
Allowable Gross Tonnes p.a.("000")			3,000	3,000

Eagle Junction to Pinkenba

This railway is single track, electrified to Doomben (elevation 6 m) with the remaining section Doomben to Pinkenba (elevation 3 m) available only for non-electric rollingstock and freight services.

There is one passing loop on this section at Doomben.

Track structure is 47 kg/m rail on timber sleepers to Doomben and a mix of 41 and 47 kg/m rail on timber sleepers to Pinkenba.

The maximum allowable axle load is 15.75 tonnes.

The maximum allowable speed is 100 km/h to Doomben then 80 km/h to Pinkenba. The maximum grade (not compensated for horizontal alignment) that a westbound (Up) train will encounter is 1 in 75 (Clayfield) whilst for an eastbound (Down) train the maximum grade is 1 in 84 (Ascot).

Existing minimum nominal horizontal curve radii are as follows :-

running line 201 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected where exceedance of noise level criteria has been identified.

Bowen Hills to Ferny Grove

This double track railway separates from the Suburban tracks just north of Bowen Hills (elevation 8 m) and proceeds via flyover over Mayne Depot before heading north-west to Windsor (elevation 14 m) and on to Mitchelton (elevation 36 m). At Mitchelton, the two tracks converge to one and continues on to Ferny Grove.

There are three passing loops on this section namely Mitchelton, Keperra and Ferny Grove.

Track structure is 47 kg/m rail on steel and timber sleepers. The maximum allowable axle load is 15.75 tonnes.

The maximum allowable speed is 100 km/h.

The maximum grade (not compensated for horizontal alignment) that an eastbound (Up) train will encounter is 1 in 37 (Keperra) whilst for an westbound (Down) train the maximum grade is 1 in 38 (Oxford Park).

Existing minimum nominal horizontal curve radii are as follows :-

running line 160 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected where exceedance of noise level criteria has been identified.

Corridor			Bowen Hills to Ferny Grove
Line Section Code			527
System			Brisbane Metropolitan
No. of Tracks			2(Mitchelton)/1
Route Km			13.679
Track Km			21.863
Electrified			Yes
Safeworking System			RCS
Control Centre			Mayne
Crossing Loops	No.		3
	Location and length		Mitchelton (259m), Keperra (617m), Ferny Grove (312m)
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	1
		No. of Spans	3
		Length (m)	12
	Steel	No. of Bridges	3
		No. of Spans	10
		Length (m)	80.5
	Concrete	No. of Bridges	3
		No. of Spans	16
		Length (m)	251
Overbridges (No. of Bridges)		Timber	2
		Steel	1
		Concrete	3
Tunnels		Number	0
		Length (m)	0
Curves (% of total track)	<80km/h		30
	<60km/h		14
Level Crossings	Public (includes Pedestrian)		16
	Occupation		1
	Fl. Lights		0
	Boom gate		9
Track Structure	Rail Mass		47
	Jointed		LWR
	Sleeper Type		T, 100%Steel (75% of Track)
Maximum Allowable Axle Load (tal)			15.75
Route Speed km/h	Pass		100
	Frt		80
	Block		
	Max Container Height - (m)		2.65
Allowable Gross Tonnes p.a.("000")			no freight

Roma Street to Rosewood

Four tracks (Up & Down Suburban and Mains) head west from Roma Street through the leafy Western Suburbs to Corinda (elevation 25 m), crossing the Brisbane River at Indooroopilly (elevation 18 m). At Corinda, these tracks converge to two and continue west to Rosewood (elevation 43.9 m) passing through the regional city of Ipswich (elevation 18 m). Rosewood forms the end of the Brisbane Metropolitan System and the extent of electrification in the west.

The section from Wulkuraka to Rosewood has been signalled for bi-directional running.

There are six passing loops on this section namely Darra, Wacol Up, Redbank Up, Redbank Down, Dinmore Down and Ipswich (Platform 4).

Track structure is 41, 47, 50 and 60 kg/m rail on concrete, steel and timber sleepers.

Corridor			Roma Street to Corinda	Corinda to Ipswich	Ipswich to Rosewood
Line Section Code			501	502, 503, 505, 506	708, 709, 314
System			Brisbane Metropolitan	Brisbane Metropolitan	Brisbane Metropolitan
No. of Tracks			4	2	2
Route Km			11.093	26.93	17.82
Track Km			44.372	53.87	35.64
Electrified			Yes	Yes	Yes
Safeworking System			RCS	RCS	RCS (bi-directional Wulkaraka - Walloon)
Control Centre			Mayne	Mayne	Mayne/5th floor RC1
Crossing Loops	No.		0	6	0
	Location and length		-	Darra (270m), Wacol UP (770m),Redbank UP (660m), Redbank DOWN (590m), Dinmore DOWN (630m) Ipswich Platform 4 (225m)	-
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0	18	20
		No. of Spans	0		
		Length (m)	0	158	452
	Steel	No. of Bridges	20	43	3
		No. of Spans	29		
		Length (m)	770.5	323	348
	Concrete	No. of Bridges	1	66	1
		No. of Spans	4		
		Length (m)	36.9	701	15.2
Overbridges (No. of Bridges)		Timber	0		
		Steel	3		
		Concrete	2		
Tunnels		Number	0	0	0
		Length (m)	0	0	0
Curves (% of total track)	<80km/h		20	15	11
	<60km/h		6	0.1	0
Level Crossings	Public (includes Pedestrian)		1	5	11
	Occupation		3	6	0
	Fl. Lights		0	0	0
	Boom gate		1	2	5
Track Structure	Rail Mass		47/50 kg	47/50 kg	41/47/60 kg
	Jointed		CWR(Mains), LWR/SWR(Subs)	LWR/SWR	LWR
	Sleeper Type		C, S , T	C, T	C, S, T
Maximum Allowable Axle Load (tal)			20(Main), 15.75(Subs)	15.75	15.75
Route Speed km/h	Pass		100	100	100
	Frt		80	80	80
	Block		80	80	80
	Max Container Height - (m)		3.05	2.9	2.65
Allowable Gross Tonnes p.a.("000")			predominately passenger	predominately passenger	13,000

The maximum allowable axle load is 20 tonnes between Roma Street and Corinda on the Mains with all other sections having a maximum allowable axle load of 15.75 tonnes.

Loading restrictions apply to the Countess Street bridge near Roma Street and the Albert Bridge at Indooroopilly that carries the Up and Down Suburban tracks.

The maximum allowable speed is 100 km/h.

Between Roma Street and Corinda, the maximum grade (not compensated for horizontal alignment) that a westbound (Up) train will encounter is 1 in 65 (Sherwood) whilst for an eastbound (Down) train the maximum grade is 1 in 68 (Indooroopilly) with existing minimum nominal horizontal curve radii are as follows :-

running line 266 m (Taringa)

Between Corinda and Rosewood, the maximum grade (not compensated for horizontal alignment) that a westbound (Up) train will encounter is 1 in 70 (Riverview) whilst for an eastbound (Down) train the maximum grade is 1 in 67 (Darra) with existing minimum nominal horizontal curve radii are as follows :-

running line 331 m (Goodna)

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected where exceedance of noise level criteria has been identified.

Ipswich to Ipswich Workshops

This single track branch line after leaving Ipswich Yard and crossing over the Bremer River provides a connection to Ipswich Workshops and the Rail Museum.

Track structure is nominal 30 and 41 kg/m rail on timber sleepers. The maximum allowable axle load is 15.75 tonnes.
The maximum allowable speed is 25 km/h.

This corridor is 95% fenced to prohibit trespass.

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Yarrowlea to Ebenezer

This single track branch line which leaves the Up track at Yarrowlea, east of Rosewood, services the open cut mine at Ebenezer. There are no passing loops on this section.

Track structure is 41 kg/m rail on timber sleepers. The maximum allowable axle load is 15.75 tonnes.

The maximum allowable speed is 60 km/h.

The maximum grade (not compensated for horizontal alignment) that a loaded (Up) train will encounter is 1 in 90 whilst for an empty (Down) train the maximum grade is 1 in 50 (Darra) with existing minimum nominal horizontal curve radii are as follows :-
running line 250 m (Balloon Loop)

Corridor			Yarrowlea to Ebenezer	Bundamba to Box Flat	Box Flat Loop
Line Section Code			543	504	416
System			Brisbane Metropolitan	Brisbane Metropolitan	Brisbane Metropolitan
No. of Tracks			1	1	1
Route Km			8.417	4.947	1.875
Track Km			8.417	4.947	1.875
Electrified			No	No	No
Safeworking System			S&T	S&T	S&T
Control Centre			5th Floor RC1	Mayne	Mayne
Crossing Loops	No.		0	0	0
	Location and length		-	-	-
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0	2	0
		No. of Spans	0	21	0
		Length (m)	0	126.2	0
	Steel	No. of Bridges	0	0	1
		No. of Spans	0	0	2
		Length (m)	0	0	30
	Concrete	No. of Bridges	1	0	0
		No. of Spans	5	0	0
		Length (m)	50	0	0
Overbridges (No. of Bridges)		Timber	0	0	0
		Steel	0	0	0
		Concrete	1	2	0
Tunnels		Number	0	0	0
		Length (m)	0	0	0
Curves (% of total track)	<80km/h		22	44	64
	<60km/h		11	23	53
Level Crossings	Public (includes Pedestrian)		1	7	2
	Occupation		11	5	1
	Fl. Lights		0	2	0
	Boom gate		1	0	0
Track Structure	Rail Mass		41kg	41 kg	41 kg
	Jointed		LWR	SWR/B	B
	Sleeper Type		T	T	T
Maximum Allowable Axle Load		(tal)	15.75	15.75	15.75
Route Speed km/h	Pass		60	40	40
	Frt		60	40	40
	Block		60	40	40
	Max Container Height - (m)		2.65	2.65	2.65
Allowable Gross Tonnes p.a.("000")			5,000	2,000	2,000

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Bundamba to Box Flat and Swanbank

This single track branch line leaves the Up track at Bundamba and services the balloon loops at Box Flat and Swanbank.

There are no passing loops on this section.

Track structure is 41 kg/m rail on timber sleepers. The maximum allowable axle load is 15.75 tonnes. The maximum allowable speed is 40 km/h.
The maximum grade (not compensated for horizontal alignment) that an empty (Up) train will encounter is 1 in 43 whilst for a loaded (Down) train the maximum grade is 1 in 44 (Darra) with existing minimum nominal horizontal curve radii are as follows :-

running line 96 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Corinda to Yeerongpilly

This vital two track connection, links the western corridor (to Toowoomba) at Corinda with the southern corridor (to Gold Coast and interstate freight terminals) at Yeerongpilly.

There is passing loop on this section, namely Moolabin. Track structure is 47 kg/m rail on timber sleepers.

The maximum allowable axle load is 20 tonnes. The maximum allowable speed is 100 km/h.
The maximum grade (not compensated for horizontal alignment) that a westbound (Up) train will encounter is 1 in 51 whilst for an eastbound (Down) train the maximum grade is 1 in 110 with existing minimum nominal horizontal curve radii are as follows :-

running line 241 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Salisbury to Acacia Ridge

This section of track comprising 1067 mm and dual gauge track, links the Interstate Freight Terminal at Acacia Ridge with QR's network.

There are no passing loops on this section.
Track structure is 47 kg/m rail on timber sleepers. The maximum allowable axle load is 20 tonnes. The maximum allowable speed is 80 km/h.

Corridor			Salisbury to Acacia Ridge	Corinda to Yeerongpilly
Line Section Code			474	131, 805, 804, 132
System			Brisbane Metropolitan	Brisbane Metropolitan
No. of Tracks			2	2
Route Km			3.75	4.367
Track Km			3.75	8.306
Electrified			Yes	Yes
Safeworking System			RCS	RCS
Control Centre			Mayne	Mayne
Crossing Loops	No.		0	1
	Location and length		-	Moolabin (700pp)
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0	0
		No. of Spans	0	0
		Length (m)	0	0
	Steel	No. of Bridges	2	2
		No. of Spans	7	6
		Length (m)	59.7	83.6
	Concrete	No. of Bridges	2	1
		No. of Spans	4	3
		Length (m)	56.4	72
Overbridges (No. of Bridges)		Timber	0	0
		Steel	0	1
		Concrete	4	5
Tunnels		Number	0	0
		Length (m)	0	0
Curves (% of total track)	<80km/h		0	27
	<60km/h		0	21
Level Crossings	Public (includes Pedestrian)		4	1
	Occupation		1	2
	Fl. Lights		0	0
	Boom gate		2	0
Track Structure	Rail Mass		53/60 kg	47 kg
	Jointed		LWR	LWR
	Sleeper Type		C, T	T
Maximum Allowable Axle Load		(tal)	20	20
Route Speed km/h	Pass		80	100
	Frt		80	80
	Block		80	60
	Max Container Height - (m)		3.05	3.05
Allowable Gross Tonnes p.a.("000")			7,000	predominately passenger

The maximum grade (not compensated for horizontal alignment) that a southbound (Up) train will encounter is 1 in 220 whilst for an northbound (Down) train the maximum grade is 1 in 81 with existing minimum nominal horizontal curve radii are as follows :-

running line 300 m

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Roma Street to Beenleigh

From Roma Street, trains destined for either Robina or Cleveland travel on dual gauge track through the Upper Roma Street Tunnel (115 m), across the Merivale Bridge spanning the Brisbane River to South Brisbane (elevation 9 m). Shortly before Melbourne Street, the dual gauge track separates with the two 1067mm gauge tracks. From South Brisbane the railway continues to Southbank (elevation 14 m), passing through the Gloucester Street Tunnel before continuing to Park Road (elevation 23 m) where the railway diverges to Cleveland (elevation 2 m), straight ahead and Beenleigh (elevation 13 m), south.

After leaving Park Road, the railway passes under the Dutton Park Flyover (refer Standard & Dual Gauge System Information Pack) before continuing to Yeerongpilly (junction to Corinda), Bethania (elevation 12 m), junction to Beaudesert Branch - Private Railway and finally onto Beenleigh (elevation 13 m).

There are five passing loops on this section, namely Yeerongpilly, Sunnybank, Kingston, Bethania and Holmview.

Track structure is 47, 50, 53 and 60 kg/m rail on timber sleepers.

The maximum allowable axle load between Park Road and Salisbury is 20 tonnes with a 15.75 tonnes maximum between Salisbury and Beenleigh.

The maximum allowable speed is 100 km/h.

The maximum grade (not compensated for horizontal alignment) that a southbound (Up) train will encounter is 1 in 48 (Loganlea) whilst for a northbound (Down) train the maximum grade is 1 in 49 (Kuraby) with existing minimum nominal horizontal curve radii are as follows :-

running line 195 m (Sunnybank)

This corridor is fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Corridor			Beenleigh to Robina	Roma Street to South Brisbane	South Brisbane to Park Road	Park Road to Beenleigh
			515, 429	426	427	800, 801, 802, 803, 106
			Brisbane Metropolitan	Brisbane Metropolitan	Brisbane Metropolitan	Brisbane Metropolitan
No. of Tracks			2 (Coomera)/ 1	2	2	2
			44.826	1.195	2.826	36.962
			57.358	2.39	5.652	73.138
Electrified			Yes	Yes	Yes	Yes
Safeworking System			RCS	RCS	RCS	RCS
			Mayne	Mayne	Mayne	Mayne
Crossing Loops	No.		3	0	0	5
	Location and length		Helensvale (873m), Nerang (1152m), Robina (520m)	-	-	Yeerongpilly (600m), Sunnybank (560m), Kingston (545m), Bethania (510m), Holmview (565m)
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	0	0	0	0
		No. of Spans	0	0	0	0
		Length (m)	0	0	0	0
	Steel	No. of Bridges	0	0	2	9
		No. of Spans		0	2	42
		Length (m)	0	0	44	368.2
	Concrete	No. of Bridges	39	5	3	8
		No. of Spans	202	16	2	40
		Length (m)	3811.9	331.4	41.4	589.9
Overbridges (No. of Bridges)		Timber		0	0	0
		Steel	1	0	0	1
		Concrete	15	0	2	12
Tunnels		Number	0	0	2	0
		Length (m)	0	0	372	0
Curves (% of total track)	<80km/h		0.10	61	25	26
	<60km/h		0.10	39	0	5
Level Crossings	Public (includes Pedestrian)		0	0	0	12
	Occupation		6	0	0	6
	Fl. Lights		0	0	0	0
	Boom gate		0	0	0	11
Track Structure	Rail Mass		60	47/53 kg	47/50/53/60 kg	47, 50 kg (Homeview - Beenleigh (Dn))
	Jointed		CWR	LWR	LWR/SWR	LWR/SWR(Park Rd - Kuraby), CWR(Kurraby - BeenLeigh(up)), LWR(Kurraby - Homeview(dn)), CWR(Homeview - Beenleigh).
	Sleeper Type		C	T	C, T	T, C(Kuraby - Beenleigh (up)), C (Homeview - Beenleigh (Dn))
Maximum Allowable Axle Load		(tal)	20	20	20	20 (Park Road - Salisbury), 15.75 (Salisbury - Beenleigh)
Route Speed km/h	Pass		140	100	100	100
	Frt		100	80	80	80
	Block			80	80	80
			2.65	3.05	3.05	2.65
Allowable Gross Tonnes p.a.("000")			no freight	predominately passenger	predominately passenger	no freight

Beenleigh to Robina (to Varsity Lakes)

This purpose built high speed passenger railway servicing the Gold Coast and hinterland sees the two tracks continue from Beenleigh to Coomera (elevation 14 m). From Coomera the single track continues to Robina (elevation 4 m).

There are three passing loops on this section, namely Helensvale, Nerang and Robina.

Track structure is 60 kg/m rail on concrete sleepers. The maximum allowable axle load is 15.75 tal.
The maximum allowable speed is 140 km/h

The maximum grade (not compensated for horizontal alignment) that a southbound (Up) train will encounter is 1 in 50 (70 kp) whilst for an northbound (Down) train the maximum grade is 1 in 51 (various locations) with existing minimum nominal horizontal curve radii are as follows :-

running line 950 m (Robina)

This corridor is fully fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Park Road to Cleveland

Corridor			Park Road to Cleveland
Line Section Code			810, 811, 812, 813
System			Brisbane Metropolitan
No. of Tracks			2(Manly)/1
Route Km			32.038
Track Km			50.933
Electrified			Yes
Safeworking System			RCS
Control Centre			Mayne
Crossing Loops	No.		5
	Location and length		Murarrie (625m), Manly (325m), Lota (619m), Thorneside (620m), Wellington Point (799m)
Bridges (no. of spans)/Length (m)	Timber	No. of Bridges	3
		No. of Spans	15
		Length (m)	92.4
	Steel	No. of Bridges	0
		No. of Spans	0
		Length (m)	0
	Concrete	No. of Bridges	18
		No. of Spans	68
		Length (m)	1105.2
Overbridges (No. of Bridges)		Timber	0
		Steel	0
		Concrete	12
Tunnels		Number	0
		Length (m)	0
Curves (% of total track)	<80km/h		30
	<60km/h		12
Level Crossings	Public (includes Pedestrian)		9
	Occupation		3
	Fl. Lights		0
	Boom gate		8
Track Structure	Rail Mass		47/50 kg (Thorneside - Cleveland)
	Jointed		LWR/SWR, CWR(Thorneside - Cleveland)
	Sleeper Type		T, C(Thorneside - Cleveland)
Maximum Allowable Axle Load (tal)			15.75
Route Speed km/h	Pass		100
	Frt		80
	Block		80/60
	Max Container Height - (m)		2.9
Allowable Gross Tonnes p.a.("000")			Freight to /from Fisherman Island (Park Rd - Lytton Jct)

Leaving Park Road, this two track railway parallels the Dual Gauge track coming off the Dutton Park Flyover to Lytton Junction where the Dual Gauge track heads to the Port of Brisbane (elevation 4 m). The railway continues to Manly (elevation 27 m) where the tracks converge to one before continuing to the terminus at Cleveland (elevation 2 m).

There are five passing loops on this section, namely Murarrie, Manly, Lota, Thorneside and Wellington Point.

Track structure is a mix of 47 and 50 kg/m rail on timber, steel and concrete sleepers. The maximum allowable axle load is 15.75 tonnes.

The maximum allowable speed is 100 km/h.

The maximum grade (not compensated for horizontal alignment) that a southbound (Up) train will encounter is 1 in 50 (23 kp) whilst for a northbound (Down) train the maximum grade is 1 in 50 (2 kp) with existing minimum nominal horizontal curve radii are as follows:-

running line 175 m (5 km)

This corridor is fully fenced to prohibit trespass. In accordance with Queensland Rail's Noise Management policy, parts of the corridor have sound barriers erected or contracts awarded for their erection where exceedance of noise level criteria has been identified.

Basic Track Configuration

Basic track configuration is detailed on **APPENDIX B - SCHEMATIC LAYOUTS.**

Description of the Track

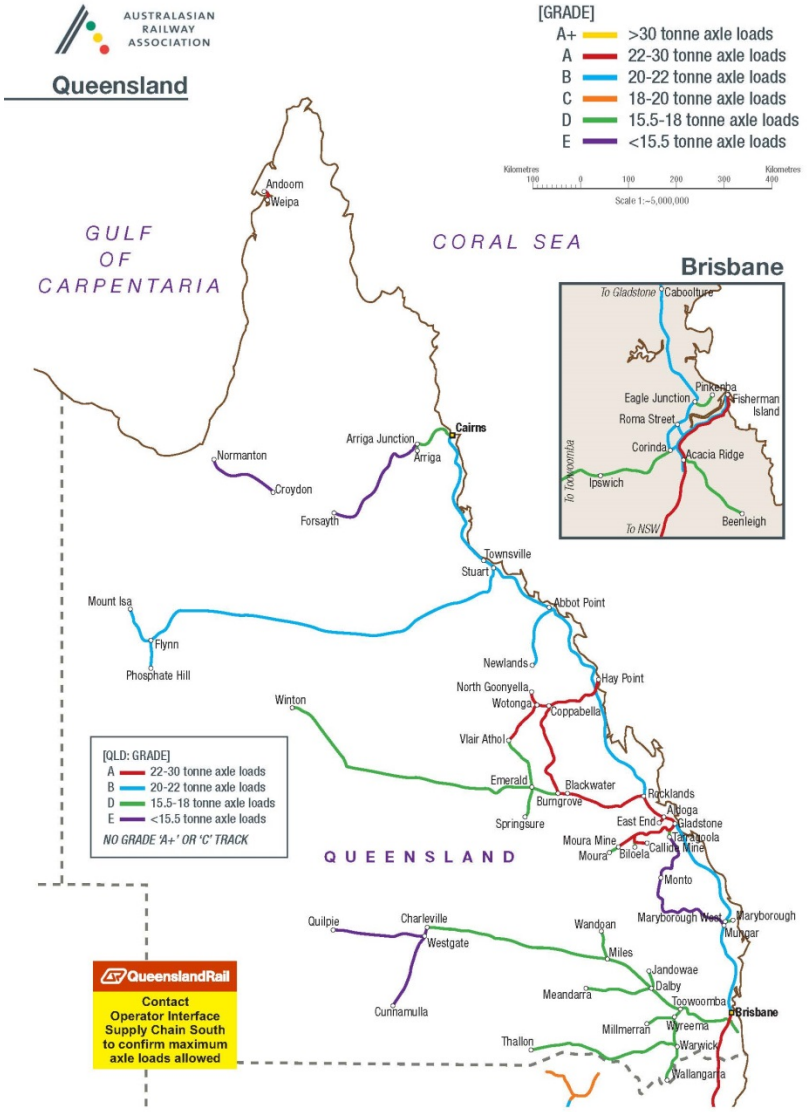
The track on this system is a mix of 60 kg/m, 53 kg/m, 50 kg/m, 47 kg/m and 41 kg/m and timber, steel and concrete sleepers on crushed rock ballast. The rails are a combination of welded and bolted.

Speeds through the curved leg of turnouts are governed by the angle of that turnout i.e.

1 in 12	25 km/h
1 in 16	50 km/h
1 in 25	80 km/h

In general, curves (with the exception of turnout curves) are transitioned.

Track Data and Grade Diagrams for the following major route are included in Appendix E.


AUSTRALASIAN RAILWAY ASSOCIATION
Queensland
[GRADE]
A+ >30 tonne axle loads
A 22-30 tonne axle loads
B 20-22 tonne axle loads
C 18-20 tonne axle loads
D 15.5-18 tonne axle loads
E <15.5 tonne axle loads
Scale 1:~5,000,000
GULF OF CARPENTARIA
CORAL SEA
QUEENSLAND
Brisbane
To Gladstone
Caboolture
Pinkenba
Eagle Junction
Fisherman Island
Roma Street
Corinda
Acacia Ridge
To Toowoomba
Ipswich
To NSW
Beenleigh
Andoom
Weipa
Normanton
Croydon
Forsayth
Arriga Junction
Arriga
Cairns
Townsville
Stuart
Abbot Point
Mount Isa
Flynn
Phosphate Hill
Newlands
Hay Point
North Goonyella
Wotonga
Coppabella
Winton
Vlair Athol
Emerald
Blackwater
Burngrove
Springsure
Rocklands
Alpoga
Gladstone
East End
Moura Mine
Moura
Bilcela
Callide Mine
Monto
Maryborough West
Maryborough
Mungar
Wandoan
Miles
Jandowae
Dalby
Meandarra
Toowoomba
Brisbane
Millmerran
Wyreema
Warwick
Thallon
Wallangarra
Quilpie
Charleville
Westgate
Cunnamulla
[QLD: GRADE]
A 22-30 tonne axle loads
B 20-22 tonne axle loads
D 15.5-18 tonne axle loads
E <15.5 tonne axle loads
NO GRADE 'A+' OR 'C' TRACK
QueenslandRail
Contact Operator Interface Supply Chain South to confirm maximum axle loads allowed

Overhead Line Equipment

Queensland Rail's electrification system is designed to supply 25,000 Volts at 50 Hertz alternating supply to a roof mounted pantograph on electric rollingstock.

The Brisbane Metropolitan system is serviced by two compatible distribution systems: A booster transformer system and an auto transformer system. Even though the power delivered at the pantograph meets the same mechanical and electrical standards, the design, maintenance and operation of both systems is distinct. One or two rails are used as part of the current return circuit to supply electric rollingstock. The rails are held at earth potential to avoid the risk of electric shock.

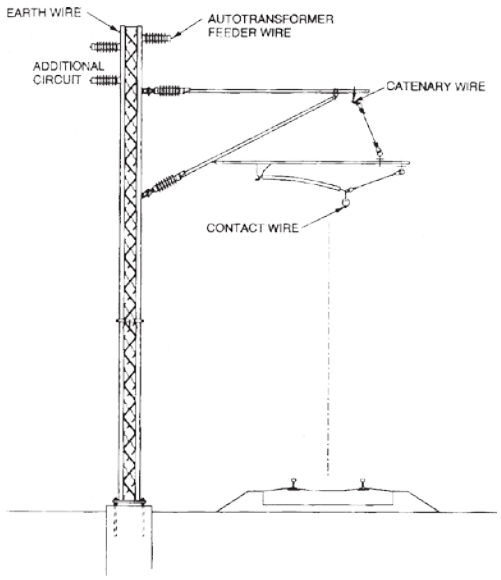
Electric energy is delivered to a roof mounted pantograph via a contact wire suspended from a catenary wire. All wiring is held in place to maintain ideal pantograph / contact wire interaction.

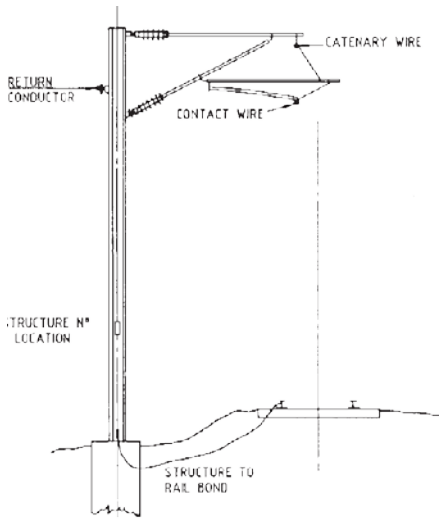
The overhead wiring equipment is automatically tensioned to maintain a constant wire tension and requires a pantograph uplift force of 80 newtons +/- 10 N for smooth sparkless current collection.

The contact wire height may vary from 4200 mm to 5850mm above rail.

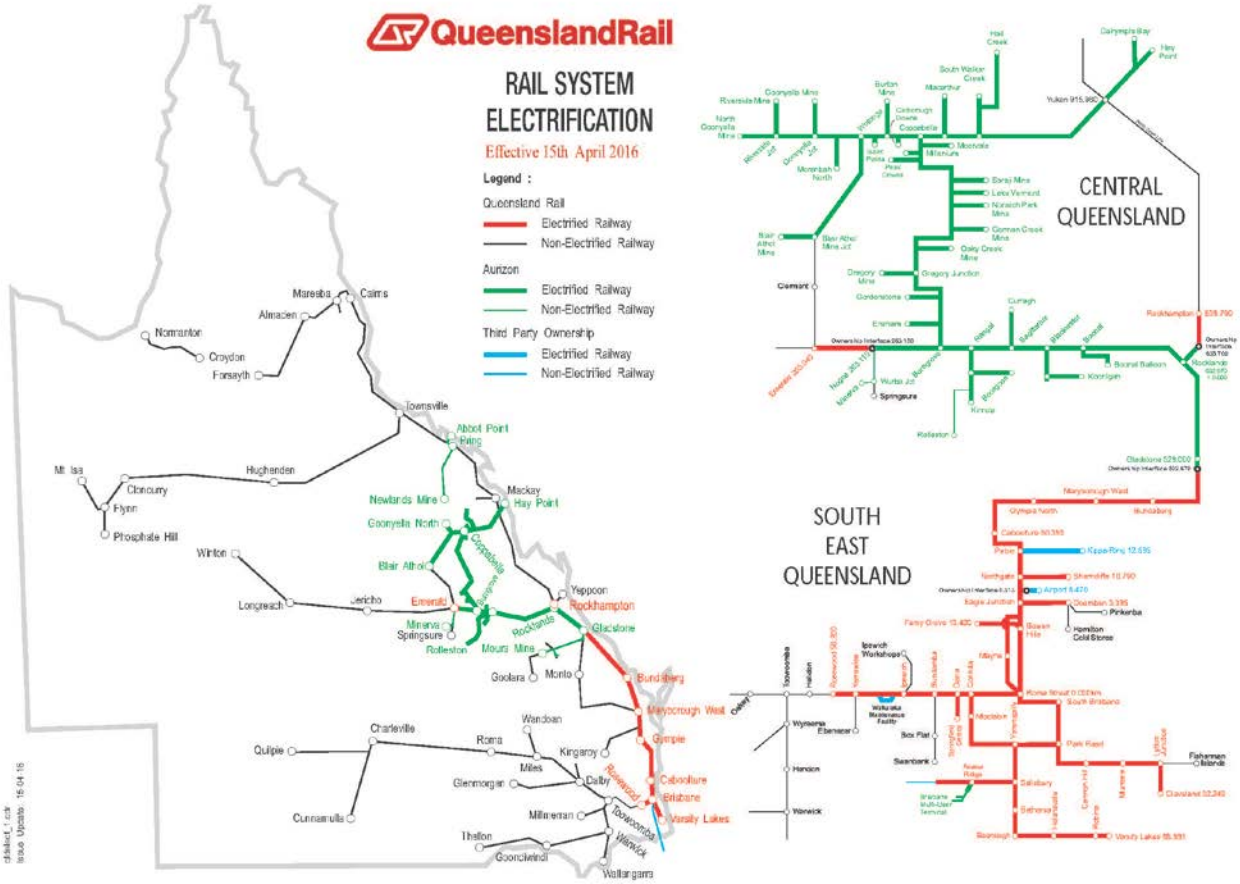
Rosewood in the west, Caboolture in the north and Beenleigh in the south define the extent of booster transformer supply. Beenleigh to Robina and Caboolture north are supplied by the autotransformer system.

Typically, the autotransformer system also uses a 25 kV ac feeder wire run on the back of the supporting structure which is used for voltage support throughout the electrified network.





The electrification system is monitored and controlled remotely by an Electric Control Operator (ECO) available 24 hours a day, 7 days a week. The ECO monitors and controls the electrification system to maintain a safe and reliable operation at all times. The ECO is in control of all switching operations and arranges for emergency disconnection of supply and repairs to electrical infrastructure when required. All faults affecting electric traction infrastructure need to be reported immediately to the ECO.



Operational Constraints - Infrastructure

During the summer months of high temperatures, hot weather precautions for track stability are observed to reduce the risk of incident in accordance with Safety Management Standard **MD-10-143 Hot Weather Precautions for Track Stability**, namely :-

Air Temperature 38°C and above	-	On timber sleepered track, restrict trains to 60 km/h (#) On concrete sleepered track, restrict all trains to 120 km/h
Air Temperature 40°C and above	-	On timber sleepered track, restrict trains to 40 km/h (#) On concrete sleepered track, restrict all trains to 60 km/h

(#) Steel sleepered track and timber sleepered track with interspersed steel sleepers shall be regarded as equivalent to timber sleepered track for track stability.

Speed restrictions may also be put in place after maintenance activities in accordance with Queensland Rail Safety Standards.

The extent of restriction will depend upon the type of maintenance activity and risk of track misalignments.

Force Majeure Events will also see the imposition of speed restrictions, the extent and severity of the restrictions being dependent on the event.

Trackside Detection Equipment

Dragging Equipment Detectors (DED)

There are no dragging equipment detectors on this System.

Hot Box / Hot Wheel Detectors (HBD/HWD)

There are no Hot Box / Hot Wheel Detectors on this System.

Axle Counters

There are no axle counters on this System.

Weighbridges

There are no weighbridges on this System.

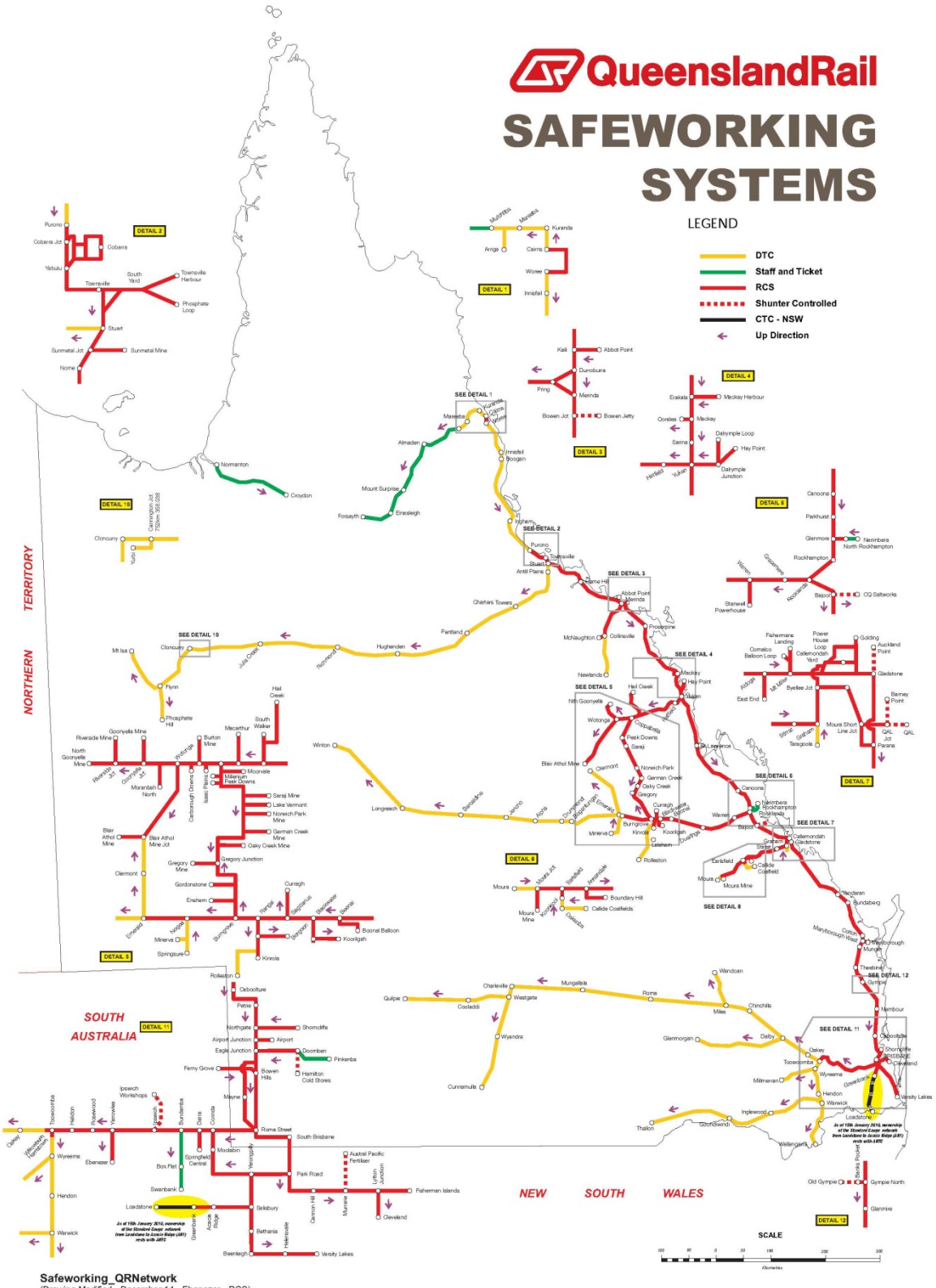
Operational Systems & Train Control

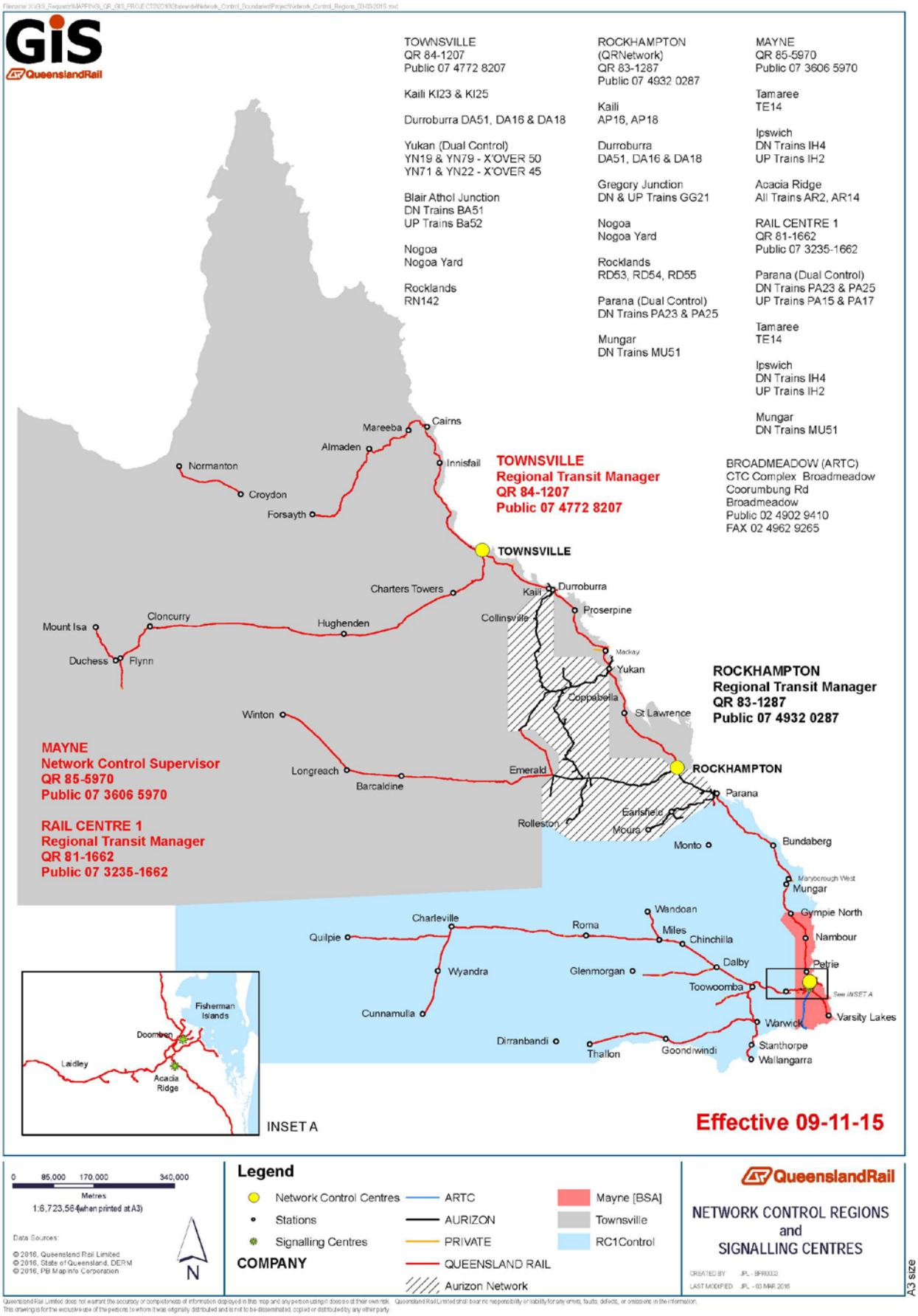
The Brisbane Metropolitan System is, in the main, operated by Remote Control Signalling (RCS) with Staff and Ticket operating between Doomben and Pinkenba, Bundamba to Swanbank and Yarrowlea to Ebenezer and local shunter control for Doomben to Hamilton Cold Stores, Murarrie to Austral Pacific and Ipswich Workshops.

All traffic movements on this system between Ipswich, Caboolture and Robina are controlled from the Rail Management Centre (RMC). Outside these areas, control rests with Level 5, Rail Centre 1.

Universal Traffic Control (UTC) is the operational control system and the Automatic Warning System (AWS) is the train protection system.

Automatic Train Control (ATC) and Automatic Train Protection (ATP) operate north of Caboolture whilst ATP operates between Ipswich and Rosewood.


QueenslandRail
SAFEWORKING
SYSTEMS
LEGEND
DTC
Staff and Ticket
RCS
Shunter Controlled
CTC - NSW
Up Direction
NORTHERN TERRITORY
SOUTH AUSTRALIA
NEW SOUTH WALES
BRISBANE
SCALE
Safeworking_QRNetwork
(Drawing Modified - December 14 - Ebenezer - RCS)



Information Systems

ViziRail is the key software system designed as a tool for use in integrated scheduling, possession planning, monitoring and reporting on the Queensland Rail network.

Functionality includes modules:

- Train notices
- Actual train running (ATR)
- Incidents
- Train consists (Train Builder)
- Speed restrictions
- Rollingstock allocations
- Rollingstock maintenance
- Fresh turnouts
- Planning graphs
- Scheduling enhancements
- Possession enhancements
- OTIS (Operational to Information Systems) - which converts train steps to actual arrival and departure train information.

Operational Constraints - Rollingstock

All new rollingstock is required to be accepted via the Rollingstock Authorisation Process. Registered rollingstock which conforms with Drawings 2236, 2237 and 2238 may operate in an unrestricted manner on main lines.

For rollingstock to conform with Drawing Nos. 2236, 2237 and 2238 the static rollingstock profile must be within the diagram, refer **APPENDIX H - Rollingstock Gauges**. As well as the static component, dynamic effects need to be considered and these effects are contained within the Rollingstock Interface Standards.

Rollingstock not conforming to these drawings may be accepted via the Rollingstock Authorisation Process and may be operated subject to constraints / limitations imposed as a result of the Rollingstock Authorisation Process.

Potential railway operators should ensure that they have the latest revision of these drawings before the planning and construction of rollingstock.

Communications

Communications on the Brisbane Metropolitan System between Driver and Controller is via a UHF radio system (Train Control Radio - TCR) utilising a number of QR channels and frequencies. Transceivers “auto” switch channels to suit geographical location. Frequency specification and coverage details are available as part of the “Access Enquiry Process”. Control phones are located at Staff Stations only.

Access to the Maintenance Supervisory Radio System (MSR) can be gained by using Queensland Rail telephone extensions depending on location or UHF radio system utilising Queensland Rail channels.

In addition, all locomotives and other power vehicles must carry a UHF radio operating on Queensland Rail Channel 1. This provides on-board and wayside communications including end to end, train to train and train to track gangs over a distance on average of 8 - 10 km.

Communications systems must be compatible with Queensland Rail systems. These are detailed in the safety standard MD-10-86 Telecommunications – Mobile Voice Radio Communications Systems.

Sectional Running Times

The sectional running times, expressed as minutes, for various types of trains currently operating on the system are contained in **APPENDIX F**.

It should be noted, that the sectional running times presented are **"Pass to Pass"** times for a running move and therefore do not include any acceleration or deceleration allowance.

Proposed train configurations would need to be confirmed by the relevant operator against the infrastructure constraints to determine if the sectional running times can be achieved. If the sectional running times cannot be achieved then different arrangements, including for access charges, may need to be negotiated as part of the access agreement negotiations.

Changes to the sectional running times for the system are also possible over time. Any changes would be confirmed as part of the access agreement negotiations.

Train travel directions (UP/DOWN) are indicated on the Safeworking Systems diagram detailed on Page 21.

Incident Recovery Time and Management

The Brisbane Metropolitan System, being a commuter system, is a robust system with premium response times, where minor incidents could result in disruption to services for 4 hours and a major incident for 2 days.

Incident recovery is dependent on the nature, severity and location of each unique incident that may occur on this system.

To enable quick response in case of emergency, latitudes and longitudes of some passing loops, and generally where the railway changes direction, are detailed below:

Location	Latitude	Longitude
Roma Street	27° 27’ S	153° 01’ E
Central	27° 27’ S	153° 01’ E
Bowen Hills	27° 26’ S	153° 02’ E
Eagle Junction	27° 24’ S	153° 03’ E
Northgate	27° 23’ S	153° 04’ E
Bald Hills	27° 19’ S	153° 00’ E
Strathpine	27° 18’ S	152° 59’ E
Petrie	27° 16’ S	152° 58’ E
Narangba	27° 12’ S	152° 57’ E
Caboolture	27° 04’ S	152° 57’ E
Beerburrum	26° 57’ S	152° 57’ E
Landsborough	26° 48’ S	152° 58’ E
Mooloolah	26° 46’ S	152° 57’ E
Nambour	26° 37’ S	152° 57’ E
Nudgee	27° 22’ S	153° 05’ E
North Boondall	27° 20’ S	153° 03’ E
Shorncliffe	27° 19’ S	153° 04’ E
Mitchelton	27° 24’ S	152° 58’ E
Ferny Grove	27° 19’ S	153° 04’ E
Indooroopilly	27° 30’ S	152° 58’ E
Corinda	27° 32’ S	152° 58’ E
Darra	27° 34’ S	152° 57’ E
Wacol	27° 35’ S	152° 55’ E
Redbank	27° 36’ S	152° 52’ E
Bundamba	27° 36’ S	152° 48’ E
Ipswich	27° 36’ S	152° 45’ E
Walloon	27° 36’ S	152° 40’ E
Yarrowlea	27° 38’ S	152° 37’ E
Rosewood	27° 38’ S	152° 35’ E
Moolabin	27° 31’ S	153° 00’ E
Tennyson	27° 31’ S	153° 00’ E
South Brisbane	27° 28’ S	153° 01’ E
Park Road	27° 29’ S	153° 01’ E
Yeerongpilly	27° 31’ S	153° 00’ E
Salisbury	27° 33’ S	153° 01’ E
Kuraby	27° 36’ S	153° 05’ E
Bethania	27° 41’ S	153° 09’ E
Beenleigh	27° 43’ S	153° 12’ E
Ormeau	27° 48’ S	153° 17’ E
Coomera	27° 51’ S	153° 19’ E
Helensvale	27° 55’ S	153° 20’ E
Nerang	27° 59’ S	153° 19’ E
Robina	28° 03’ S	153° 24’ E

Morningside	27° 28’ S	153° 04’ E
Murarrie	27° 27’ S	153° 06’ E
Lindum	27° 26’ S	153° 08’ E
Wynnum	27° 26’ S	153° 10’ E
Manly	27° 27’ S	153° 10’ E
Thorneside	27° 29’ S	153° 11’ E
Wellington Point	27° 29’ S	153° 14’ E
Cleveland	27° 31’ S	153° 15’ E
Fisherman Islands	27° 22’ S	153° 10’ E

Rail / Road Interfaces

Operators on the West Moreton System will encounter 221 Rail / Road Interfaces (see Appendix C for details) categorised as follows:-

Public (Active with Flashing Light/Boom Gate Protection)	-	73
Public (with Passive Protection - Signs)	-	44
Occupation (Private Access)	-	104

Rail Operations and the Environment

Queensland Rail is committed to managing its service and operational activities in an environmentally responsible manner to meet legal, social and moral obligations. We seek to be proactive in developing means by which our business can grow in an environmentally sustainable manner.

Queensland Rail’s environmental management information can be viewed at: http://www.queenslandrail.com.au/inthecommunity/environment/environmentalmanagement

All rail operators operating on the Queensland Rail network are required to comply with all current state and federal legislation relating to the management and protection of the environment. Environmental and noise management issues are included and agreed in all Access Agreements.

Railway operators must ascertain with the Department of Environment and Heritage Protection or Other Regulatory Body their responsibilities in regard to obtaining an environmental authority (i.e.) for the type of operation proposed. Copies of all environmental authorities administered by the Department of Environment and Heritage Protection within Queensland are available upon request from the department which can be found at:
http://www.ehp.qld.gov.au/

Environmental Noise

The Environmental Protection (Noise) Policy (EPP Noise) recognises a railway as a beneficial asset, which is necessary for the community’s environmental, social and economic well-being. The Environmental Protection (Noise) Policy is available via the Office of the Queensland Parliamentary Council website at

http://www.legislation.qld.gov.au/OQPChome.htm
The EPP Noise nominates "planning levels" for railway noise which may be used as a guide in deciding a reasonable noise level for the activity. The EPP Noise recognises, however, those levels may not be appropriate for an existing railway. It envisages that it may be reasonable to apply the levels only in the long term to allow time to progressively reduce any significantly adverse effects on the environmental values from its operation. The long term planning levels are:

L_{Aeq} (24 hour)	65dBA
L_{Amax}	87dBA

They are to be assessed one (1) metre in front of the most exposed part of the building facade of an affected noise sensitive place.

http://www.queenslandrail.com.au/inthecommunity/environment/noisemanagement

Noise Management

While noise from the operation of a railway is exempt from environmental nuisance provisions under the Queensland Environment Protection Act 1994, Queensland Rail strives to manage noise associated with both its rail operations and network wherever reasonable and practical.

As the rail manager, Queensland Rail works closely with customers regarding environmental issues, and provides feedback to Rail Operators to allow them to investigate and address as applicable, noise related issues that may be associated with their locomotives and wagons.

There are various sources of noise from a railway and to aid efficient and effective noise reduction, a range of noise management measures are utilised by Queensland Rail. These are detailed at:

http://www.queenslandrail.com.au/inthecommunity/environment/noisemanagement

Wheel Squeal & Flanging

Wheel Squeal is caused by friction forces between the top of rail and wheel interface. Whereas, flanging noise is predominantly caused by friction forces between the side of rail and wheel interface. Continuous or sustained wheel squeal produced primarily on the low rail side, is distinct from discontinuous "flanging noise" that is produced on the high rail side. Continuous wheel squeal is of a high level, and Queensland Rail's experience is that it may cause significant community reaction, while flanging noise is of a lower level and is more accepted by the community.

Generally, tighter radius curves (i.e. under 300 metre radius) when associated with a number of rollingstock factors that promote wheel squeal, may result in squeal being produced. Rollingstock factors that may promote wheel squeal include:

- Higher wheel hardness
- Stiff primary suspensions
- High centre plate friction
- Worn wheel treads
- Misaligned axles
- Unmatched wheel tread diameters, and
- Incorrectly adjusted sidebearers

Noise Complaints

Queensland Rail is corporately committed to act towards its neighbours in a considerable and reasonable manner. This good neighbour commitment assumes a reasonable degree of tolerance from neighbours and a commitment by Queensland Rail to take action where appropriate.

Where Queensland Rail receives complaints about noise from railway activities for which Queensland Rail may be responsible, Queensland Rail responds to those complaints and maintains records of those complaints in accordance with its Environmental Management System (EMS).

Where available, generic data will be supplied on request to a third party operator who is proposing operations within a defined network. That data will indicate those areas where Queensland Rail has received prior complaints relating to its train operations. It will be made available when a third party operator is undertaking the development of its Environmental Investigation and Risk Management Report as part of its Access Agreement conditions.

Third Party Requirements

Any railway operator obtaining access to Queensland Rail's Network shall be required to commission an environmental investigation of the proposed operations. This investigation will be conducted by a suitably qualified person, reasonably acceptable to both parties.

In response to the findings of such an investigation, the operator shall produce an Environmental Investigation and Risk Management Report that identifies the risks of Environmental Harm associated with the operation and provides proposed controls to address the risks. This shall be reviewed by, and agreed with, Queensland Rail.

In addition, the operator shall have in place an EMS, which, amongst other things, has regard for the issues, risk and control measures identified in the Environmental Investigation and Risk Management Report. Further details on requirements for environmental issues can be found in Queensland Rail's Access Undertaking.

Queensland Rail has determined that it holds no EMS documentation that, without disclosure to a third party operator, would either:

- Compromise or restrict a third party's operations or increase or place at risk the environmental performance of the third party operator or itself, and
- Limit or restrict the abilities of a third party operator to develop such

documentation that would not be reasonably expected of the operator to develop on its own behalf, commensurate with the size and subsequent environmental risks of the proposed operations and the organisational resources available to it, to undertake such operations.

Any EMS documentation (wholly or partially) identified as specifically relating to the control of corridor infrastructure (below rail) environmental issues, will be made available to the operator to assist in formulating appropriate and consistent operational (above rail) controls within their Environmental Investigation and Risk Management Report and EMS.

Maximum Train Length

The maximum length of trains is determined by:

- restrictions for crossing/passing other trains
- requirements for braking performance of the train
- capacity of the route
- drawgear capacity
- train handling
- requirements for road/pedestrian access across the track

Where it is necessary for a train to cross, pass or be passed by another train, the maximum train length allowable shall be such that the comparison train length (including allowance for stretching and train handling) is not longer than the crossing loop length.

Variations of train length for a particular train configuration is possible and would need to be negotiated as part of access agreement negotiations.

Rollingstock Braking Rate

The signalling system and flashing light protection at rail / road interfaces has been designed to cater for the variety of trains that currently use this system.

Signal design parameters and train braking characteristics will be compared during the development of the Interface Risk Management Plan.

Future Infrastructure Improvements

To be advised.

Over-Dimensional Road Loads

Permission is required from Queensland Rail to take over-dimensional road loads (ODRL) across Queensland Rail infrastructure. Typical examples of such loads are houses, earthmoving equipment, transformers, machinery or agricultural equipment.

If a road load exceeds any of the requirements listed below, and it is required to transport the load across Queensland Rail infrastructure, a permit must be issued by Queensland Rail. This permit ensures safe travel over all Queensland Rail infrastructure. The type of authority will depend on the type of load being transported and the required route.

Where approval is required

Approval must be obtained where a vehicle's load meets at least one of the following descriptions:

- Over-weight vehicles, long vehicles, wide vehicles and high vehicles
- The total of all axle mass weight for the vehicle is over 105 tonnes
- The axle mass for any single axle of the vehicle is over 12 tonnes
- The total of all axle masses for any 9 meters of the vehicle's length is over 48 tonnes.
- The vehicle is longer than 35 meters on a railway crossing
- The vehicle is wider than 5.5 meters wide; or the distance between the posts of a height barrier for the crossing. Enquiries regarding Over-Dimensional Road Loads should be directed to (07) 3072 1719 email roads@qr.com.au

Infrastructure Management and Access

APPENDIX B - SCHEMATIC LAYOUT is colour coded to indicate Management of Infrastructure and Access.

Third party access to non-Queensland Rail managed infrastructure is by commercial arrangement with the relevant party.

The initial point of contact for Queensland Rail managed below rail assets is:

General Manager Access Revenue

Level 9 | 305 Edward Street
Brisbane Qld 4001
Telephone 61 07 3072 1145
Facsimile 61 07 3072 8248
Email: aarf@qr.com.au

APPENDIX A

Definitions (Statewide)

Access Agreement

Access Agreement means an agreement between Queensland Rail and an Access Holder for the provision of Access.

Access Undertaking

A document approved by the Queensland Competition Authority (QCA) in accordance with the QCA Act 1997 (Q) that sets out principles for negotiating access to Queensland Rail's declared services.

Accreditation

Accreditation in accordance with part 4, Chapter 6 of the Transport Infrastructure Act 1994 (Qld) and "Accredited" has a similar meaning.

ATP (Automatic Train Protection)

Automatic Train Protection is a computer controlled system designed to make sure the train

- does not exceed the current speed limit
- does not exceed the limit of authority generated by the interlocking (and usually indicated by a signal at STOP)
- does not make unreasonable train movements during shunting, when stationary, or at startup

AWS (Automatic Warning System)

Automatic Warning System is designed to

- provide an in-cab visible and audible indication of the aspect displayed in the next signal
- prompt and warn the train driver of a RESTRICTED signal aspect displayed in the next signal
- stop the train if the driver fails to acknowledge the AWS alarm of a RESTRICTED signal aspect

Axle Counters

At some locations in Remote Controlled Signalling (RCS) Territory an axle counter system has been provided to detect occupancy of a section of track.

An axle counter at each end of a section determines whether an axle is entering or leaving the section and counts the number of axles passing the counter in each direction. By keeping an accurate count of axles into the section, then the number of axles out of the section, the system can determine if the section is occupied or not.

Block Train

A train consisting entirely of similar classes of wagons of axle loads over 12.2 tonnes marshalled together for a certain class of traffic. The definition is also extended to cover trains in which 12 or more such wagons loaded to more than 12.2 tonnes gross per axle are included within a length of 315 metres or less of the train.

Crossing Loop Length

The maximum length in metres of the train which can be accommodated in the loop to allow normal operation of the signalling systems for crossing or passing movements.

Daily Train Plan (DTP)

Collectively, the scheduled times for all Train Services operating on Queensland Rail's Rail Infrastructure and any Planned Possession on a particular day.

Declared Services

Services declared as available for access by third party operators in accordance with the QCA Act 1997 (Q).

Declared Infrastructure

Infrastructure declared as available for access by third party operators in accordance with the QCA Act 1997 (Q).

Design Neutral Temperature

The rail temperature at which the track is designed to be stress free as defined in Queensland Rail's
Civil Engineering Publication #26 "Rail Stressing Manual".

Direct Traffic Control (DTC)

Direct Traffic Control (DTC) is an absolute block safeworking system used to control the movement of trains in non-signalled territory.

Central to DTC is an on-board DTC computer which displays authorities stored in its database. The relevant authority is activated by the train crew following an exchange of codes between the crew and the controller. Codes are exchanged verbally using the train control radio.

The procedures governing the operation of DTC are detailed in Queensland Rail's Standard MD-10-113 "Direct Traffic Control Manual".

Dragging Equipment Detectors (DED)

A mechanism positioned on sections of track to detect any dragging equipment on train.

Dragging Equipment Detectors Alarm (DED Alarm)

Part of the Queensland Rail System which advises the Train Controller either by a computer prompt message that a D.E.D. has been activated and the train driver by a recorded voice message.

Electromagnetic Compatibility (EMC)

The ability of an equipment or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment.

Electric Train Staff

A 'token' system of train working between Interlockings on single lines in non track- circuited areas, where release of a token is controlled by electrically connected and interlocked instruments.

EPP (Noise)

Environmental Protection (Noise) Policy 1997; Subordinate Legislation to the Queensland Environmental Protection Act 1994.

Force Majeure Event

Means any cause, event or circumstance, or combination of causes, events or circumstances, which is beyond the reasonable control of the Party affected thereby and which by the exercise of due diligence such Party is not reasonably able to prevent or overcome, including but not limited to, results of abnormal weather conditions, act of God, breakdown of any facilities or machinery or unavailability of essential equipment, strikes or other industrial dispute.

Hot Wheel & Bearing Detectors (HWD/HBD)

Heat sensors located at strategic locations on the system that identify abnormal temperatures in wheels and wheel bearings as the train passes over, transmits a signal to the train control panel that necessitates an inspection of the suspect wagon and remedial action

Line Code

Line Code, a unique alpha-numeric identifier applied to a section of track on Queensland Rail's network and usually run from junction point to junction point. Each numeric identifier is unique and can be further rolled up into Corridors using the alpha identifier.

LWR

Long welded rail. Rail that has mechanical rail joints spaced at intervals between 110m and 220m.

LSC

Line Section Code, a unique alpha-numeric identifier applied to a section of Queensland Rail's network.

Master Train Plan (MTP)

Collectively, the scheduled times as advised by Queensland Rail from time to time for all Train Services operating on Queensland Rail's Rail Infrastructure where such scheduled times remain unchanged from week to week, and any Planned Possessions.

Nominal Rail Size

Rail sizes 20, 31 and 41 kg/m are all nominal rail sizes used to group together a range of rail types and sizes originally designated in the imperial unit "lb/yd". The term "nominal" is used in recognition of the variation in the dimensions, mass and engineering properties of the rails in this category.

Ordinary Staff and Ticket Working

A token based system of safeworking where the movement of trains on bi-directional single lines is on possession of a staff token or ticket. Each section of single line has a unique token.

Staff & Ticket

The Staff and Ticket System allows for the movement of trains over a bidirectional track.

The Staff and Ticket System operates (in accordance with Queensland Rail's Standard MD-10-114) on the principle of absolute block working, which provides that only one train will be authorised to be on any one section at any one time.

Railway Operator

A person who has, or is seeking, Access from Queensland Rail to operate Train Services on the Rail Infrastructure and who is, or who will become, Accredited in respect of those Train Services.

Remote Controlled Signalling (RCS)

A system of Safeworking where train movements are governed by aspects displayed in Colour Light Signals which are controlled from a remote location and by the passage of trains. Some colour light signals and points may be released by the Train Controller to be operated from a local area by using:

- a local control panel;
- an electrically released shunting frame;
- a zone released shunting system, or
- emergency push buttons.

Railway Operators trains are expected to meet existing signalling standards to ensure track circuits and other signalling equipment operate safely and effectively - in particular Queensland Rail's Standard MD-10-76 "Principles for the Signalling of Trains" must be complied with.

Rollingstock Authorisation Process

The process for determining and validating rollingstock compliance and registration as detailed in Queensland Rail's Standard MD-10-140 - Rollingstock Validation, Acceptance and Registration

Remote Train Overview Application (RTOA)

A PC based system providing real time operational information, gathering information on train running and rail network status for immediate and continuously updated display and historical analysis.

Being a multi-tier client-server application, different levels of access/security ensure confidentiality of an Operator's train performance statistics.

SN Speed Boards

Speed Normal Boards are speed boards that place the onus on the Driver of a train to travel at speeds considered safe for that section of track being travelled over. These boards are gradually being phased out in accordance with Queensland Rail's Civil Standard MD-10-87 - SPEED BOARDS

Standard Train

The predominant type of train operating on the line/system.

SWR

Short welded rail. Rail that has mechanical rail joints spaced at intervals less than 110m.

Train Authorisation

The process for acceptance of a train configuration whose rollingstock is registered under Queensland Rail's Standard MD-10-140 - Rollingstock Validation, Acceptance and Registration.

Train Length

The total length in metres of a train including the locomotives. For the purposes of comparison with the length of crossing loops, an addition of 1% (1 metre for every 100 metres) shall be allowed to the calculated length of the train to allow for train stretching.

Unit Train

A train composed entirely of the one class and one drawgear classification of rollingstock.

Universal Traffic Control (UTC)

A PC based train control supervisory system that provides the means to remotely control train movements over a large area and provide management and train users with real time train related information.

ViziRail

A fully integrated scheduling, possession planning, monitoring and reporting tool for managing the Queensland Rail below-rail network.

ViziRail also supports the provision of all QCA and the Department of Transport and Main Roads reporting requirements.

Weather Monitoring System (WMS)

Remote weather monitoring stations providing critical information regarding temperature, rainfall and stream levels.

Wheel Impact Load Detector (WILD)

In track monitoring system to identify wheel flats.

APPENDIX B

Schematic Layout

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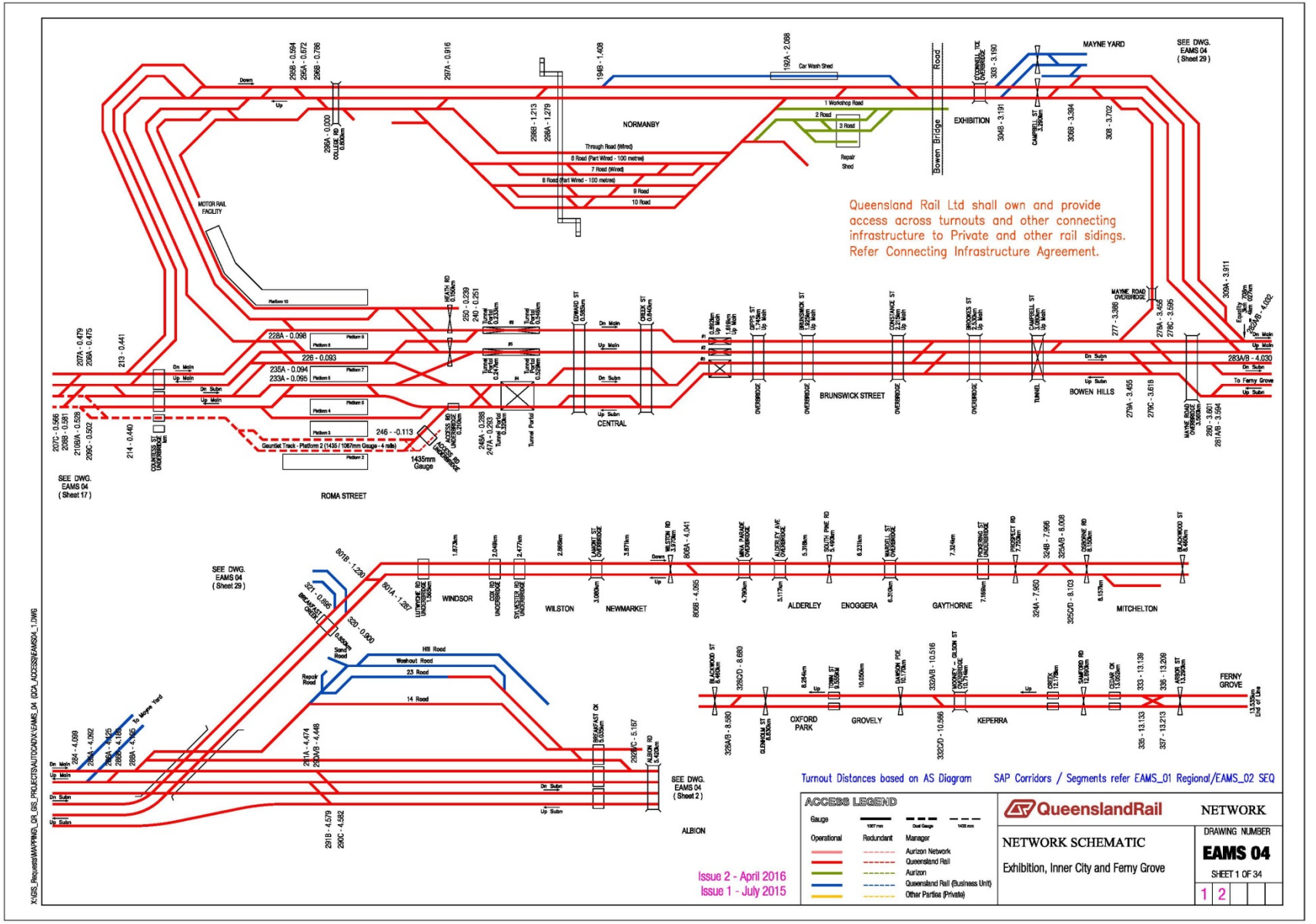

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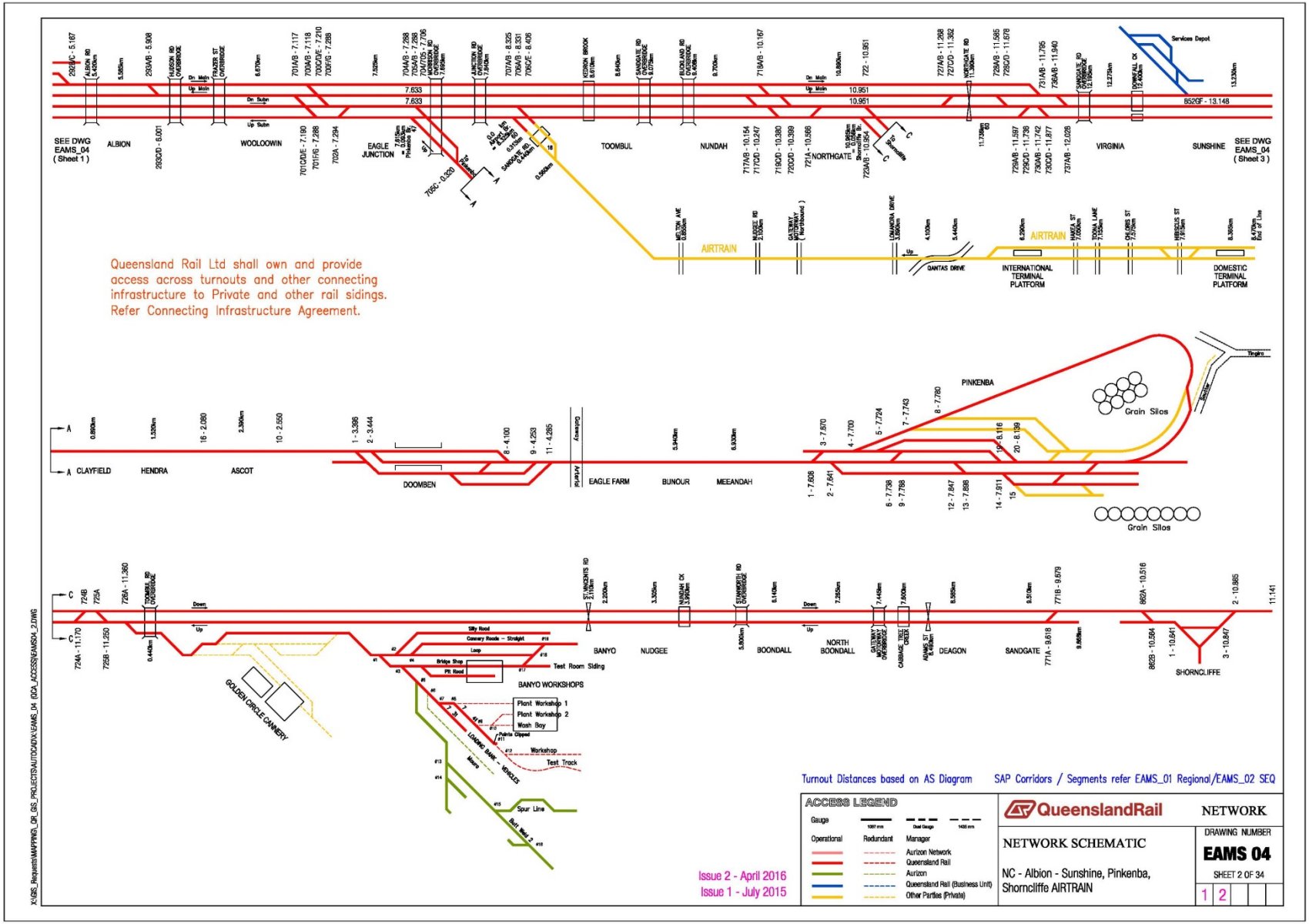

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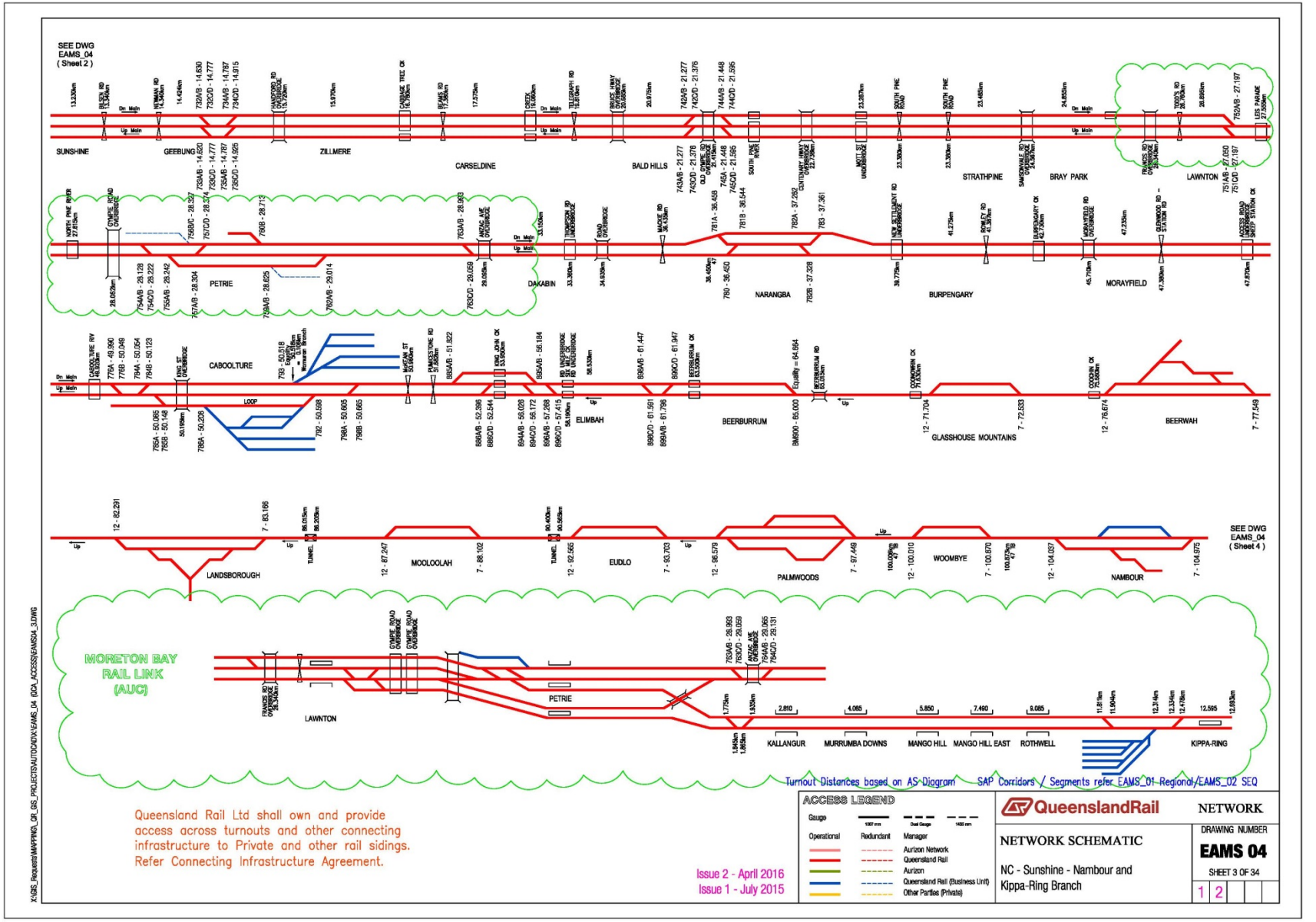

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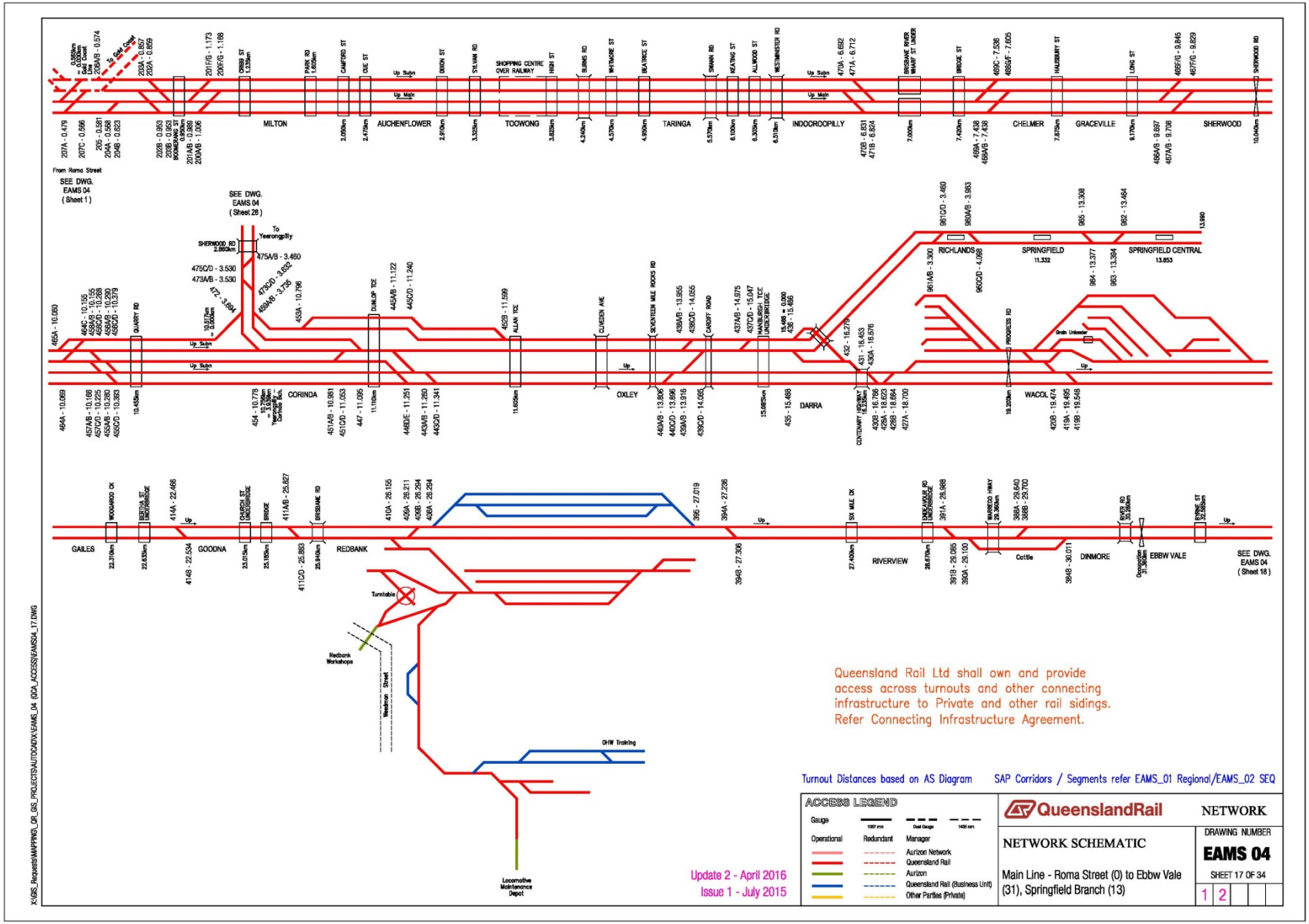

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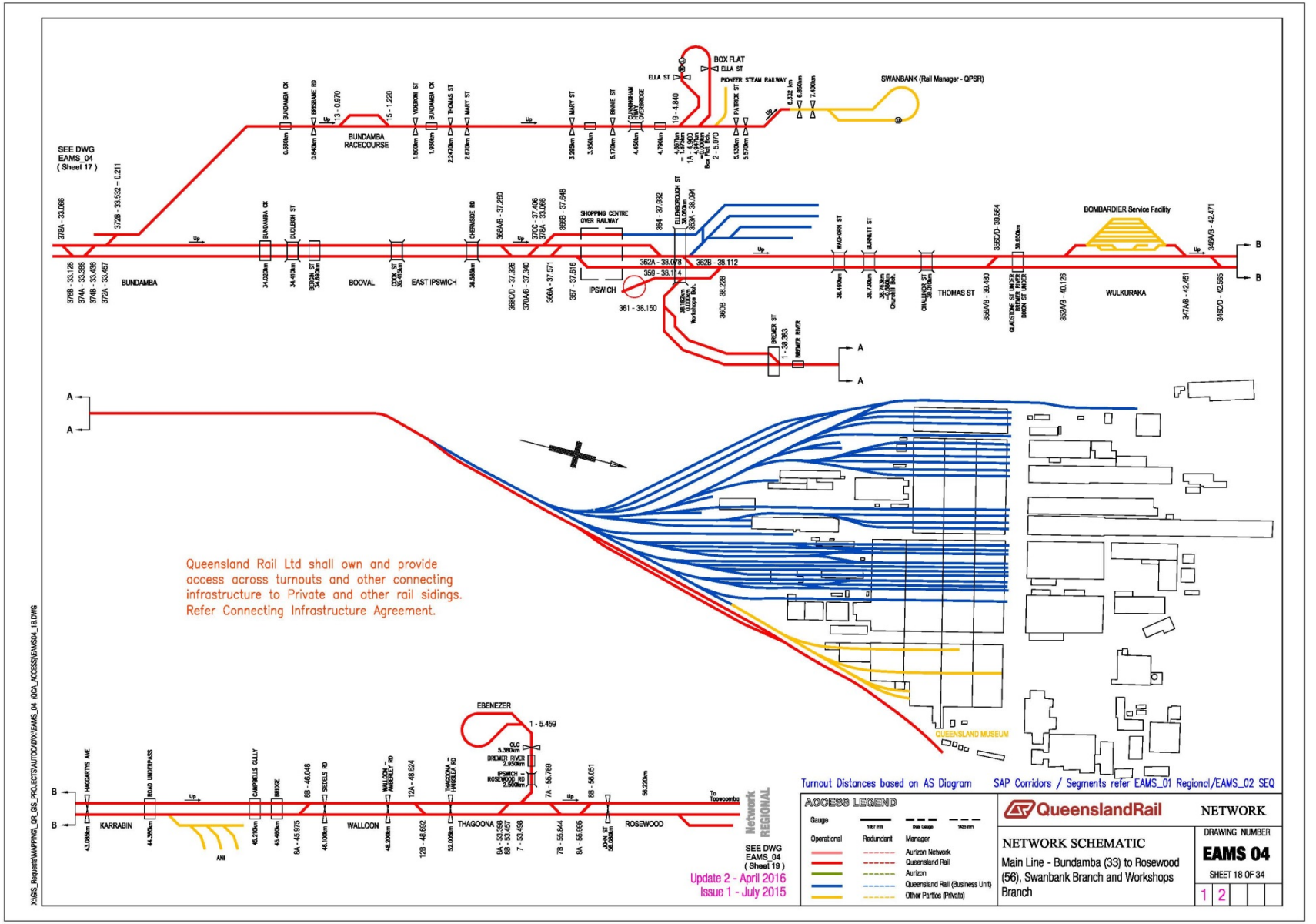

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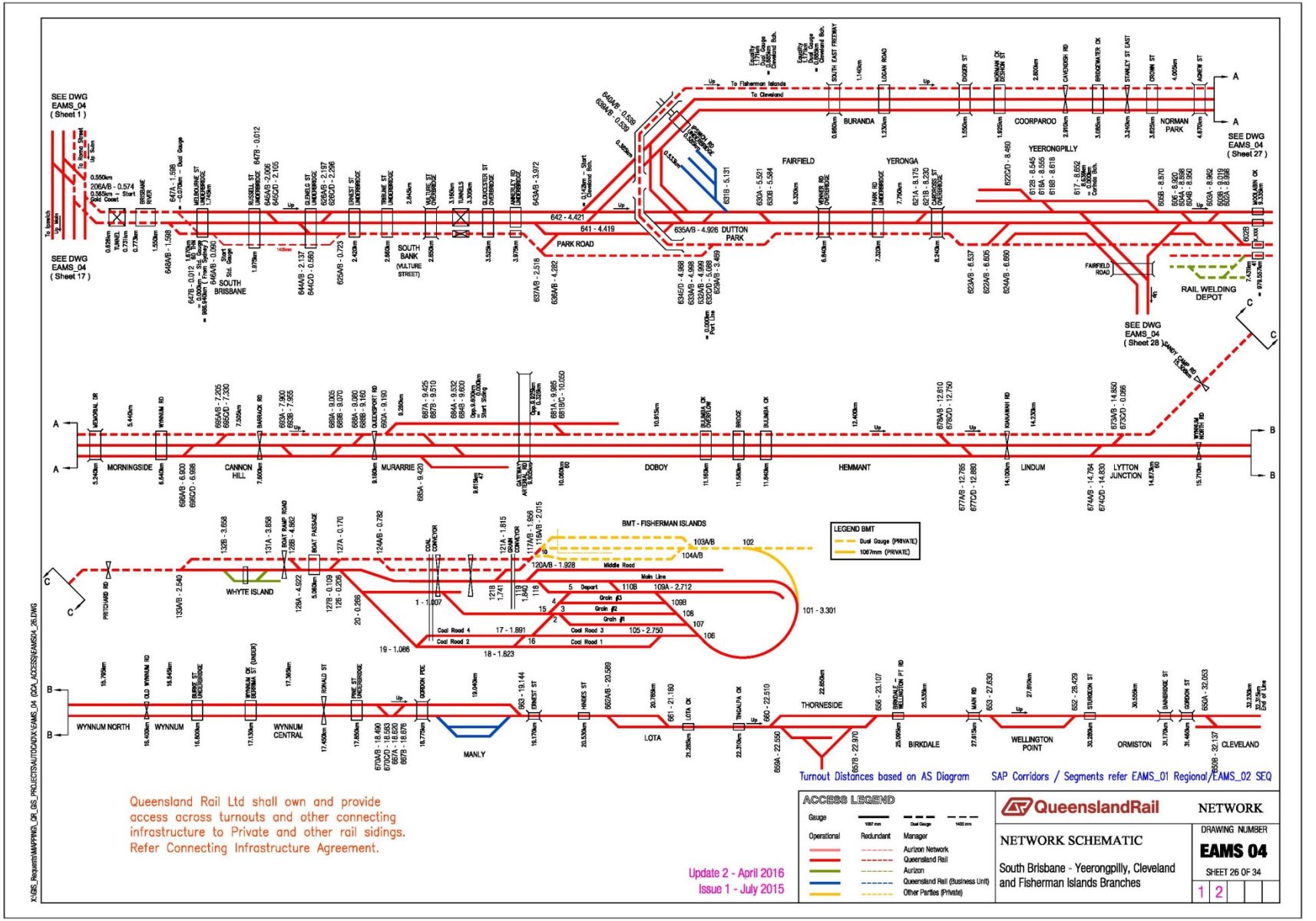

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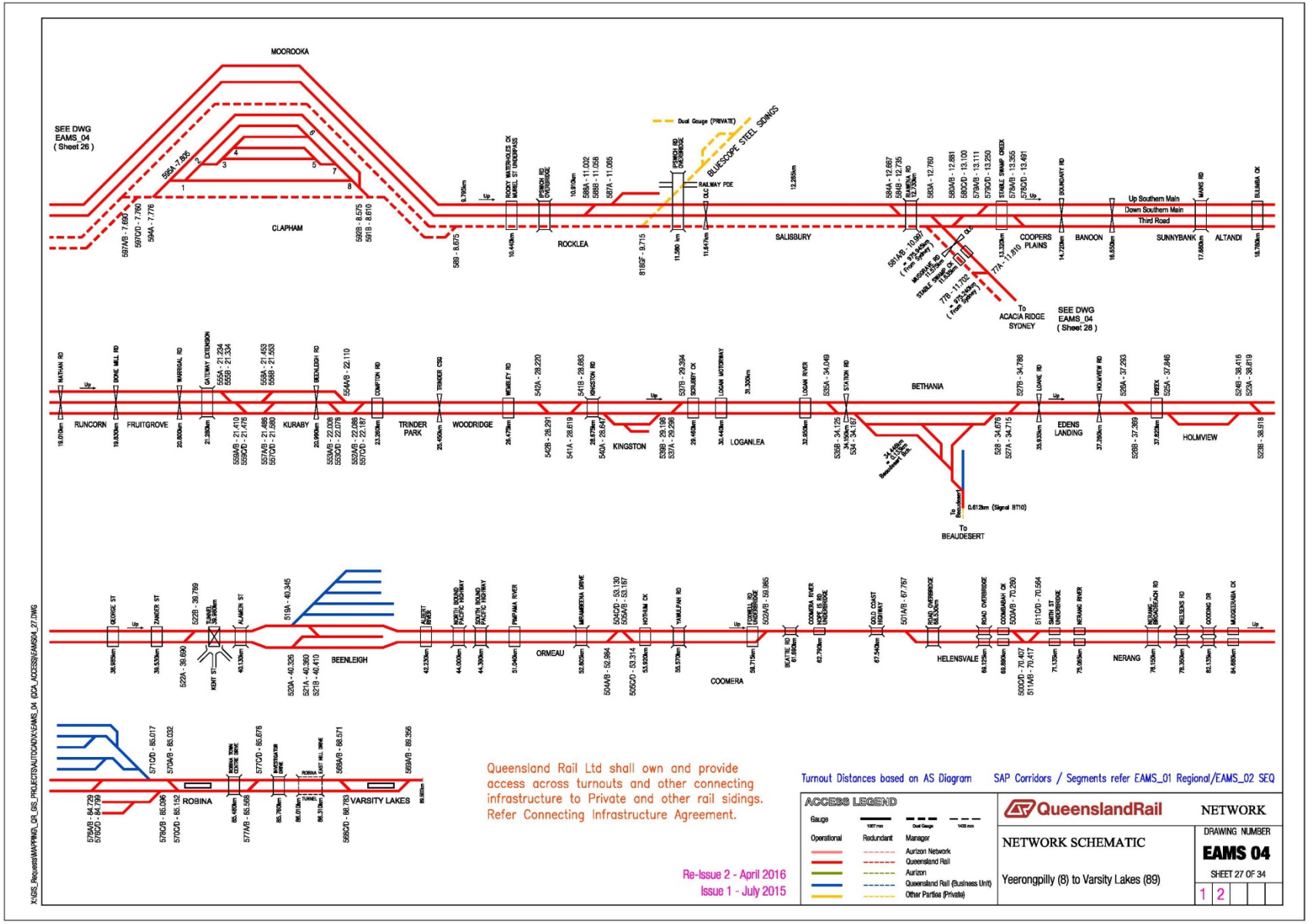

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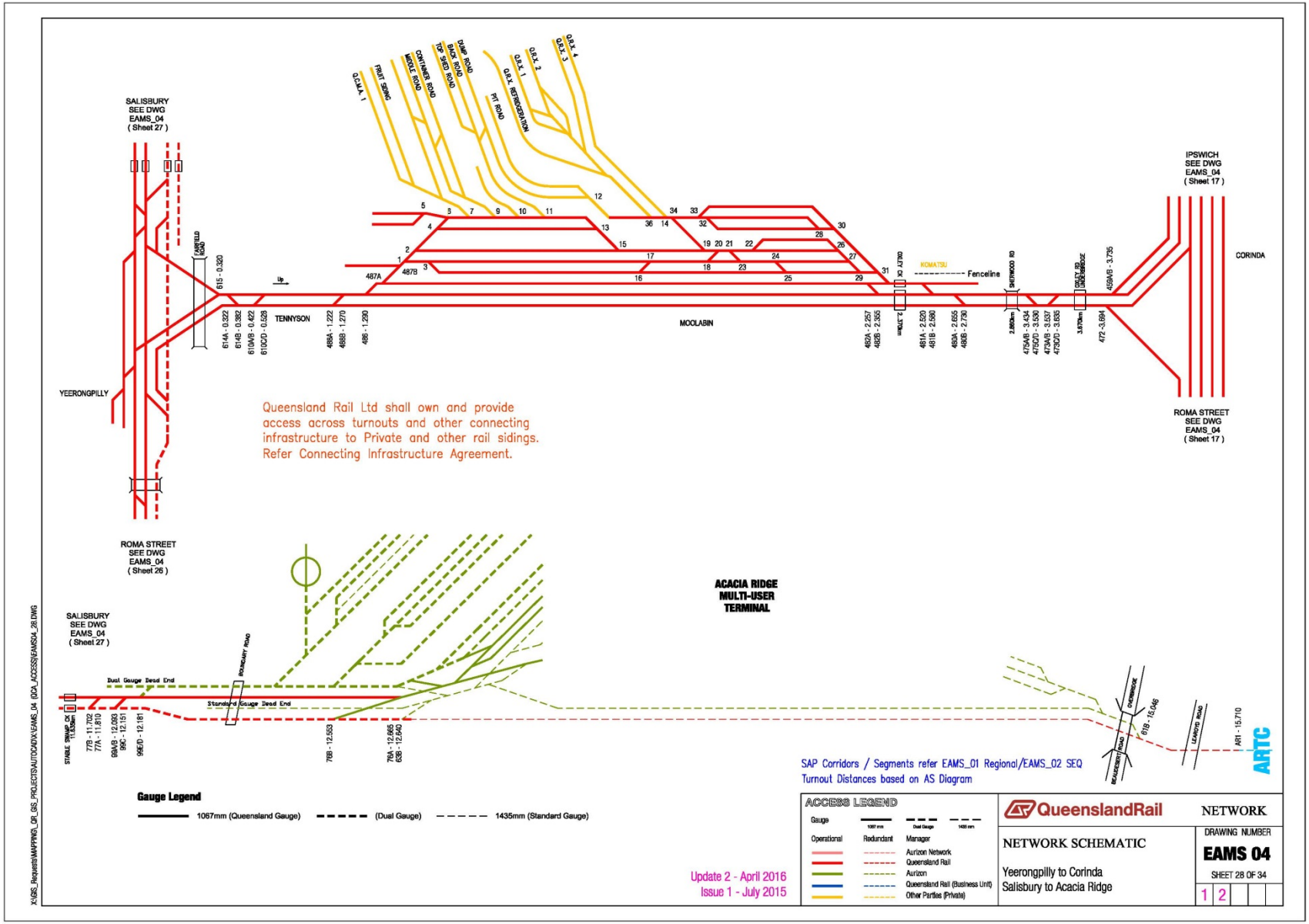

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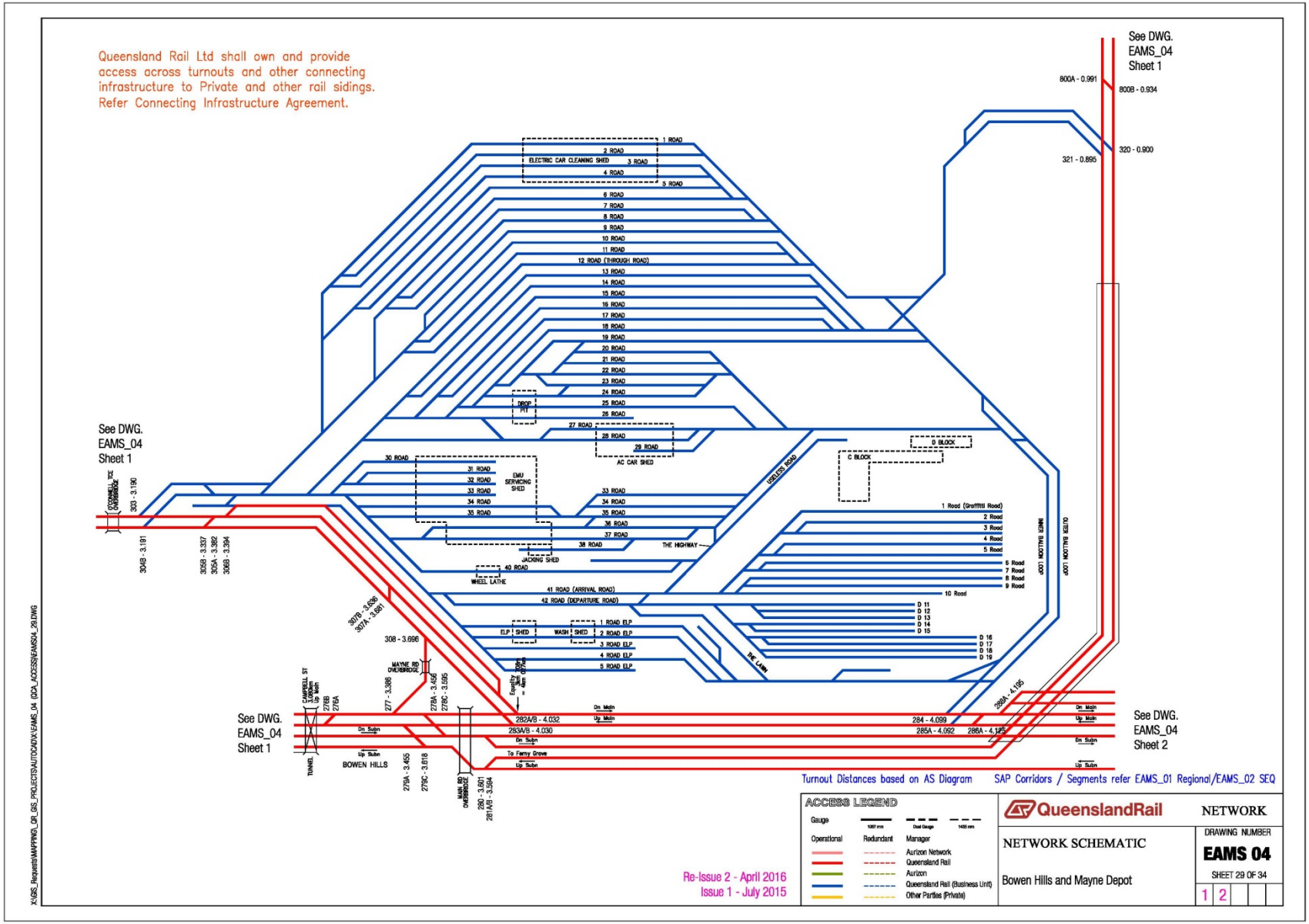

APPENDIX C

Rail/Road Interface Details

CROSSINGS BY LINE AND KILOMETRAGE

SURVEY SECTION

Description of Signage Types

G	Giveway	PWB	Pedestrian Warning	T	Triangle
N	New Signage Type	S	Stop	U	Unknown
O	Other	SC	School Crossing	X	Crossbuck

Line Section Code	Km	Road Name	Type	Vehicular Protection	Signs	Open Status	Responsible Authority
BOX FLAT BALLOON LOOP							
416	0.540	Ella Street	Public Level	Signs	X T	Open	LGA
416	0.740	Property Access Road	Occupation	Signs	X T	Open	PRI
416	1.280		Public Level	Signs	X T	Open	
BRISBANE - SYDNEY LINE (1435 gauge)							
474	8.460	(on passing loop)	QR	Signs	X S	Open	
474	9.819	Railway Parade (on siding)	Public Level	Signs	X G	Open	LGA
474	9.851	Old Beaudesert Road (on siding)	Public Level	Signs	X G	Open	LGA
474	9.935	Old Beaudesert Road	Public Level	Half Boomgates		Open	
474	11.580	Musgrave Road	Public Level	Half Boomgates		Open	LGA
CLEVELAND BRANCH							
810	2.910	Cavendish Road	Public Level	Half Boomgates		Open	LGA
810	3.240	Stanley Street East	Public Level	Half Boomgates		Open	LGA
810	7.600	Barrack Road	Public Level	Half Boomgates		Open	LGA
812	9.180	Queensport Road	Public Level	Half Boomgates		Open	LGA
812	11.425		QR	Nil		Open	QR
812	12.500		QR	Nil		Open	QR
812	14.100	Kianawah Road	Public Level	Half Boomgates		Open	
813	15.720	Wynnum North Road	Public Level	Half Boomgates		Open	LGA
813	16.410	Glenora Street (Wynnum Road)	Public Level	Half Boomgates		Open	LGA
813	17.450	Florence Street (Ronald Street)	Public Level	Half Boomgates		Open	LGA
813	20.750	Lota Station Pedestrian Access	Pedestrian			Open	QR
813	31.750		QR			Open	
EBENEZER BRANCH							
543	0.260	Hi-rail Take Off	QR	Nil		Open	
543	0.560		Occupation	Nil		Open	PRI
543	1.950		Occupation	Nil		Open	PRI
543	2.540		Occupation	Nil		Open	PRI
543	2.870	Property Access Road	Occupation	Signs	X S	Open	PRI
543	3.080	Bremer Road	Occupation	Signs	X S	Open	PRI
543	3.840	Coal Haulage Road	Occupation	Half Boomgates		Open	PRI
543	5.382	Lanes Road	Public Level	Signs	X	Open	LGA
543	6.240	Balloon Loop Access Road	Occupation	Signs	X S	Open	PRI
543	6.980	Balloon Loop Road	Occupation	Signs	X S	Open	PRI

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Line Section Code	Km	Road Name	Type	Vehicular Protection	Signs	Open Status	Responsible Authority
543	7.450	Balloon Loop Access Road	Occupation	Signs	X S	Open	PRI
543	8.150	Balloon Loop Access Road	Occupation	Signs	X S	Open	PRI
FERNY GROVE BRANCH							
527	1.291	Epacras / Le Geyt Street	Pedestrian			Open	QR
527	1.785	Windsor Station Pedestrian Access	Pedestrian	Nil		Open	QR
527	3.970	Wilston Road	Public Level	Half Boomgates		Open	LGA
527	5.490	South Pine Road	Public Level	Half Boomgates		Open	LGA
527	7.730	Prospect Road	Public Level	Half Boomgates		Open	LGA
527	8.150	Osborne Road	Public Level	Half Boomgates	X	Open	LGA
527	8.270	Construction Road (Temporary Crossing)	QR	Nil		Proposed	QR
527	8.350	Mitchelton Station Pedestrian Access	Pedestrian	Nil		Open	QR
527	8.450	Blackwood Street	Public Level	Half Boomgates		Open	LGA
527	8.785	Glenholm Street	Public Level	Half Boomgates		Open	LGA
527	10.170	Dawson Parade	Public Level	Half Boomgates	PWB	Open	LGA
527	10.890	Keperra Station Pedestrian Access	Pedestrian	Nil		Open	QR
527	12.830	Samford Road	Public Level	Half Boomgates		Open	MRD
527	13.230	Arbor Street	Public Level	Half Boomgates		Open	LGA
527	13.358	Ferny Grove Station Pedestrian Acces	Pedestrian	Nil		Open	QR
527	13.525	Ferny Grove Station Pedestrian Acces	Pedestrian	Nil		Open	QR
527	13.615	Station Carpark Access Road	Public Level	Locked Gates		Open	QR
GOLD COAST LINE (Beenleigh to Robina)							
515	40.670		QR			Open	
515	52.390	QR Maintenance (blocked with chain barriers)	QR			Open	
515	67.700		QR			Open	
429	74.370		QR			Open	
429	85.120	QR Pedestrian Access	QR			Open	
429	85.360	QR Pedestrian Access	QR			Open	
GOLD COAST LINE (Roma St to Beenleigh)							
801	8.680	QR Maintainance Access Road	QR	Nil		Open	QR
801	8.814	QR Maintainance Access Road	QR	Nil		Open	QR
801	11.650	Old Beaudesert Road	Public Level	Half Boomgates		Open	LGA
802	14.720	Boundary Road	Public Level	Half Boomgates		Open	LGA
802	16.610	Stones Road	Public Level	Half Boomgates	X	Open	LGA
802	19.000	Nathan Road	Public Level	Half Boomgates		Open	LGA
802	19.800	Bonemill Road	Public Level	Half Boomgates		Open	LGA
802	20.770	Warrigal Road	Public Level	Half Boomgates		Open	LGA
802	21.846	Temporary QR Construction Crossing	Occupation	Nil		Open	QR
802	21.990	Beenleigh Road	Public Level	Half Boomgates	X	Open	LGA
802	25.350	Oates Avenue	Public Level	Half Boomgates		Open	LGA
802	34.150	Station Road	Public Level	Half Boomgates		Open	LGA
802	34.245	Bethania Station Pedestrian Access	Pedestrian			Open	QR
803	35.920	Loane Drive	Occupation	Signs	X S	Open	PRI
803	37.250	Holmview Road	Public Level	Half Boomgates		Open	LGA
803	38.035	Ballast Access Road	QR	Nil		Open	QR

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Line Section Code	Km	Road Name	Type	Vehicular Protection	Signs	Open Status	Responsible Authority
803	38.350	Spanns Road	Public Level	Half Boomgates		Open	LGA
803	40.360	QR Pedestrian Access	QR			Open	
HAMILTON COLD STORES BRANCH							
707	0.175	Jackson Street	QR	Nil		Open	QR
707	0.425	Kingsford Smith Drive	Public Level	Flashing Lights		Open	LGA
707	1.520	Theodore Street (BP Siding)	Public Level	Signs	X G	Open	LGA
707	1.583	Cullen Avenue West (BP Siding)	Public Level	Signs	X G	Open	LGA
707	1.703	Cullen Avenue West (BP Siding)	Public Level	Signs	X G	Open	LGA
INNER CITY LINE							
522	0.060	Pedestrian Emergency Access	QR			Open	QR
522	0.840	Pedestrian Emergency Access	QR			Open	
IPSWICH WORKSHOPS BRANCH							
506	0.612	Ipswich Riverlink Mall Pedestrian Access	Pedestrian			Open	PRI
506	0.730	Downs Street	Occupation	Signs	X S	Proposed	PRI
506	0.950	Lowry Street	Occupation	Nil		Proposed	PRI
506	1.388	Northern Industrial Access Road	Occupation	Nil		Proposed	PRI
506	1.698	Museum Service Yard Access Road	Public Level	Signs	X G	Open	QR
MAIN LINE							
501	0.308	Platform 3 Maintenance / Emergency Road	QR	Nil		Open	QR
501	6.700	Indooroopilly Stn P'forms 1 and 2 Const Access Rd	QR	Nil		Proposed	QR
501	6.730	Indooroopilly Stn P'forms 3 and 4 Const Access Rd	QR	Nil		Proposed	QR
501	10.040	Sherwood Road	Public Level	Half Boomgates	X	Open	LGA
502	19.200	Wacol Station Road	Public Level	Half Boomgates		Open	LGA
502	27.660		Occupation			Open	
502	31.360	Pipe Work Access Road	Occupation	Half Boomgates		Open	PRI
505	37.980	Pedestrian Emergency Access	QR			Open	
708	40.673	Wulkuraka Station Pedestrian Access	Pedestrian			Open	QR
709	43.100	Karrabin - Rosewood Road	Public Level	Half Boomgates		Open	LGA
709	43.140	Karrabin Station Pedestrian Access	Pedestrian			Open	QR
709	46.090	Siedels Road	Public Level	Half Boomgates		Open	LGA
709	47.400	To Buckley Road	Public Level	Signs	X S	Open	LGA
709	47.780	Station Pedestrian Access	Pedestrian	Nil		Open	QR
709	48.200	Haigslea - Amberley Road	Public Level	Half Boomgates		Open	MRD
709	52.010	Thagoona - Haigslea Road	Public Level	Half Boomgates		Open	LGA
709	52.070	Thagoona Station Pedestrian Access	Pedestrian			Open	QR
314	55.300	Emergency Crossing	Public Level	Nil		Open	QR
314	56.080	John Street - Ipswich Rosewood Road	Public Level	Half Boomgates		Open	MRD
MAYNE YARD							
860	0.320	ICB On Ramp Pier 6 Construction Access Road	QR	Nil		Proposed	QR

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Line Section Code	Km	Road Name	Type	Vehicular Protection	Signs	Open Status	Responsible Authority
860	0.650	Warneke Road	QR			Open	QR
NORTH COAST LINE							
820	0.311	QR Maintenance Road	QR	Signs	S	Open	QR
820	1.210		QR	Nil		Open	QR
820	1.900		QR			Open	
820	3.290	Campbell Street	Public Level	Half Boomgates		Open	LGA
820	3.560	ICB On Ramp Pier 7 Construction Access Road	QR	Nil		Proposed	QR
820	3.654		QR	Signs	X S	Open	QR
820	3.878		Pedestrian			Open	QR
310	4.360		QR	Nil		Open	QR
313	5.890		QR			Open	
823	11.105	QR Maintenance Road	QR	Nil		Open	QR
823	11.390	Northgate Road	Public Level	Half Boomgates		Open	LGA
823	13.340	Bilsen Road	Public Level	Half Boomgates		Open	LGA
823	14.340	Newman Road	Public Level	Half Boomgates		Open	LGA
823	17.380	Beams Road	Public Level	Half Boomgates		Open	LGA
823	19.810	Telegraph Road	Public Level	Half Boomgates		Open	LGA
823	23.380	South Pine Road	Public Level	Half Boomgates		Open	MRD
823	24.720		QR			Open	
823	26.760	Todd's Road	Public Level	Half Boomgates	X	Open	LGA
824	28.580	QR Pedestrian Access	QR			Open	
824	28.830		QR			Open	
824	36.570	Mackie Road	Public Level	Half Boomgates	X PWB	Open	LGA
824	41.520	Rowley Road	Public Level	Half Boomgates	X	Open	LGA
824	47.530	Station Road	Public Level	Half Boomgates	X	Open	LGA
824	49.080	Oaklands Drive To Private Property	Occupation	Signs	X S	Open	PRI
400	50.970	Mc Kean Road	Public Level	Half Boomgates	X	Open	LGA
400	51.682	Pumicestone Road (Toorbul Road)	Public Level	Half Boomgates		Open	LGA
400	65.116	QR Maintenance Road	QR	Signs	S	Open	QR
400	66.342	Property Access Road	Occupation	Flashing Lights		Open	PRI
400	68.641	Property Access Road	Occupation	Signs	X S	Open	PRI
400	70.396	Barrs Road	Public Level	Half Boomgates		Open	LGA
400	76.747	Mawhinney Street (Kilcoy- Beerwah Road)	Public Level	Half Boomgates		Open	MRD
400	76.847	Beerwah Station Pedestrian Access	Pedestrian			Open	QR
400	82.360	Caloundra Street	Public Level	Half Boomgates		Open	MRD
400	82.490		Pedestrian			Proposed	
400	82.500		QR			Proposed	
400	82.525		QR			Proposed	
400	82.590		QR			Proposed	
400	82.600		Pedestrian			Proposed	
400	83.035	Gympie Street	Public Level	Half Boomgates		Open	LGA
400	85.645		QR	Signs	X S	Open	QR
400	86.324		QR	Signs	X S	Open	QR
400	87.125	QR Maintenance Road	QR	Signs	S	Open	QR
400	87.613	Bray Road	Public Level	Half Boomgates		Open	LGA
400	89.440	QR Maintenance Road	QR	Signs	X S	Open	QR

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Line Section Code	Km	Road Name	Type	Vehicular Protection	Signs	Open Status	Responsible Authority
400	91.048	QR Maintenance Road	QR	Signs	S	Open	QR
400	94.070	QR Maintenance Road	QR	Signs	X S	Open	QR
400	97.381	Palmwoods Station Entrance	Public Level	Signs	X S	Open	LGA
400	97.481	Palmwoods Station Pedestrian Access	Pedestrian			Open	LGA
400	97.490	QR Maintenance Road	QR			Open	QR
400	99.909	Property Access Road	Occupation	Signs	X S	Open	PRI
400	100.065	QR Maintenance Road	QR	Signs	S	Open	QR
400	100.596	Woombye Station Pedestrian Access	Pedestrian			Open	QR
400	101.235	QR Maintenance Road	QR	Signs	S	Open	QR
400	102.155	QR Maintenance Road	QR	Signs	S	Open	QR
400	102.628		QR	Signs	S	Open	QR
PINKENBA BRANCH							
529	1.664	Kitchener Road (Zillman Road)	Public Level	Half Boomgates		Open	LGA
529	2.448	Eagle Farm Racecourse Entrance	Occupation	Nil		Open	PRI
529	3.237	Racetrack Stabling Area Pedestrian Access	Occupation	Nil		Open	QR
529	3.287	Nudgee Road	Public Level	Half Boomgates	X	Open	LGA
530	4.300	Eagle Farm Station Pedestrian Access (Illegal)	Pedestrian	Nil		Open	QR
530	5.004	Schneider Road	Occupation	Signs	T	Open	PRI
530	6.030	Military Access Road	Occupation	Nil		Open	PRI
530	6.470	Sugar Mill Road	Public Level	Flashing Lights		Open	LGA
530	7.015	Randle Road	Public Level	Flashing Lights	PWB	Open	LGA
978	7.780	Pinkenba Balloon Loop Access Road	QR	Signs	S	Open	QR
PINKENBA YARD							
323	7.480	Eagle Farm Road	Public Level	Flashing Lights		Open	LGA
323	8.390	(On Quarantine Siding)	Occupation	Signs	X S	Open	
323	8.410	(On Pinkenba Balloon Loop and BP Siding)	Occupation			Open	
323	8.690	Tingira Street (On BP Siding)	Public Level	Signs	X S	Open	LGA
323	8.980	Radio Street (On Pinkenba Balloon Loop)	Public Level	Signs	X S T	Open	LGA
323	9.190	(On BP Siding)	Occupation			Open	
323	9.320	(On BP Siding)	Occupation			Open	
323	9.520	(On BP Siding)	Occupation			Open	
323	10.020	(On BP Siding)	Occupation			Open	
323	10.070	(On Boral Gas Siding off BP Siding)	Public Level	Signs	X T	Open	
323	10.120	(On BP Siding)	Occupation			Open	
323	11.620	(On BP Siding)	Occupation			Open	
REDBANK YARD							
503	0.165	River Road	Public Level	Signs	X G	Open	LGA
503	0.200	River Road	Public Level	Signs	X G	Open	LGA
ROMA STREET FORK							
134	0.216	QR Maintenance Road	QR	Flashing Lights		Open	QR

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Line Section Code	Km	Road Name	Type	Vehicular Protection	Signs	Open Status	Responsible Authority
SHORNCLIFFE BRANCH							
531	2.110	St Vincents Road	Public Level	Half Boomgates		Open	LGA
531	3.212	Nudgee Station Pedestrian Access	Pedestrian			Open	LGA
531	8.490	Adams Street	Public Level	Half Boomgates		Open	LGA
531	9.420	Kennerley Street	Public Level	Half Boomgates		Open	LGA
531	9.940	Curlew Street	Public Level	Flashing Lights		Open	LGA
531	10.460	Palm Avenue	Public Level	Half Boomgates		Open	LGA
531	10.950	QR Staff Parking Area Access Road	QR	Nil		Open	QR
SWANBANK BRANCH (BOX FLAT)							
504	0.330	QR Maintenance Access Road	QR	Nil		Open	QR
504	0.840	Brisbane Rd (Ipswich Road)	Public Level	Flashing Lights		Open	MRD
504	0.976	Ipswich Racecourse Pedestrian Acces	Pedestrian			Open	
504	1.090	Hearse Street/Ipswich Racecourse Pedestrian Access	Pedestrian			Open	LGA
504	1.170	Property Access Road	Occupation	Signs	X S	Open	PRI
504	1.230	Property Access Road	Occupation			Open	PRI
504	1.250	Property Access Road	Occupation	Signs	X S	Open	PRI
504	1.410	Property Access Road	Occupation	Signs	X S	Open	PRI
504	1.500	Videroni Street	Public Level	Signs	X G	Open	LGA
504	2.240	Thomas Street	Public Level	Flashing Lights		Open	LGA
504	2.670	Mary Street	Public Level	Signs	X S	Open	LGA
504	3.295	Mary Street	Public Level	Signs	X S	Open	LGA
TENNYSON BRANCH							
804	0.000	Yard Access	Public Level			Open	
804	3.030		Occupation			Open	
804	3.840		QR			Open	

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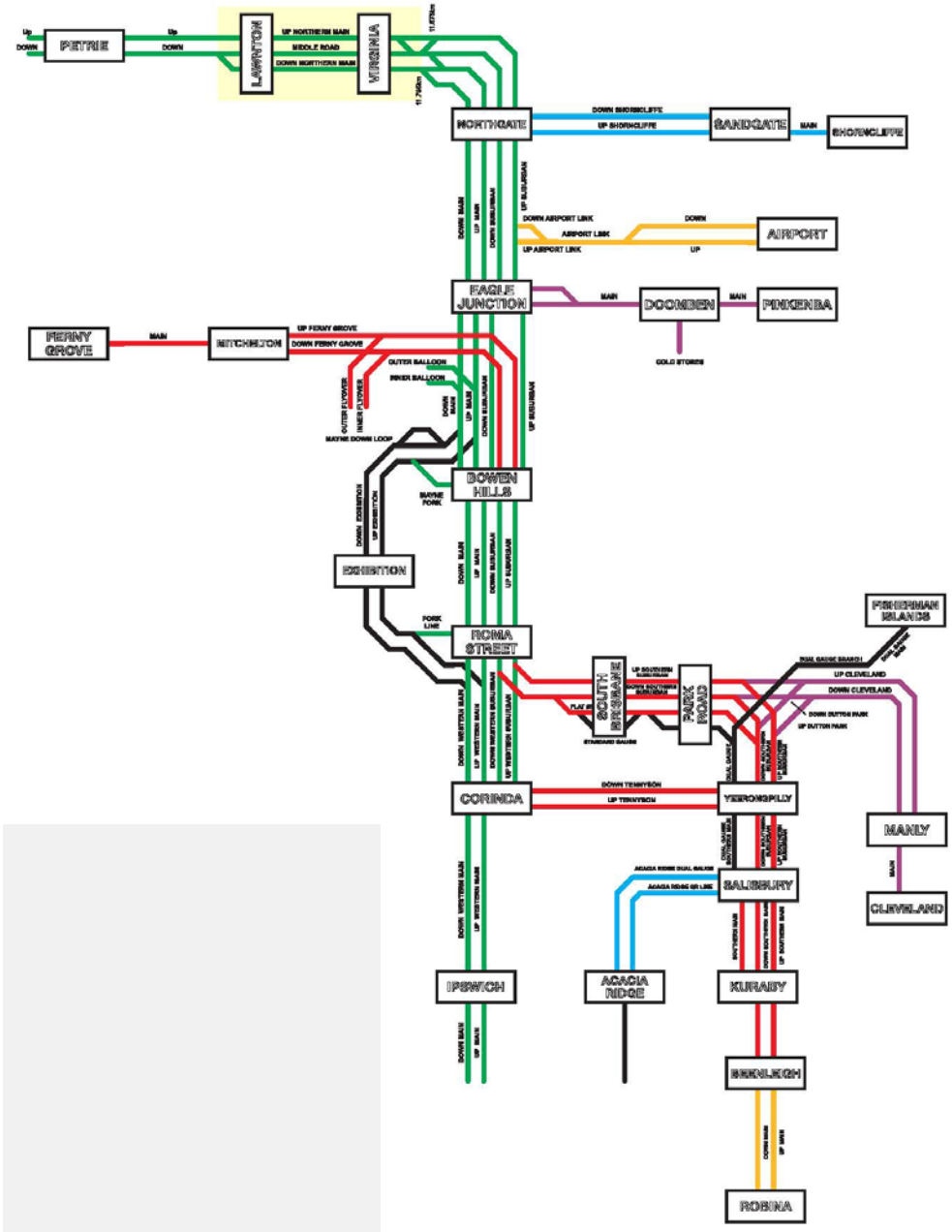
APPENDIX D

Speed Boards



ROMA STREET - CORINDA (4 TRACKS)
CORINDA - ROSEWOOD (2 TRACKS)

(Desktop Audit - Verified Track Recording Car DVD - May 2007)

Kmm	UP Western SUBURBAN (501101)	DN Western SUBURBAN (501201)	UP Western MAIN (501301)	DN Western MAIN (501401)
0 047	40			
0 091			25R / 30	
0 135				30
0 141		40		
0 212	50			
0 222			60	
0 328		50R / 40		
0 295	60			
0 354				40
0 426				25L / 40
0 457			25L/60	
0 495	25L / 60			
0 516		25R		
0 563		25L / 60		
0 615			60	
0 795	25R / 80			
0 842		60		
0 937				25R / 60
0 938			80	
0 992			50L	
1 156	80			
1 196		50L		
1 534	60			
1 635			60	
1 883	80			
1 914				E60 / 50
1 917		E60 / 50	80	
2 448			60	
2 455	60			
2 458				80
2 461		80		
2 796			90	
2 818	90			
2 829		60		
2 852				60
3 642		90		
3 665				90
3 669			80	
3 773			50	
3 781				60
3 818	60			
3 950	50			
4 103				50
4 113			90	
4 113		50		
4 115	90			
4 268			100	

Km	m	UP Western SUBURBAN	DN Western SUBURBAN	UP Western MAIN	DN Western MAIN
4	327		90		
4	327	100			
4	327				90
5	027				
5	037				100
5	043		100		
5	043			80	
5	069	80			
5	453	50			
5	468				
5	477			60	80
5	499		80		
5	628			50	
5	688				60
5	921	80			
5	922			80	
5	924				50
5	926		50		
6	325		80		
6	353				80
6	361			60	
6	505	60			
6	694	25R / 60			
6	701		70		
6	791			60	
6	807				25R / 70
6	886		60		
6	887	50			
7	134			80	
7	145		50		60
7	181	70			
7	460			25L	
7	462				80
7	553			90	
7	554		80		
7	590	70			
7	623		50L		
7	832				80
7	892	E90 / 80			
8	092				90
8	097		90		
8	097	100		100	
8	641	70			
8	893	90			
9	378		E100		
9	393			90	
9	393				100
9	679			25L / 80	
9	693		E90		
9	756				90
9	849		40L		
9	878	70			

Km m	UP Western SUBURBAN	DN Western SUBURBAN	UP Western MAIN	DN Western MAIN
10 069	25L / 80	80		
10 160	80			
10 309		80		
10 341	25R			
10 445				25R / 80
10 589			60	
10 615	60			
10 723			80	
10 944				60
11 114	25 / 40R	60		
11 245			80	
11 251				40R
11 341				80 / 25R
11 699				80
11 750			60	
13 715				60
13 741			E100 / 80	
14 383			80	
14 383				E100
14 933				80
15 004			25R / 60	
15 112				80
15 602				25L
15 656			60	
15 936				60
15 988			E100 / 80	
16 864			80	
16 865				E100
17 411				80
17 417			100	
18 584				100
18 621			80	
18 675			15L	
19 527			E100 / 80	
19 548				80 / 25R
20 711			80	E100
21 215			80	
21 218			E90	
22 010				E90 / 80
22 026			80	
22 214				70
22 463			25R	
22 671				80
22 722			60	
22 782				60
22 839			80	
23 754				80
23 758			E100	
24 243				E100 / 80
24 246			60	
24 874			80	60
25 236			60	80

Kmm	UP Western MAIN	DN Western MAIN
25 348	80	
25 352		70
25 813	25R	
25 915		80
25 977	80	
26 147	25L	
26 147		80
26 263	80	
26 269		80
26 718		E100
26 941	60	
26 994		25L
27 145	E100 / 80	
27 180		80
27 980		E100
27 981	80	
28 175		80
28 179	60	
28 505	E90 / 80	
28 534		60
28 720	E100	
28 745		E90
28 981	50R	
29 087		E100 / 80
29 633		E100 / 80
29 655	80	
30 050		25L/80
30 192	E100 / 80	
30 202		80
33 058	80 / 25R	
33 088		E100
33 128		25R
33 392		80
33 455	25L / 80	
33 779	70	
33 972		80
33 973	100	
35 816	90	100
36 143	60	
36 160		90
36 663		60
37 412		80
37 508	25	
37 577		80
	UP MAIN	DN MAIN
37 903	25	
38 051		25
38 051	25L,R / 60	
38 251		25L,R / 40
38 460	60	

	UP MAIN	DN MAIN
38 768	60	
39 940	70	
39 300	E100 / 80	60
40 718		E100 / 80
40 722	25L / 80	
41 956	25R / E100	
42 030		25R / 80
43 318	70	E100 / 80
44 734		70
45 176	E100 / 80	
45 176		70
45 979		E100 / 80
46 042	E100 / 80	
48 625	80 / 25R	
48 668	E100	
48 669		E100
48 704		25R / 80
53 391		E100 / 80
53 483	25L	
55 782	25R / 80	
55 848		25R / E100 / 80
56 130		80

CORINDA TO YEERONGPILLY

(Desktop Audit - Verified Track Recording Car DVD - May 2007)

	DOWN TENNYSON (804401)	UP TENNYSON (804301)
0.073 km	70	
0.102 km	50	
0.173 km	15L	
0.308 km		50/25R
0.403 km	25	
0.713 km		50
1.056 km	25L	
1.255 km	50	
1.280 km		80/25L
1.335 km		E100
1.820 km		80
1.832 km	E100	
2.120 km		E60/40
2.253 km	80/25R	
2.627 km		70/25R
2.703 km	E100	
2.763 km	80/25R	
3.414 km		50R
3.560 km	80	
3.703 km		25

BOWEN HILLS TO FERNY GROVE

(Desktop Audit - Verified Track Recording Car DVD - February 2007)

	DOWN Ferny Grove (527401)	UP Ferny Grove (527301)
0.200 km	R25 / 40	
0.212 km		25
0.250 km	R40 / 30	
0.910 km	L15 / 80	40
1.323 km	50	80
1.700 km		50
1.720 km	60	
2.271 km	80	60
2.746 km	60	
2.890 km		80
2.960 km	80	
3.428 km	60	E90 / 80
4.000 km		50
4.288 km	100	60
4.953 km	E90	100
5.210 km	60	E90 / 80
5.612 km	E90 / 80	60
6.008 km		80
6.326 km	70	
6.618 km	50	70
6.810 km		60
7.218 km	60	50
7.719 km	80	60
8.010 km	R50	
8.125 km	50	
8.356 km		80
8.420 km	60	L25 / 50
	MAIN (527001)	
8.551 km	80	
9.118 km	60	
9.778 km	40	
10.012 km	80	
11.297 km	50	
12.043 km	80	
12.482 km	100	
13.240 km	L 25 / 60	
13.550 km	15	

ROMA STREET TO ROBINA

(Desktop Audit - Verified Track Recording Car DVD - May 2007)

	UP Southern Sub (426301)	DOWN Southern Sub (426401)
0.606 km	40	
0.643 km		25
0.929 km	60	40
1.510 km	R25 / 40	60
1.762 km	60	40
2.006 km	R50 /80	
2.145 km		R50 / 60
2.295 km	80	
2.620 km		50
3.070 km	60	
3.120 km		60
3.606 km	40 / E70	
3.619 km		40 / E60
4.017 km		70
4.022 km	E60	
4.193 km		60
4.203 km	40	
4.402 km	R25 / 30	
4.414 km		40
4.510 km	40	
4.714 km		40
4.715 km	70	
4.945 km		R50
5.038 km		L50 / 60
5.137 km	60	
5.515 km	80 / R25	
5.565 km	E90	
6.162 km		E90 / 80
6.174 km	70	
6.464 km	E100 / 80	70
7.422 km		E100 / 80
7.425 km	50	
7.666 km	60	50
8.247 km	L40 / 70	
8.472 km		L50
8.642 km	R25 / 70	70
8.874 km	R25 / 70	
8.957 km		L25 / R25
9.021 km	E100/80	
9.035 km		60
9.617 km		E100
9.665 km	E90	
10.284 km	70	
10.512 km	50	
10.523 km		70
10.787 km		50
10.969 km	80	
11.068 km	L25	

	UP Southern Sub	DOWN Southern Sub
11.425 km		80
11.482 km		70
11.488 km	70	
11.535 km	80	
12.043 km	60	
12.223 km		60
12.350 km	50	

	UP South'rn Main	DOWN South'rn Main
12.612 km		50
12.613 km	E100 / 80	
12.668 km	R25	
12.810 km		80
13.091 km		L80
13.250 km	E100 / 80	
13.548 km	80	
13.550 km		E90
13.975 km	80	
14.200 km	50	
14.384 km		80
14.609 km	80	
14.612 km		50
14.996 km	60	70
15.268 km	80	
15.273 km		60
16.294 km	60	
16.295 km		80
16.642 km		60
16.683 km	40	
16.940 km		40
16.941 km	60	
17.317 km		R25 / 60
17.937 km		60
18.244 km	60	
18.246 km		70
19.159 km		60
19.310 km	80	
19.340 km		60
19.520 km	60	
19.528 km		80
19.662 km	E100 / 80	60
20.250 km	80	
20.529 km		80
20.635 km	E100	80
21.311 km	L40R40 / 80	
21.361 km		E100
21.635 km	60	
21.809 km		70
22.025 km		50
22.055 km	50	

	UP South'rn Main	DOWN South'rn Main
22.090 km	70	R40
22.185 km	70	
22.480 km	100	70
23.305 km	80	100
24.221 km	50	80
24.599 km	60	
24.608 km		50
25.150 km	70	60
25.870 km	50	
25.931 km	60	
26.067 km		70
27.005 km	80	60
27.699 km		80
27.703 km	60	
28.219 km	R25 / 60	
28.618 km		60
28.863 km	80	
29.234 km		L25
29.330 km		80
29.395 km	100	
31.875 km	80	E100
33.825 km	100	
34.049 km	R25 / 100	
34.165 km		80
34.707 km		L25
34.928 km	80	
36.633 km	100	
36.636 km		80
37.300 km	R25	
37.525 km	80	100
37.767 km	90	
37.851 km		80
38.450 km	100	
38.455 km		L25 / 80
38.814 km	R50	
39.068 km	70	100
39.690 km		70
39.780 km	60	
40.173 km		60
	UP MAIN	DOWN MAIN
40.330 km	R25L25	60
40.406 km	110	
43.118 km	140	
43.140 km		110
52.335 km		140
52.990 km		100
53.137 km	140 / R80	
53.340 km		L80
59.840 km		140
59.986 km	140	

	UP MAIN	DOWN MAIN
60.000 km		L80 / 140
67.723 km	L80 / 140	140
68.599 km	140	R80 / 140
75.194 km	R80 / 140	140
76.333 km	140	L80 / 140
83.319 km	E100 / 80	
84.224 km		140
84.740 km	R50 / 60	
85.032 km	R25 / 50	R25 / 100
85.329 km	15	

INNER CITY - ROMA STREET - CENTRAL - BOWEN HILLS

(Desktop Audit - Verified Track Recording Car DVD - February 2007)

	DOWN MAIN (522401)	UP MAIN (522301)	DOWN SUBURBAN (522201)	UP SUBUBAN (522101)
0.091 km	R25 / 30			
0.150 km				R25
0.195 km			L25	
0.230 km				L20
0.239 km	40			
0.251 km		L,R25 / 40		
0.291 km			40	
0.305 km				R15
0.449 km	50			
0.486 km	30			
0.538 km			L10 / 25	
0.585 km				30
0.593 km	R25 / 50			
0.603 km	40		25	
0.640 km		40		
0.909 km			25	
0.950 km	80			
1.020 km		50		
1.065 km				25
1.074 km			70	
1.274 km	50			
1.376 km			80	
1.390 km	L25			
1.520 km	60			
1.831 km	70			
1.885 km				80
2.047 km	50			
2.130 km	50			
2.257 km			L25 / 70	
2.299 km				60
2.315 km	70			
2.370 km		L25		
2.425 km		70		
2.499 km	60			

	DOWN MAIN	UP MAIN	DOWN SUBURBAN	UP SUBUBAN
2.737 km	80			
2.775 km		80	60	80
2.848 km			80	
2.920 km		60		
2.975 km				60
3.127 km	L25 / 40			
3.149 km		80		
3.208 km	L25			
3.330 km				70
3.352 km	L20			
3.393 km	L25 / 40			
3.449 km	R25 / 40			
3.465 km		80		
3.502 km			25	
3.520 km				60
3.610 km	25		30 / R40	25
3.713 km		60 / L40		
3.720 km				30
3.765 km			60	
4.032 km	60			
4.122 km			40	

NORTH COAST LINE - via. EXHIBITION

(Desktop Audit - Verified Track Recording Car DVD - May 2007)

	DOWN EXHIBITION (820401)	UP EXHIBITION (820301)
0.480 km	40	
0.555 km		25
0.606 km	R25 / 50	
0.715 km		R25 / 40
0.955 km		L25
1.195 km		40
1.274 km	50	
1.390 km	L25	
1.520 km	60	
2.080 km		L25 / 60
2.130 km	50	
2.408 km		50
2.499 km	60	
2.605 km		R25
3.127 km	L25 / 40	
3.145 km		60
3.345 km		40
3.390 km	L25 / 40	
3.619 km	R20 / 50	
3.705 km		40
4.005 km	60	
4.065 km	L20	

NORTH COAST LINE

(Desktop Audit - Verified Track Recording Car DVD - February 2007)

	DOWN MAIN (821401)	UP MAIN (821301)	DOWN SUBURBAN (821201)	UP SUBUBAN (821101)
4.160 km	L15		25	
4.328 km			80	
4.360 km	R25 / 50			
4.405 km		60		
4.610 km		25		
4.625 km				R25 / 70
4.545 km	70			
5.055 km	60			
5.167 km				80
5.190 km			80	
5.250 km		70		
5.656 km			50	
5.675 km				60
5.865 km			80	
5.837 km	R50 / 80			
5.850 km		60		
5.870 km				50
6.010 km		R50		
6.855 km			50	
6.867 km	50			
6.870 km				80
6.880 km		80		
7.114 km	R50 / 60			
7.120 km		60		
7.285 km			50	
7.290 km		50		R50 / 50
7.619 km	50		L25 / R25	50
7.660 km		60		
7.709 km			50	
7.755 km				25
8.016 km			70	
8.020 km				50
8.025 km	70	50		
8.135 km	100		70	
8.141 km			100	
8.150 km		70		70
8.310 km			R50	
9.197 km	70		60	
9.203 km		100		
9.210 km				100
9.682 km	E60 / 50			
9.755 km				70
9.798 km			50	
9.805 km		70		
10.035 km				50
10.040 km			80	
10.050 km	80	60		

	DOWN MAIN	UP MAIN	DOWN SUBURBAN	UP SUBUBAN
10.168 km	R50			
10.260 km			R50	
10.285 km		R50		
10.374 km			60	
10.412 km	70	80		
10.420 km				R50 / 80
10.560 km				60
10.620 km	60		60	
10.830 km		70		
10.940 km			L25 / 40	
10.951 km				60
11.035 km			50	
11.060 km				25
11.076 km	70			
11.135 km			100	
11.176 km	80			
11.180 km				40
11.270 km			L50	
11.580 km				80
11.745 km			100	
11.760 km		L50, R50 / 80		

VIRGINIA	DOWN NORTHERN MAIN (401)	MIDDLE ROAD	UP NORTHERN MAIN (301)
11.778 km	100		
11.900 km			R50
13.015 km			E100 / 60
13.070 km	80		
13.300 km	100		
14.620 km	R80		
14.790 km			R80 / 100
14.926 km	80		
15.850 km	60		
15.790 km			100
16.220 km			80
17.080 km			70
17.205 km	90		
17.305 km			80
17.865 km	100		
20.530 km	60		
20.542 km			100
21.262 km			70
21.400 km	R80 / 100		
21.625 km			R80
21.765 km			80
22.340 km			60
23.187 km			90
23.430 km	80		
23.538 km	100		

23.625 km			60
24.260 km			80
26.255 km	80 / E100		
27.080 km	80		
LAWNTON	DOWN (823401)	UP (823301)	
27.220 km		R80 / 100	
27.325 km	60		
27.513 km		100	
27.970 km	60		
28.050 km	50		
28.250 km		R50 / 60	
28.380 km	50		
28.394 km		60	
28.975 km	R25 / 80		
29.016 km		L40 / 50	
29.071 km		R25	
29.125 km	80		
29.520 km	100		
29.541 km		E80 / 60	
32.439 km	80		
32.449 km		100	
32.777 km		80	
32.788 km	100		
34.943 km	90	100	
35.516 km		90	
35.529 km	80		
35.920 km		80	
35.965 km	90		
36.448 km		90	
36.456 km	R25 / 80		
37.366 km	80	R25 / 80	
37.766 km	100	80	
38.862 km	80		
38.880 km		100	
39.248 km	100		
39.266 km		80	
40.106 km		100	
40.114 km	90		
40.800 km		90	
40.925 km	100		
45.345 km	90	100	
46.370 km	100	90	
48.447 km	80	100	
48.729 km	100	80	
49.987 km	R25 / 80		
50.007 km		100	
50.052 km		R25	
50.500 km	L25		
50.599 km		L25	
50.938 km		80	

CABOOLTURE (SINGLE TRACK)

(Desktop Audit - Verified Track Recording Car DVD - May 2007)

	DOWN (400000)	UP (400000)
51.155 km	80	L80 / 80
51.870 km	T150 / 120	
51.900 km		80
52.759 km		100
53.147 km		T120
56.343 km	T75 / 60	
56.357 km		T150 / 120
57.979 km	60	
58.294 km	L25 / 60	
58.300 km		T75 / 60
58.329 km	80	
58.344 km		60
59.186 km	80	
59.200 km		R50 / 80
60.005 km	120	
60.015 km		80
61.151 km	80	
61.168 km		120
61.923 km	100	
61.940 km		80
63.041 km	60	
63.050 km		100
63.251 km	70	
63.265 km		60
63.815 km	T75 / 60 / R50	
63.830 km		70
64.733 km	T75 / 60	
64.748 km		L25 / 60 / T75
65.655 km	80	
65.680 km		T75 / 60
66.835 km	60	
67.005 km		80
67.996 km	80	
68.000 km		60
68.910 km		80
68.993 km	60	
69.593 km	T100 / 80	
69.610 km		60
71.118 km	T75 / 60	
71.125 km		T100 / 80
71.410 km	80	
71.435 km		T75 / 60
71.687 km	L25 / 80	
71.700 km		80
72.250 km		80
72.270 km	T75 / 60	
72.500 km	T75 / 60	
72.530 km		R25 / 60 / T75
72.835 km	T100 / 80	

	DOWN	UP
72.875 km		T75 / 60
73.763 km	T150 /120	
73.820 km		T100 / 80
75.165 km	T125 / 100	T150 / 120
75.821 km	70	
76.660 km	L25 / 80	T125 / 100
77.556 km		R25 / 80
77.565 km	T110 / 90	
77.876 km	T150 / 120	
77.880 km		T100 / 90
79.200 km	T135 / 110	
79.210 km		T150 / 120
79.545 km		T135 / 110
79.558 km	T150 / 120	
81.555 km		T150 / 120
81.576 km	T75 / 60	
82.255 km	R25 / 80	T75 / 60
83.190 km	120	L50 / 80
84.365 km	T100 / 80	120
85.195 km	60	
85.205 km		T100 / 80
86.916 km	80	
86.920 km		60
87.240 km	L25 / 80	80
87.550 km	50	
87.620 km		80
88.105 km	T75 / 60	R25 / 50
90.269 km	50	
90.280 km		T75 / 60
92.530 km	L25 / 60 / 50	50
93.704 km	T60 / 50	
93.715 km		R25 / 50 / T60
95.175 km	T85 / 70	
95.190 km		T60 / 50
95.740 km	T75 / 60	T85 / 70
96.560 km	T75 / L25R / 60	T75 / 60
97.045 km	T60 / 50	T75 / 60
97.430 km	T50	
97.440 km		L25R / 50 / T60
97.590 km	T75 / 60	
97.597 km		T60 / 50
98.780 km	T100 / 80	T75 / 60
99.422 km	60	
99.445 km		T100 / 80
99.959 km		60
99.973 km	T75 / L25 / 60	
100.525 km	70	
100.876 km	70	
100.882 km		R25 / 70
101.417 km	T75 / 60	
101.423 km		70
101.668 km		T75 / 60
101.670 km	T100 / 80	

	DOWN	UP
102.775 km	T75 / 60	
102.780 km		T100 / 80
103.065 km	80	T75 / 60
104.025 km	R50 / 80	100
104.300 km	L25 / 50	100
104.645 km	70	50
104.971 km	70	
104.975 km		L25R / 70

(T150 = Tilt Train Speed, 60 = 10% Overspeed for ICE Train)

PINKENBA BRANCH

(Desktop Audit - Verified Track Recording Car DVD - February 2007)

DISTANCE	MAIN Down Train to Pinkenba (529000)
0.290 km	60
0.980 km	80
1.450 km	40
1.790 km	50
2.070 km	L25/50
2.170 km	40
2.595 km	50
2.690 km	60
2.800 km	80
3.400 km	R15 / 50 DOOMBEN
3.730 km	60
4.050 km	25
4.110 km	50
4.280 km	70
4.505 km	70
4.800 km	80
5.820 km	60
6.000 km	60
6.199 km	70
7.231 km	50
7.400 km	25

CLEVELAND BRANCH

(Desktop Audit - Verified Track Recording Car DVD - August 06 / February 07)

	UP CLEVELAND (810301)	DOWN CLEVELAND (810401)
0.100 km	R25 / 30	
0.130 km		40
0.180 km	40	
0.450 km		30
0.525 km	60	
0.550 km		L30 / 30
1.270 km		60
1.275 km	80 / E100	
2.225 km	E90	
2.255 km		E100
2.615 km		80 / E90
2.640 km	60	
2.995 km	80	
3.005 km		60
3.900 km	40	
3.930 km		80
5.395 km		40
5.530 km	40	
5.965 km	80	
5.985 km		40
6.505 km		E100
6.800 km	E100	
6.830 km		80
7.195 km	L50	
7.395 km	80	80 / E100
7.875 km	R25	
8.260 km	60	80
9.020 km		60
9.060 km	L25	
9.130 km	50	
9.395 km		50
9.500 km	50	
9.510 km	R25	
9.605 km		R25
9.645 km	40	
9.690 km		50
9.860 km	60	
9.925 km		40
10.580 km	50	
10.605 km		60
10.860 km	80	
10.885 km		50
12.205 km		80
12.260 km	80	
12.440 km	E100	
12.495 km		80
12.785 km	R50 / 80 / E100	
14.620 km	80	

	UP CLEVELAND	DOWN CLEVELAND
14.645 km	R25	
14,695 km		E100
14.750 km		R25 / 80
14.835 km	L25 / 60	
14.930 km		80
16.215 km		60
16.790 km	80	
16.835 km		50
17.230 km	50	
17.390 km		80
17.480 km	60	
17.525 km		50
18.480 km	R50	
18.600 km		R50 / 60
18.660 km	40	
19.092 km	25	
19.135 km	40	
19.150 km		R25 / 50
19.380 km	60	40
20.570 km	R40 / 60	
20.580 km		60
20.720 km		40
21.100 km	50	
21.180 km	90	
21.200 km		R50 / 80
21.445 km	90	
21.460 km		90
21.505 km		80 / 100
21.885 km	100	
22.485 km	L50 / 80	
22.500 km	R25	
22.630 km		50
22.910 km		70
22.990 km	50	
23.125 km	100	
23.145 km		L50 / 80
27.575 km	R25 / 70	
27.605 km		100
27.755 km		25
28.115 km	100	
28.450 km		L50 / 70
30.010 km	80	100
30.845 km	70	80
31.220 km	80	70
31.545 km	70	
31.595 km		80
32.030 km	25	
32.070 km		70

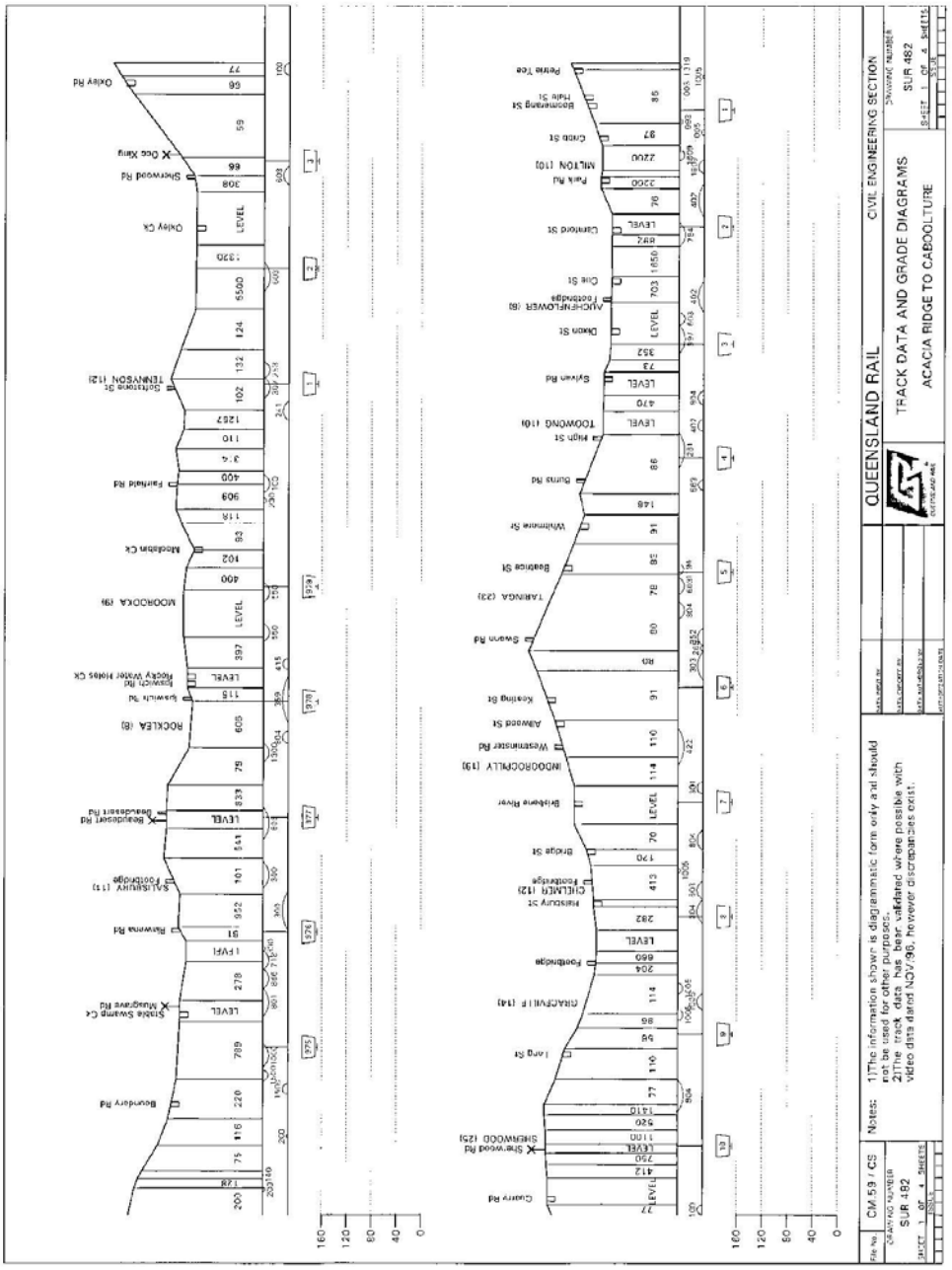
SHORNCLIFFE BRANCH

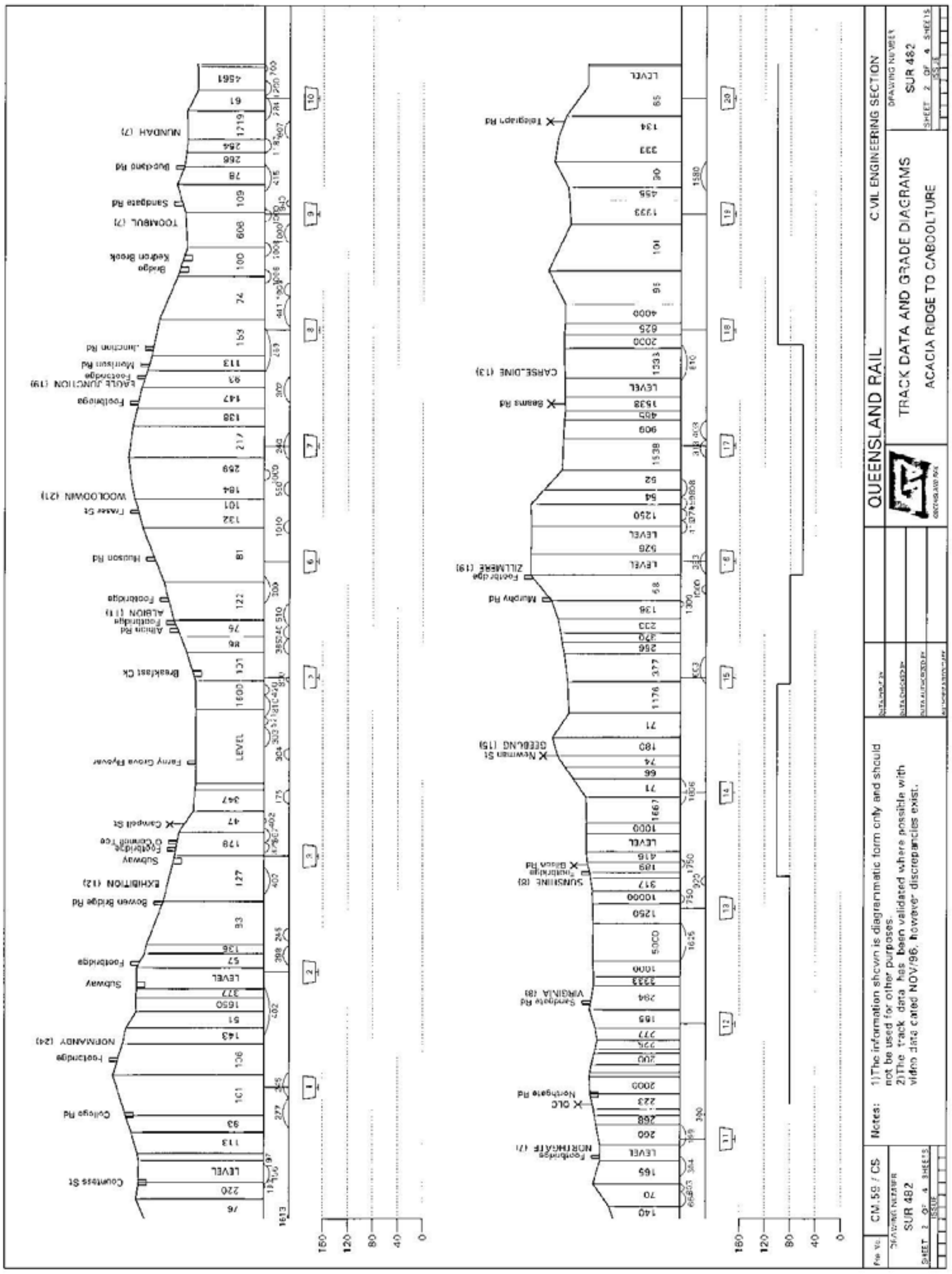
(Desktop Audit - Verified Track Recording Car DVD - February 2007)

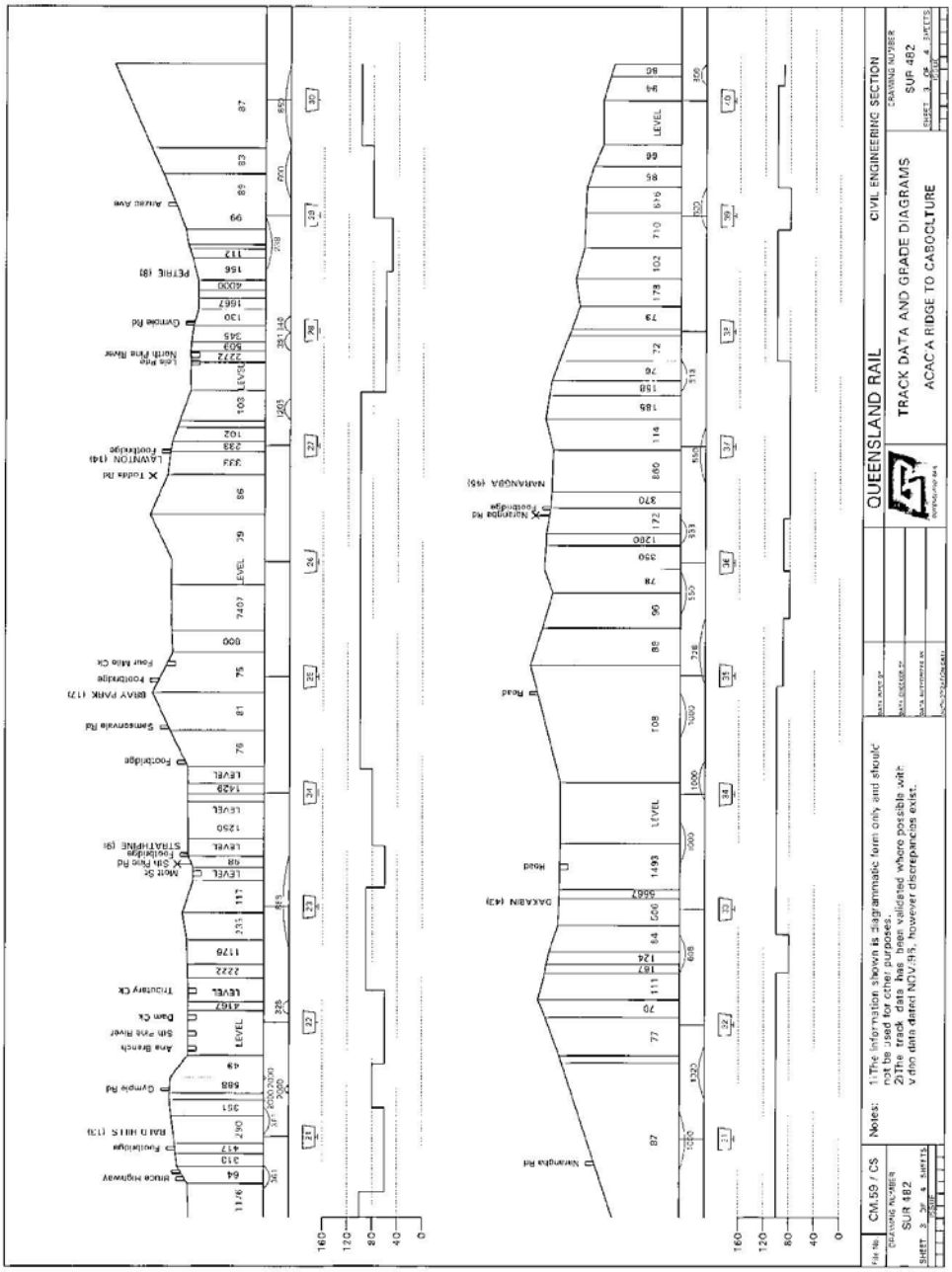
	UP Shorncliffe (531301)	DOWN Shorncliffe (531401)
0.035 km		L25 / 40
0.060 km	25	
0.146 km		R25 / 80
0.245 km		E90
0.258 km	R25 / 60	
0.403 km	80	
0.790 km		E100
0.819 km	E90	
3.096 km	E100	80
3.217 km	80 / E100	50
3.792 km	50	80
4.600 km	80	E100
5.239 km	E100	E90
5.487 km	E90	E100
7.109 km	E100	
7.112 km		80
7.965 km	80	E100
9.021 km	80 / E100	50
9.255 km	50	
9.680 km	50	60
9.692 km	L25 / 50	
10.010 km	50	
10.645 km	60	
10.897 km	60 / L15	15
10.972 km	15	

APPENDIX E

Track Data & Grade Diagrams




QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
ACACIA RIDGE TO CABOOLTURE
SUR 482
Notes:
1) The information shown is diagrammatic form only and should not be used for other purposes.
2) The track data has been validated where possible with video data dated NOV/96, however discrepancies exist.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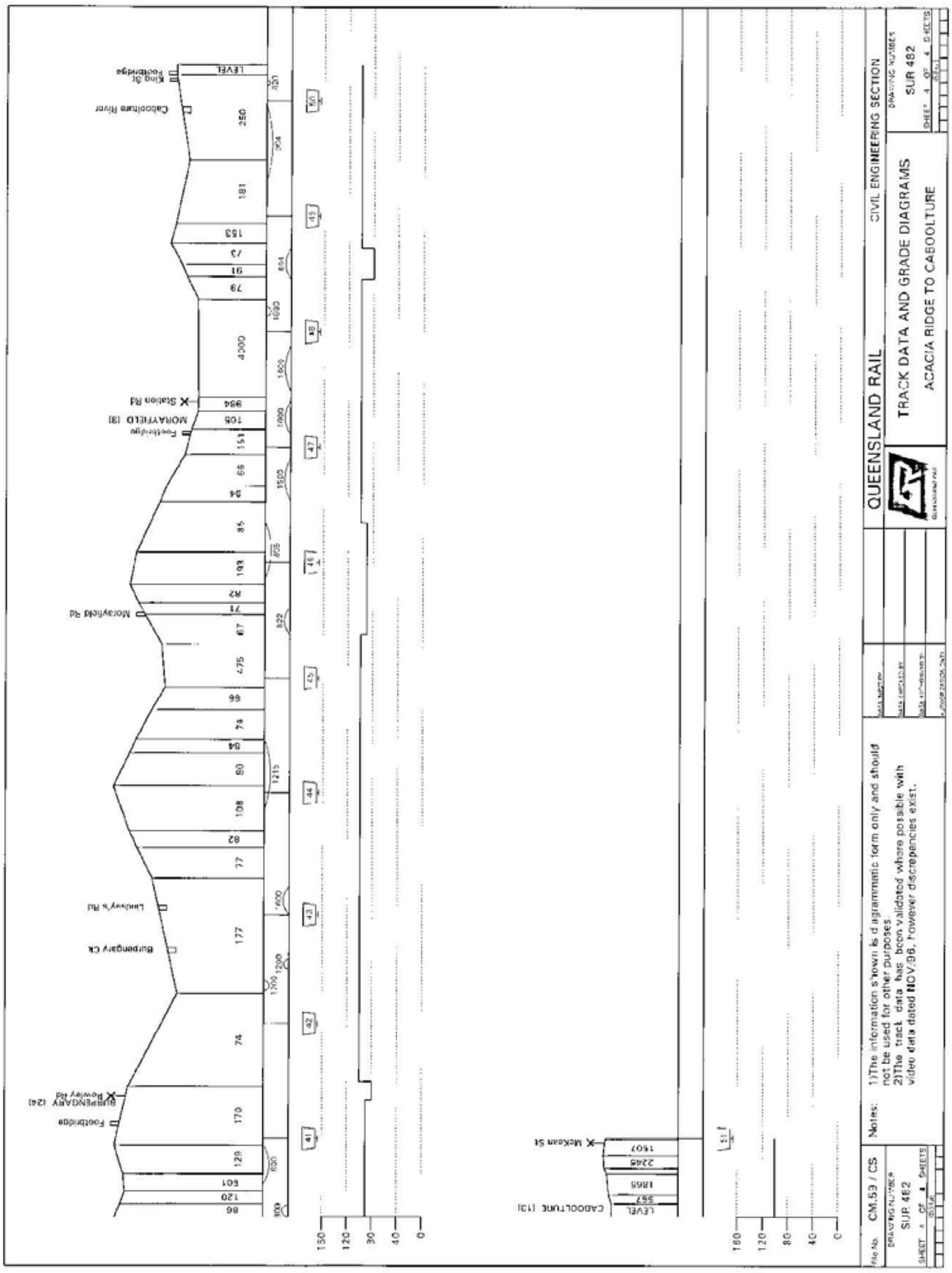
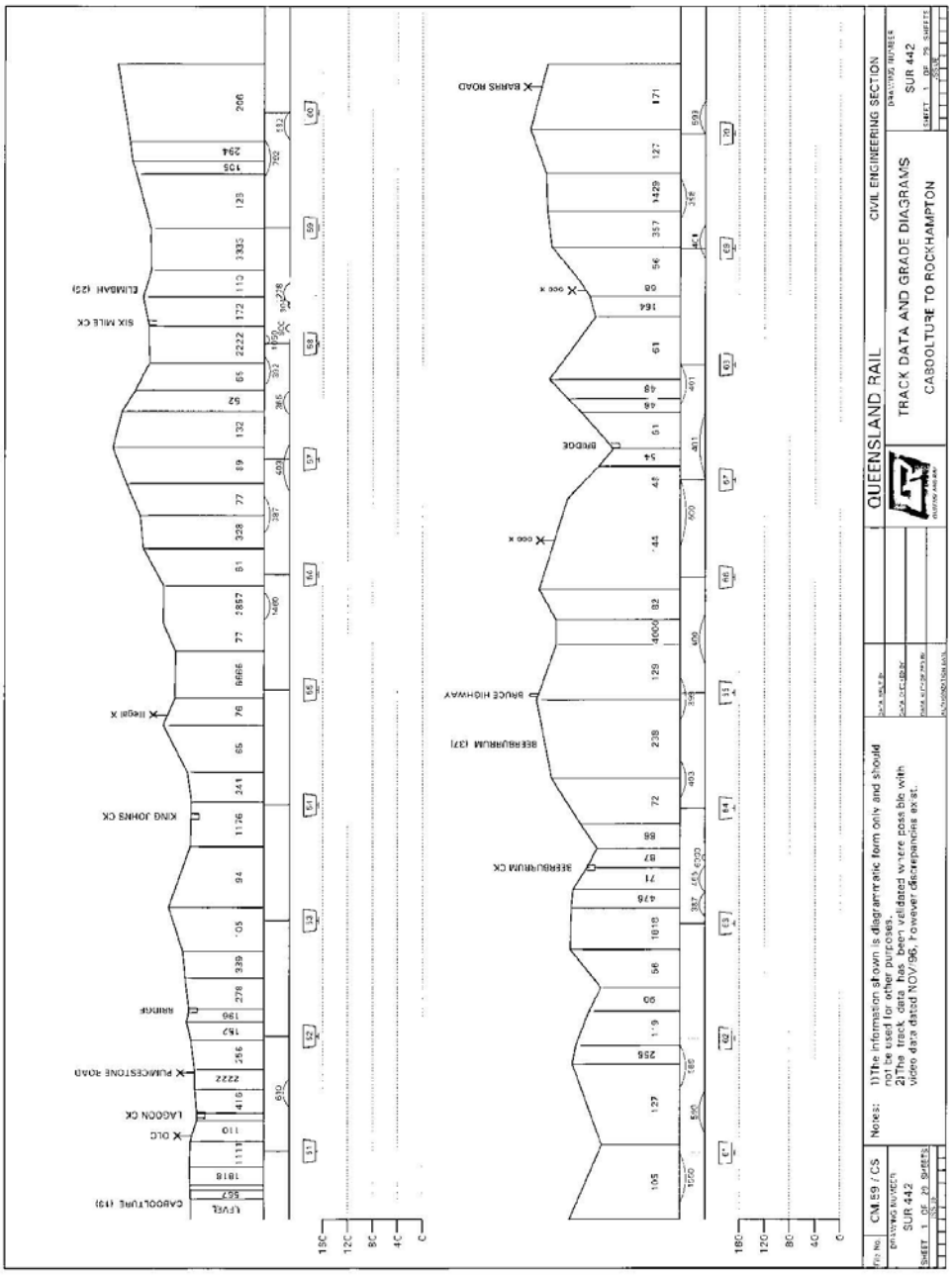
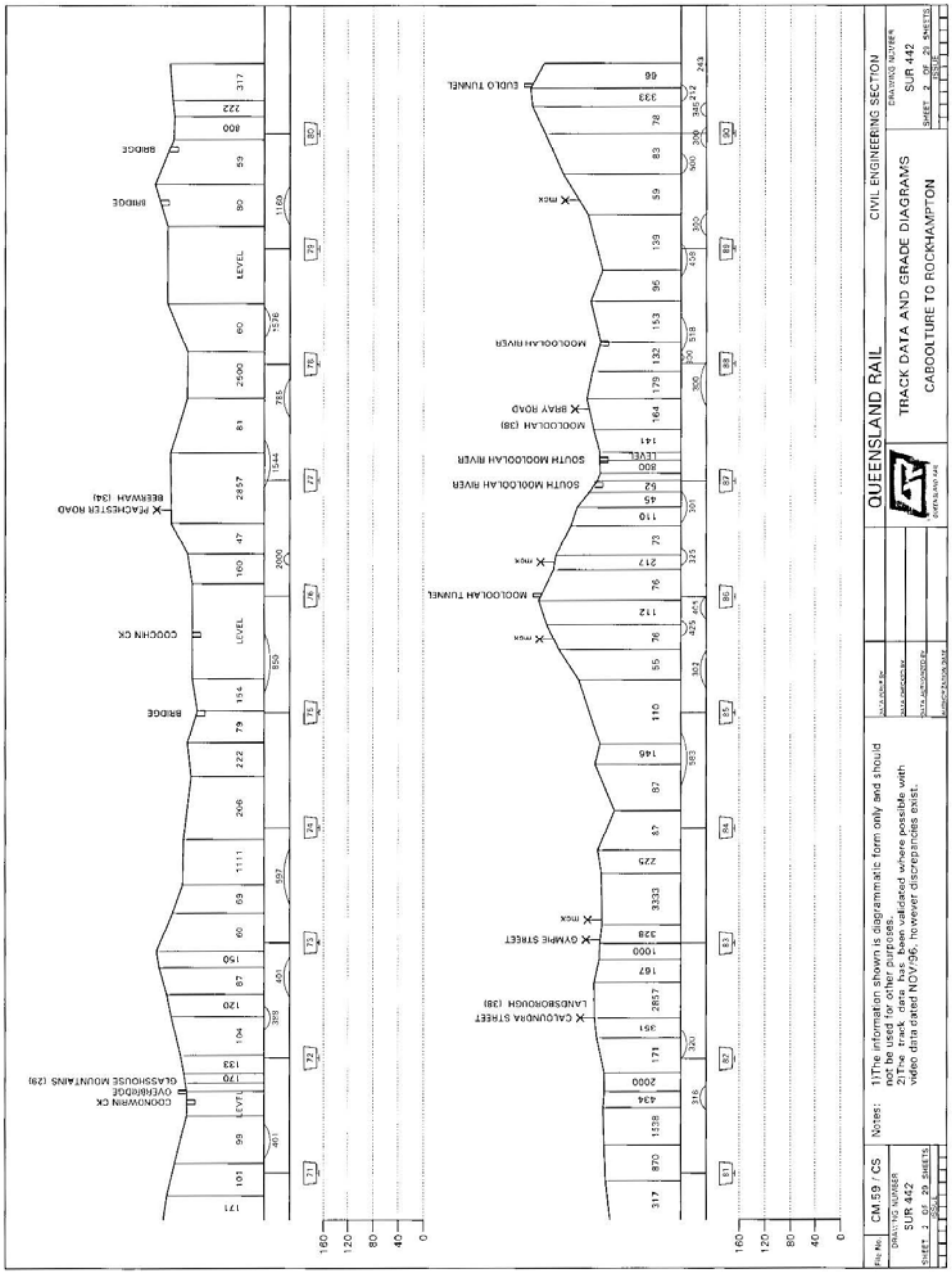
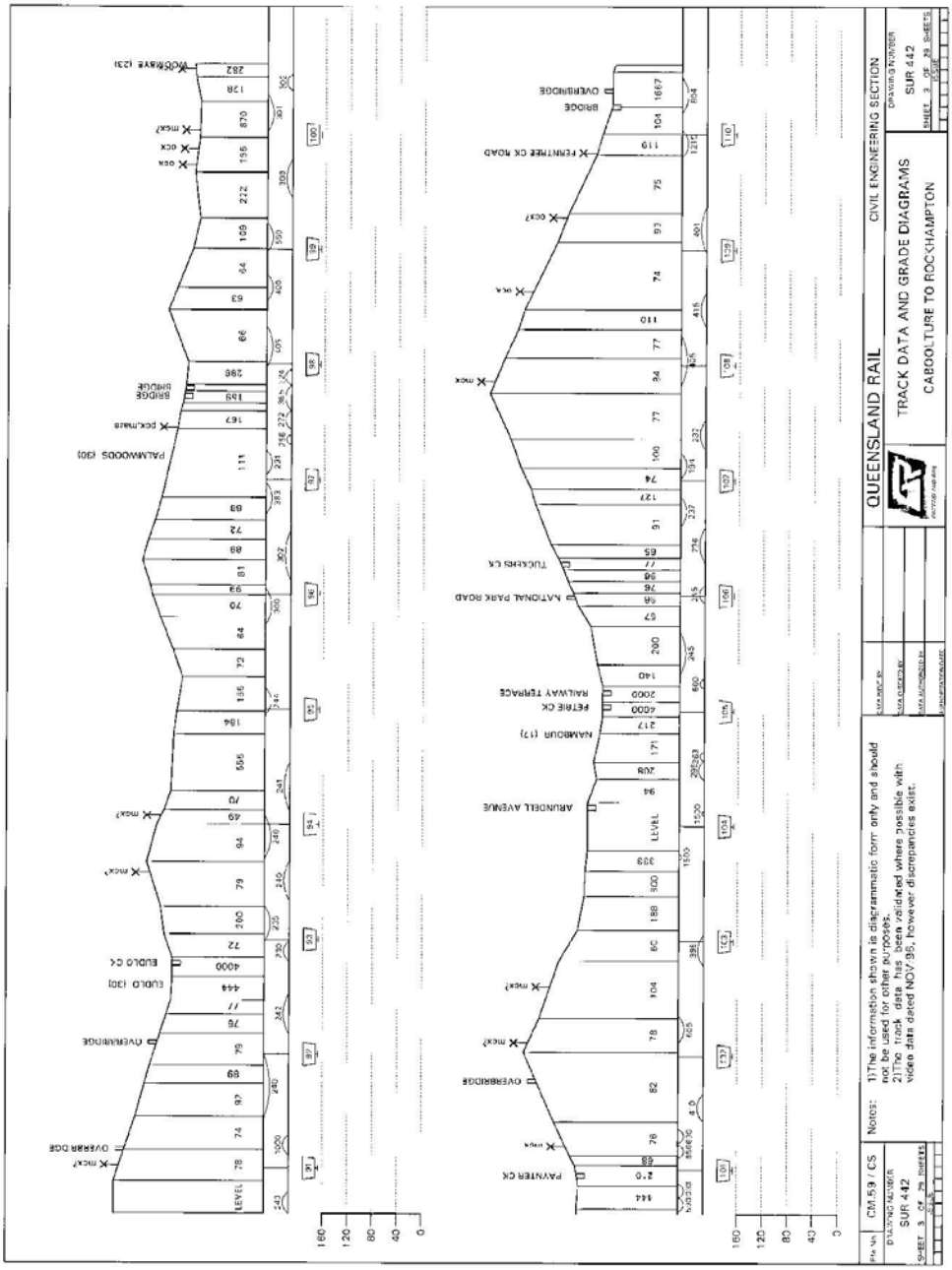
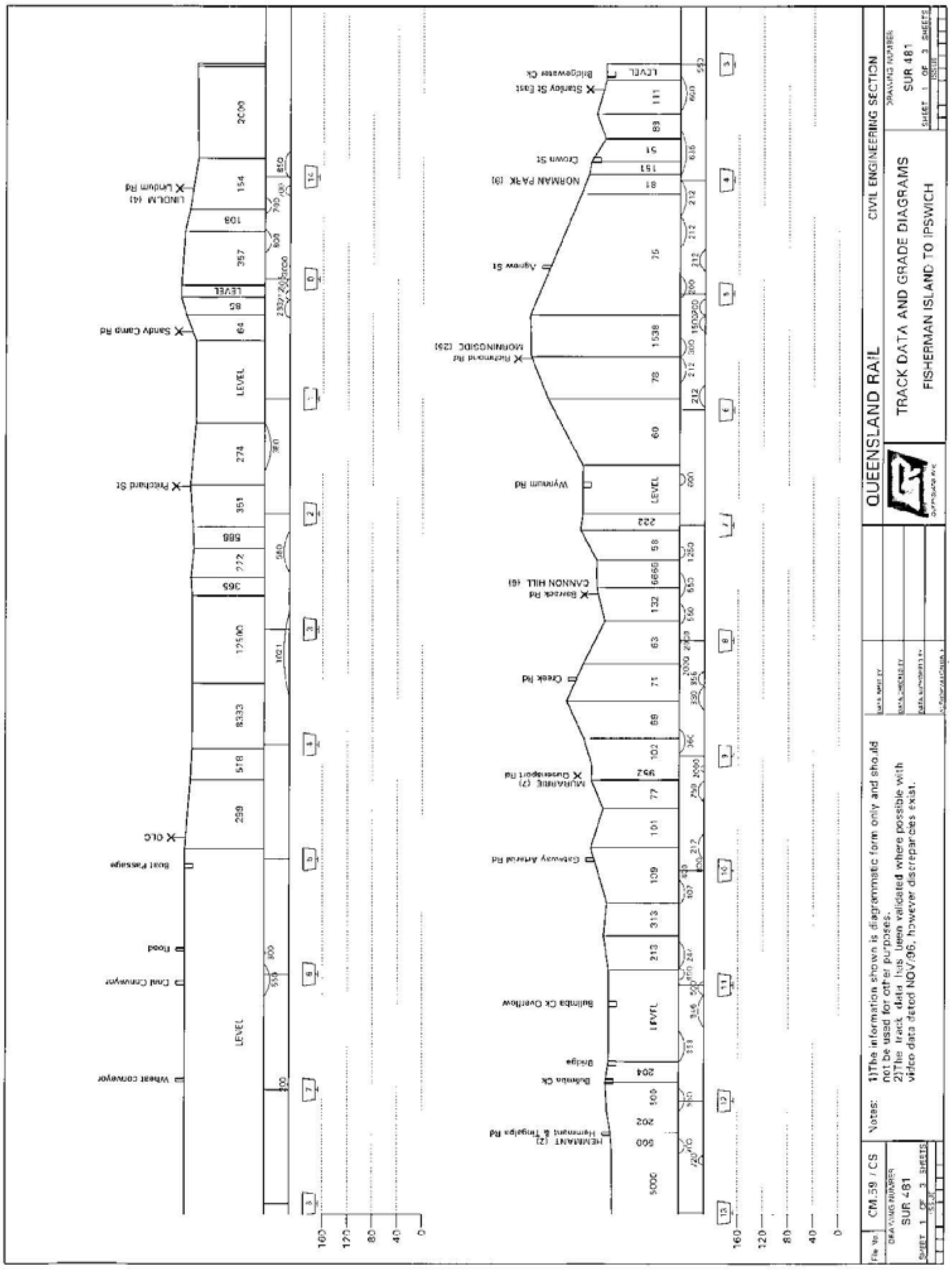
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
ACACIA RIDGE TO CABOOLTURE
DRAWING NUMBER
SUR 482
CM.59 / CS
Notes:
1)The information shown is diagrammatic form only and should not be used for other purposes.
2)The track data has been validated where possible with video data dated NOV/15, however discrepancies exist.
Bruce Highway
Footbridge
RAILWAY HILLS (13)
Dympie Rd
Ann Branch
Sth Pine River
Dam Ck
Tributary Ck
Mott St
Sth Pine Rd
Footbridge
STRATHPINE (9)
Footbridge
Samsonvale Rd
BRAY PARK (17)
Footbridge
Four Mile Ck
Footbridge
LAWNTON (14)
Todds Rd
Footbridge
North Pine River
Lobs Pde
Dayboro Rd
PETRIE (8)
Albert Ave
Newmbe Rd
DAKABIN (43)
Head
Head
Nerimbe Rd
Footbridge
NARANGBA (45)
0
40
80
120
160

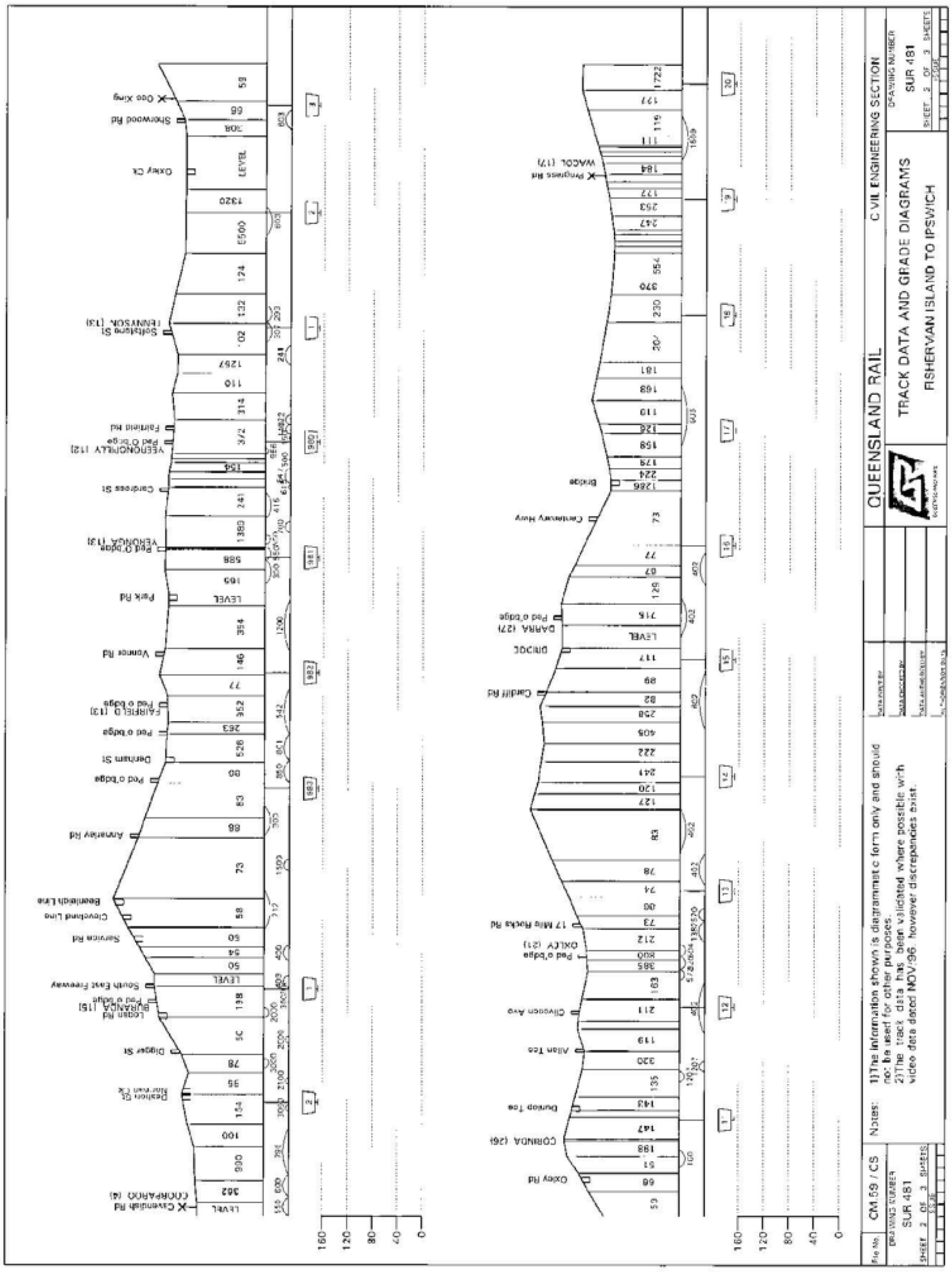

QUEENSLAND RAIL
TRACK DATA AND GRADE DIAGRAMS
ACACIA RIDGE TO CABOOLTURE
CIVIL ENGINEERING SECTION
SUR 482
CM.59 / CS
Caboolture River
MORAYFIELD
Morayfield Rd
Station Rd
Burpengary Ck
BURPENGARY
McKean St
CABOOLTURE

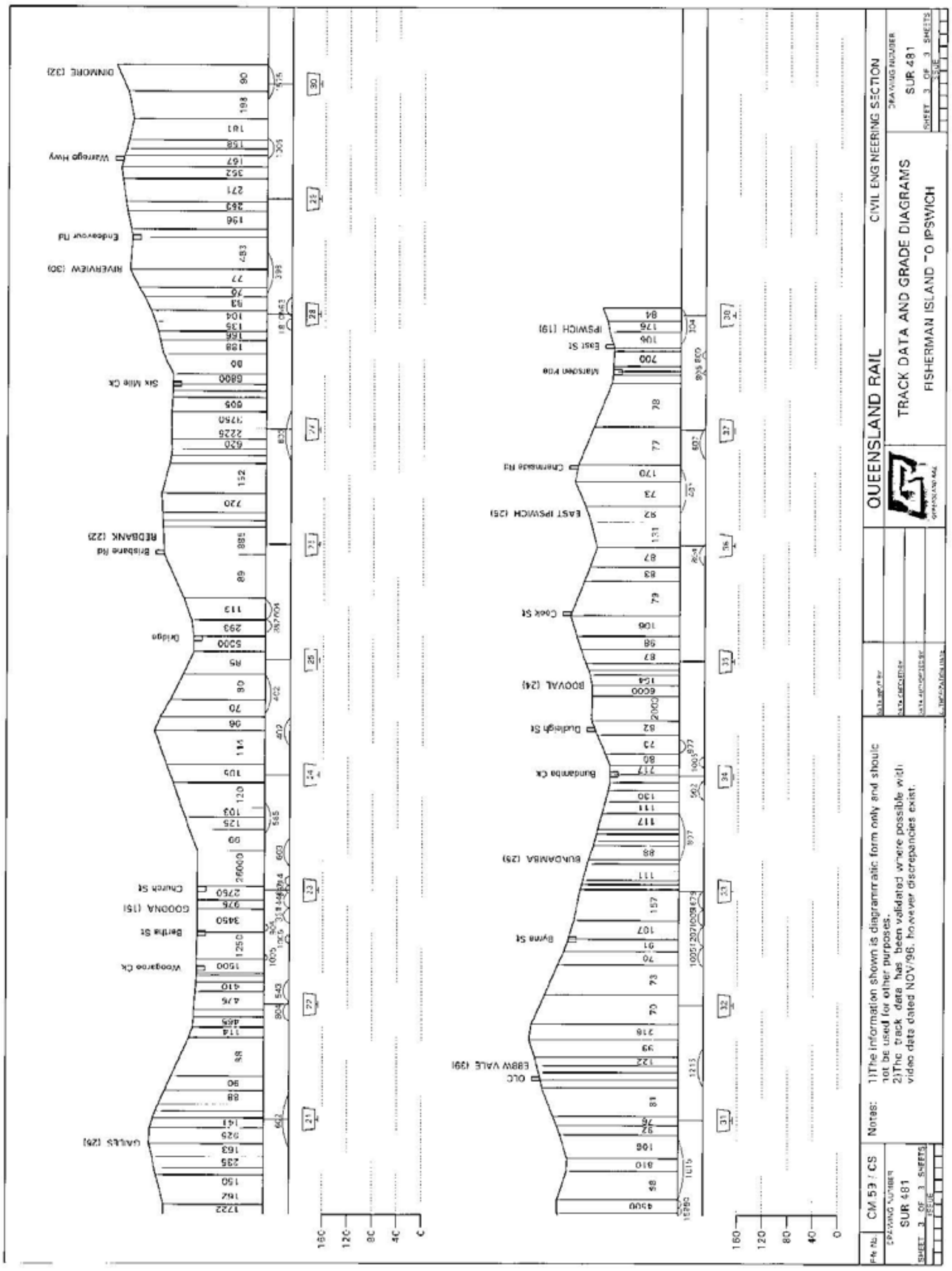

QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
CABOOLTURE TO ROCKHAMPTON
SUR 442
CM 59 / CS
Notes:
1)The information shown is diagrammatic form only and should not be used for other purposes.
2)The track data has been validated where possible with video data dated NOV'96, however discrepancies exist.
BARNES ROAD
BRUCE HIGHWAY
BEERBURRUM CK
BEERBURRUM (37)
KING JOHNS CK
RANGE
PLUMCESTONE ROAD
LAGOON CK
OLC
SIX MILE CK
ELIMBAH (29)
CABOOLTURE (19)
LEVEL
180
120
80
40
0

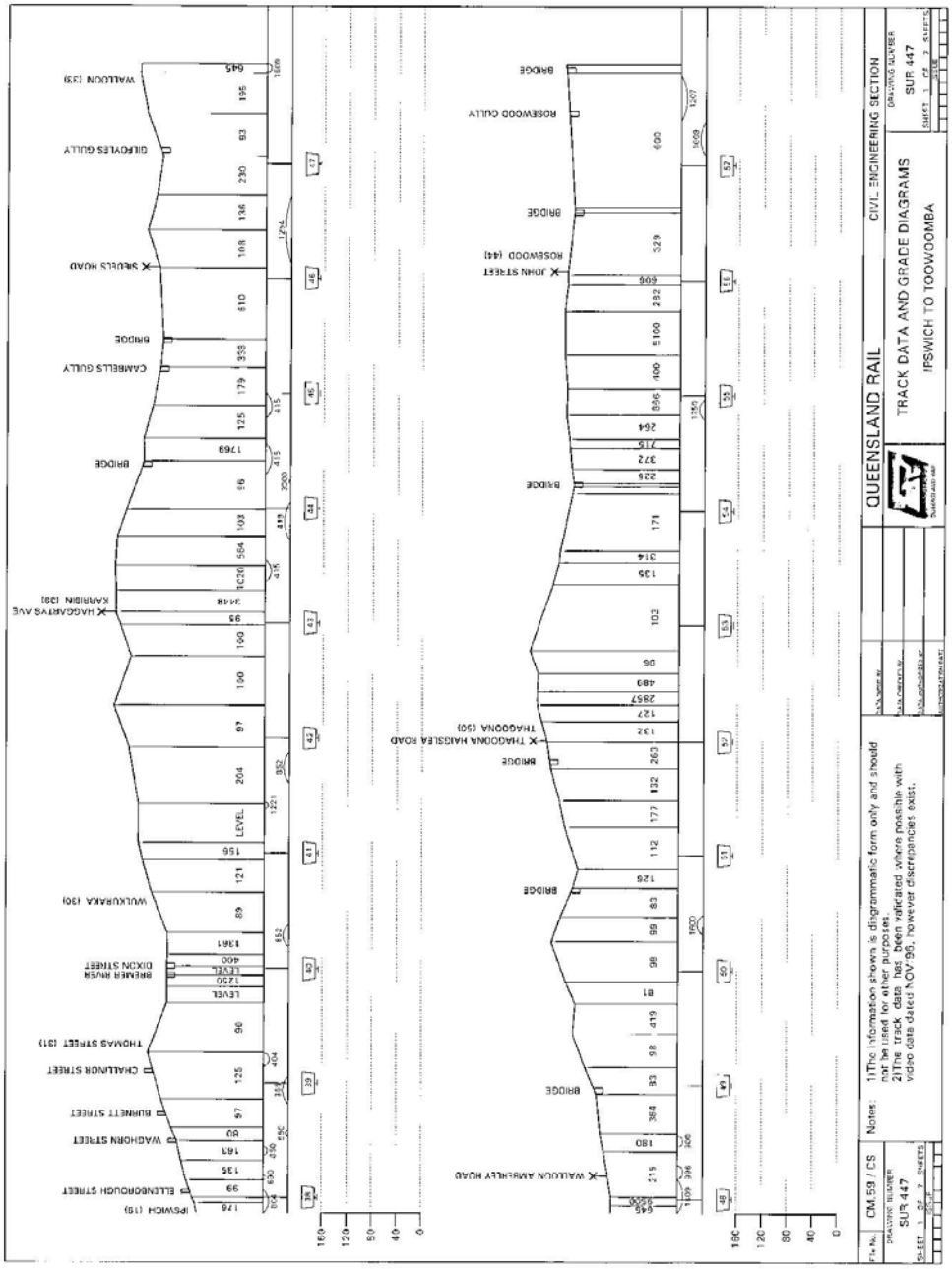

QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
CABOOLTURE TO ROCKHAMPTON
SUR 442
CM.59 / CS
Notes:
1)The information shown is diagrammatic form only and should not be used for other purposes.
2)The track data has been validated where possible with video data dated NOV'96, however discrepancies exist.
BRIDGE
COOCHIN CK
PEACHESTER ROAD
BEERWAH (34)
COONOWRIN CK
OVERBRIDGE
GLASSHOUSE MOUNTAINS (29)
EUDLO TUNNEL
MOOLOOLAH RIVER
BRAY ROAD
MOOLOOLAH (38)
SOUTH MOOLOOLAH RIVER
MOOLOOLAH TUNNEL
GYMPIE STREET
CALOUNDRA STREET
LANDSBOROUGH (38)


QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
CABOOLTURE TO ROCKHAMPTON
SUR 442
Notes:
1)The information shown is diagrammatic form only and should not be used for other purposes.
2)The track data has been validated where possible with video data dated NOV 95, however discrepancies exist.
ARUNDEL AVENUE
NAMBOUR (17)
RAILWAY TERRACE
NATIONAL PARK ROAD
TUCKERS CK
FERNTREE CK ROAD
OVERBRIDGE
PAYNTER CK
PALMWOODS (30)
EUDLO (30)
EUDLO CK
OVERBR DGE
BRIDGE
LEVEL


QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
FISHERMAN ISLAND TO IPSWICH
SUR 481
CM 59 / CS
Notes: 1)The information shown is diagrammatic form only and should not be used for other purposes.
2)The track data has been validated where possible with video data dated NOV/96, however discrepancies exist.


QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
FISHERMAN ISLAND TO IPSWICH
SUR 481


QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
FISHERMAN ISLAND TO IPSWICH
SUR 481
CM 53 / CS
Notes:
1)The information shown is diagrammatic form only and should not be used for other purposes.
2)The track data has been validated where possible with video data dated NOV'96, however discrepancies exist.
DINMORE (32)
RIVERVIEW (30)
REDBANK (22)
GOODNA (15)
GAILES (25)
IPSWICH (19)
EAST IPSWICH (25)
BOOVAL (24)
BUNDAMBA (25)
EBBW VALE (39)


QUEENSLAND RAIL
CIVIL ENGINEERING SECTION
TRACK DATA AND GRADE DIAGRAMS
IPSWICH TO TOOWOOMBA
SUR 447
CM 59 / CS
Notes: 1)The information shown is diagrammatic form only and should not be used for other purposes.
2)The track data has been validated where possible with video data dated NOV 96, however discrepancies exist.
IPSWICH (19)
ELLENBOROUGH STREET
WADHORN STREET
BURNETT STREET
CHALLINOR STREET
THOMAS STREET (31)
DIXON STREET
BREMER RIVER
WULKURAKA (30)
KARRABIN (30)
HADDAWAYS AVE
CAMBELLS GULLY
SKEOLS ROAD
GILFOYLES GULLY
WALLOON (33)
WALLOON AMBERLEY ROAD
THAGOONA (50)
THAGOONA HAIGSLEA ROAD
ROSEWOOD (44)
JOHN STREET
ROSEWOOD GULLY
BRIDGE
LEVEL

APPENDIX F

Sectional Running Times

SECTIONAL RUNNING TIMES - BRISBANE METRO

The SRT's supplied are for both Up and Down services

SECTION:	EMU	Freight	Tilt	Travel Train
Roma Street to Normanby	3	4	2	2
Normanby to Exhibition	2	3	1	1
Exhibition to Campbell Street	1	1	1	1
Campbell Street to Mayne Junction	1	2	1	1
Mayne Junction to Mayne	2	1	1	1
Bowen Hills to Campbell Street	1	-	-	1
Roma Street to Central	2	2	2	2
Central to Brunswick Street	2	3	2	2
Brunswick Street to Bowen Hills	1	2	2	2
Bowen Hills to Mayne	2	1	1	1
Mayne to Albion	1	2	2	2
Albion to Wooloowin	1	2	1	1
Wooloowin to Eagle Juction	1	1	1	1
Eagle Junction to Airport Junction	1	1	1	1
Airport Junction to Toombul	1	1	1	1
Toombul to Nundah	1	1	1	1
Nundah to Northgate	1	1	1	1
Northgate to Virginia	2	2	1	2
Virginia to Sunshine	1	1	1	1
Sunshine to Geebung	1	1	1	1
Geebung to Zillmere	1	2	1	2
Zillmere to Carseldine	1	2	1	2
Carseldine to Bald Hills	2	2	2	3
Bald Hills to Strathpine	2	2	2	2
Strathpine to Bray Park	1	2	2	1
Bray Park to Lawnton	1	2	1	2
Lawnton to Petrie	2	2	2	2
Petrie to Dakabin	3	6	4	4
Dakabin to Narangba	3	3	2	4
Narangba to Burpengary	3	4	3	4
Burpengary to Morayfield	3	4	4	5
Morayfield to Caboolture	3	3	2	4
Caboolture to Elimbah	6	7	5	7
Elimbah to Beerburrum	4	5	4	5
Beerburrum to Glasshouse Mountains	6	8	6	8
Glasshouse Mountains to Beerwah	3	4	3	5
Beerwah to Landsborough	5	5	3	5
Landsborough to Mooloolah	5	5	4	6
Mooloolah to Eudio	6	6	5	7
Eudio to Palmwoods	3	5	4	4
Palmwoods to Woombye	3	4	4	4
Woombye to Nambour	4	5	4	2

SECTION:	EMU	Freight	Tilt	Travel Train
Northgate to Bindha	1	2	-	-
Bindha to Banyo	1	2	-	-
Banyo to Nudgee	1	1	-	-
Nudgee to Boondall	2	2	-	-
Boondall to North Boondall	1	2	-	-
North Boondall to Deagon	1	2	-	-
Deagon to Sandgate	1	2	-	-
Sandgate to Shorncliffe	2	1	-	-
Airport Junction to International Terminal	7	7	-	-
International Terminal to Domestic Terminal	3	3	-	-
Eagle Junction to Clayfield	1	2	-	-
Clayfield to Hendra	1	1	-	-
Hendra to Ascot	1	1	-	-
Ascot to Doomben	2	3	-	-
Doomben to Eagle Farm	-	1	-	-
Eagle Farm to Bunour	-	1	-	-
Bunour to Meeandah	-	2	-	-
Meeandah to Pinkenba	2	-	-	
Bowen Hills to Electric Depot Junction	2	1	-	-
Electric Depot Junction to Windsor	1	2	-	-
Windsor to Wilston	1	2	-	-
Wilston to Newmarket	1	2	-	-
Newmarket to Alderley	1	2	-	-
Alderley to Enoggera	1	2	-	-
Enoggera to Gaythorne	1	2	-	-
Gaythorne to Mitchelton	1	2	-	-
Mitchelton to Oxford Park	1	1	-	-
Oxford Park to Grovely	1	1	-	-
Grovely to Keperra	1	1	-	-
Keperra to Ferny Grove	3	1	-	-
Roma Street to Milton	1	3	-	2
Milton to Auchenflower	1	1	-	1
Auchenflower to Toowong	1	1	-	1
Toowong to Taringa	1	2	-	2
Taringa to Indooroopilly	1	2	-	2
Indooroopilly to Chelmer	2	2	-	1
Chelmer to Graceville	1	1	-	1
Graceville to Sherwood	1	1	-	1
Sherwood to Corinda	1	2	-	1
Corinda to Oxley	2	2	-	1
Oxley to Darra	2	3	-	2
Darra to Wacol	2	4	-	3
Wacol to Gailes	2	1	-	1
Gailes to Goodna	1	2	-	1
Goodna to Redbank	2	3	-	4
Redbank to Riverview	2	2	-	2
Riverview to Dinmore	1	2	-	1
Dinmore to Ebbw Vale	1	1	-	2
Ebbw Vale to Bundamba	1	2	-	2

SECTION:	EMU	Freight	Tilt	Travel Train
Bundamba to Booval	1	2	-	2
Booval to East Ipswich	1	2	-	2
East Ipswich to Ipswich	2	2	-	2
Ipswich to Thomas Street	2	3	-	2
Thomas Street to Wulkuraka	2	2	-	1
Wulkuraka to Karrabin	2	2	-	2
Karrabin to Walloon	3	5	-	3
Walloon to Thagoona	3	5	-	4
Thagoona to Yarrowlea	3	2	-	1
Yarrowlea to Rosewood	1	3	-	2
Yarrowlea to Ebenezer	-	10	-	-
Bundamba to Box Flat Junction	-	15	-	-
Box Flat to Box Flat Junction	-	2	-	-
Box Flat Junction to Swanbank	-	15	-	-
Corinda to Moolabin	1	4	-	-
Tennyson Yard to Moolabin	2	1	-	1
Yeerongpilly to Tennyson Yard	2	3	-	1
Clapham to Yeerongpilly	1	3	-	2
Salisbury to Acacia Ridge	-	5	-	2
Roma Street to South Brisbane	4	4	-	1
South Brisbane to South Bank (Vulture Street)	1	2	-	1
South Bank (Vulture Street) to Park Road	1	2	-	1
Park Road to Dutton Park	2	2	-	1
Dutton Park to Fairfield	1	2	-	1
Fairfield to Yeronga	2	2	-	1
Yeronga to Yeerongpilly	1	1	-	1
Yeerongpilly to Moorooka	1	1	-	-
Moorooka to Rocklea	2	1	-	-
Rocklea to Salisbury	1	3	-	1
Salisbury to Coopers Plains	2	3	-	-
Coopers Plains to Banoon	1	2	-	-
Banoon to Sunnybank	1	1	-	-
Sunnybank to Altandi	1	3	-	-
Altandi to Runcorn	1	2	-	-
Runcorn to Fruitgrove	2	2	-	-
Fruitgrove to Kuraby	1	2	-	-
Kuraby to Trinder Park	3	4	-	-
Trinder Park to Woodridge	1	2	-	-
Woodridge to Kingston	2	3	-	-
Kingston to Loganlea	1	3	-	-
Loganlea to Bethania	2	4	-	-
Bethania to Eden's Landing	1	2	-	-
Eden's Landing to Holmview	1	3	-	-
Holmview to Beenleigh	2	3	-	-
Beenleigh to Ormeau	7	13	-	-
Ormeau to Coomera	5	8	-	-
Coomera to Helensvale	5	10	-	-

SECTION:	EMU	Freight	Tilt	Travel Train
Helensvale to Nerang	5	8	-	-
Nerang to Robina Town Centre	5	10	-	-
Park Road to Buranda	2	2	-	-
Buranda to Coorparoo	1	2	-	-
Coorparoo to Norman Park	1	2	-	-
Norman Park to Morningside	2	4	-	-
Morningside to Cannon Hill	1	2	-	-
Cannon Hill to Murarrie	1	3	-	-
Murarrie to Hemmant	2	5	-	-
Hemmant to Lindum	2	3	-	-
Lindum to Lytton Junction	1	2	-	-
Lytton Junction to Wynnum North	1	1	-	-
Wynnum North to Wynnum	2	2	-	-
Wynnum to Wynnum Central	2	1	-	-
Wynnum Central to Manly	2	4	-	-
Manly to Lota	1	3	-	-
Lota to Thorneside	1	3	-	-
Thorneside to Birkdale	2	6	-	-
Birkdale to Wellington Point	2	3	-	-
Wellington Point to Ormiston	1	3	-	-
Ormiston to Cleveland	2	2	-	-
Lytton Junction to Fisherman Islands	-	10	-	-

APPENDIX G

Altitudes

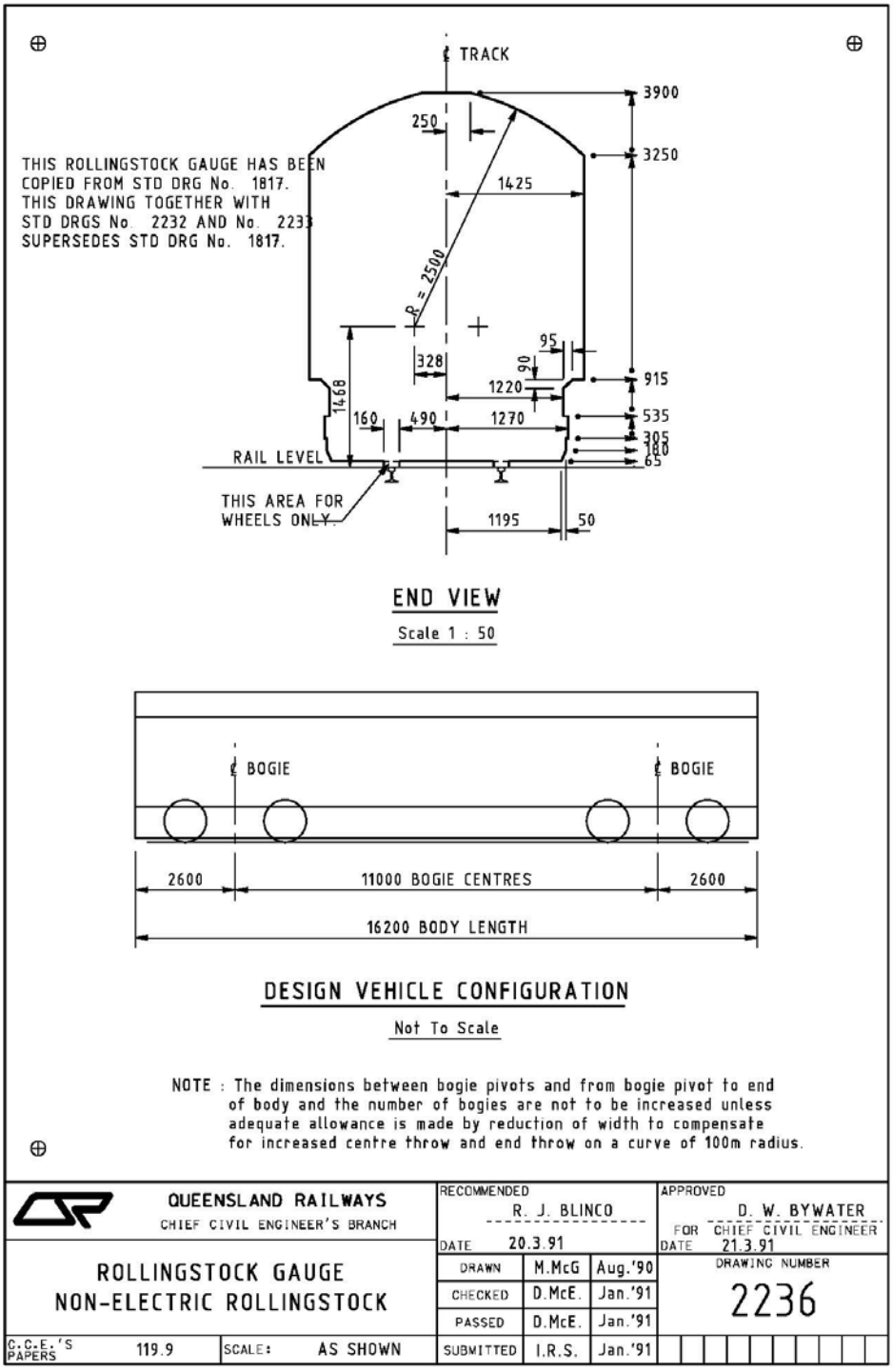
Location	Altitude in metres
Roma Street	18
Central	13
Brunswick Street	5
Bowen Hills	8
Albion	11
Wooloowin	21
Eagle Junction	19
Toombul	7
Nundah	6
Northgate	7
Bindha	4
Banyo	6
Nudgee	4
Boondall	3
North Boondall	3
Deagon	4
Sandgate	2
Shorncliffe	1
Virginia	9
Sunshine	8
Geebung	14
Zillmere	19
Carseldine	13
Bald Hills	12
Strathpine	9
Bray Park	16
Lawnton	13
Petrie	7
Dakabin	42
Narangba	45
Burpengary	23
Morayfield	7
Caboolture	13
Elimbah	23
Beerburrum	36
Glasshouse Mountains	28
Beerwah	32
Landsborough	36
Mooloolah	35
Eudlo	26
Palmwoods	28
Woombye	20
Nambour	15

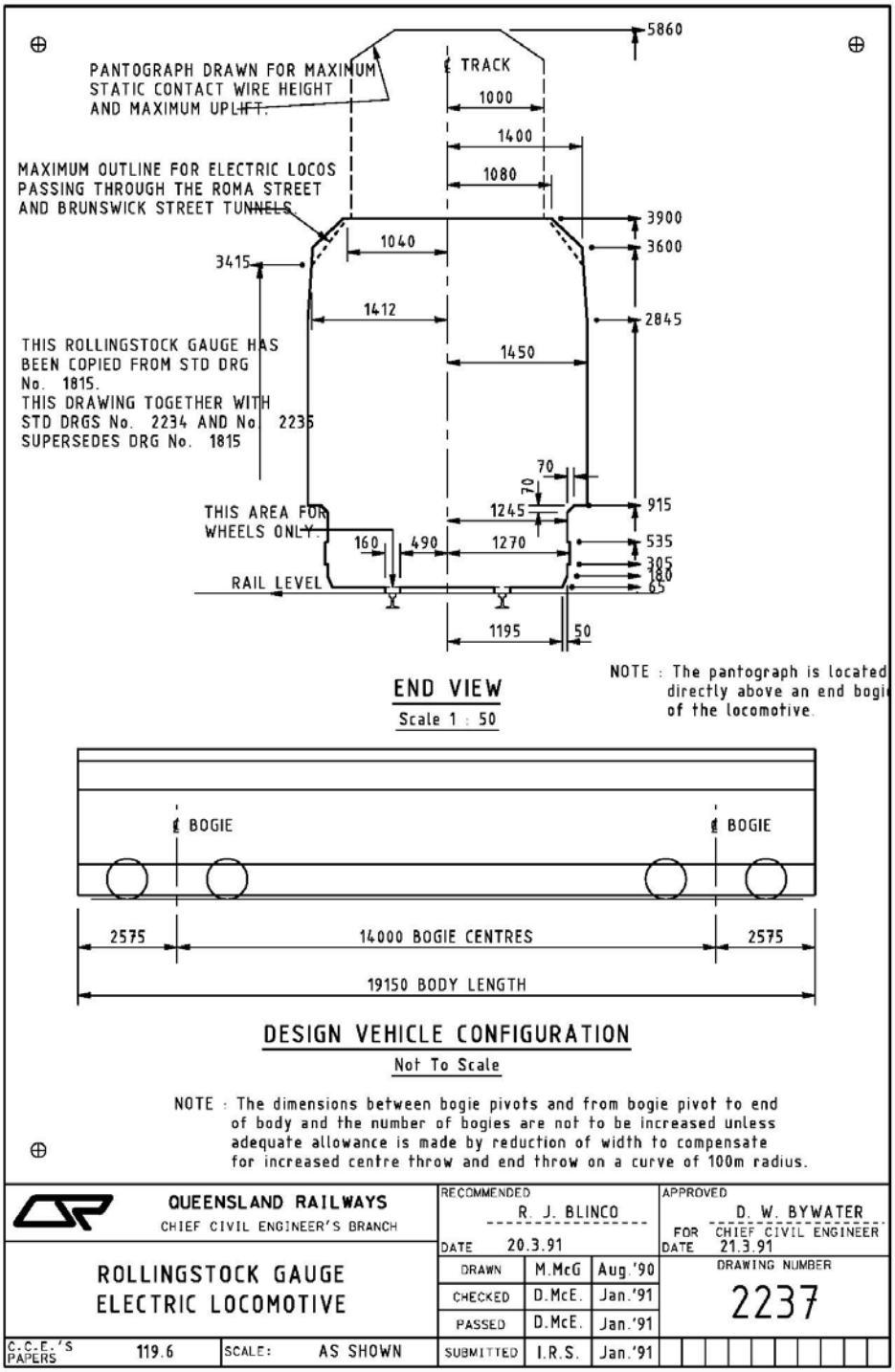
Location	Altitude in metres
Roma Street	18
Milton	9
Auchenflower	7
Toowong	9
Taringa	21
Indooroopilly	18
Chelmer	11
Graceville	14
Sherwood	24
Corinda	25
Oxley	20
Darra	26
Wacol	16
Gailes	24
Goodna	14
Redbank	21
Riverview	29
Dinmore	31
Ebbw Vale	38
Bundamba	23
Booval	23
East Ipswich	28
Ipswich	18
Thomas Street	29
Wulkuraka	31
Karrabin	38
Walloon	32
Thagoona	48
Rosewood	43
Eagle Junction	19
Clayfield	21
Hendra	14
Ascot	16
Doomben	6
Eagle Farm	4
Bunour	2
Meeandah	2
Pinkenba	3
Windsor	14
Wilston	9
Newmarket	18
Alderley	30
Enoggera	30
Gaythorne	38
Mitchelton	36
Oxford Park	46
Grovely	52
Keperra	59
Ferny Grove	57

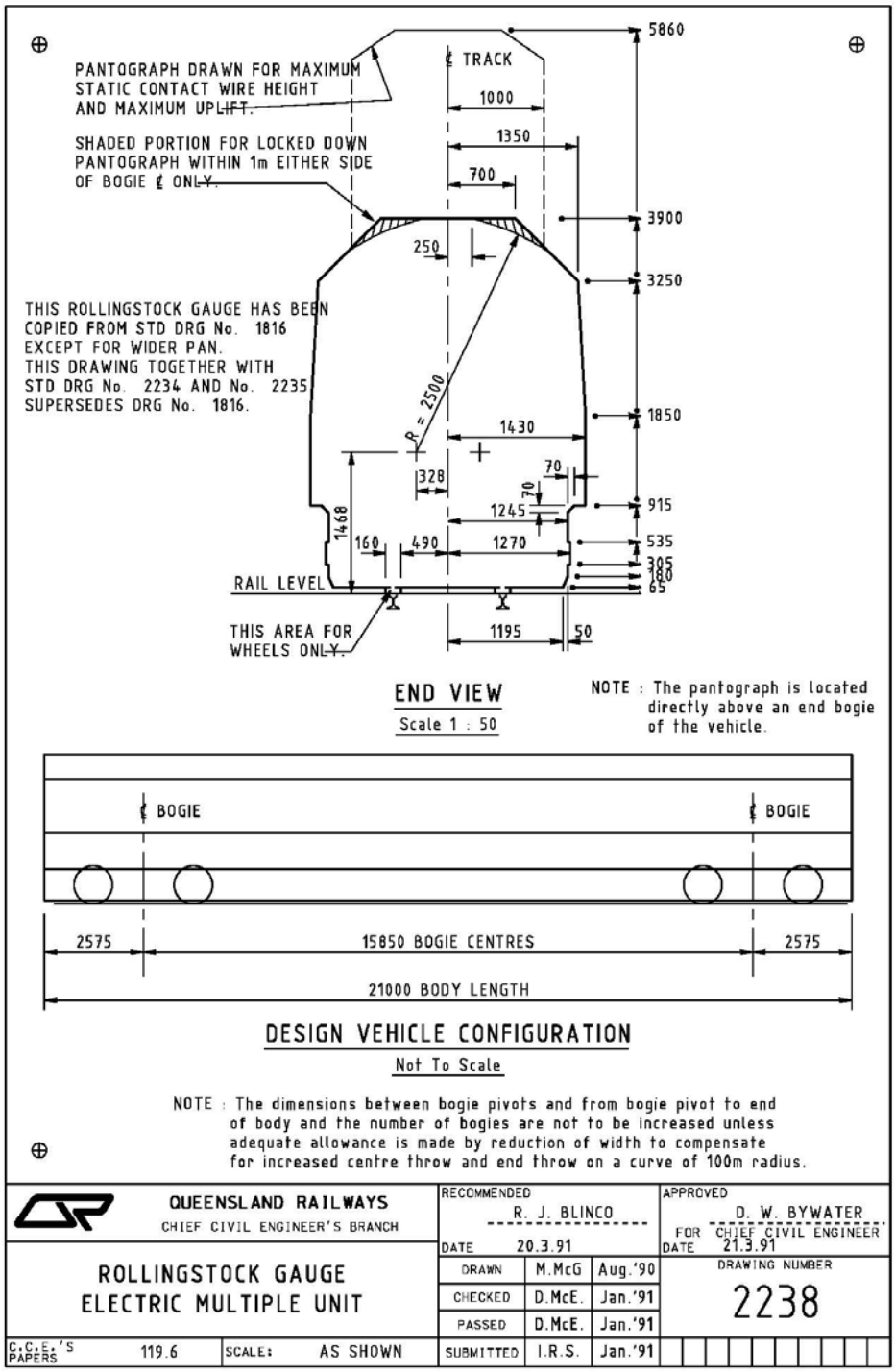
Location	Altitude in metres
South Brisbane	9
SouthBank	14
Park Road	23
Buranda	16
Coorparoo	4
Norman Park	10
Morningside	25
Cannon Hill	6
Murrarie	7
Hemmant	3
Lindum	4
Wynnum North	15
Wynnum	11
Wynnum Central	8
Manly	27
Lota	4
Thornside	3
Birkdale	10
Wellington Point	12
Ormiston	11
Cleveland	2
Dutton Park	21
Fairfield	12
Yeronga	13
Yeerongpilly	11
Tennyson	12
Moorooka	11
Rocklea	8
Salisbury	12
Cooper's Plains	19
Banoon	32
Sunnybank	43
Altandi	58
Runcorn	48
Fruitgrove	56
Kuraby	53
Trinder Park	49
Woodridge	46
Kingston	10
Loganlea	13
Bethania	12
Holmview	7
Beenleigh	13
Ormeau	20
Coomera	14
Helensvale	3
Nerang	7
Robina	4

APPENDIX H

Rollingstock Gauges




PANTOGRAPH DRAWN FOR MAXIMUM STATIC CONTACT WIRE HEIGHT AND MAXIMUM UPLIFT.
℄ TRACK
MAXIMUM OUTLINE FOR ELECTRIC LOCOS PASSING THROUGH THE ROMA STREET AND BRUNSWICK STREET TUNNELS.
THIS ROLLINGSTOCK GAUGE HAS BEEN COPIED FROM STD DRG No. 1815.
THIS DRAWING TOGETHER WITH STD DRGS No. 2234 AND No. 2235 SUPERSEDES DRG No. 1815
THIS AREA FOR WHEELS ONLY
RAIL LEVEL
5860
1000
1400
1080
3900
3600
3415
1040
1412
2845
1450
70
70
1245
915
160
490
1270
535
305
180
65
1195
50
NOTE : The pantograph is located directly above an end bogie of the locomotive.
END VIEW
Scale 1 : 50
℄ BOGIE
℄ BOGIE
2575
14000 BOGIE CENTRES
2575
19150 BODY LENGTH
DESIGN VEHICLE CONFIGURATION
Not To Scale
NOTE : The dimensions between bogie pivots and from bogie pivot to end of body and the number of bogies are not to be increased unless adequate allowance is made by reduction of width to compensate for increased centre throw and end throw on a curve of 100m radius.
QUEENSLAND RAILWAYS
CHIEF CIVIL ENGINEER'S BRANCH
RECOMMENDED R. J. BLINCO
DATE 20.3.91
APPROVED D. W. BYWATER
FOR CHIEF CIVIL ENGINEER
DATE 21.3.91
ROLLINGSTOCK GAUGE
ELECTRIC LOCOMOTIVE
DRAWN M.McG Aug '90
CHECKED D.McE. Jan.'91
PASSED D.McE. Jan.'91
SUBMITTED I.R.S. Jan.'91
DRAWING NUMBER
2237
C.C.E.'S PAPERS 119.6
SCALE: AS SHOWN


PANTOGRAPH DRAWN FOR MAXIMUM STATIC CONTACT WIRE HEIGHT AND MAXIMUM UPLIFT.
SHADED PORTION FOR LOCKED DOWN PANTOGRAPH WITHIN 1m EITHER SIDE OF BOGIE ℄ ONLY.
THIS ROLLINGSTOCK GAUGE HAS BEEN COPIED FROM STD DRG No. 1816 EXCEPT FOR WIDER PAN. THIS DRAWING TOGETHER WITH STD DRG No. 2234 AND No. 2235 SUPERSEDES DRG No. 1816.
℄ TRACK
5860
1000
1350
700
3900
250
3250
R = 2500
1850
1430
70
328
70
1245
915
1468
160
490
1270
535
305
180
65
RAIL LEVEL
THIS AREA FOR WHEELS ONLY.
1195
50
END VIEW
Scale 1 : 50
NOTE : The pantograph is located directly above an end bogie of the vehicle.
℄ BOGIE
℄ BOGIE
2575
15850 BOGIE CENTRES
2575
21000 BODY LENGTH
DESIGN VEHICLE CONFIGURATION
Not To Scale
NOTE : The dimensions between bogie pivots and from bogie pivot to end of body and the number of bogies are not to be increased unless adequate allowance is made by reduction of width to compensate for increased centre throw and end throw on a curve of 100m radius.
QUEENSLAND RAILWAYS
CHIEF CIVIL ENGINEER'S BRANCH
RECOMMENDED R. J. BLINCO DATE 20.3.91
APPROVED D. W. BYWATER FOR CHIEF CIVIL ENGINEER DATE 21.3.91
ROLLINGSTOCK GAUGE
ELECTRIC MULTIPLE UNIT
DRAWN M.McG Aug.'90
CHECKED D.McE. Jan.'91
PASSED D.McE. Jan.'91
SUBMITTED I.R.S. Jan.'91
DRAWING NUMBER
2238
C.C.E.'S PAPERS 119.6
SCALE: AS SHOWN