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Central West System
Information Pack

Central West System Information Pack

Version Information

Version 3.0: 05/10/2016

- Removed Winton to Hughenden sections
- Removed Clermont to Blair Athol Junction sections
- Removed Nogoia to Springsure sections
- Updated References Queensland Rail Network to Queensland Rail
- Updated References Queensland Transport to DTMR
- Removed reference 2005 Access Undertaking
- EPA changed to Department
- Updated Standards references
- Updated Line Diagrams
- Updated Climate Information
- Updated Rail System Electrification
- Updated Track Grade
- Updated Network Control Regions & Singalling Centres
- Updated Safeworking Systems
- Update Noise Management System

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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**.

Queensland Rail will manage contracts for infrastructure maintenance and ensure it is planned well in advance to effectively manage and minimise service disruptions. **Queensland Rail** will regularly monitor the capacity of the rail system to cater for any growth in traffic.

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.

Contact details are:

Customer Services, Safety and Regulation Division:
Ph: 07 3066 2689
Email: rsr@tmr.qld.gov.au
Post: PO Box 673
Fortitude Valley QLD 4006
Web: www.tmr.qld.gov.au

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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.

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 Central West System is located in Central Queensland between the latitudes 20°50' S and 24°07' S and longitudes 143°02' E and 148°10' E. It abuts the Blackwater and Goonyella

The system caters for general freight, block trains and passenger services to Longreach.



Descriptive distances within this document are plan kilometres and correspond with those contained in Queensland Rail's Working Timetable and are general only (ie 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.

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General Climate - Queensland Wide

The system is generally in 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 show great variation in behaviour. They foster high winds, heavy, flood-producing rainfall (especially when a cyclone moves over high ground), 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 direct impact of cyclones on this System if any would be very minimal.

Humidity

This region could experience prolonged periods of low humidity / high temperatures 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.

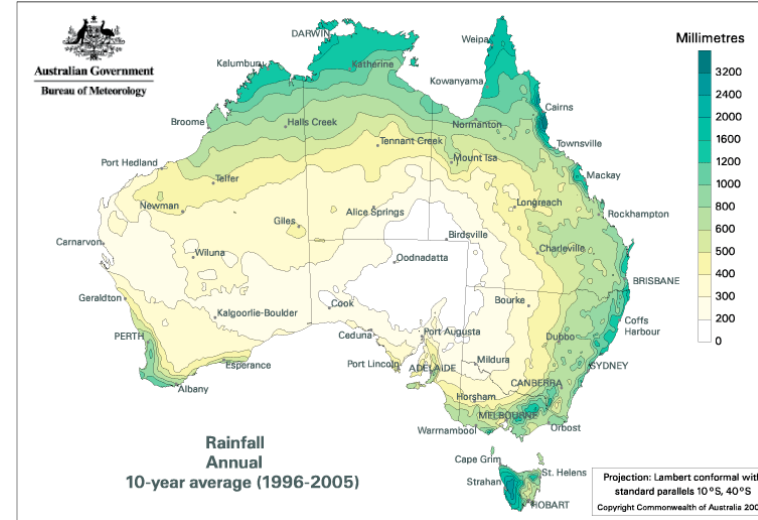
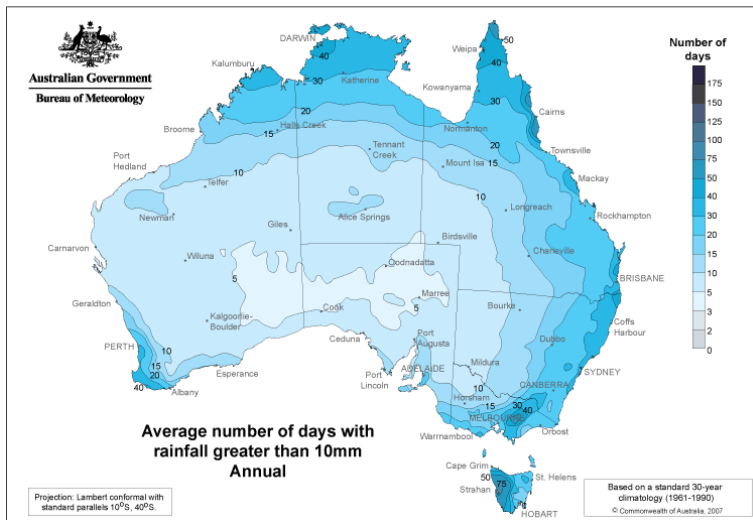
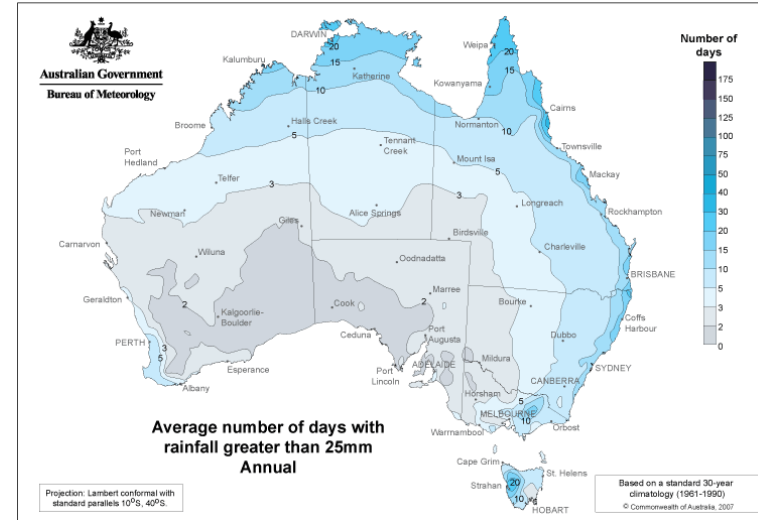
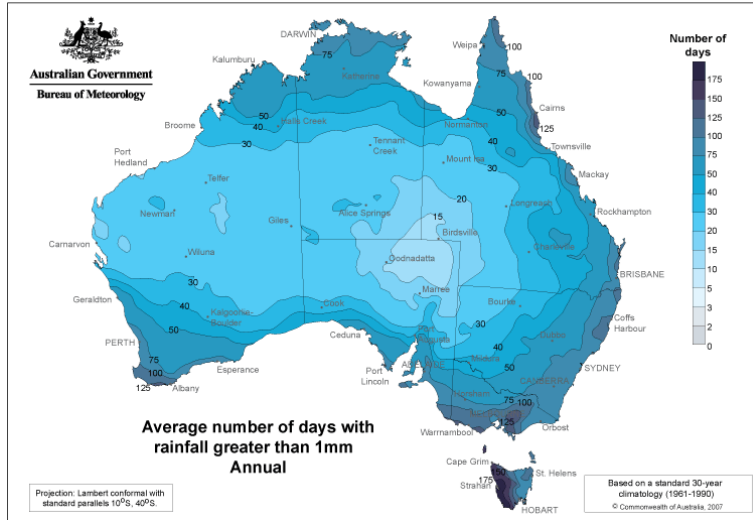
In the north, rain is mostly associated with monsoonal troughs.

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

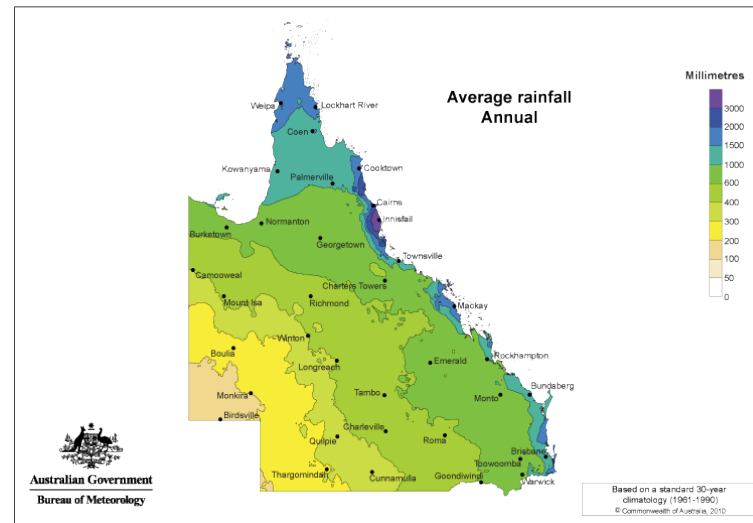
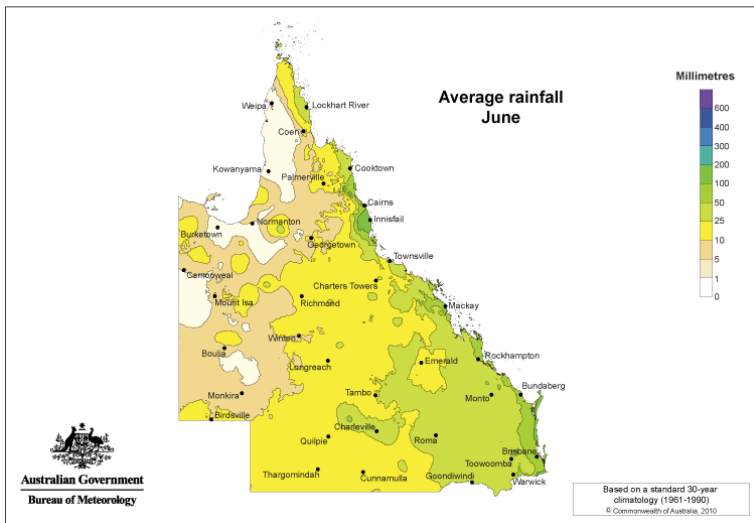
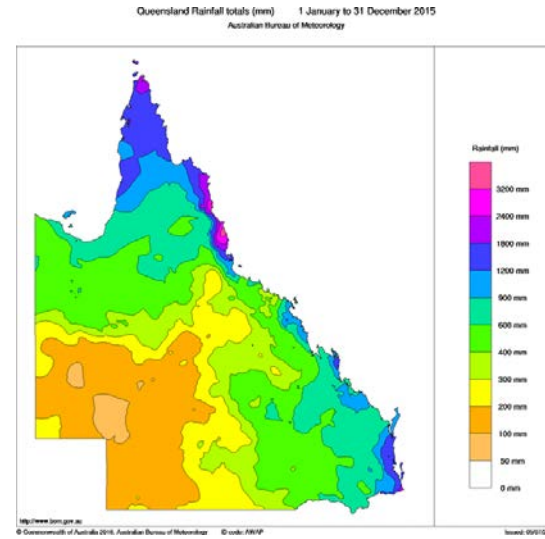
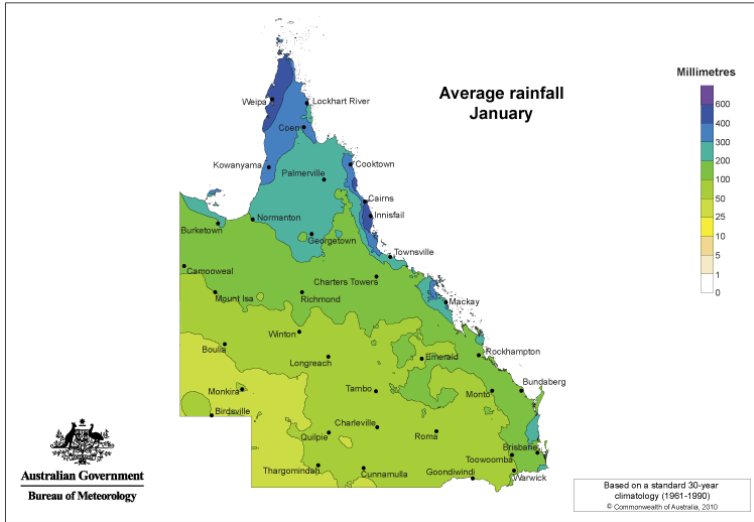
Flooding as a direct result of cyclones and heavy coastal rains is unlikely to affect this System. In the event of a “force majeure” event, traffic delays would be minimised and repairs undertaken to meet the traffic task.

Early 2008, this system experienced a low pressure system that resulted in a deluge in the Fairbairn Dam catchment area that resulted in sustained inundation and flooding in Emerald area

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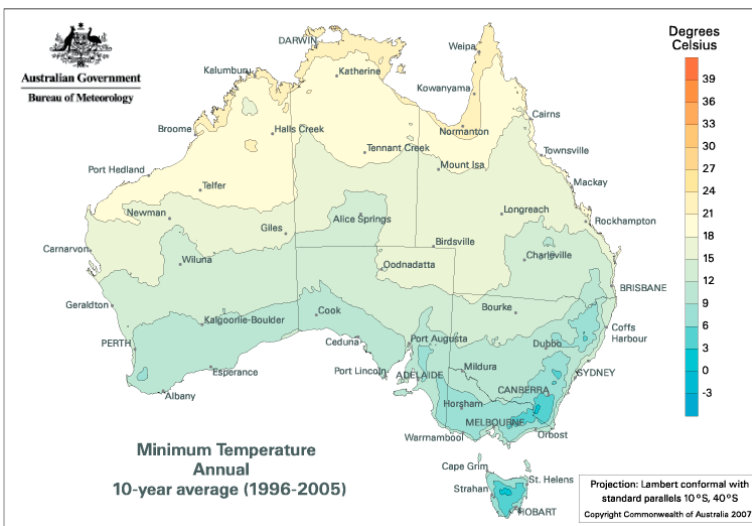
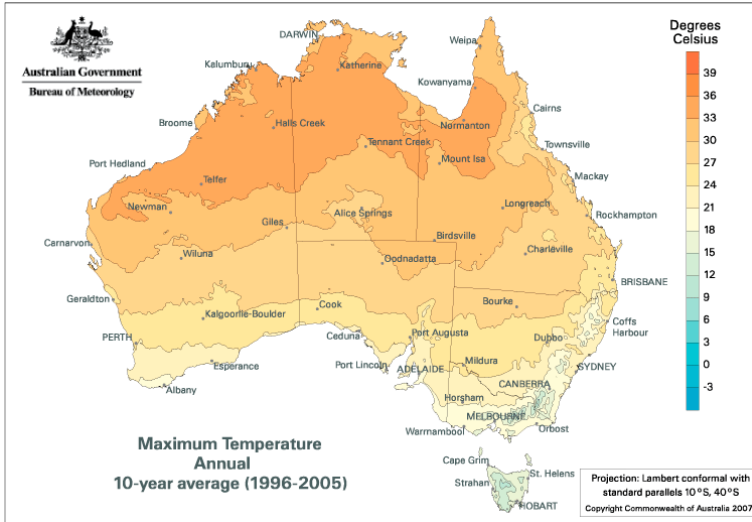
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Temperatures

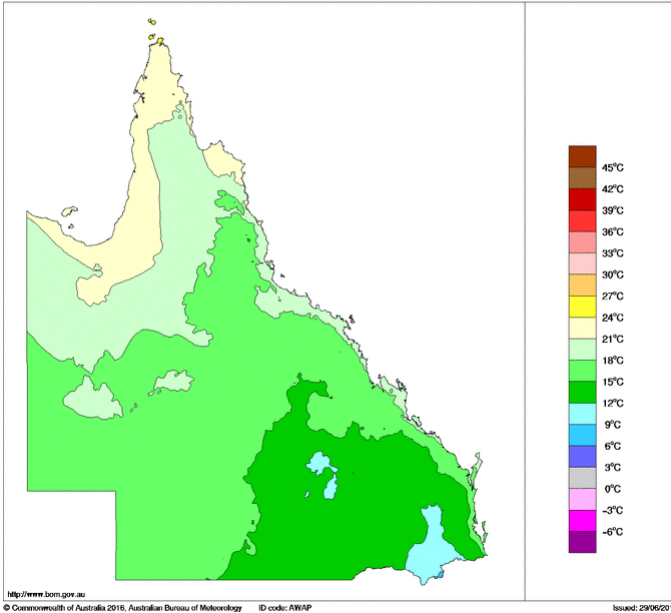
The average annual values of the daytime maximum of the hottest (January) and night-time minimum of the coldest (July) months are indicated on the climatic maps.

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).

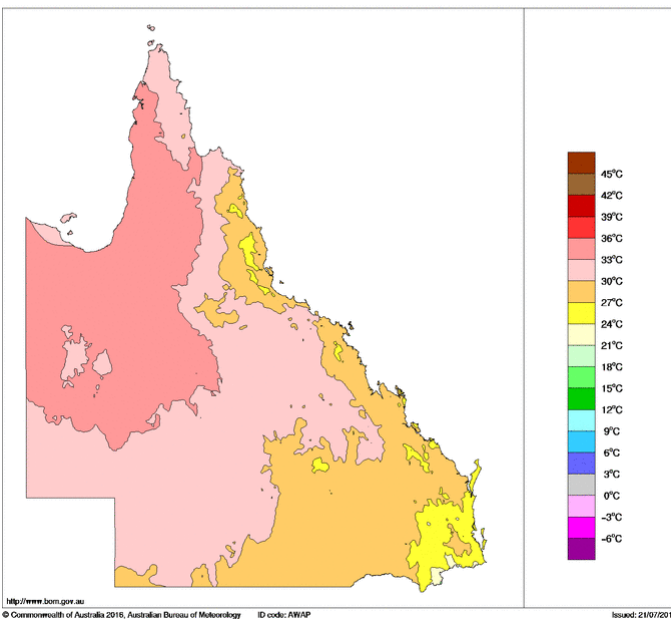


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Minimum Temperature (°C) 1 January to 31 December 2015
 Australian Bureau of Meteorology



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



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Description of the Railway

The track (1067 mm gauge) on the Central West System is a mix of nominal 50, 47, 41, 31 and 20 kg/m rail [STD/0077/TEC - Civil Engineering Track Standards (CETS)] on timber sleepers with some steel interspersed.

Information on track, rollingstock, train operations, container operations and special train operations for the safe operation of trains on this System are contained in in the MD-10-533 - Operational Route Manual.

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
15.75 tal	M 130
10.62 tal	

For rollingstock of different configuration, e.g. in respect of axle spacing and vehicle lengths, lesser axle loads and/or speed restrictions may be required before rollingstock may be authorised to operate.

Basic Track Configuration

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

Nogoa to Emerald

Nogoa marks the western extent of the Blackwater System. From here the single line railway heads west across the Nogoa River to Emerald (elevation 180 m), the furthestmost point of the electrified network. Whilst the electrical overhead is still in place, this section has been isolated with removal of the contact wire over the Comet River bridge (226 km) and not likely to be re-energised.

There are no loops on this section.

Track structure is 30 and 50 kg/m rail on timber sleepers. The maximum allowable axle load is 15.75 tal.

The maximum allowable speed is 80 km/h.

The maximum grade (not compensated for horizontal alignment) against a westbound (Up) train is 1 in 139 (265 kp) and an eastbound (Down) train the maximum grade is 1 in 66 (264 kp).

Existing minimum nominal horizontal curve radii are as follows :-

Running line: 550 m

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Fencing along this corridor compliments adjacent land usage and will be maintained at its current standard.

Corridor		Nogoa to Emerald	
Line Code		793	
System		Central West	
No. of Tracks		1	
Route Km		1.93	
Track Km		1.93	
Electrified		OHW not Energised	
Safeworking System		RCS	
Control Centre		Rockhampton	
Crossing Loops	No.	0	
	Location and length		
Bridges (no. of spans)/Length	Timber	No. of Bridges	0
		No. of Spans	0
		Length (m)	0
	Steel	No. of Bridges	2
		No. of Spans	37
		Length (m)	580.5
	Concrete	No. of Bridges	4
		No. of Spans	26
		Length (m)	345
Overbridges (No. of Bridges)	Timber	0	
	Steel	0	
	Concrete	0	
Tunnels	Number	0	
	Length (m)	0	
Curves (% of total track)	<80km/h	0	
	<60km/h	0	
Level Crossings	Public	2	
	Occupation	0	
	Fl. Lights	1	
	Boom gte	1	
Track Structure	Rail Mass	30kg-24%,50kg-76%	
	Jointed	CWR	
	Sleeper	T	
Maximum Allowable Axle Load (tal)		15.75	
Route Sped km/h	Pass	80	
	Frt	80	
	Block	80	
Max Container Height - (m)		2.9	
Allowable Gross Tonnes p.a.("000")		5,000	

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Emerald to Longreach

From Emerald the railway continues west to Bogantungan (elevation 336 m) at the foot of the Drummond Range. The railway then climbs the range to Hannam's Gap (elevation 524 m) before descending to Pine Hill (elevation 357 m) and on to Jericho (elevation 350 m), Barcaldine (elevation 267 m) and Longreach (elevation 189 m).

There are eighteen passing loops on this section namely Taraborah, Anakie, Withersfield, Willows, Bogantungan, Drummond, Pine Hill, Mamboo, Alpha, Beta, Jericho, Alice, Lochnagar, Barcaldine, Saltern, Deroora, Ilfracombe and Longreach.

Track structure is a mix of 20, 30, 41 and 53kg/m rail on timber, steel and concrete sleepers with some steel interspersed at a rate of 1 in 4 on various sections.

Corridor		Emerald to Jericho	Jericho to Longreach	
Line Code		794, 795, 796, 797	798, 668	
System		Central West	Central West	
No. of Tracks		1	1	
Route Km		227.014	193.448	
Track Km		227.014	193.448	
Electrified		No	No	
Safeworking System		DTC	DTC	
Control Centre		Rockhampton	Rockhampton	
Crossing Loops	No.	11	7	
	Location and length	Taraborah (544tp), Anakie (508tp), Withersfield (314m), Willows (352m), Bogantungan (528tp), Drummond (638tp), Pine Hill (280m), Mamboo (537tp), Alpha (615tp), Beta (459m), Jericho (394m)	Alice (320m), Lochnagar (543m), Barcaldine (548m), Saltern (415m), Deroora (412m), Ilfracombe (410m), Longreach (540m)	
Bridges (no. of spans)/Length (Timber	No. of Bridges	85	51
		No. of Spans	368	308
		Length (m)	1692.6	1708
	Steel	No. of Bridges	2	1
		No. of Spans	8	2
		Length (m)	54.1	3.8
	Concrete	No. of Bridges	1	1
		No. of Spans	3	9
		Length (m)	75	81.9
Overbridges (No. of Bridges)	Timber	0	0	
	Steel	0	0	
	Concrete	3	0	
Tunnels	Number	0	0	
	Length (m)	0	0	
Curves (% of total track)	<80km/h	10	0.1	
	<60km/h	5	0	
Level Crossings	Public	33	22	
	Occupation	16	20	
	Fl. Lights	3	1	
	Boom gte	0	0	
Track Structure	Rail Mass	20kg-2%, 30kg-84%, 41kg-11%, 53kg-3%	30kg-100%	
	Jointed	B	B	
	Sleeper	T-60%, T/S1in4-27%, S-10%, C-3%	T-51%, T/S1in4-1%, S-48%	
Maximum Allowable Axle Load (tal)		15.75	15.75	
Route Sped km/h	Pass	70	70	
	Frnt	70	70	

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	Block		
Max Container Height - (m)		2.65	2.65
Allowable Gross Tonnes p.a. ("000")		1,000	1,000

The maximum allowable axle load is 15.75 tal. The maximum allowable speed is 70 km/h.

The maximum grade (not compensated for horizontal alignment) that a westbound (Up) train will encounter is 1 in 30 (416 km) whilst for an eastbound (Down) train the maximum grade is 1 in 33 (412 km).

Existing minimum nominal horizontal curve radii are as follows :-

running line 80 m

Fencing along this corridor compliments adjacent land usage and will be maintained at its current standard.

Longreach to Winton

Leaving Longreach, the railway heads northwest, paralleling the Landsborough Highway to Winton (elevation 188 m).

There are five passing loops on this section namely Darr, Morella, Rimbanda, Chorregon, and Dillcar.

Track structure 31 kg/m rail on timber and steel sleepers. The maximum allowable axle load is 15.75 tal.

The maximum allowable speed for this axle loading is 50 km/h.

The maximum grade (not compensated for horizontal alignment) that a northbound (Up) train will encounter is 1 in 49 (705 km) whilst for an southbound (Down) train the maximum grade is 1 in 66 (numerous locations).

Existing minimum nominal horizontal curve radii are as follows :-

running line 241 m

Fencing along this corridor compliments adjacent land usage and will be maintained at its current standard.

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Corridor		Longreach to Winton	
Line Code		669, 115	
System		Central West	
No. of Tracks		1	
Route Km		176.667	
Track Km		176.667	
Electrified		No	
Safeworking System		DTC	
Control Centre		Rockhampton	
Crossing Loops	No.	5	
	Location and length	Darr (308m), Morella (328m), Rimbanda (369m), Chorregon (348m), Dillcar (362m)	
Bridges (no. of spans)/Length	Timber	No. of Bridges	43
		No. of Spans	294
		Length (m)	1265.4
	Steel	No. of Bridges	3
		No. of Spans	9
		Length (m)	66.7
	Concrete	No. of Bridges	1
		No. of Spans	6
		Length (m)	91.2
Overbridges (No. of Bridges)	Timber	0	
	Steel	0	
	Concrete	0	
Tunnels	Number	0	
	Length (m)	0	
Curves (% of total track)	<80km/h	0.5	
	<60km/h	0.2	
Level Crossings	Public	18	
	Occupation	36	
	Fl. Lights	0	
	Boom gte	0	
Track Structure	Rail Mass	30kg	
	Jointed	B	
	Sleeper	T-70%, T/S1in4-30%	
Maximum Allowable Axle Load (tal)		15.75	
Route Sped km/h	Pass	50	
	Frnt	50 (15.75), 60 (10.62)	
	Block		
Max Container Height - (m)		2.65	
Allowable Gross Tonnes p.a.("000")		300	

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	Concrete	0
Tunnels	Number	0
	Length (m)	0
Curves (% of total track)	<80km/h	1
	<60km/h	0.2
Level Crossings	Public	31
	Occupation	23
	Fl. Lights	7
	Boom gte	0
Track Structure	Rail Mass	30kg-74%, 41kg-9%, 47kg-17%
	Jointed	Bolted some LWR
	Sleeper	T-45%, S-14%, T/S1in4- 40%
Maximum Allowable Axle Load	(tal)	15.75
Route Speed km/h	Pass	50 to 101.02km, 80 from 101.02km to Blair Athol Jcn
	Frt	50 to 101.02km, 80 from 101.02km to Blair Athol Jcn
	Block	40 Clermont to 101.02km, 60 from 101.02km to Blair Athol Jcn
Max Container Height - (m)		2.65
Allowable Gross Tonnes p.a.("000")		500

Horizontal radius for new or upgrade works on this System is as follows:-

848 m 100 km/h running	542 m	80 km/h running
balloon loop		300 m minimum radius
siding and depot		140 m

Description of the Track

The track on this system is a mix of 47 kg/m, 41 kg/m and 31 kg/m rail and timber and steel sleepers on crushed rock ballast. The rails are a combination of welded and bolted.

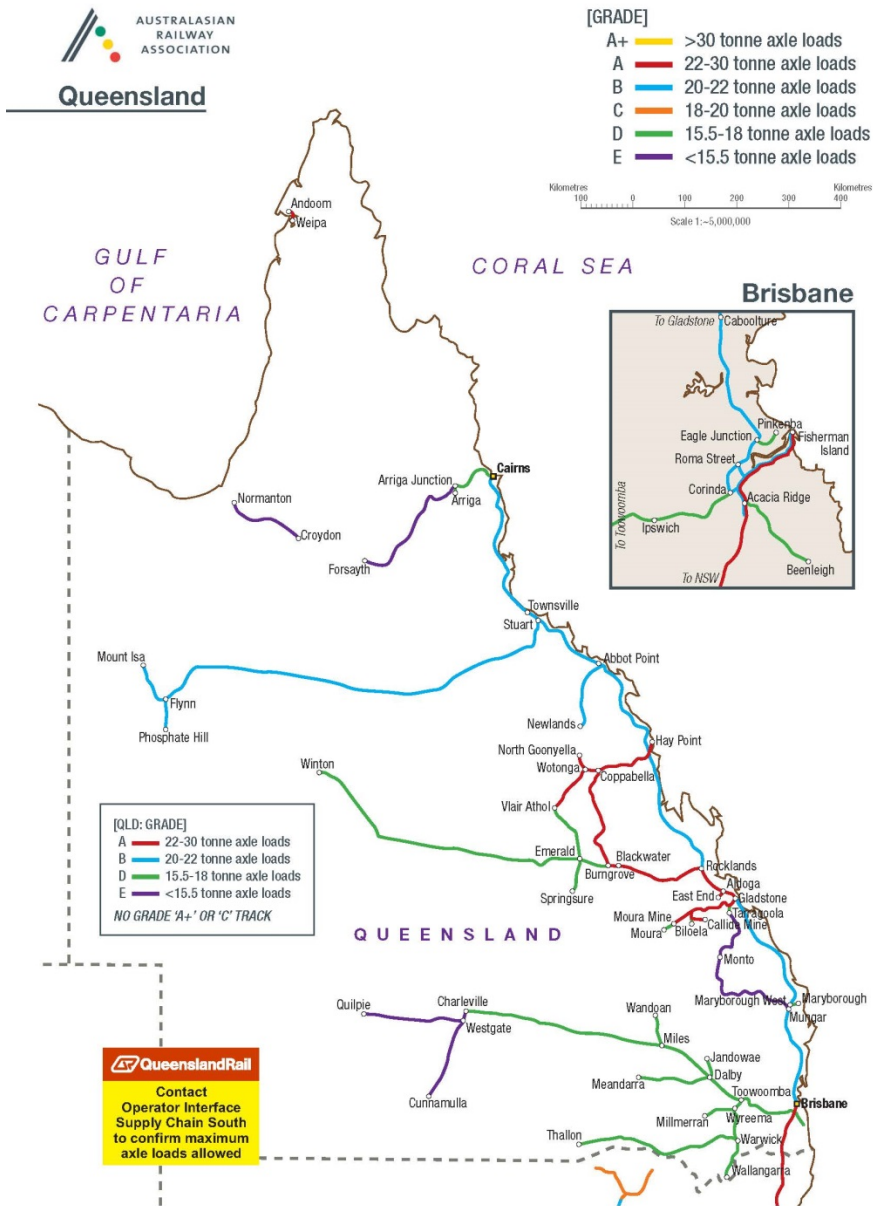
Speeds through the curved leg of turnouts are governed by the angle of that turnout ie.

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.

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

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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 sleepere track, restrict all trains to 60 km/h (#)

Air Temperature 40°C and above - On timber sleepere track, restrict all trains to 40 km/h (#)

(#) Steel sleepere track and timber sleepere track with interspersed steel sleepers shall be regarded as equivalent to timber sleepere 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

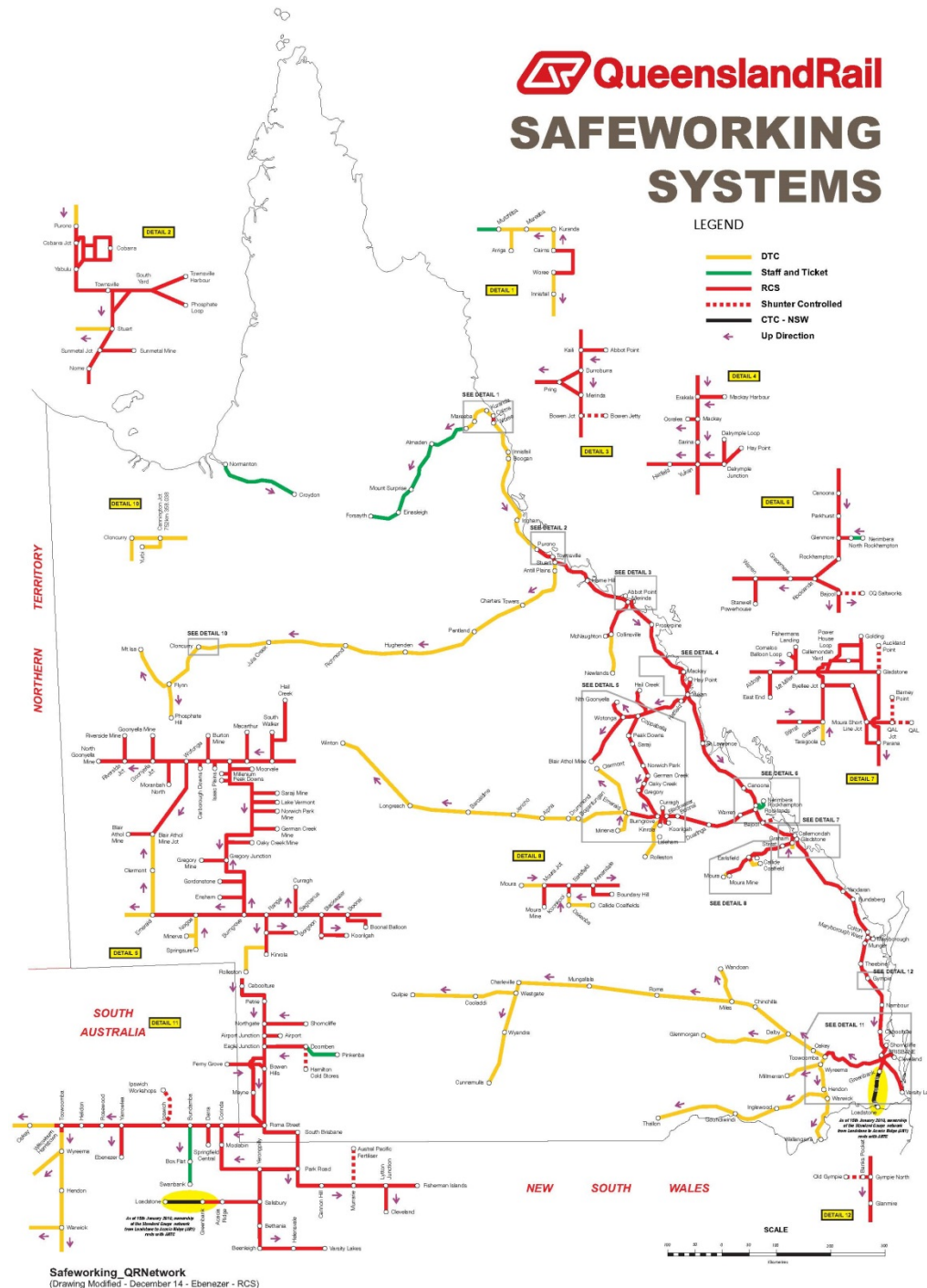
There are no weighbridges on this System.

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Operational Systems & Train Control

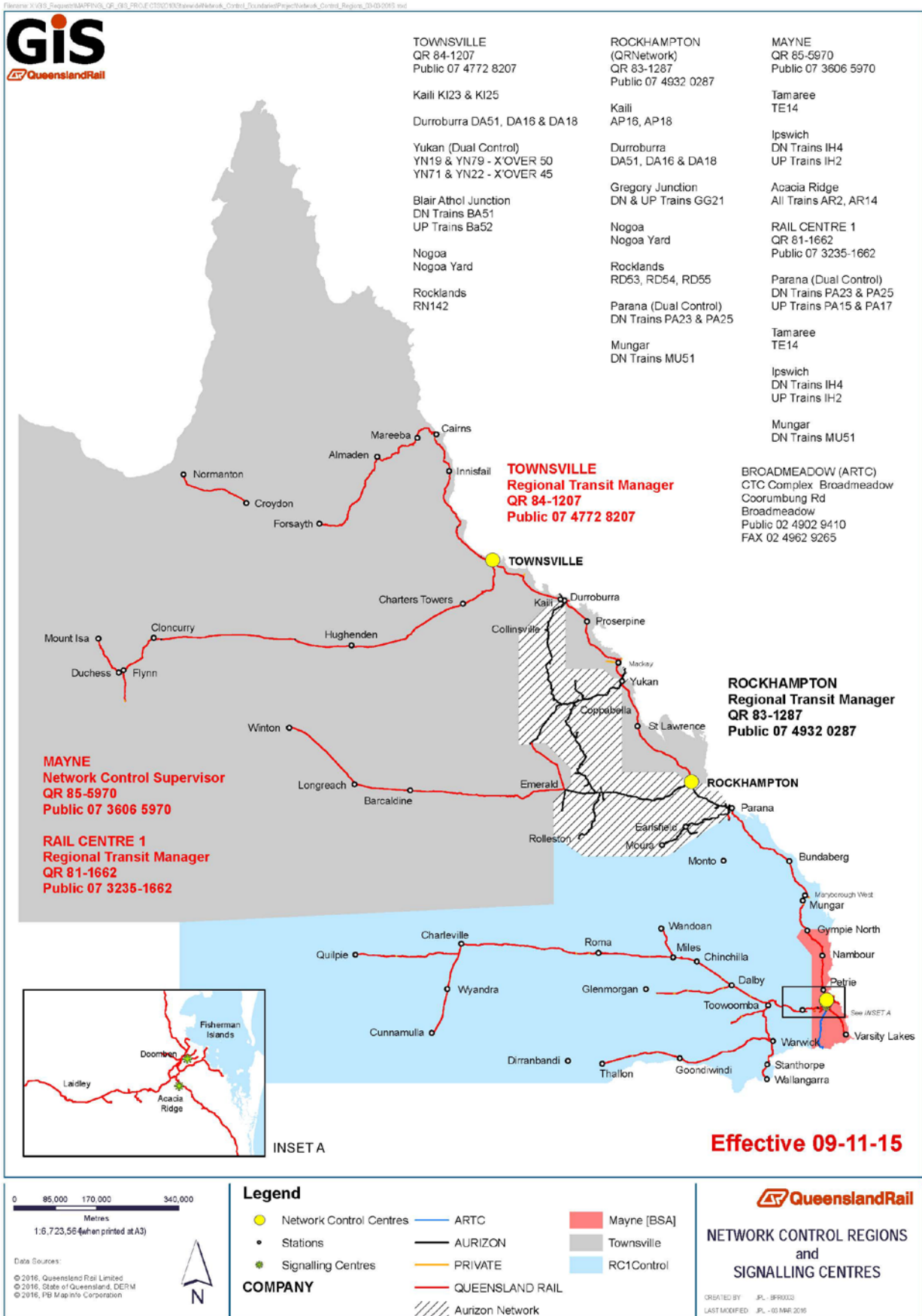
Direct Traffic Control (DTC) is the operational control system used on the Central Western System with the exception of Burngrove to Emerald which is operated by Remote Control Signalling (RCS).

Train Control for the entire System is provided from Townsville.



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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 requires to be accepted via the Rollingstock Authorisation Process, rollingstock which conform with Drawings 2236 and 2237 may operate in an unrestricted manner on main lines.

For rollingstock to conform with Drawing Nos. 2236 and 2237 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 Authorisation Process.

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

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Communications

Communications on the Central West System between Driver and Controller is via a UHF radio system (Train Control Radio - TCR) utilising a number of Queensland Rail channels and frequencies. Tranceivers “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 current locomotives (including Multiple Units and Miscellaneous Vehicles such as Rail Motors) carry and all units new to the system will be required to 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 on board locomotives must conform to Queensland Rail’s Safety and Security Standard MD-10-86 - Mobile Voice Radio Communications Systems.

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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.

The sectional running times are “Pass to Pass” times for a running move and do not reflect acceleration and deceleration characteristics of trains.

Sectional running times are provided for two (2) types of locomotive-hauled trains - passenger and container (inter-modal).

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.

Trains travelling south to Brisbane are travelling in the Up Direction whilst trains travelling north to Cairns are travelling in the Down Direction.

Rail / Road Interfaces

Operators on the Central West System will encounter 288 Rail / Road Interfaces (see Appendix C for details) categorised as follows:-

Public (Active with Flashing Light/Boom Gate Protection)	-	17
Public (with Passive Protection - Signs)	-	125
Occupation (Private Access)	-	146

Incident Recovery Time and Management

The Central Western System is a lightweight system in terms of track structure and traffic demand where minor incidents could result in disruption to services for 1 week and a major incident for 2 weeks, depending on traffic task.

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, generally direction change, are detailed below:

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Location	Latitude	Longitude
Nogoa	23° 32' S	148° 10' E
Emerald	23° 31' S	148° 09' E
Anakie	23° 33' S	147° 44' E
Bogantungan	23° 38' S	147° 17' E
Hannam's	23° 39' S	147° 12' E
Gap	23° 39' S	147° 07' E
Drummond	23° 36' S	146° 07' E
Jericho	23° 33' S	145° 17' E
Barcaldine	23° 26' S	144° 15' E
Longreach	23° 13' S	144° 05' E
Darr	22° 59' S	143° 52' E
Morella	22° 40' S	143° 33' E
Chorregon	22° 23' S	143° 02' E
Winton	21° 42' S	143° 22' E

Rail Operations and the Environment

All railway operators are required to comply with all relevant State, Federal and Local Legislation and Laws, current at the time, relating to the management and protection of the Environment.

Queensland Rail currently has a number of licences and/or approvals for activities undertaken at either Queensland Rail facilities or on the Queensland Rail corridor. Queensland Rail's licences and approvals fall under two main areas:

1. Fixed Locations;

Queensland Rail has a number of licences for activities managed by its operational Business Groups in particular locations, such as refuelling locations.

2. Itinerant or Varied Locations;

Queensland Rail also has a number of licences for activities that occur at more than one location, such as maintenance activities.

Railway operators will need to ascertain with the Department of Environment and Heritage Protection or Other Regulatory Body their responsibilities in regard to obtaining an Environmental Authority(ies) for the type of operation proposed.

Copies of all Environmental Authorities administered by the Department within Queensland are available upon request from the Department. The Department of Environment and Heritage Protection contact details can be found via the web at

<https://www.ehp.qld.gov.au/>

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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 from the Government Printers (GoPrint) or 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.

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

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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

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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:

- requirements 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

Capacity Enhancements

Queensland Rail welcomes opportunities to work with customers with a view to transporting additional tonnages on this System.

We encourage Rail Operators, mining companies and/or processors to engage with Queensland Rail at the earliest possible opportunity. This will allow sufficient time to work through detailed capacity analysis and to determine the network upgrades necessary and negotiate appropriate commercial arrangements.

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Capacity enhancements will continue to be delivered for future projects provided that contracted tonnages:

- Are sufficient to justify the necessary capital investment on commercial terms; and
- Adequate notice is given from the time of contracting capacity to deliver the required enhancements.

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

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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.

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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.

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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

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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.

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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.

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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.

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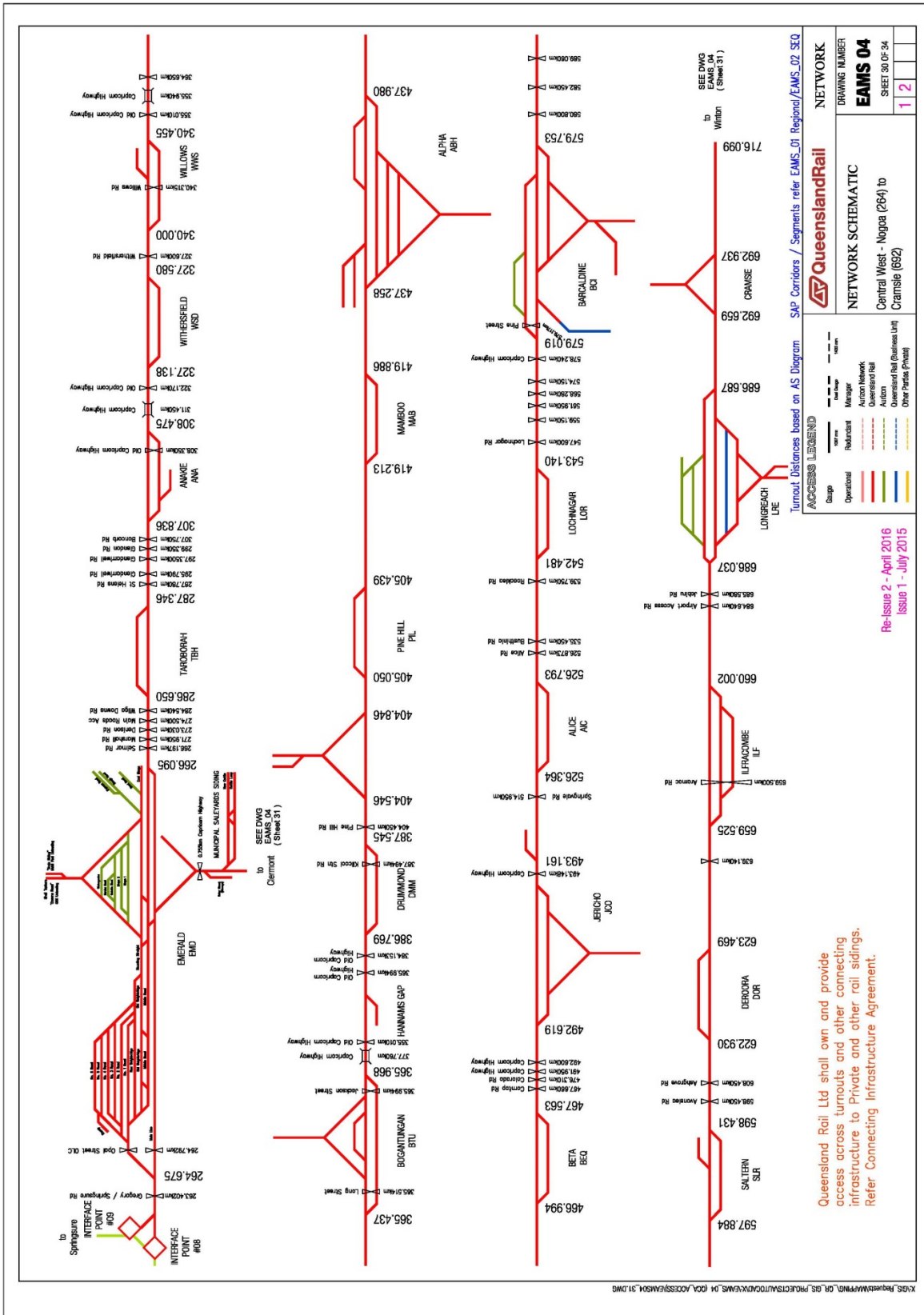
APPENDIX B

Schematic Layout

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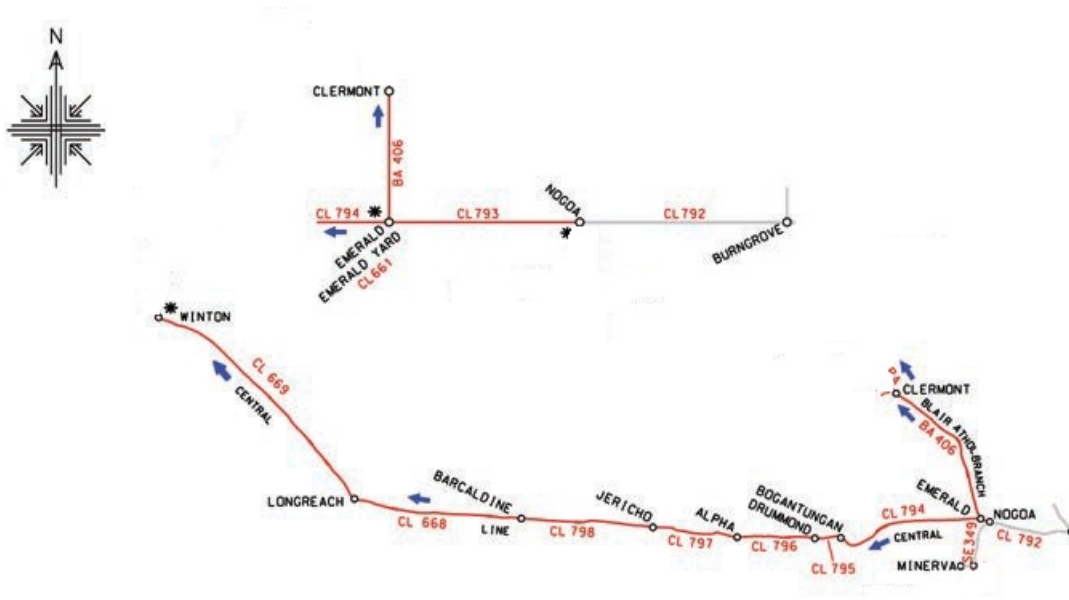
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APPENDIX C

Rail / Road Interface Details



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APPENDIX D

Speed Boards

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

<u>Line Section Code</u>	<u>Km</u>	<u>Road Name</u>	<u>Type</u>	<u>Vehicular Protection</u>	<u>Signs</u>	<u>Open Status</u>	<u>Responsible Authority</u>
CENTRAL LINE							
793	263.395	Capricorn / Gregory Highway	Public Level	Flashing Lights		Open	MRD
793	264.800	Opal Street	Public Level	Half Boomgates		Open	LGA
794	266.200	Selma Road	Public Level	Flashing Lights		Open	MRD
794	266.840		Occupation			Open	
794	271.950	Marshall Road	Public Level	Signs	X S	Open	LGA
794	273.030	Denison Road	Public Level	Signs	X G	Open	LGA
794	274.500	Main Roads Stock Pile Access Road	Occupation	Signs	X G	Open	MRD
794	276.750	Property Access Road	Occupation	Signs	X G	Open	PRI
794	279.650	Old Selma Siding Access Road	Occupation	Signs	X T	Open	PRI
794	284.540	Wilga Downs Road	Public Level	Signs	X G	Open	LGA
794	287.680	St Helens Road	Public Level	Signs	X G	Open	LGA
794	295.660	Glendarriwell Road	Public Level	Signs	X G	Open	LGA
794	299.350	Glendon Road	Public Level	Signs	X G	Open	LGA
794	303.200	Vinetree Road (Gun Club Road)	Public Level	Signs	X G	Open	LGA
794	307.750	Bon Accord Road	Public Level	Signs	X S	Open	LGA
794	307.920	Pedestrian Crossing	Pedestrian	Nil		Open	LGA
794	308.350	Cemetery Road (Old Capricorn Highway)	Public Level	Signs	X G	Open	LGA
794	313.480	Gem Park Station Access Road	Occupation	Signs	X G	Open	PRI
794	319.350	Silver Hills Station Access Road	Occupation	Signs	X T	Open	PRI
794	322.170	Withersfield Road	Public Level	Signs	X G	Open	LGA
794	327.600	Tadcaster Road	Public Level	Signs	X G	Open	LGA
794	340.315	Willows Road	Public Level	Signs	X G	Open	LGA
794	345.390		QR			Open	
794	350.345	General Creek Station Access Road	Occupation	Signs	X T	Open	PRI
794	360.980	Green Vally Station Access Road	Occupation	Signs	X T	Open	PRI
794	364.650	Medway Road	Public Level	Signs	X G	Open	LGA
794	365.400	Long Street	Public Level	Signs	X G	Open	LGA
794	365.880	Jackson Street	Public Level	Signs	X G	Open	LGA
795	371.660	QR Maintenance Access Road	QR	Signs	X S T	Open	QR

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<u>Line Section Code</u>	<u>Km</u>	<u>Road Name</u>	<u>Type</u>	<u>Vehicular Protection</u>	<u>Signs</u>	<u>Open Status</u>	<u>Responsible Authority</u>
795	378.370		QR			Open	
795	382.080	Old Capricorn Highway	Public Level	Signs	X T	Open	LGA
795	384.150	Old Capricorn Highway	Public Level	Signs	X S	Open	LGA
796	387.550	Kilcool Station Road	Public Level	Signs	X S	Open	LGA
796	404.450	Pine Hill Road	Public Level	Signs	X S	Open	LGA
796	405.630	Stock Crossing	Public Level	Signs	X T	Open	LGA
796	410.820	Property Access Road	Occupation	Signs	X T	Open	PRI
796	412.270	Beaufort Road	Public Level	Signs	X S	Open	LGA
796	420.120	Road	Public Level	Signs	X S	Open	LGA
796	430.700	Craven Road	Public Level	Signs	X S	Open	LGA
796	434.910	Hoch Road	Public Level	Signs	X S	Open	LGA
797	438.025	Clermont Road	Public Level	Flashing Lights		Open	MRD
797	445.350	Saltbush Road	Public Level	Signs	X S	Open	LGA
797	461.300	Eureka Property Access Road	Occupation	Signs	X S	Open	PRI
797	467.660	Monklands Road	Public Level	Signs	X S	Open	LGA
797	476.310	Colorado Road	Public Level	Signs	X T	Open	LGA
797	479.030		Occupation	Signs		Open	
797	488.700	Property Access Road	Occupation	Signs	S	Open	PRI
797	491.950	Capricorn Highway	Public Level	Flashing Lights		Open	MRD
797	492.800	Capricorn Highway	Public Level	Signs	X G	Open	MRD
797	492.970		QR	Signs		Open	
797	493.146	Capricorn Highway	Public Level	Signs	X G	Open	MRD
798	514.950	Springvale Road	Public Level	Signs	X S	Open	LGA
798	526.880	Alice Road	Public Level	Signs	X T	Open	LGA
798	535.450	Bustinia Road	Public Level	Signs	X S	Open	LGA
798	537.600		Occupation	Signs	X G	Open	PRI
798	539.750	Rocklea Road	Public Level	Signs	X S	Open	LGA
798	543.080	Lochnagar Road	Occupation	Signs	X T	Open	PRI
798	547.600	Lochinvar Road	Public Level	Signs	X T	Open	LGA
798	560.150	Delta Road	Public Level	Signs	X T	Open	LGA
798	561.950	Geera Road	Public Level	Signs	X T	Open	LGA
798	568.280	Jaccondoll Road	Public Level	Signs	X T	Open	LGA
798	574.150	Waterloo Road	Public Level	Signs	X T	Open	LGA
798	578.210	Capricorn Highway (Oak Street)	Public Level	Signs	X G	Open	MRD
798	578.650	Capricorn Highway (Oak Street) (BHP Siding)	Public Level	Signs	X G	Open	MRD
798	579.118	Pine Street	Public Level	Signs	X G	Open	LGA
798	579.340		QR			Open	
798	579.520	(on triangle)	QR			Open	
668	579.807	Willow Street - Barcaldine Aramac Road	Public Level	Signs	X G	Open	MRD
668	580.800	Stock Route	Public Level	Signs	X T	Open	LGA
668	582.450	Stock Route	Public Level	Signs	X T	Open	LGA
668	589.060	Westbourne Road	Occupation	Signs	X T	Open	PRI
668	592.680	Property Access Road	Occupation	Signs	X T	Open	PRI
668	598.450	Avonslea Road	Public Level	Signs	X T	Open	LGA
668	608.450	Ashgrove Station	Occupation	Signs	X T	Open	PRI
668	614.140	Hulton Station	Occupation	Signs	X T	Open	PRI
668	618.100		Occupation	Signs	X T	Open	PRI
668	624.814	Accord Station Access Road	Occupation	Signs	X G	Open	PRI

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<u>Line Section Code</u>	<u>Km</u>	<u>Road Name</u>	<u>Type</u>	<u>Vehicular Protection</u>	<u>Signs</u>	<u>Open Status</u>	<u>Responsible Authority</u>
668	631.360	Avro Station Road	Occupation	Signs	X T	Open	PRI
668	636.730	Property Access Road	Occupation	Signs	X G	Open	PRI
668	639.140	Arundel Station Access Road	Occupation	Signs	X T	Open	PRI
668	649.020		Occupation	Signs	X T	Open	PRI
668	659.500	Ilfracombe - Aramac Road	Public Level	Signs	X S	Open	MRD
668	660.005	Sports Grounds Pedestrian Crossing	Pedestrian			Open	LGA
668	660.720		Occupation	Signs	X T	Open	PRI
668	669.460	Bonoke Station	Occupation	Signs	X T	Open	PRI
668	674.240	Camden Park Station	Occupation	Signs	X G T	Open	PRI
668	679.270	(off) Landsborough Highway	Public Level	Signs	X G	Open	LGA
668	682.350	Longreach Pastoral College	Occupation	Nil		Open	PRI
668	683.070	Longreach Pastoral College	Occupation	Nil		Open	PRI
668	684.640	Longreach Airport Access Road	Public Level	Signs	X S	Open	LGA
668	685.580	Jabiru Street	Public Level	Signs	X S	Open	LGA
668	686.410		QR			Open	
668	686.672	Cramsie - Muttaborra Road (Eagle Street)	Public Level	Flashing Lights		Open	MRD
669	686.935	Kite Street (Mobil Siding)	Public Level	Signs	X G	Open	LGA
669	686.945	Kite Street	Public Level	Signs	X S	Open	LGA
669	688.385		Occupation			Open	
669	689.070		Occupation	Signs	X T	Open	PRI
669	690.410	Dirt Road (no name)	Public Level	Signs	X T	Open	LGA
669	690.990		Public Level	Signs	X T	Open	LGA
669	692.450	Cramsie - Muttaborra Road	Public Level	Signs	X G	Open	MRD
669	695.715	Property Access Road	Occupation	Nil		Open	PRI
669	704.400		Occupation	Signs	X T	Open	PRI
669	708.500	Macksland Property Access	Occupation	Nil		Open	PRI
669	716.500	Darr River Downs Road	Public Level	Signs	X G	Open	LGA
669	720.050	Darr River Downs Road	Occupation	Signs	X T	Open	PRI
669	721.650		Occupation	Nil		Open	PRI
669	725.800		Occupation	Nil		Open	PRI
669	728.070		Occupation	Nil		Open	PRI
669	731.230		Occupation	Nil		Open	PRI
669	733.700		Occupation	Signs	X T	Open	PRI
669	738.300	Manfred Station Access Road	Occupation	Signs	X T	Open	PRI
669	741.390		Occupation	Nil		Open	PRI
669	744.225		Occupation	Nil		Open	PRI
669	746.930	Kanandah Station Access Road	Occupation	Nil		Open	PRI
669	751.850	Morella - Muttaborra Road	Public Level	Signs	X G	Open	LGA
669	757.230		Occupation	Nil		Open	
669	758.560		Occupation	Nil		Open	
669	760.740		Occupation	Nil		Open	
669	765.550		Occupation	Nil		Open	
669	771.015		Occupation	Nil		Open	
669	774.550	Bude Road	Public Level	Signs	X G	Open	LGA
669	778.560		Occupation	Signs	X T	Open	
669	780.705	Property Access Road	Occupation	Nil		Open	
669	785.760	Mcmaster Station	Occupation	Signs	X T	Open	
669	787.850		Occupation	Nil		Open	

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<u>Line Section Code</u>	<u>Km</u>	<u>Road Name</u>	<u>Type</u>	<u>Vehicular Protection</u>	<u>Signs</u>	<u>Open Status</u>	<u>Responsible Authority</u>
669	791.430		Occupation	Nil		Open	PRI
669	794.370		Occupation	Nil		Open	PRI
669	797.270		Occupation	Nil		Open	PRI
669	798.300	Lillian Fells Road	Public Level	Signs	X G	Open	LGA
669	800.340		Occupation	Signs	X T	Open	PRI
669	803.610	Lorraine Station Access Road	Occupation	Nil		Open	LGA
669	814.750	Lorraine Station Access Road	Occupation	Signs	X T	Open	PRI
669	818.640	Lorraine Station Access Road	Occupation	Signs	X T	Open	PRI
669	831.350	Fairymead Road	Public Level	Signs	X T	Open	LGA
669	836.950	Property Access Road	Occupation	Signs	X T	Open	PRI
669	845.030		Occupation	Signs	X T	Open	PRI
669	849.200		Occupation	Signs	X T	Open	PRI
669	854.130	Aldingdale Road	Public Level	Signs	X T	Open	LGA
669	856.900		Occupation	Signs	X T	Open	PRI
669	858.250	Airport Access Road	Public Level	Signs	X T	Open	LGA
669	859.903		Public Level	Signs	X T	Open	LGA
669	861.180		Public Level	Signs	X T	Open	LGA
669	861.991	Manifold Street Pedestrian Crossing	Pedestrian			Open	LGA
669	862.193	Nisbit Street Pedestrian Crossing	Pedestrian			Open	LGA
669	862.350	Manuka Street	Public Level	Signs	X T	Open	MRD
669	862.493	Caravan Park Pedestrian Crossing	Pedestrian			Open	LGA
669	862.924		Occupation			Open	

LOCATION OF SPEED BOARDS

LINE CODE	TRACK	DISTANCE km	FEATURE	EXISTING SPEED BOARDS	
				DOWN TRAIN TO ROCKLANDS	UP TRAIN TO EMERALD
792	SINGLE	262.997	SPEED BOARD	R25/80	L25/60
793	SINGLE	263.110	NOGOA		
793	SINGLE	263.382	SPEED BOARD	R25	60
793	SINGLE	264.540			25
793	SINGLE	264.631	SPEED BOARD	60	
793	MAIN	265.134	EMERALD		

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LOCATION OF SPEED BOARDS

LINE CODE	TRACK	DISTANCE		FEATURE	EXISTING SPEED BOARDS	
		km	m		DOWN TRAIN TO EMERALD	UP TRAIN TO LONGREACH
793	PLATFORM	265	134	EMERALD		
794	MAIN	265	800	SPEED BOARDS	25	50
794	SINGLE	274	0	SPEED BOARDS	50	70
794	SINGLE	281	740	CURVE SPRING	70	60
794	SINGLE	282	365	CURVE END	60	70
794	SINGLE	286	628	SPEEDBOARDS	70	25
794	UP MAIN	286	950	TAROBORAH		
794	SINGLE	287	368	SPEEDBOARDS	25	70p
794	SINGLE	296	970	GLENDARRIWILL		
794	SINGLE	300	490	SPEEDBOARDS	70	60
794	SINGLE	302	980	SPEEDBOARDS	60	70
794	SINGLE	307	710	SPEEDBOARDS	70p	25
794	SINGLE	307	770	ANAKIE		
794	SINGLE	308	497	SPEEDBOARDS	25	70p
794	SINGLE	310	440	CURVE SPRING	70	60
794	SINGLE	310	755	CURVE END	60	70
794	SINGLE	321	995	CURVE END	70	60
794	SINGLE	322	450	CURVE END	60	70
794	SINGLE	324	720	CURVE SPRING	70	40
794	SINGLE	325	180	CURVE END	40	70
794	SINGLE	326	995	CURVE SPRING	70	25
794	MAIN	327	400	WITHERSFIELD		
794	SINGLE	327	657	SPEEDBOARDS	25	70
794	SINGLE	328	967	CURVE SPRING	70	40
794	SINGLE	329	188	CURVE END	40	70
794	SINGLE	331	980	CURVE SPRING	70	60
794	SINGLE	332	205	CURVE END	60	70
794	SINGLE	338	705	CURVE SPRING	70	60
794	SINGLE	339	795	CURVE SPRING	60	40
794	MAIN	340	130	WILLOWS		
794	SINGLE	340	520	SPEEDBOARDS	L25/40	70
794	SINGLE	341	980	SPEEDBOARDS	70	60
794	SINGLE	342	250	SPEEDBOARDS	60	70
794	SINGLE	344	240	CURVE SPRING	70	60
794	SINGLE	344	560	CURVE END	60	70
794	SINGLE	345	505	CURVE SPRING	70	60
794	SINGLE	345	740	SPEEDBOARDS	60	40
794	SINGLE	349	390	SPEEDBOARDS	40	25
794	SINGLE	349	600	SPEEDBOARDS	25	40
794	SINGLE	350	905	CURVE SPRING	40	30
794	SINGLE	351	220	CURVE END	30	40
794	SINGLE	353	880	CURVE END	40	70
794	SINGLE	355	310	CURVE SPRING	70	30
794	SINGLE	356	100	CURVE SPRING	30	50
794	SINGLE	356	300	SPEEDBOARDS	50	60
794	SINGLE	357	940	CURVE END	60	70
794	SINGLE	359	150	CURVE SPRING	70	30
794	SINGLE	359	900	CURVE END	30	60
794	SINGLE	360	975	CURVE SPRING	60	40
794	SINGLE	361	155	CURVE END	40	70
794	SINGLE	362	765	CURVE SPRING	70	60
794	SINGLE	363	500	SPEEDBOARDS	60	40
794	SINGLE	363	730	CURVE END	40	70
794	SINGLE	365	400	SPEEDBOARDS	70	25
794	MAIN	365	845	BOGANTUNGAN		
795	SINGLE	366	50	SPEEDBOARDS	25	70
795	SINGLE	367	317	CURVE END	60	
795	SINGLE	369	0	SPEEDBOARD	60	
795	SINGLE	374	35	CURVE SPRING	50	40
795	SINGLE	374	232	CURVE SPRING	40	25
795	SINGLE	378	700	HANNAM'S GAP		
795	SINGLE	378	859	CURVE END	25	40
795	SINGLE	379	820	CURVE SPRING	40	30
795	SINGLE	380	900	SPEEDBOARD	30	40
795	SINGLE	381	270	SPEEDBOARD	40	60
795	SINGLE	381	395	CURVE END	60	70
795	SINGLE	382	615	CURVE SPRING	70	40
795	SINGLE	383	275	CURVE END	40	70

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795	SINGLE	385	108	CURVE SPRING	70	60
795	SINGLE	386	750	SPEED BOARDS	60	25
795	UP MAIN	387	440	DRUMMOND		
796	SINGLE	387	564	CURVE SPRING	25	30
796	SINGLE	388	55	CURVE END/SPRING	30	60
796	SINGLE	388	325	CURVE END	60	70

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LOCATION OF SPEED BOARDS

LINE CODE	TRACK	DISTANCE		FEATURE	EXISTING SPEED BOARDS	
		km	m		DOWN TRAIN TO EMERALD	UP TRAIN TO LONGREACH
796	SINGLE	390	400	CURVE SPRING	70	50
796	SINGLE	390	500	CURVE END	50	70
796	SINGLE	391	695	CURVE SPRING	70	60
796	SINGLE	392	300	CURVE SPRING	60	50
796	SINGLE	392	650	SPEED BOARDS	50	70
796	SINGLE	405		SPEED BOARDS		L25/70
796	SINGLE	405	240	PINE HILL		
796	SINGLE	405	479	SPEED BOARDS	R25/70	
796	SINGLE	419	196	SPEED BOARDS	70	25
796	UP MAIN	419	660	MAMBOO		
796	SINGLE	419	912	SPEED BOARDS	25	70
796	SINGLE	437	12	SPEED BOARDS	70	25
796	DN MAIN	437	520	ALPHA		
796	DN MAIN	437	918	SPEED BOARD		15
796	UP MAIN	437	918	SPEED BOARD		15
797	SINGLE	438	50	SPEED BOARDS	25	70p
797	SINGLE	438	215	SPEED BOARDS	40	
797	SINGLE	466	954	SPEED BOARDS	70	R25/70
797	SINGLE	467	350	BETA		
797	SINGLE	467	603	SPEED BOARDS	L25/70	70
797	SINGLE	475	795	CURVE SPRING	70	60
797	SINGLE	476	15	CURVE END	60	70
797	SINGLE	480	50	CURVE SPRING	70	60
797	SINGLE	480	290	SPEED BOARDS	60	70
797	SINGLE	481	380	CURVE SPRING	70	60
797	SINGLE	482	180	CURVE END	60	70
797	SINGLE	492	570	SPEED BOARDS	70	25
797	MAIN	492	880	JERICHO		
797	SINGLE	493	220	SPEED BOARDS	25	70
798	SINGLE	526	323	SPEED BOARDS	70	R25/70
798	SINGLE	526	615	ALICE		
798	SINGLE	526	829	SPEED BOARDS	L25/70	70
798	SINGLE	535	440	BUSTHINIA		
798	SINGLE	540	820	CURVE SPRING	70	60
798	SINGLE	540	955	CURVE END	60	70
798	SINGLE	542	442	SPEED BOARDS	70	R25/70
798	MAIN	542	760	LOCHNAGAR		
798	SINGLE	543	178	SPEED BOARDS	R25/70	70
798	SINGLE	578	200	SPEED BOARDS	70p	40
798	SINGLE	578	999	SPEED BOARDS	40	25
798	MAIN	579	450	BARCALDINE		
668	SINGLE	579	830	SPEED BOARDS	25	70
668	SINGLE	597	821	SPEED BOARDS	70	L25/70
668	MAIN	598	400	SALTERN		
668	SINGLE	598	482	SPEED BOARDS	R25/70	70
668	SINGLE	605	50	SPEED BOARDS	70	
668	SINGLE	613	980	BRIXTON		
668	SINGLE	622	450	SPEED BOARDS		70
668	SINGLE	622	900	SPEED BOARDS	70	L25/70
668	MAIN	623	160	DEROORA		
668	SINGLE	623	489	SPEED BOARDS	R25/70	70
668	SINGLE	638	990	DARTMOUTH		
668	SINGLE	659	454	SPEED BOARDS	70	R25/70
668	MAIN	659	660	ILFRACOMBE		
668	SINGLE	660	22	SPEED BOARDS	L25/70	70
668	SINGLE	686	5	SPEED BOARDS	70	25
668	MAIN	686	520	LONGREACH		
669	SINGLE	686	845	SPEED BOARD (START OF T	20	50
669	SINGLE	687	210	CURVE END	50	60
669	SINGLE	692	330	SPEED BOARD		50
669	SINGLE	692	430	SPEED BOARD	60p	
669	SINGLE	692	470	SPEED BOARD		60p
669	SINGLE	692	570	SPEED BOARD	50	
669	SINGLE	861	980	SPEED BOARD	60	
669	SINGLE	862	300	SPEED BOARDS	25p	25
669	SINGLE	862	390	SPEED BOARD	10	

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LOCATION OF SPEEDBOARDS

Non Speed Boarded Sections

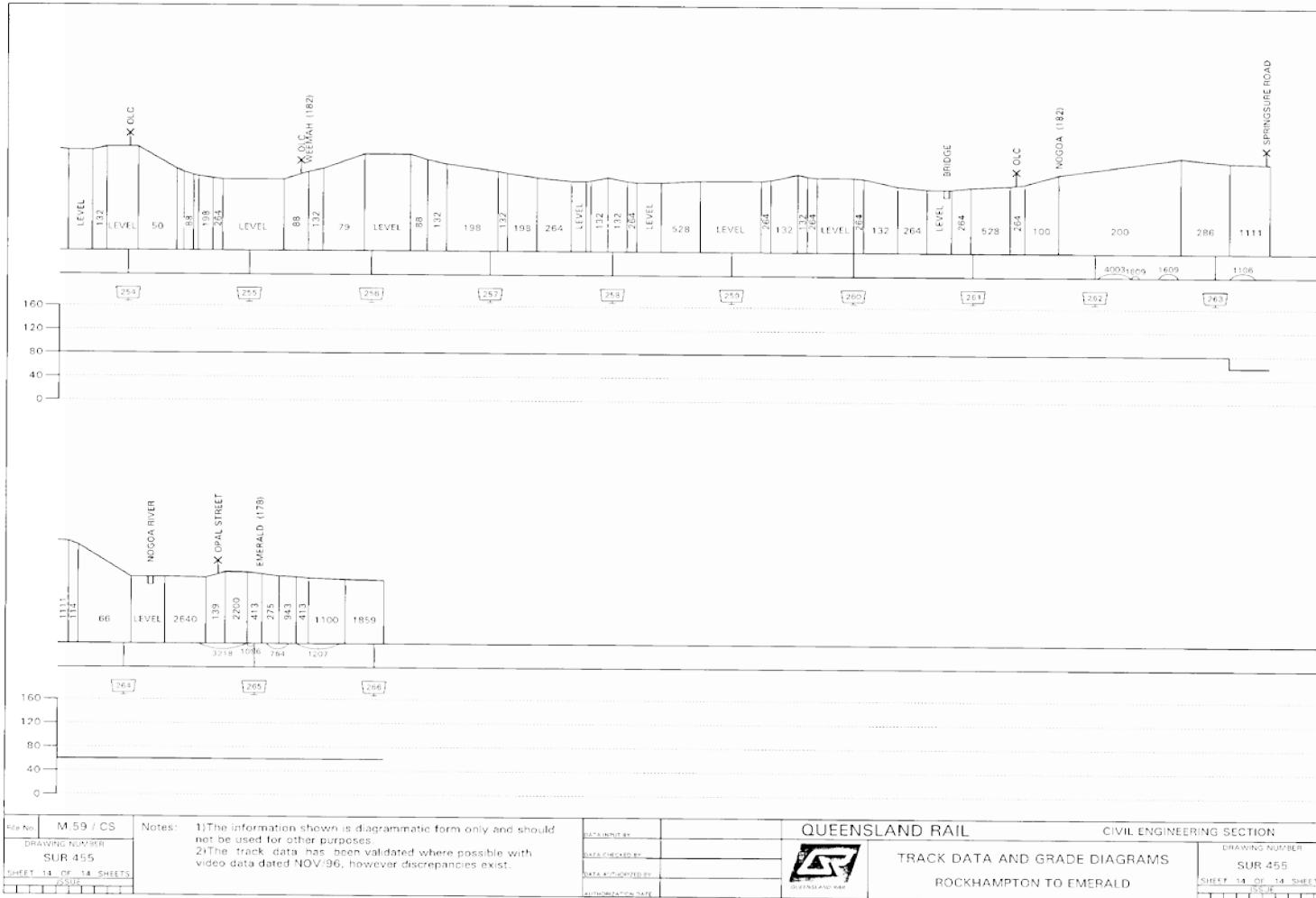
Longreach to Winton	Line Speed	50km/h @ 15.75 tal 60km/h @ 10.62 tal
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APPENDIX E

Track Data & Grade Diagrams


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File No. M 59 / CS
 DRAWING NUMBER SUR 455
 SHEET 14 OF 14 SHEETS
 CSUR

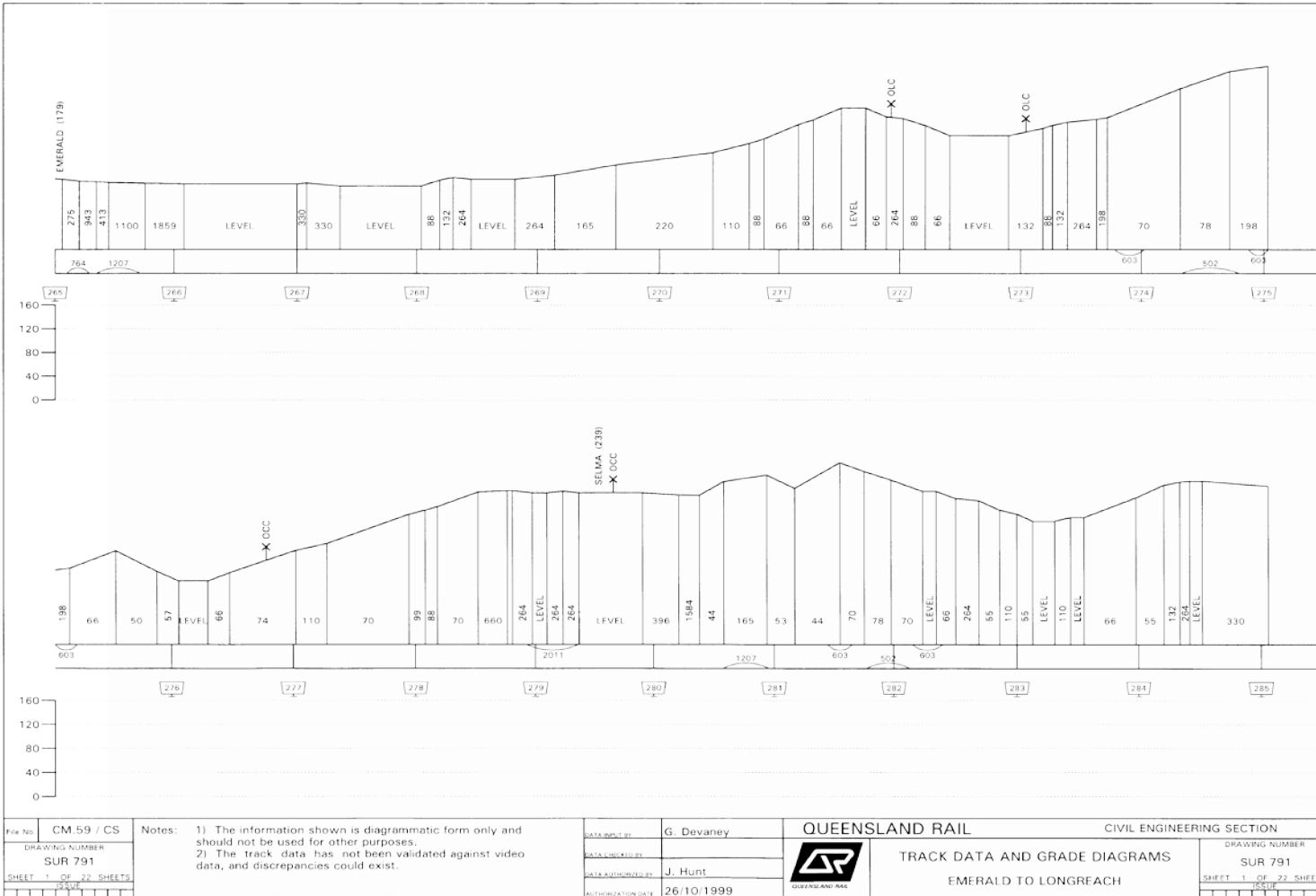
Notes: 1)The information shown is diagrammatic form only and should not be used for other purposes.
 2)The track data has been validated where possible with video data dated NOV/96, however discrepancies exist.

DESIGNED BY:
 DATA CHECKED BY:
 DATA AUTHORIZED BY:
 SUBMITTAL DATE:

QUEENSLAND RAIL

 TRACK DATA AND GRADE DIAGRAMS
 ROCKHAMPTON TO EMERALD

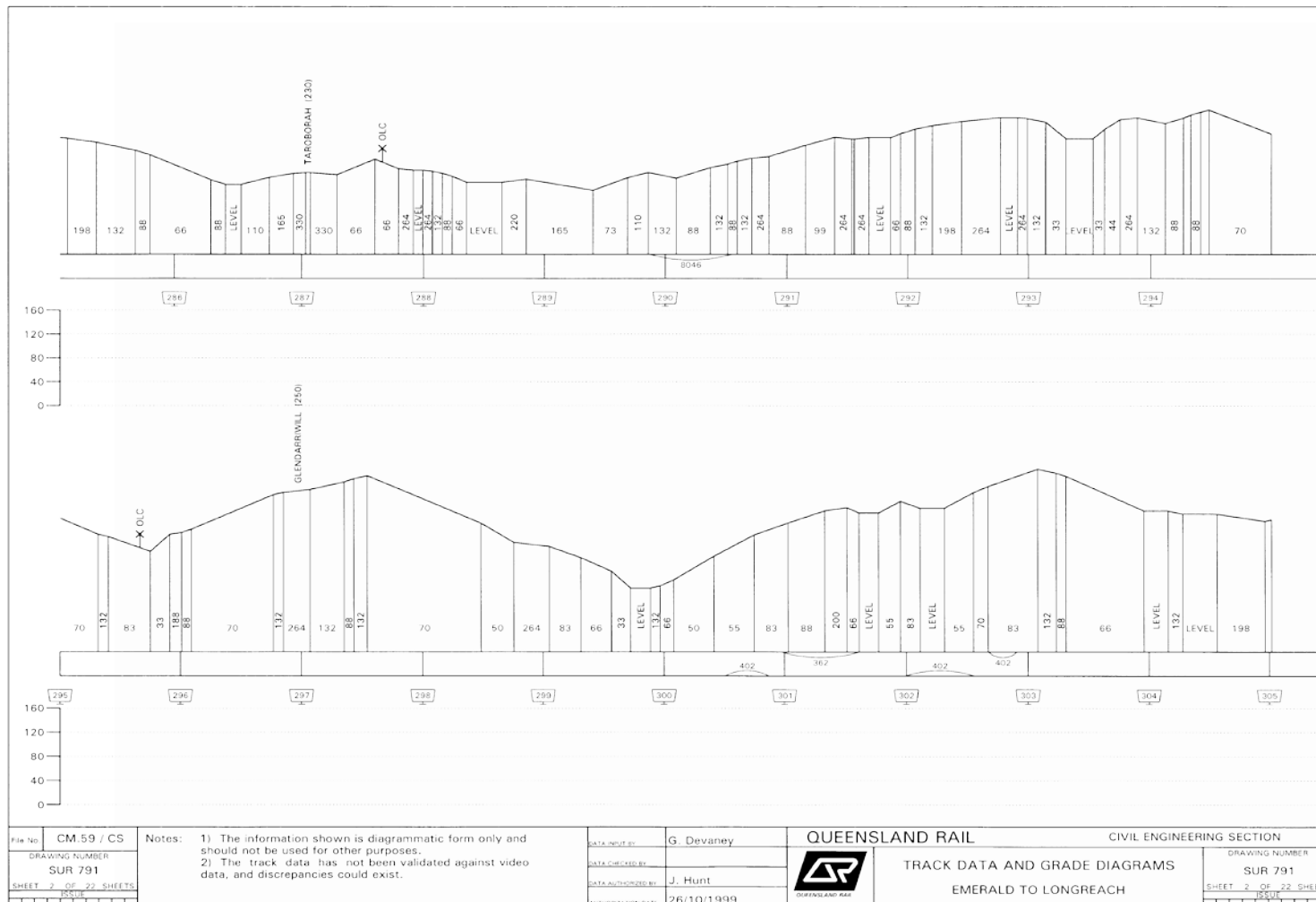
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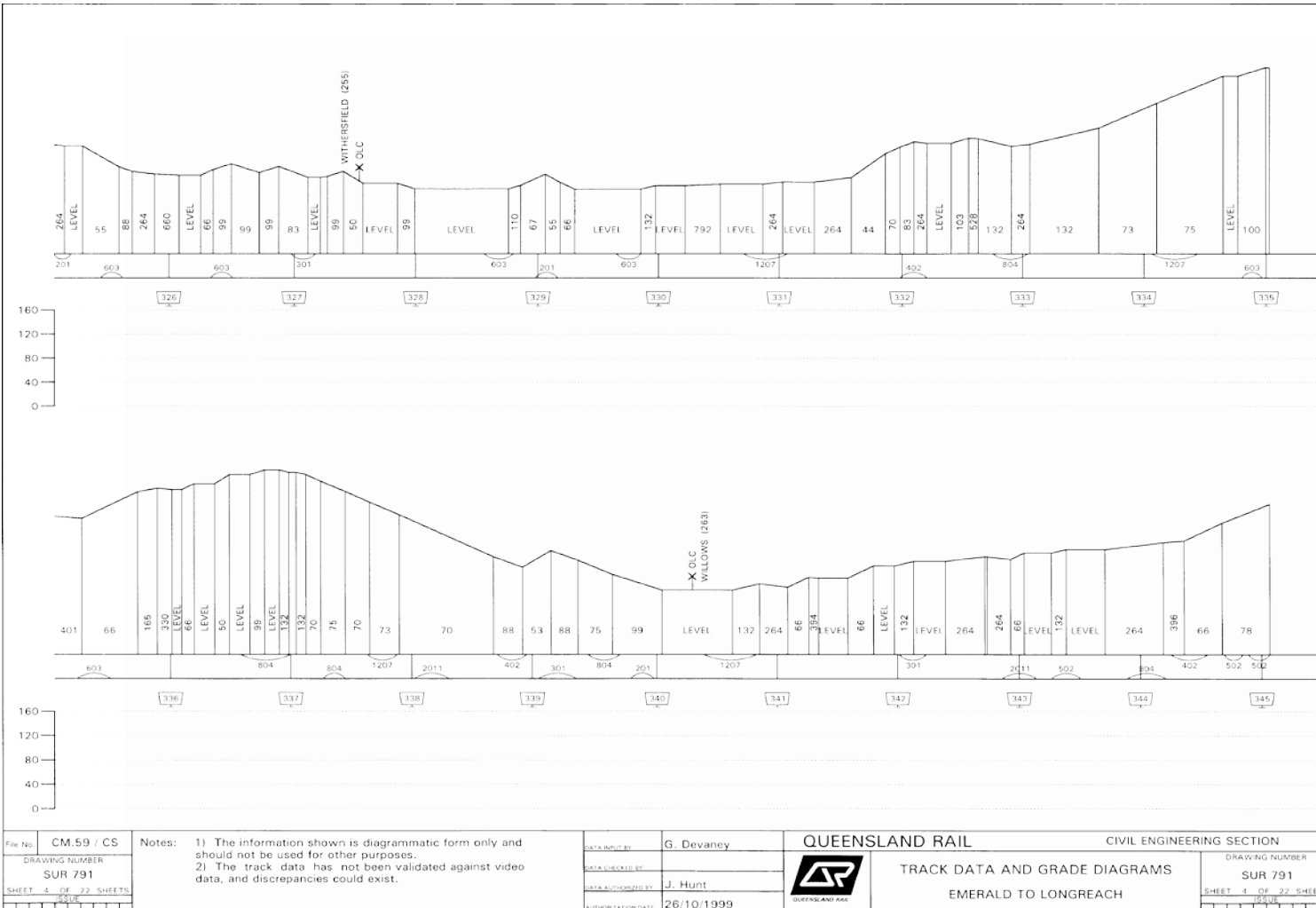
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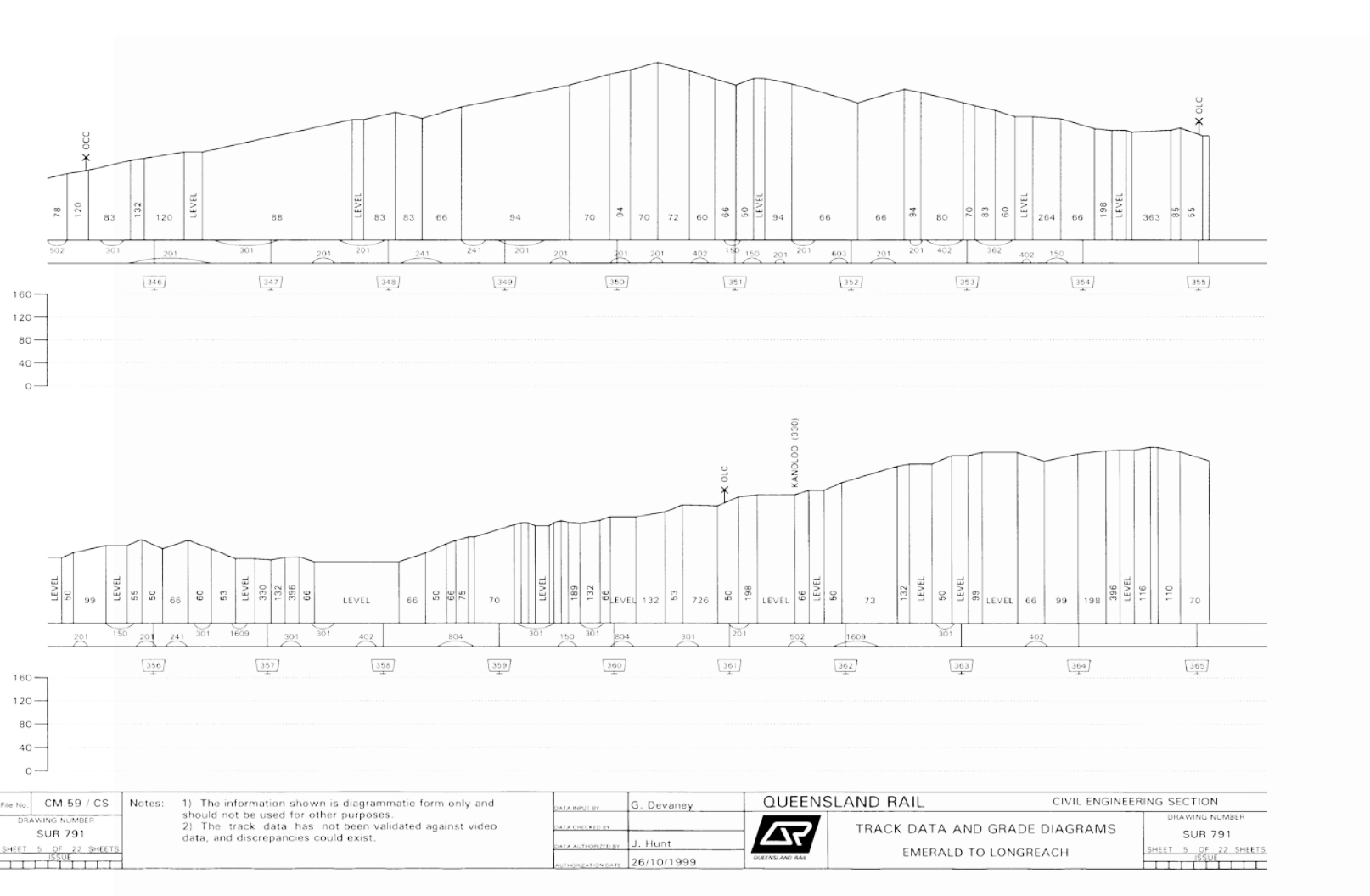
File No: CM-59 / CS	Notes: 1) The information shown is diagrammatic form only and should not be used for other purposes. 2) The track data has not been validated against video data, and discrepancies could exist.	Data Input By: G. Devaney	QUEENSLAND RAIL	CIVIL ENGINEERING SECTION
Drawing Number: SUR 791		Data Checked By:		TRACK DATA AND GRADE DIAGRAMS
Sheet 2 of 22 Sheets		Data Authorized By: J. Hunt	EMERALD TO LONGREACH	Drawing Number: SUR 791
		Authorisation Date: 26/10/1999		Sheet 2 of 22 Sheets


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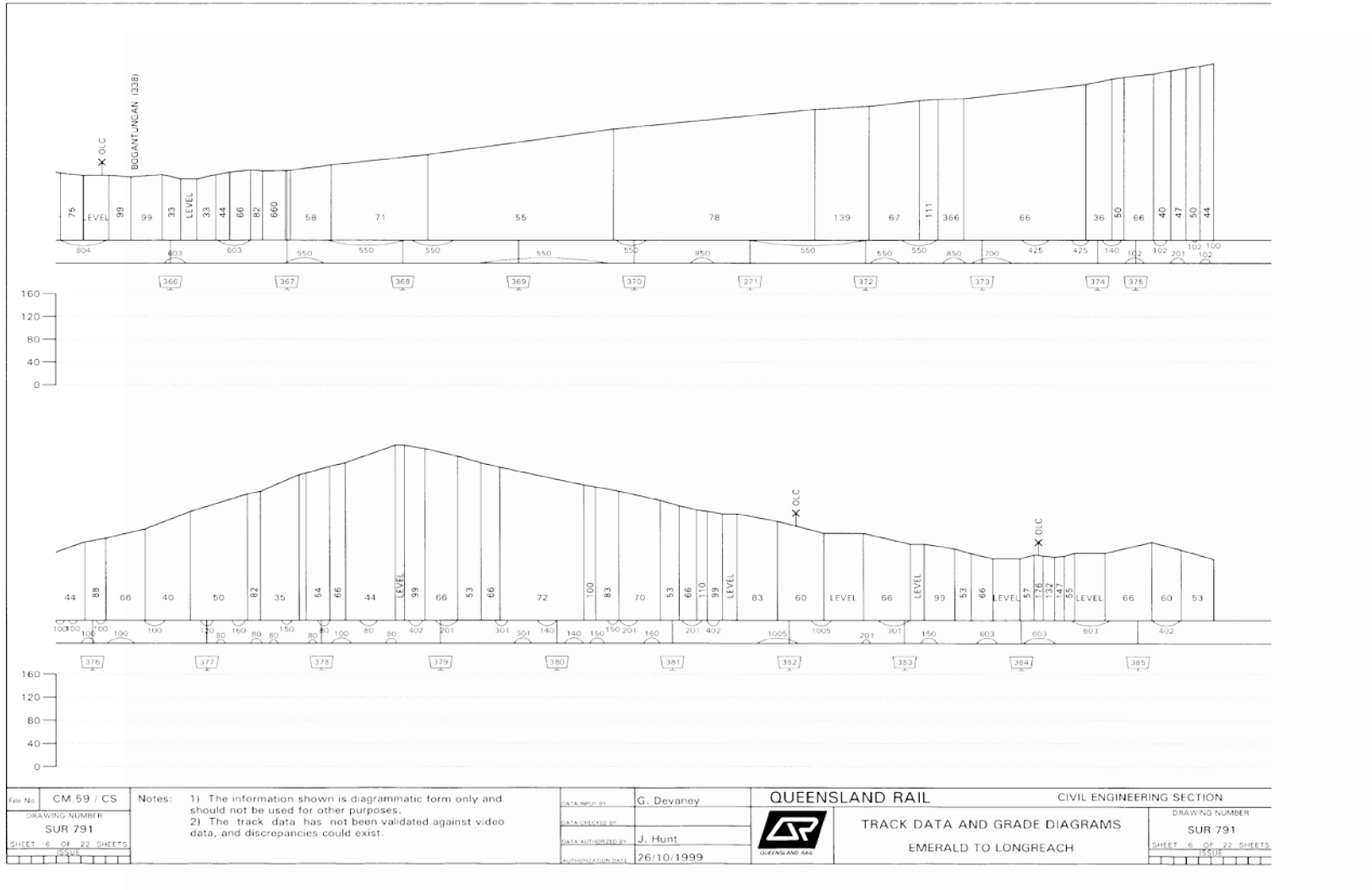
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DRAWING NUMBER	SUR 791				DATA CHECKED BY:			TRACK DATA AND GRADE DIAGRAMS	DRAWING NUMBER
SHEET 4 OF 22 SHEETS	SAUR				DATA AUTHORIZED BY:	J. Hunt		EMERALD TO LONGREACH	SUR 791
					AUTHORIZATION DATE:	26/10/1999			SHEET 4 OF 22 SHEETS
									SAUR

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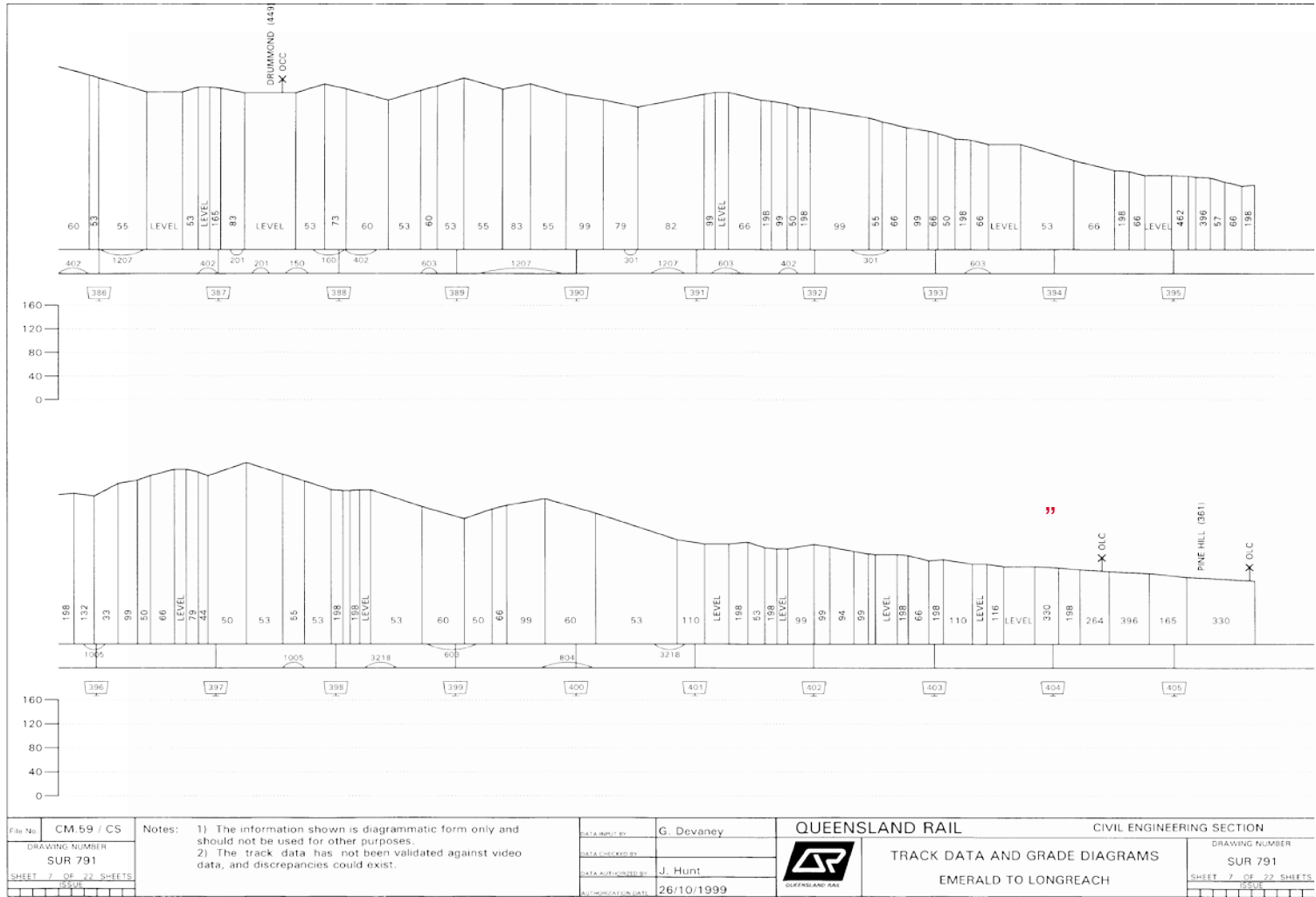



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SHEET 5 OF 22 SHEETS	ISSUE			DATA AUTHORIZED BY:		TRACK DATA AND GRADE DIAGRAMS	SUR 791
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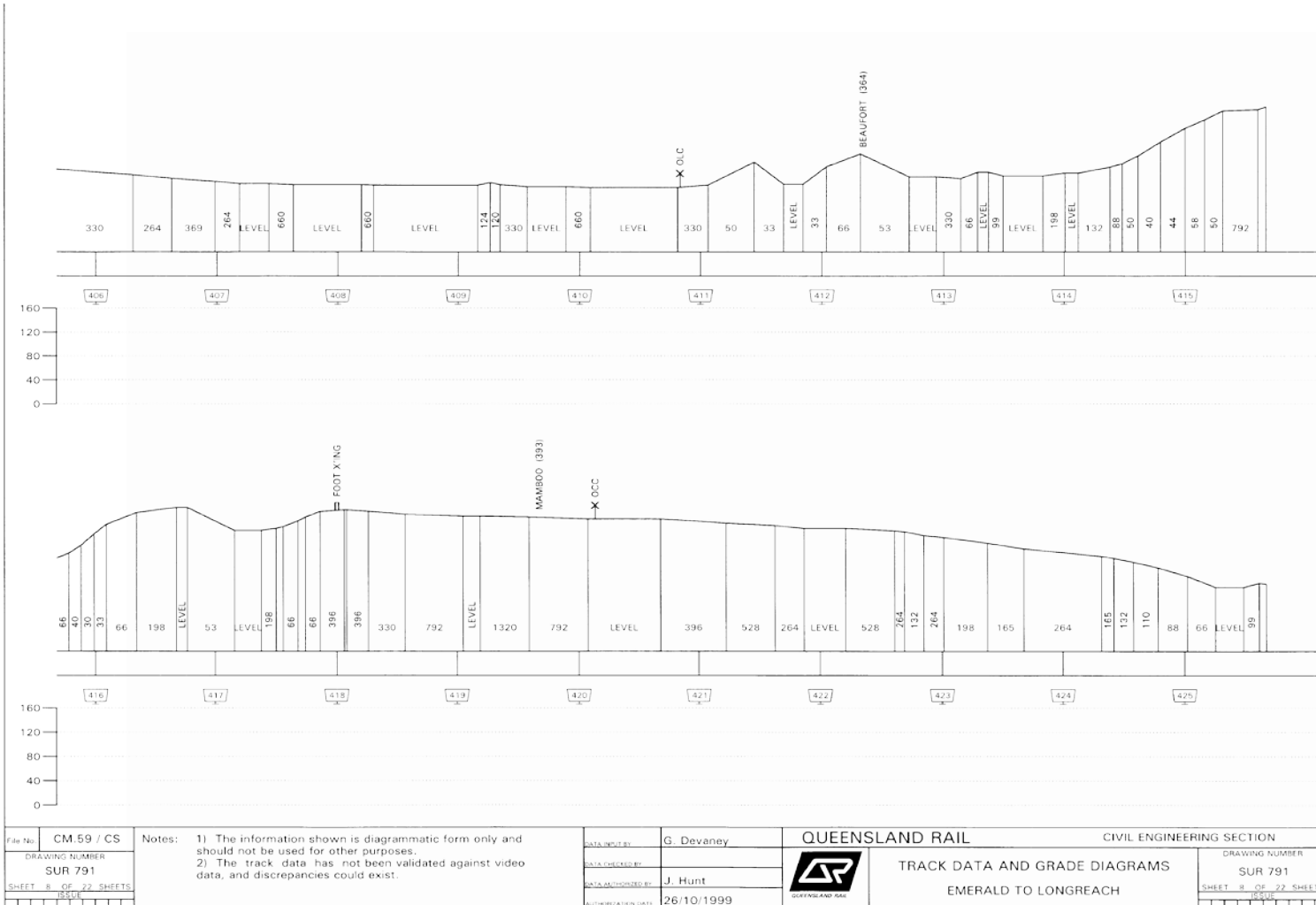



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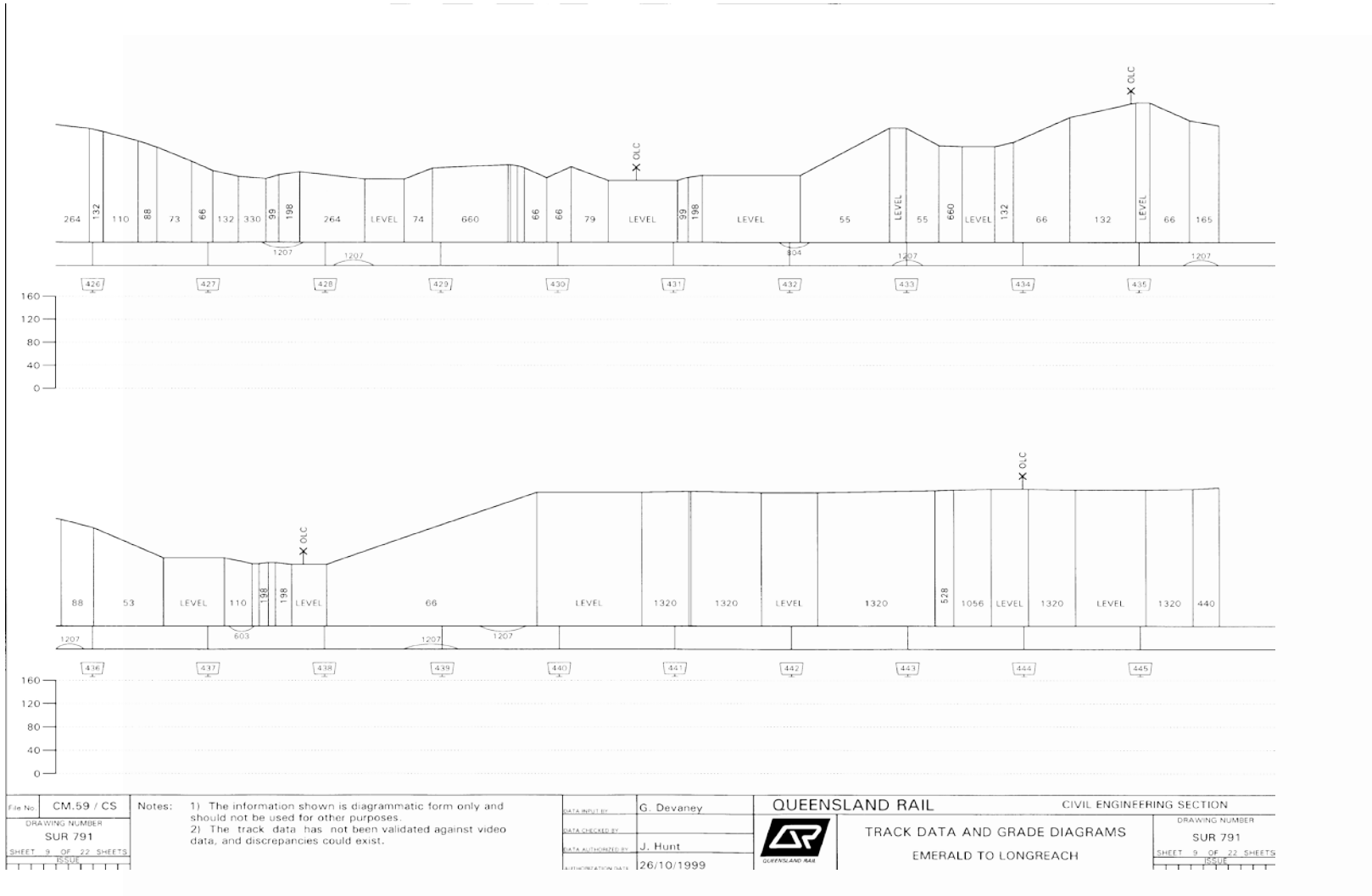
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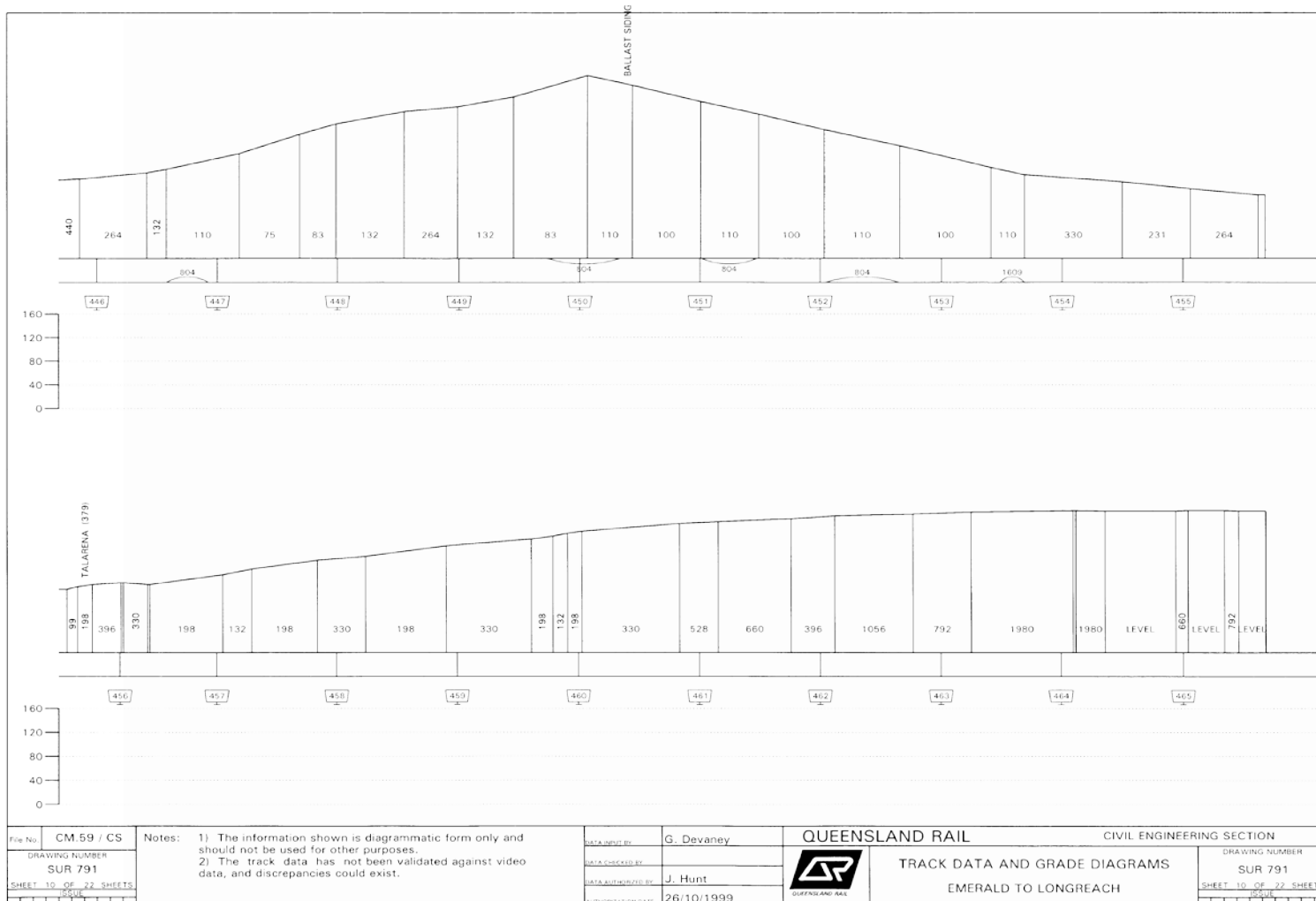
DATA PREPARED BY: G. Devaney
 DATA CHECKED BY: J. Hunt
 DATA AUTHORIZED BY: J. Hunt
 AUTHORIZATION DATE: 12/10/1999



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 TRACK DATA AND GRADE DIAGRAMS
 EMERALD TO LONGREACH

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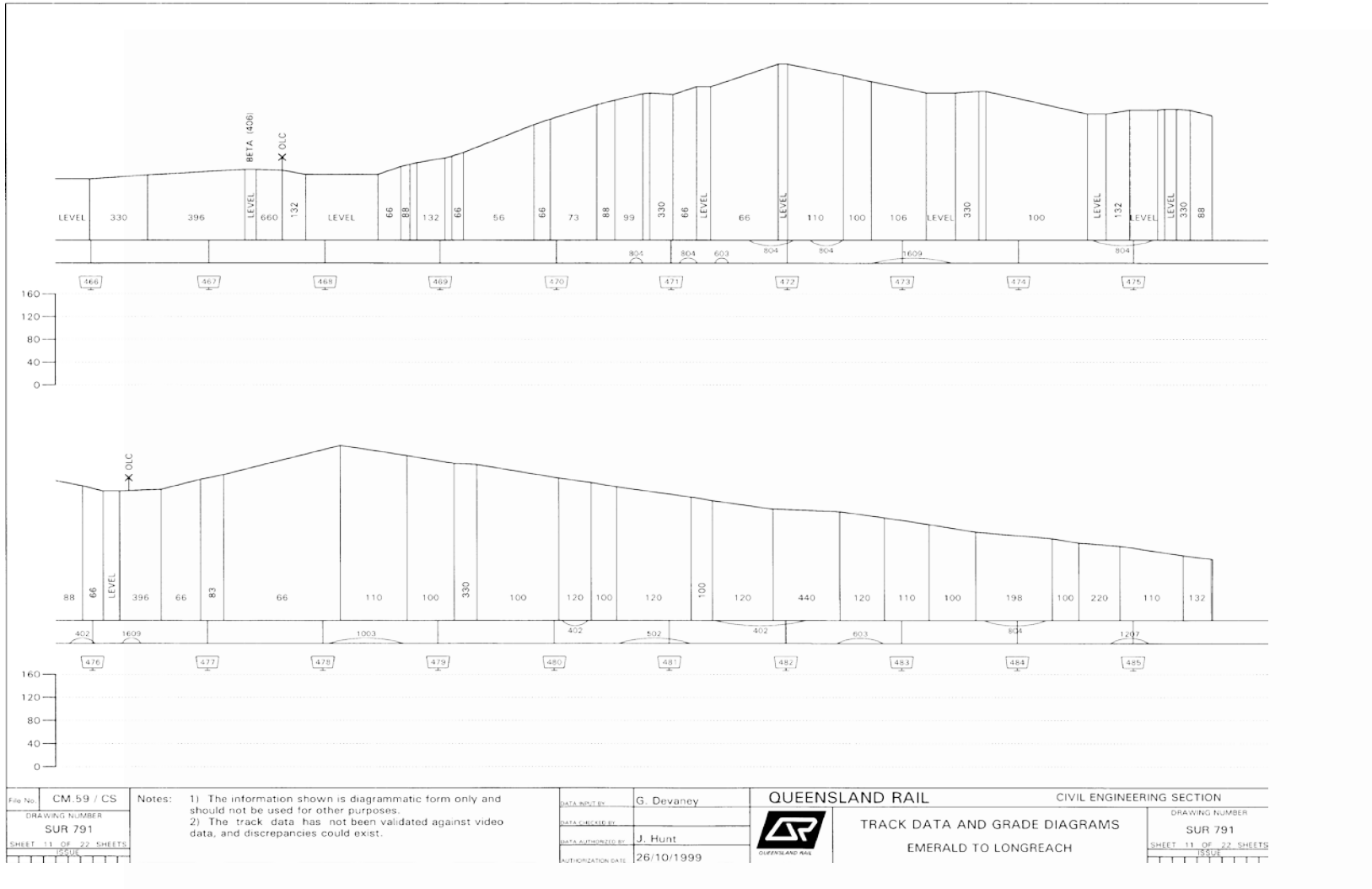
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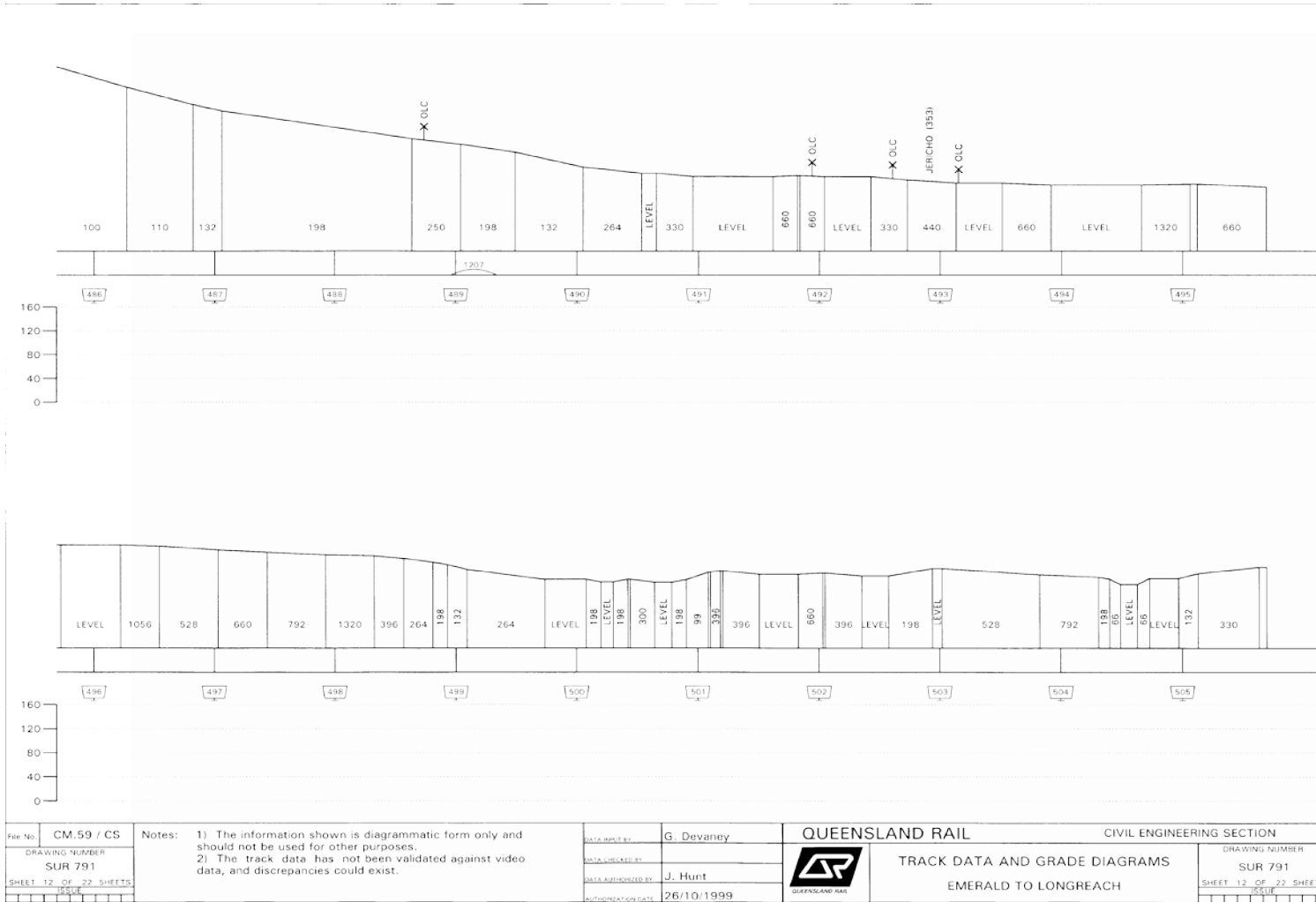
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DATA CHECKED BY	
DATA AUTHORIZED BY	J. Hunt
DATE	26/10/1999

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TRACK DATA AND GRADE DIAGRAMS		SUR 791
EMERALD TO LONGREACH		SHEET 10 OF 22 SHEETS

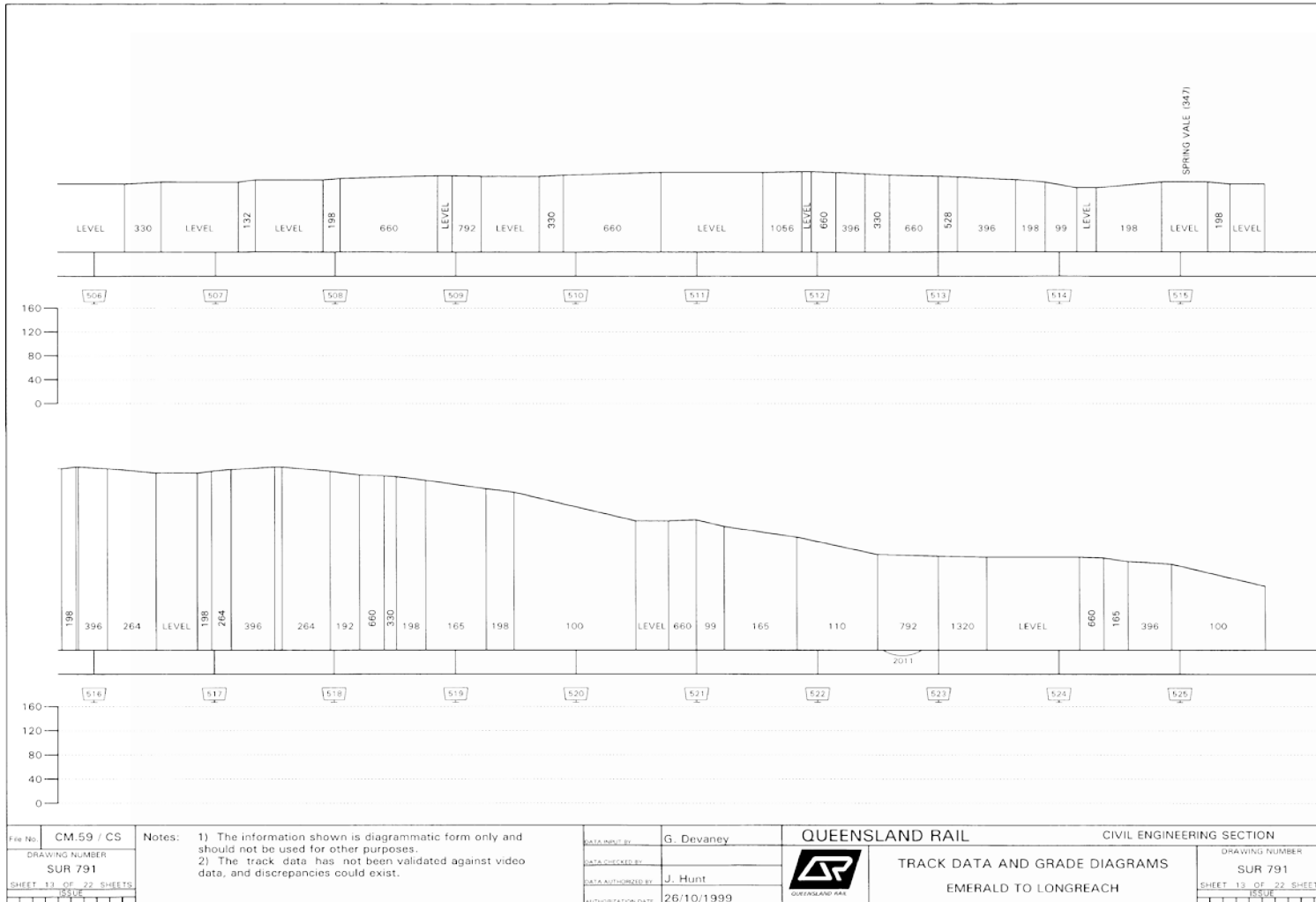
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DATA CHECKED BY:	
DATA AUTHORIZED BY:	J. Hunt
AUTHORIZATION DATE:	26/10/1999

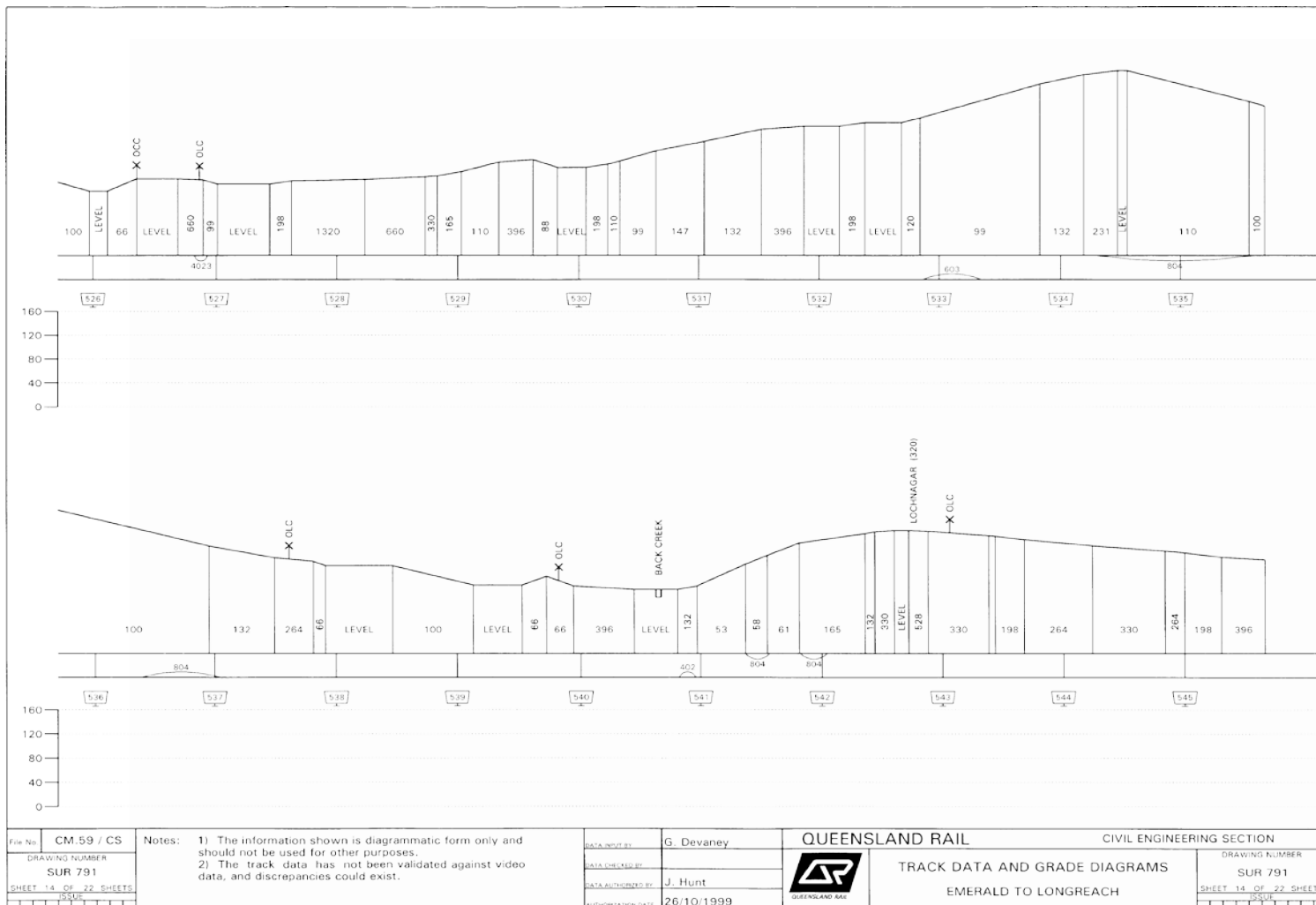


QUEENSLAND RAIL
 TRACK DATA AND GRADE DIAGRAMS
 EMERALD TO LONGREACH

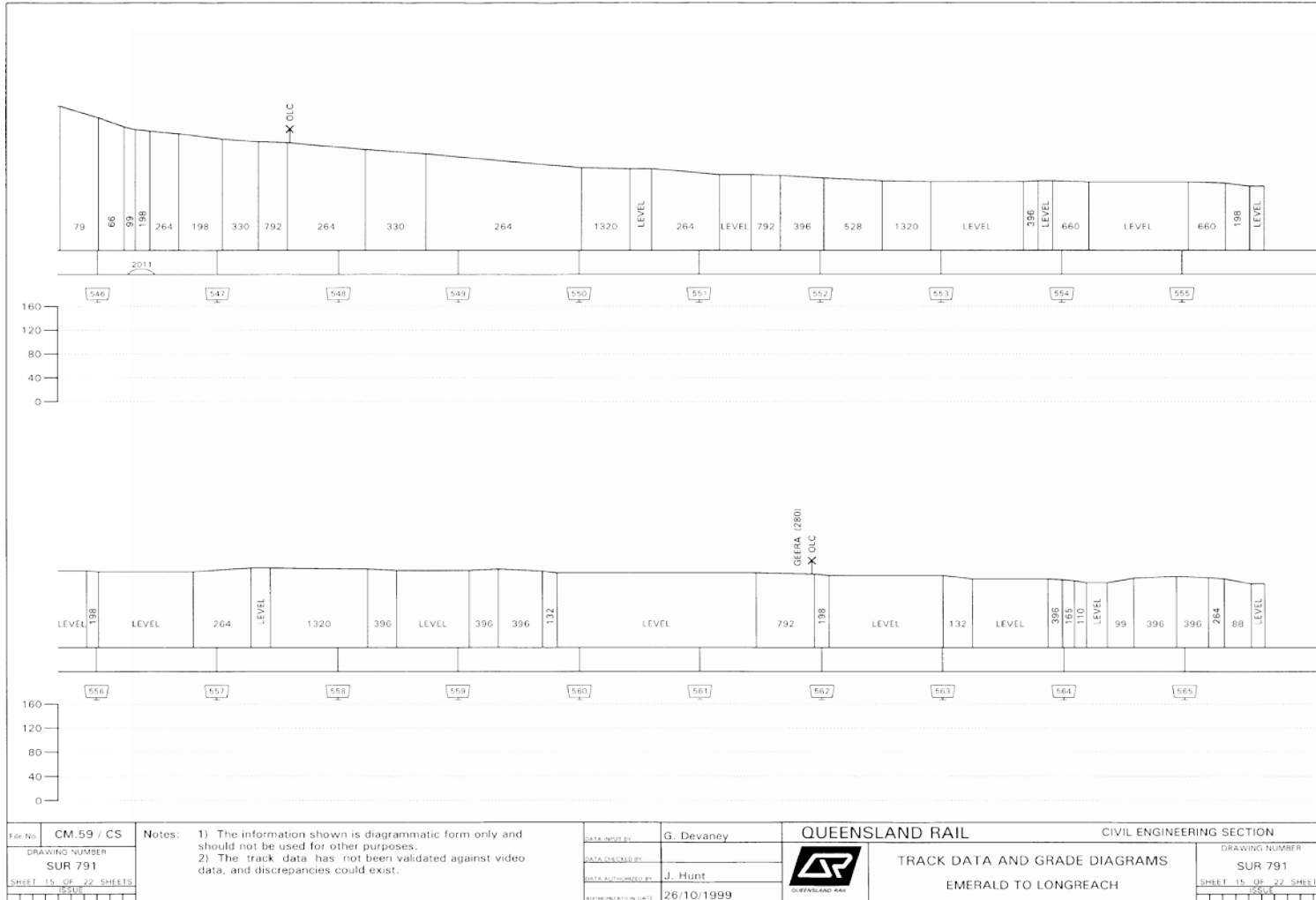
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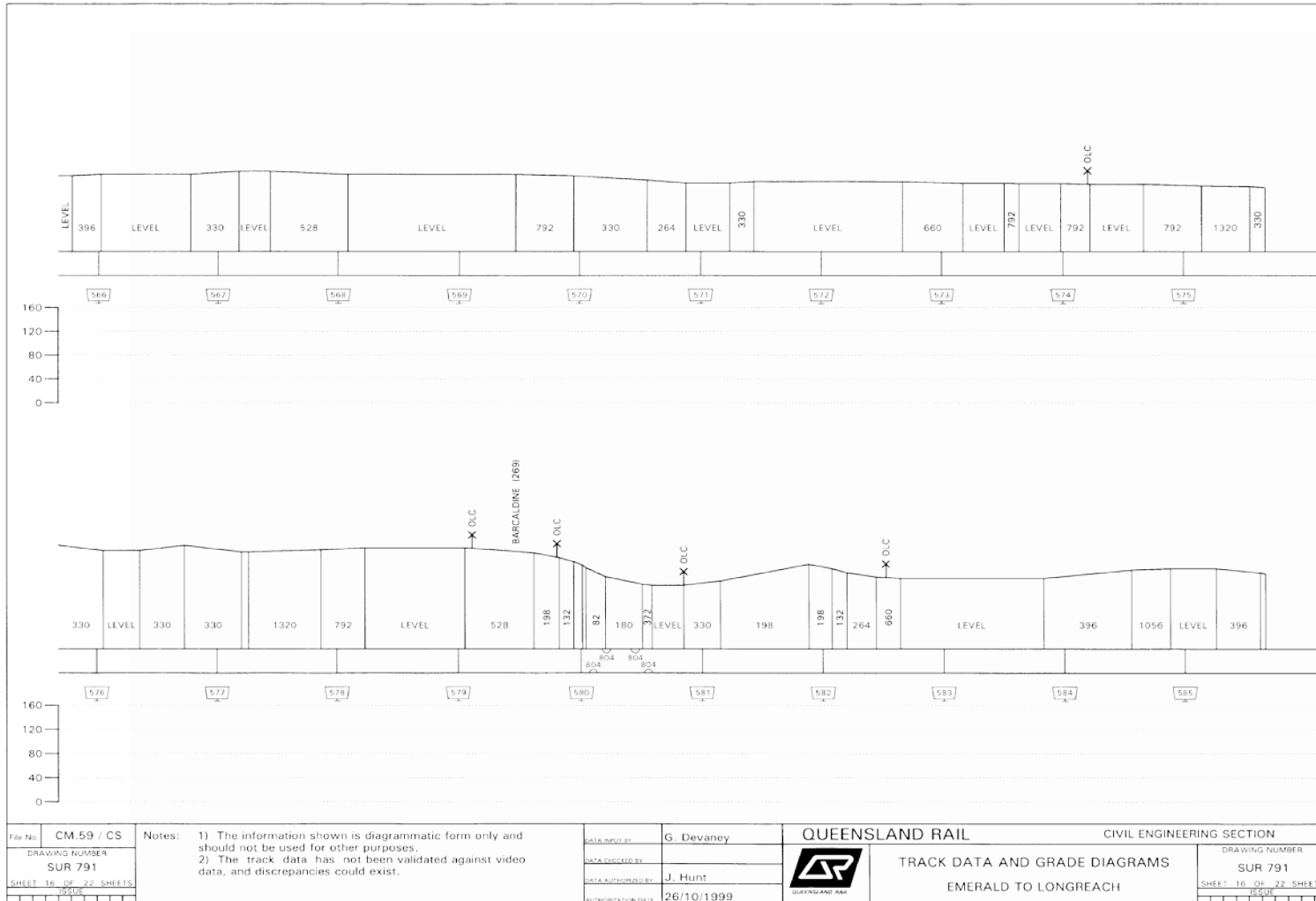
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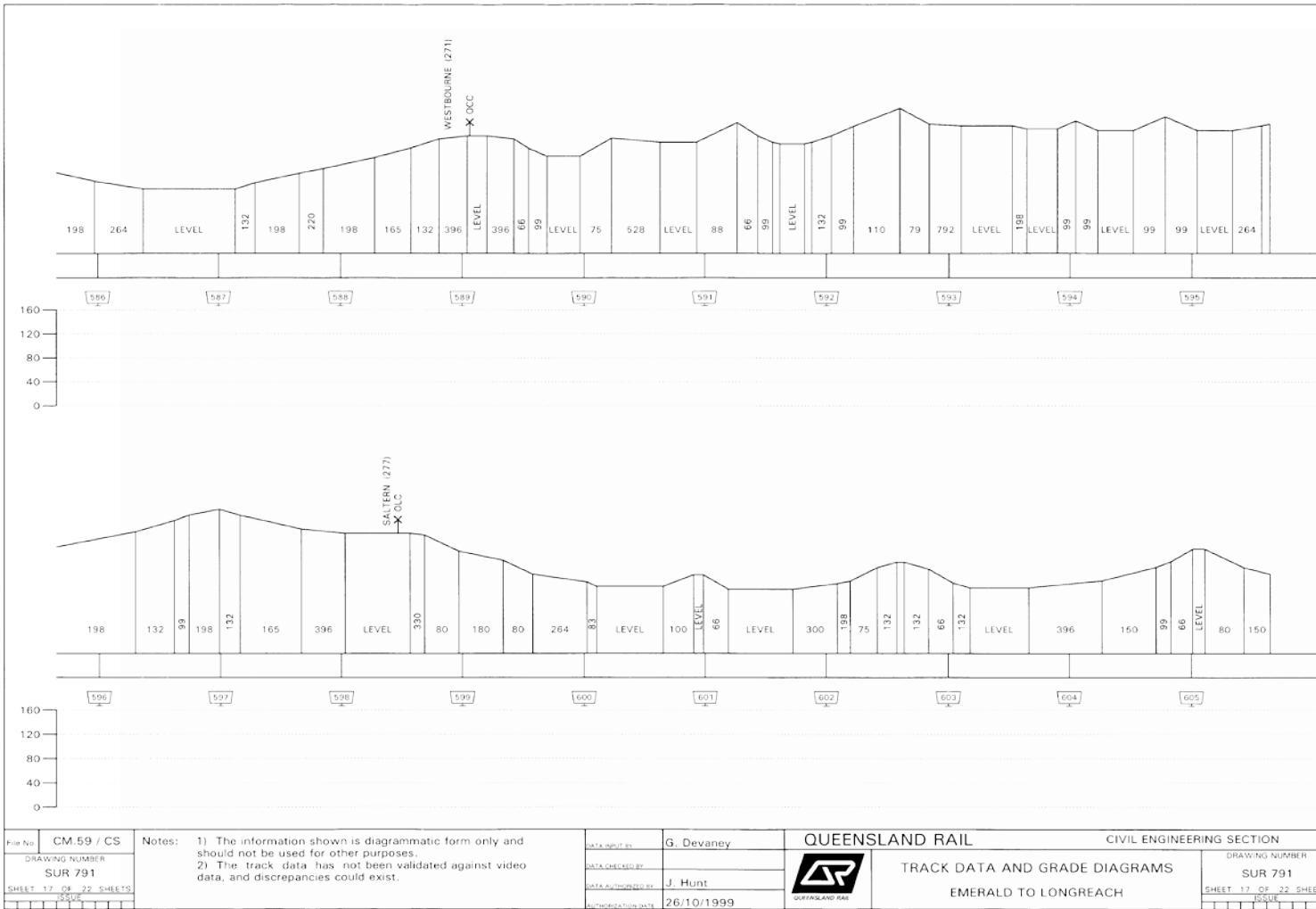
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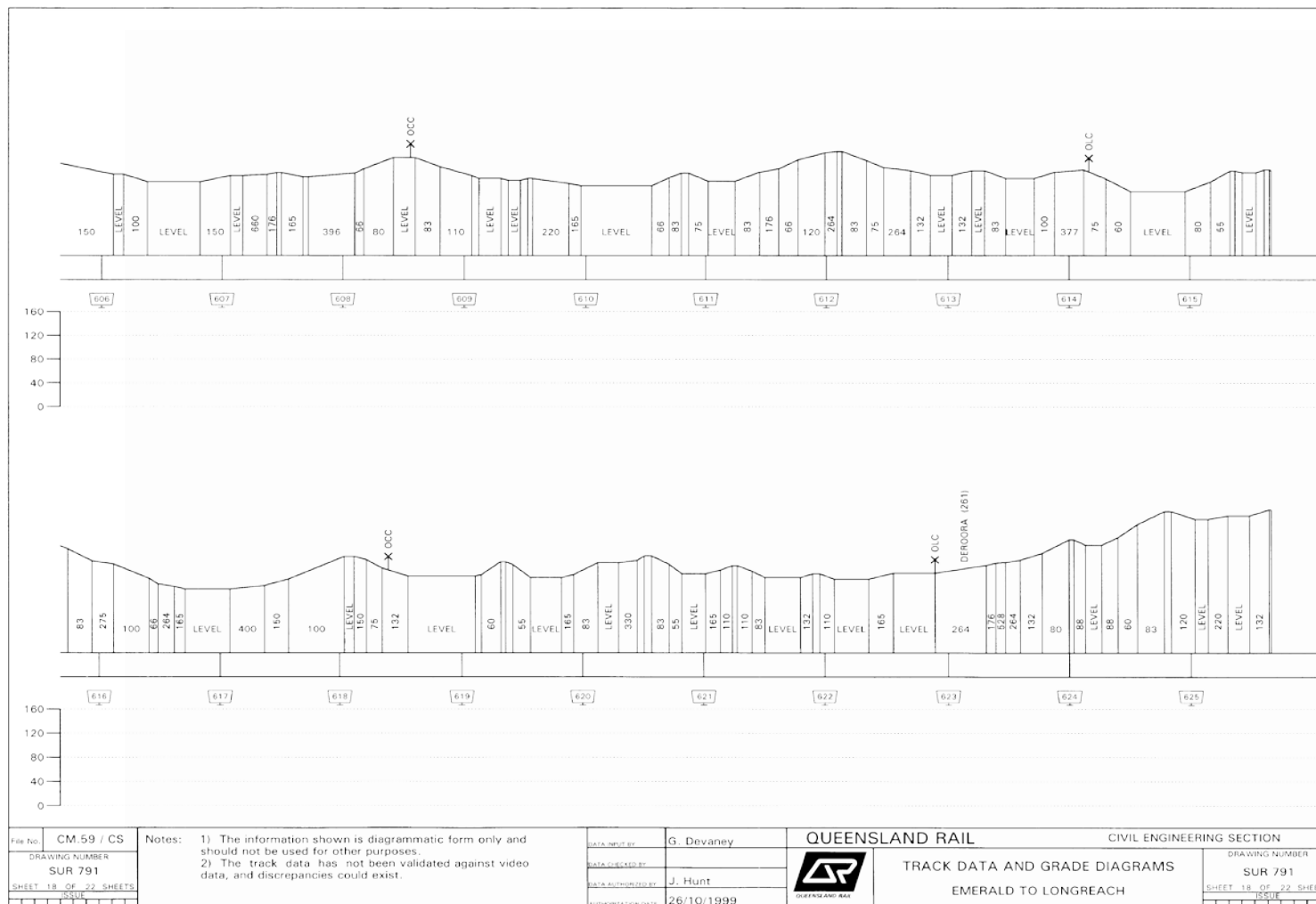


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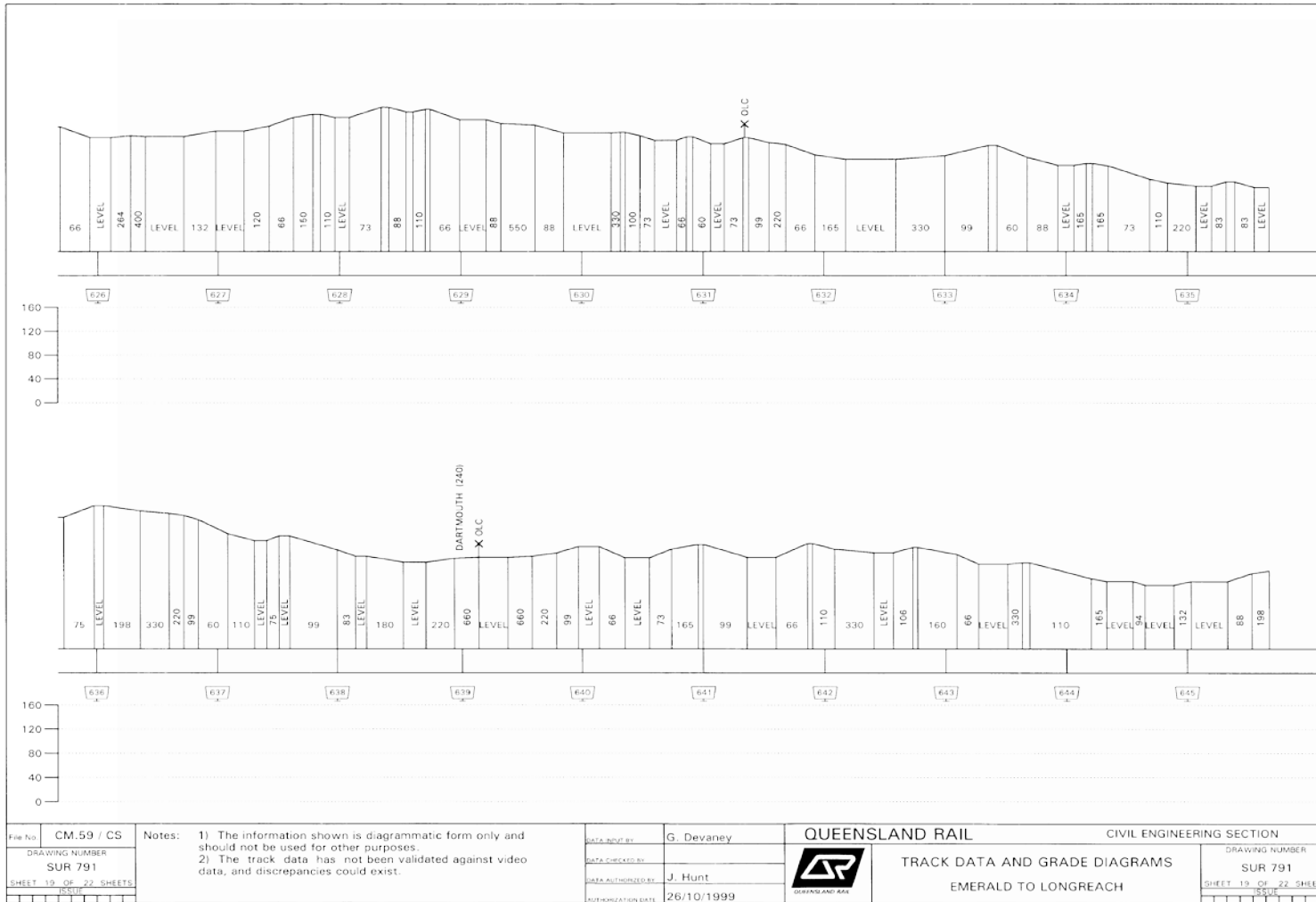


File No:	CM.59 / CS	Notes: 1) The information shown is diagrammatic form only and should not be used for other purposes. 2) The track data has not been validated against video data, and discrepancies could exist.	DATA INPUT BY:	G. Devaney	QUEENSLAND RAIL	CIVIL ENGINEERING SECTION	
DRAWING NUMBER:	SUR 791		DATA CHECKED BY:	J. Hunt			
SHEET 17 OF 22 SHEETS	ISSUE		DATE AUTHORIZED BY:	26/10/1999	 TRACK DATA AND GRADE DIAGRAMS EMERALD TO LONGREACH	DRAWING NUMBER:	SUR 791
						SHEET 17 OF 22 SHEETS	ISSUE

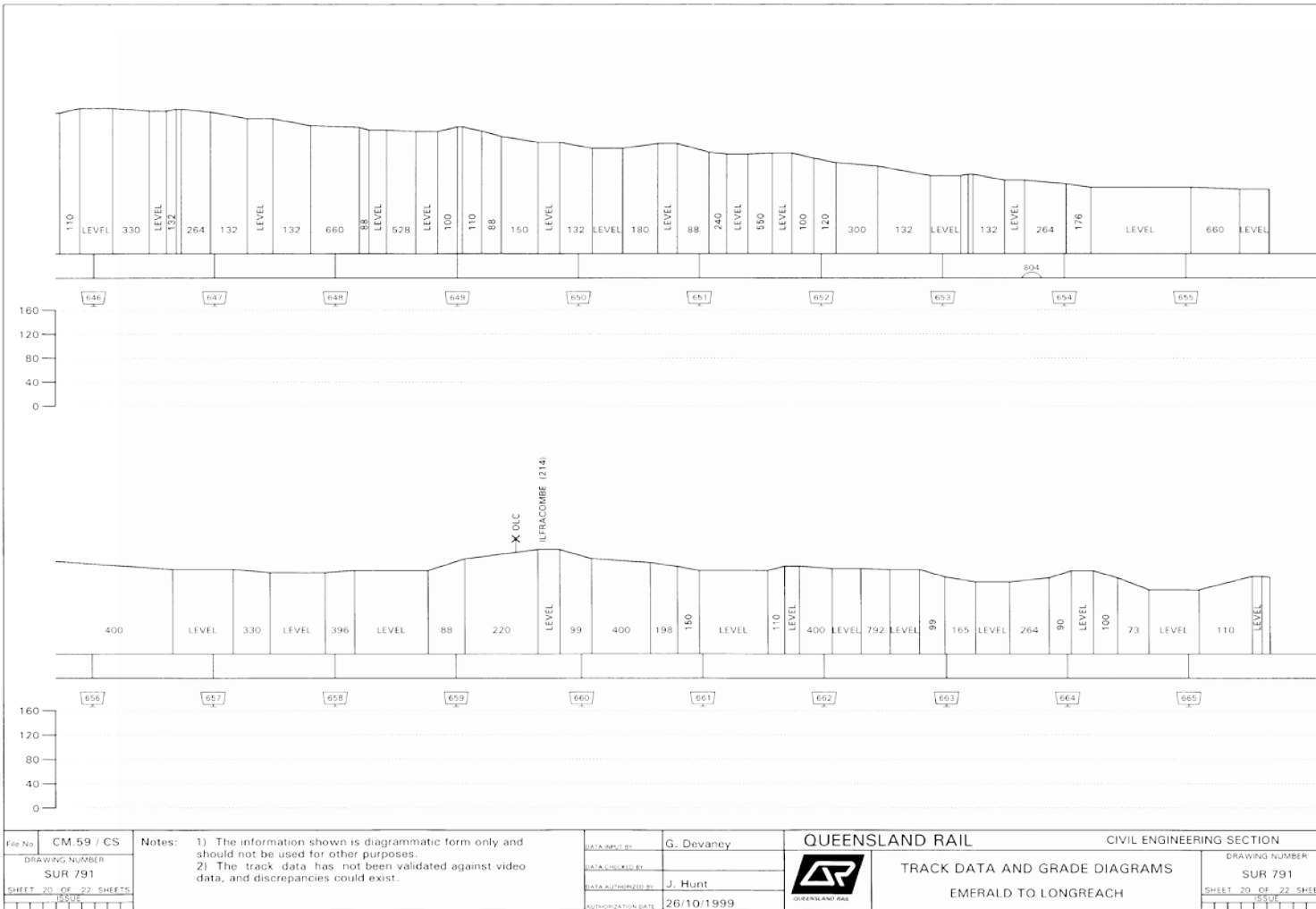
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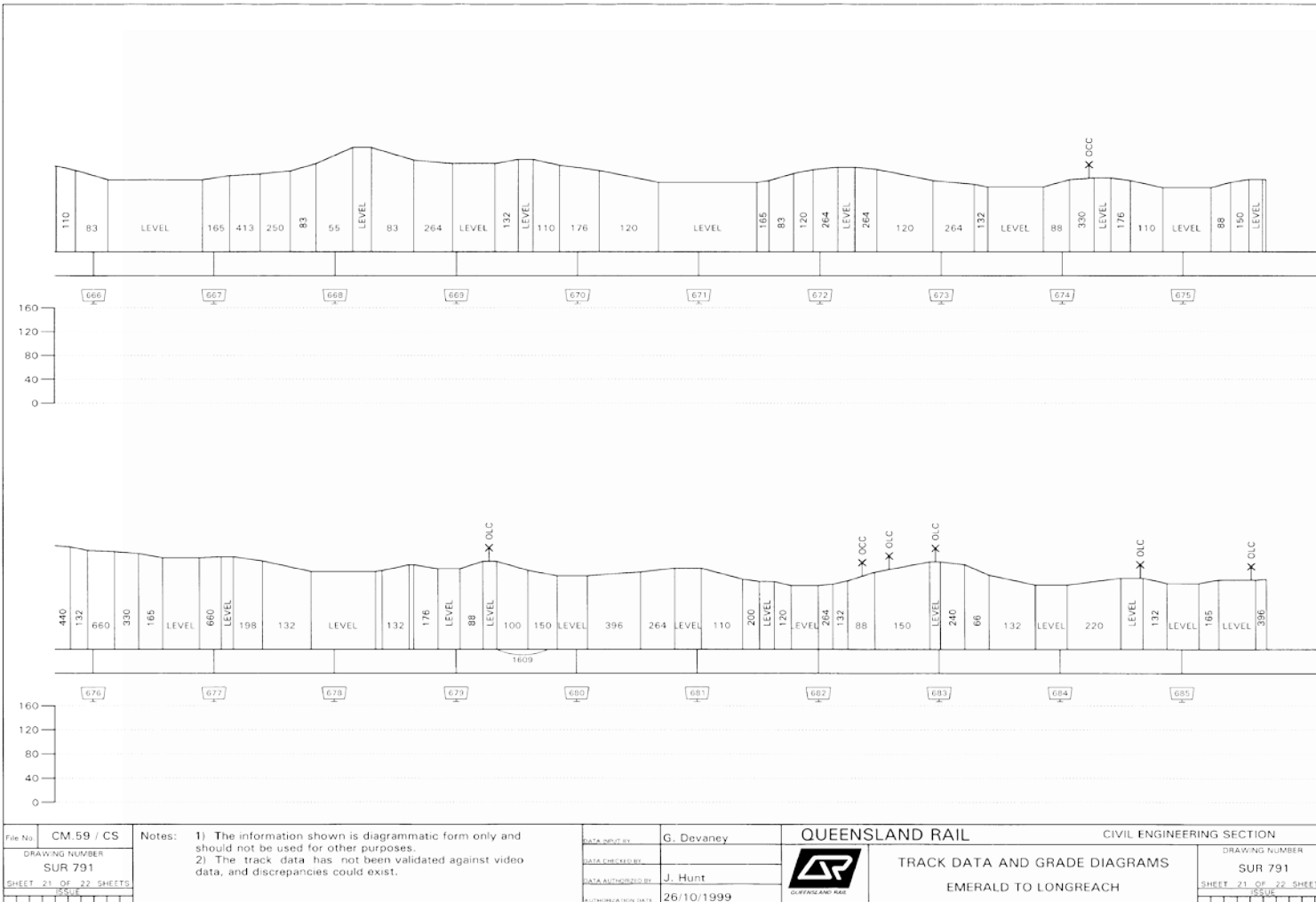
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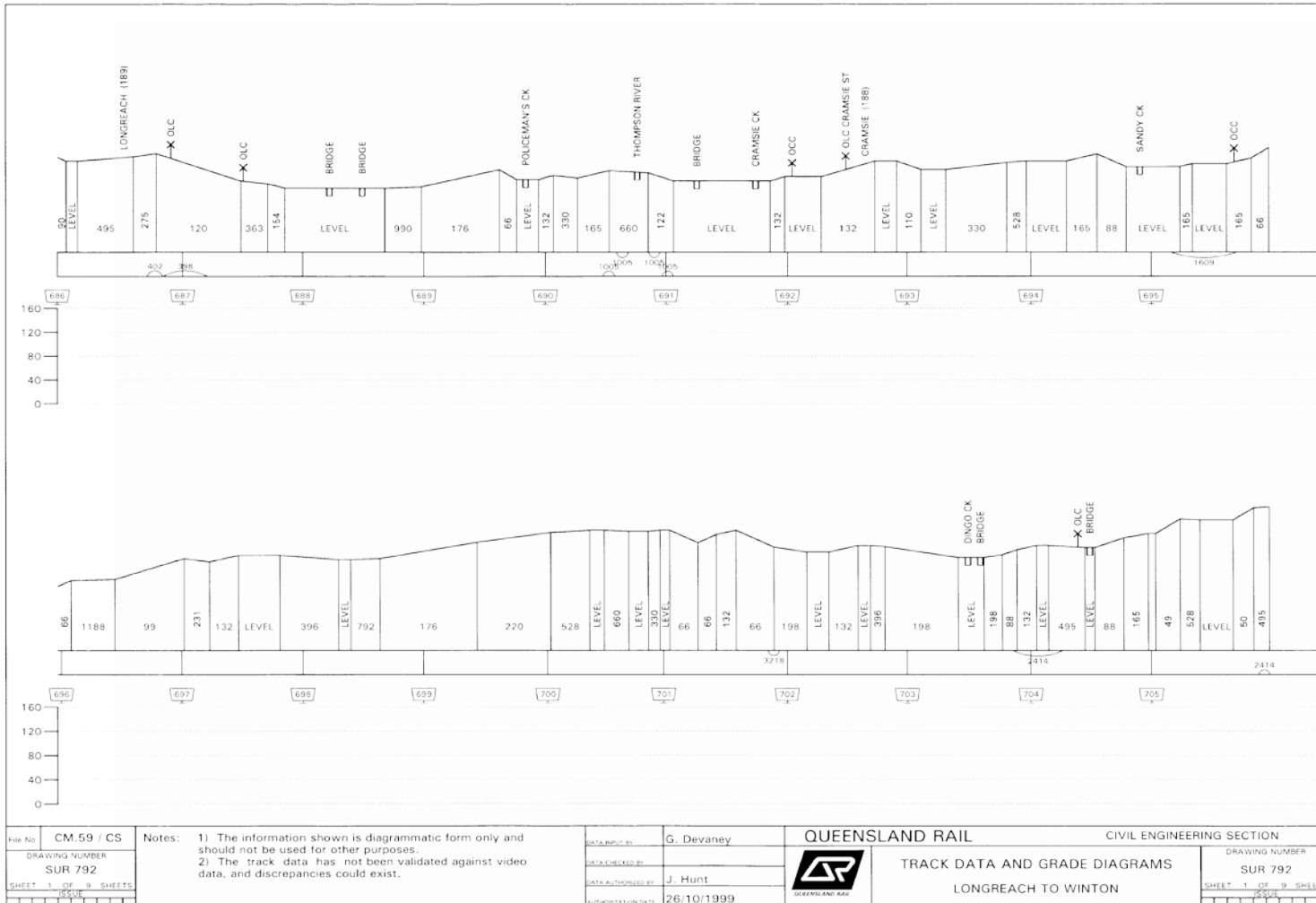


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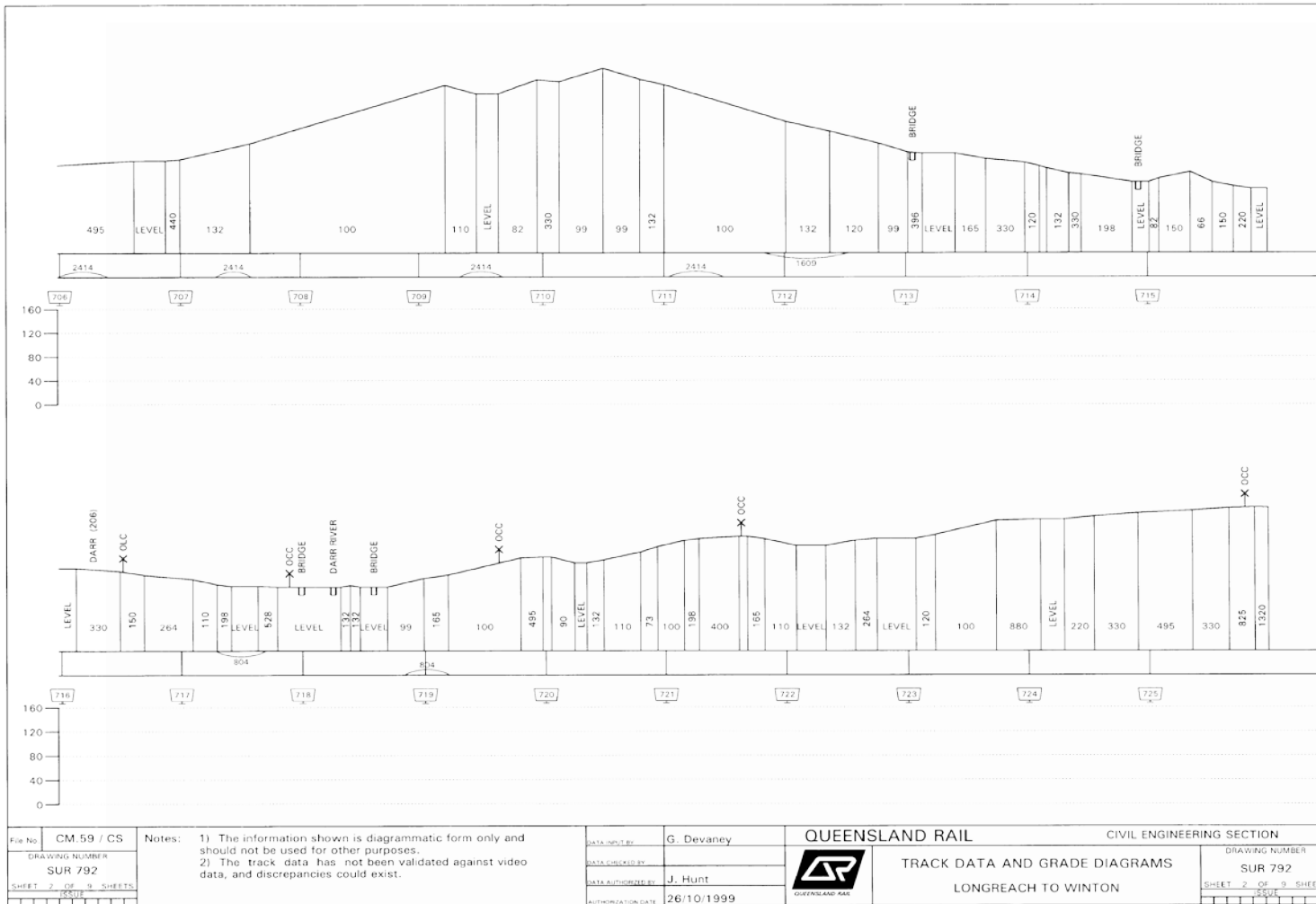


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DRAWING NUMBER	SUR 791			DATA CHECKED BY:			TRACK DATA AND GRADE DIAGRAMS
SHEET 22 OF 22 SHEETS				DATA AUTHORIZED BY:	J. Hunt	EMERALD TO LONGREACH	DRAWING NUMBER
				DATE OF AUTHORIZATION:	26/10/1999		SUR 791
							SHEET 22 OF 22 SHEETS

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File No	CM.59 / CS
DRAWING NUMBER	SUR 792
SHEET 2 OF 9 SHEETS	

Notes: 1) The information shown is diagrammatic form only and should not be used for other purposes.
 2) The track data has not been validated against video data, and discrepancies could exist.

DATA INPUT BY	G. Devaney
DATA CHECKED BY	
DATA AUTHORIZED BY	J. Hunt
DATE OF AUTHORIZATION	26/10/1999

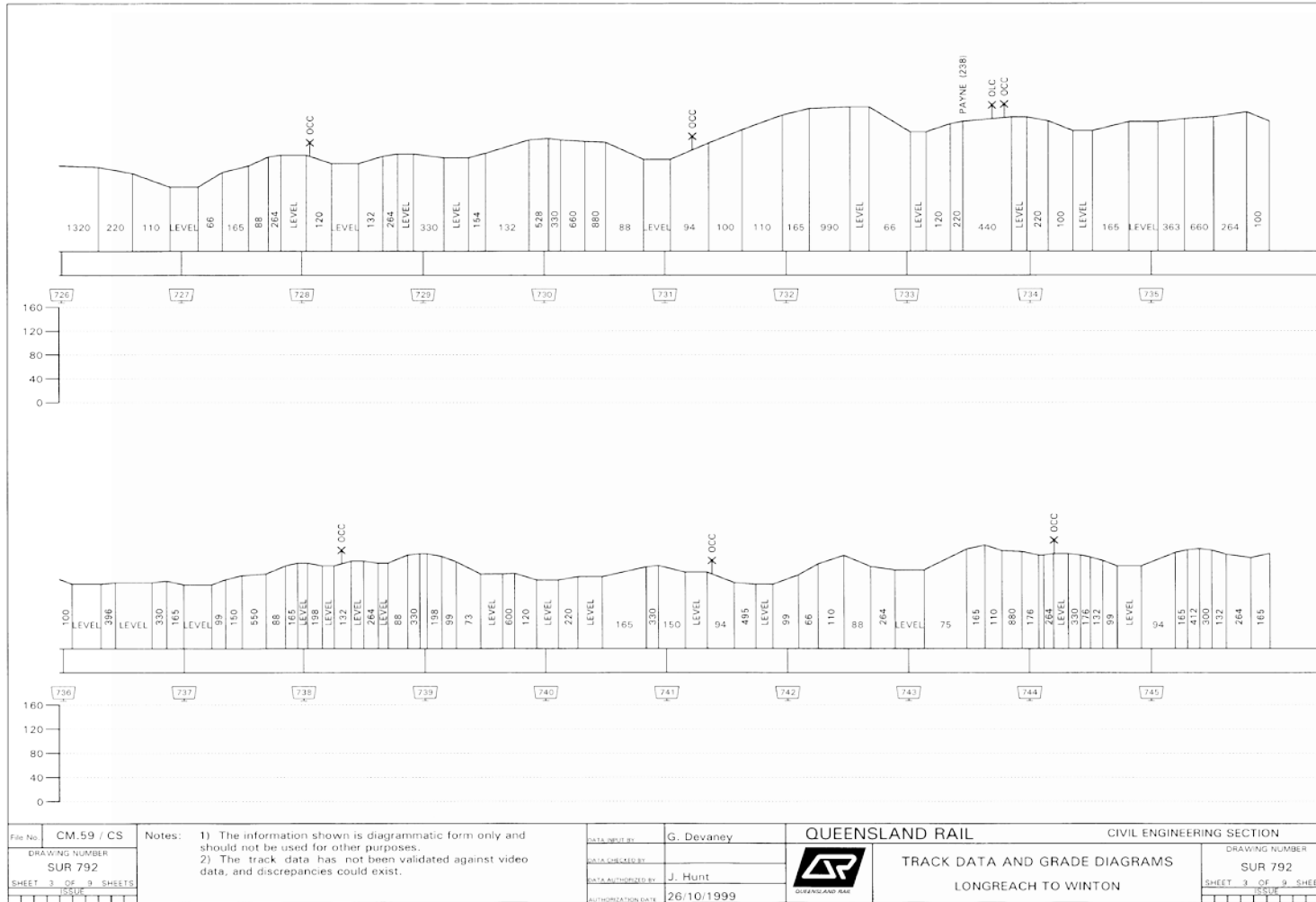
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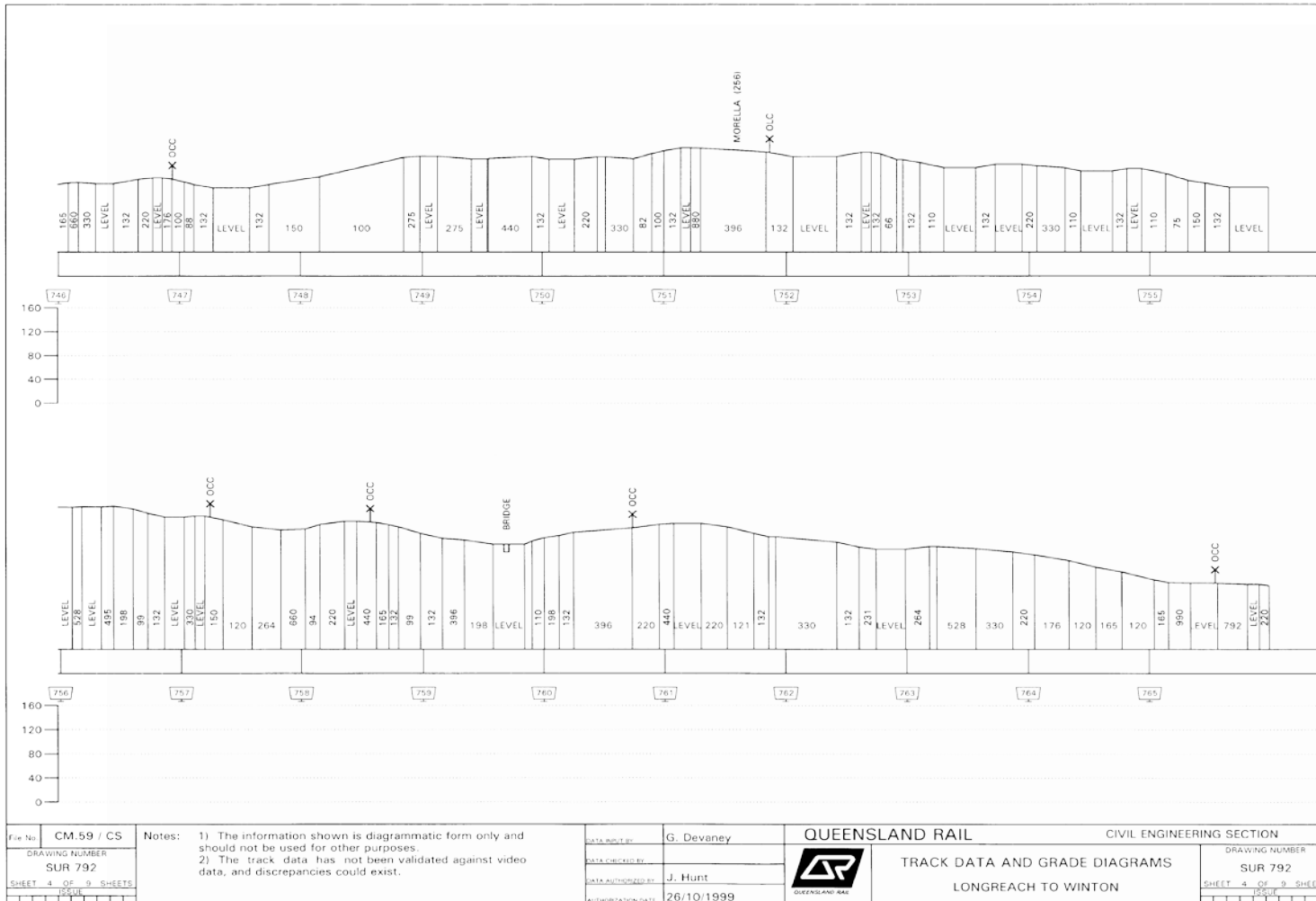
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 LONGREACH TO WINTON

CIVIL ENGINEERING SECTION	
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SHEET 2 OF 9 SHEETS	

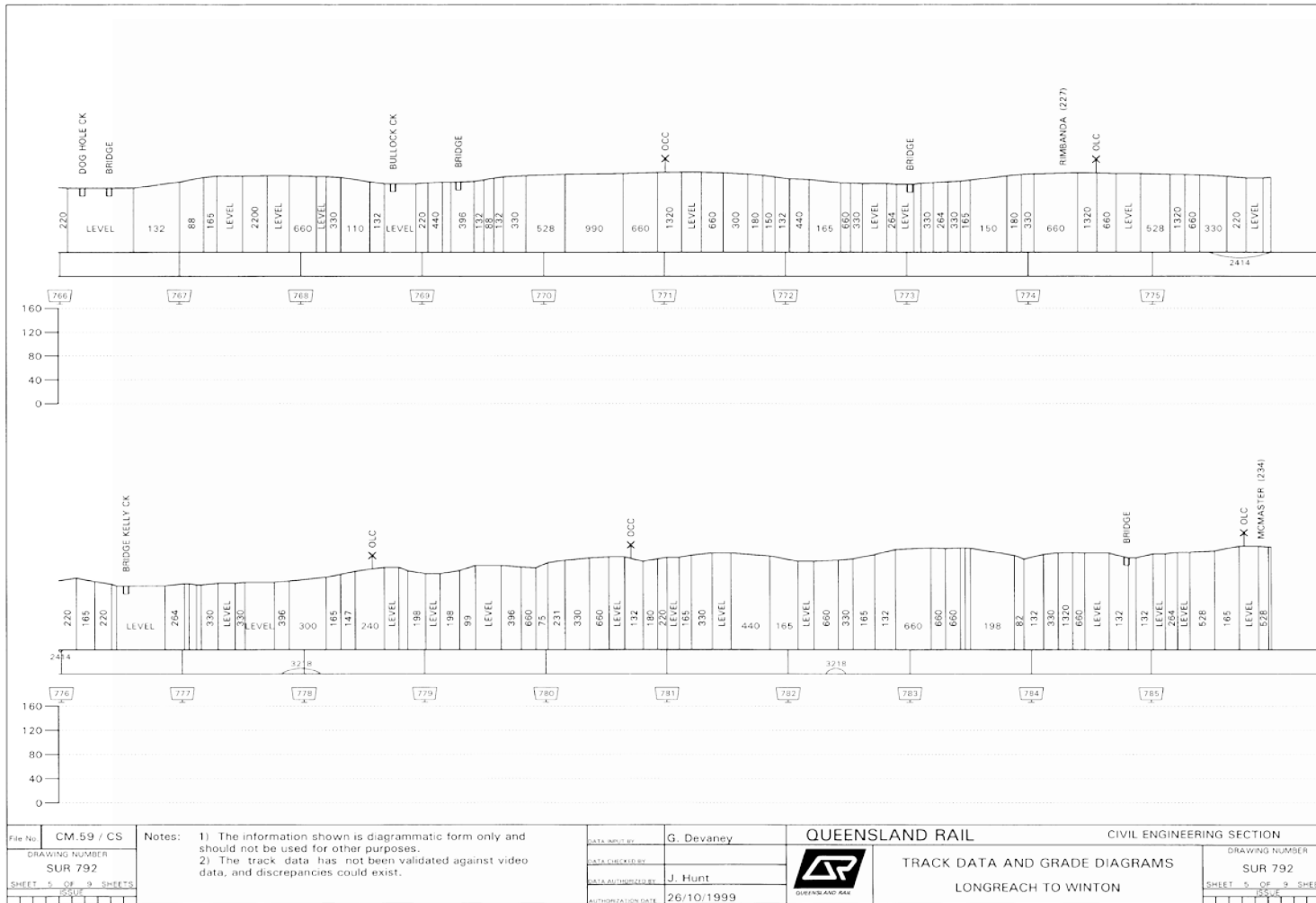
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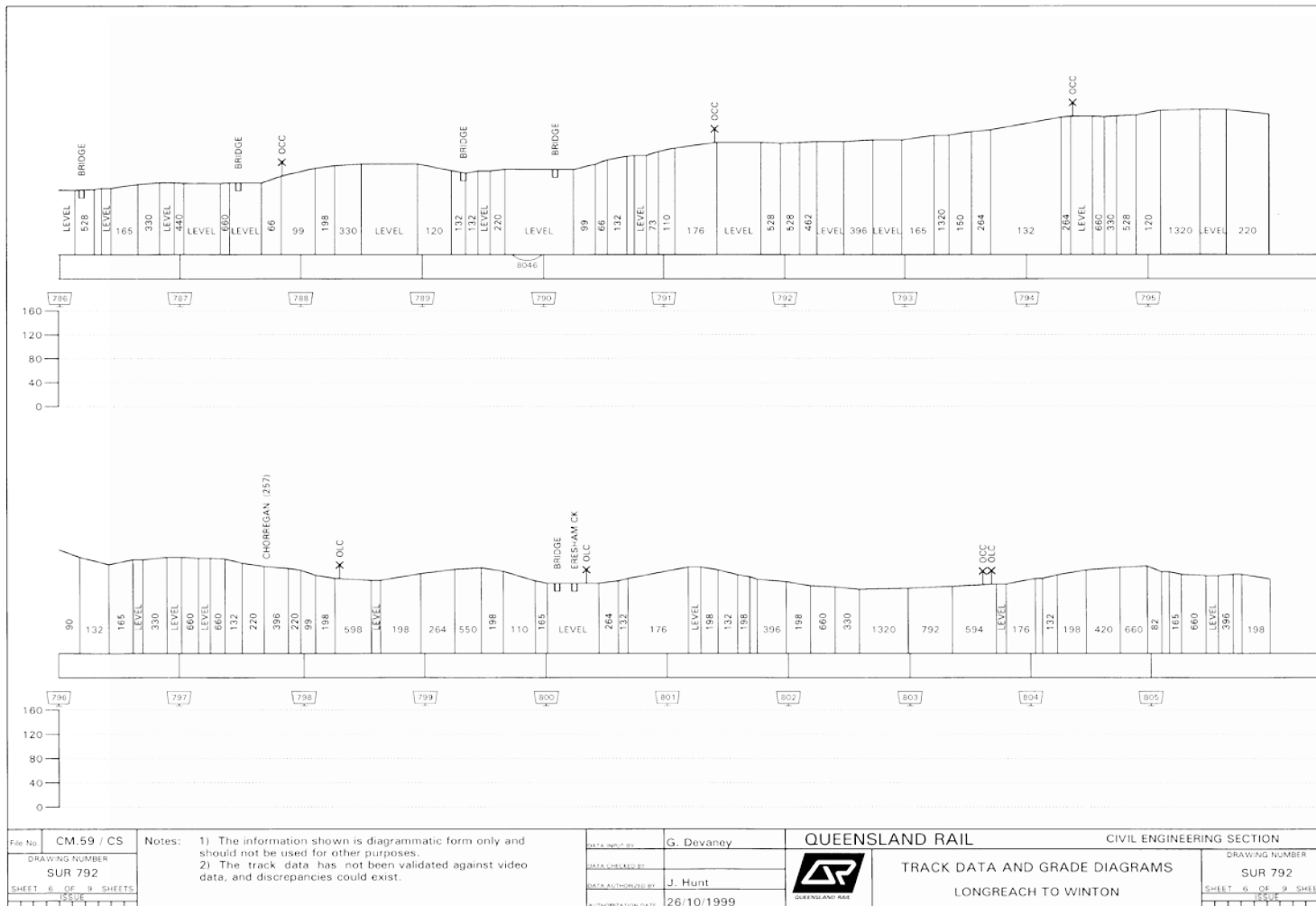


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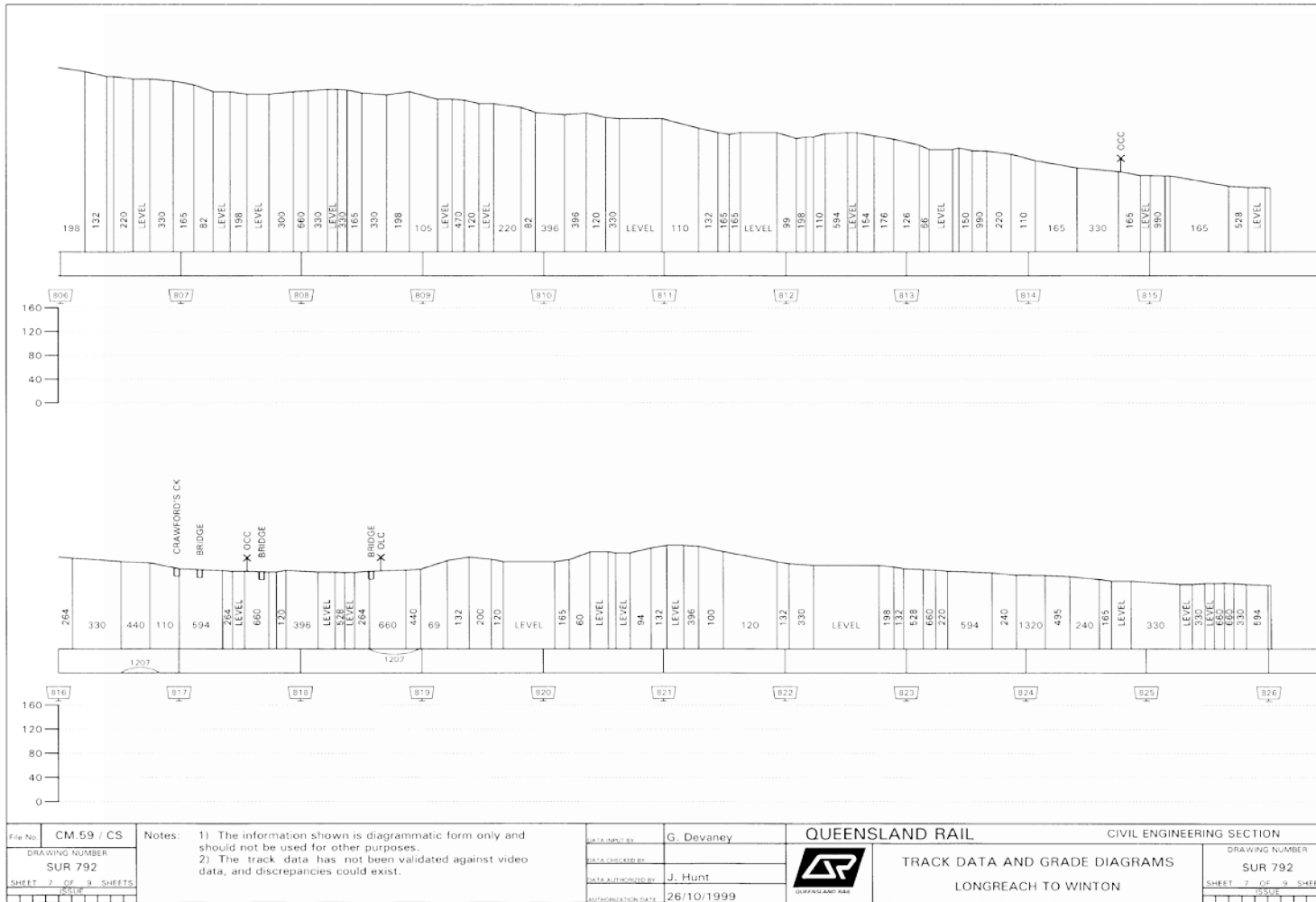


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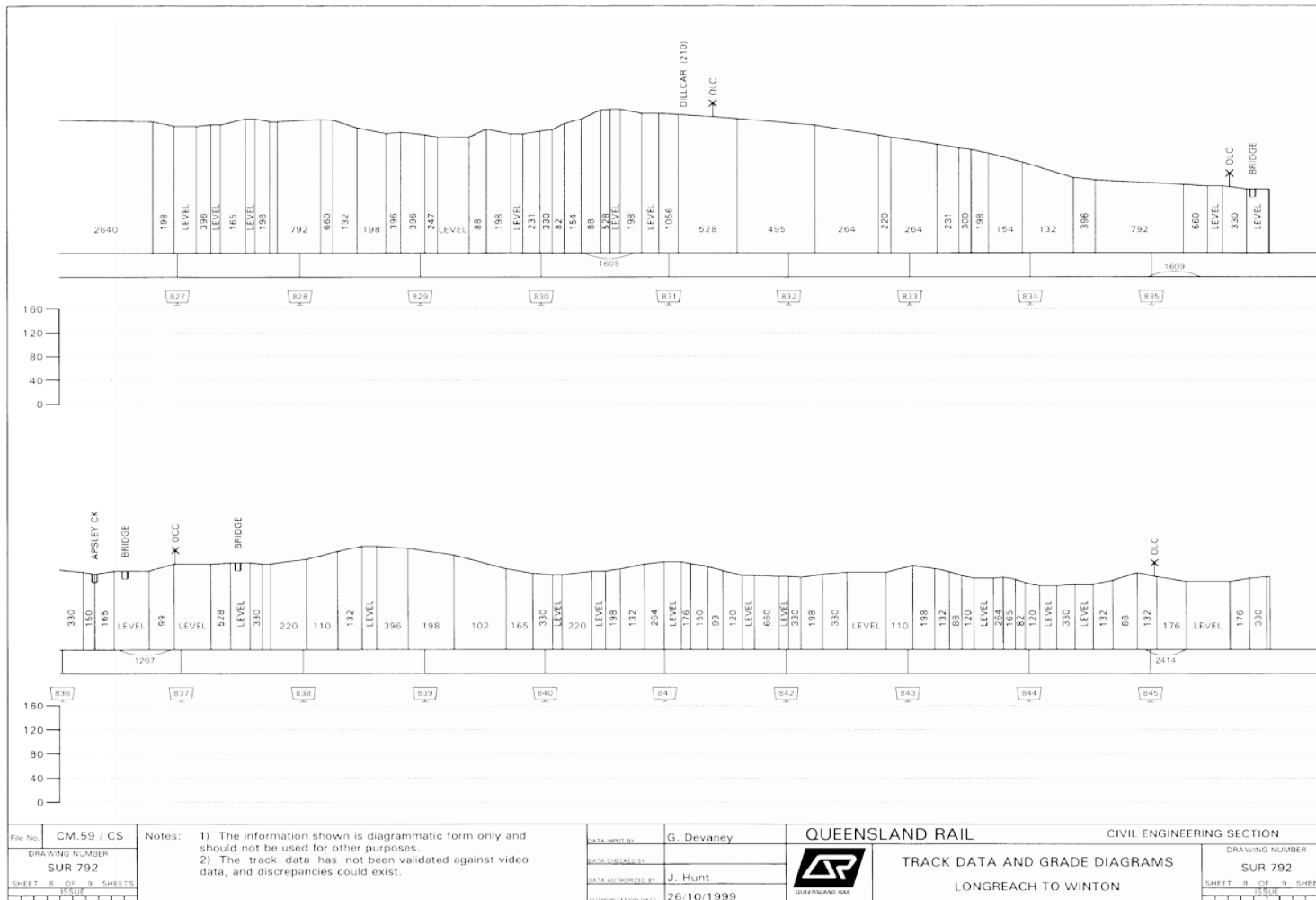


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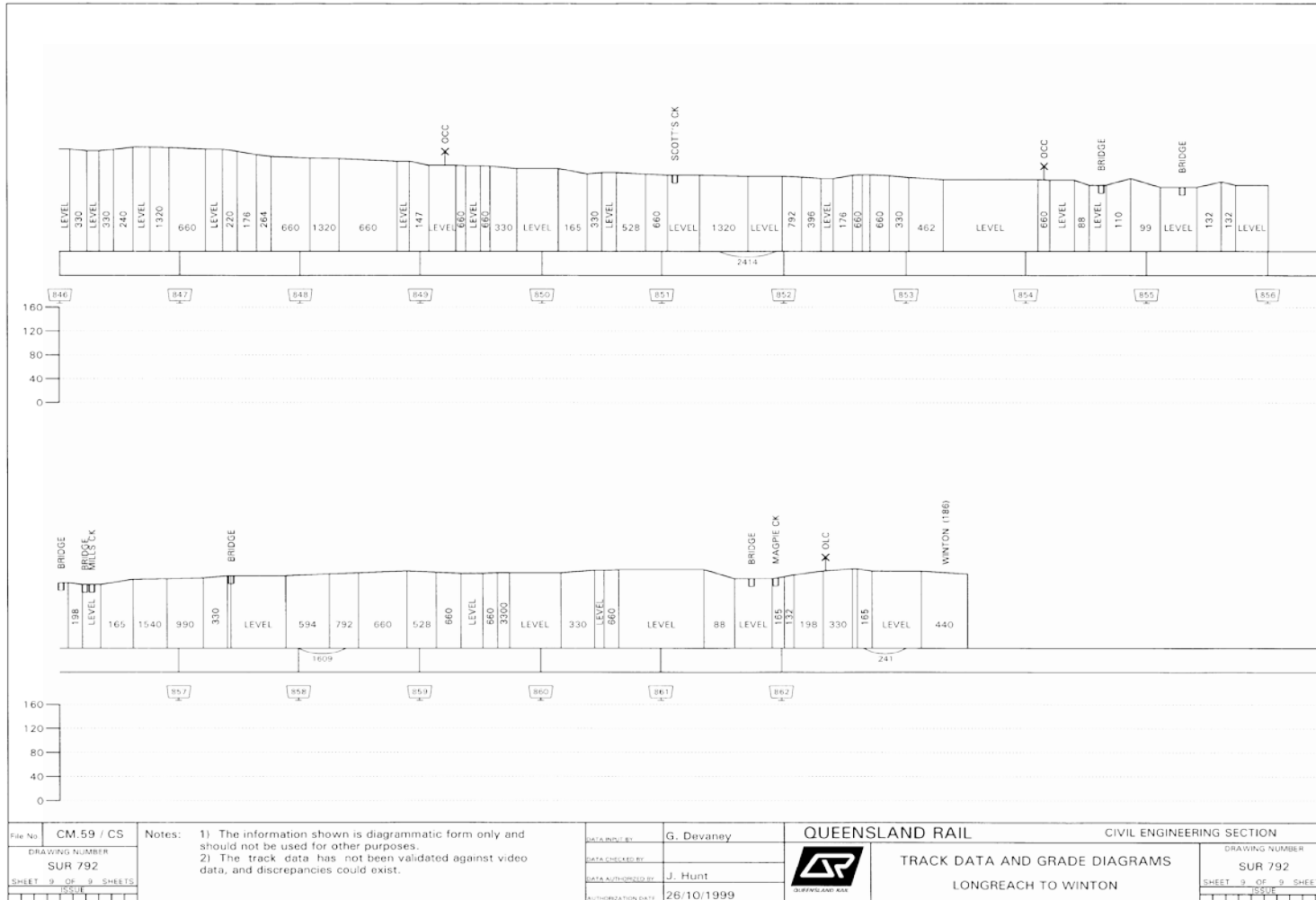


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APPENDIX F

Sectional Running Times

Sectional running times for Central West Line Livestock Trains

Location	Location	UP P/P	DOWN P/P
Burngrove	Tolmies	2	2
Tolmies	Comet	17	23
Comet	Yamala	18	19
Yamala	Nogoa	18	18
Nogoa	Emerald	5	5
Emerald	Taroborah	26	25
Taroborah	Anakie	25	25
Anakie	Withersfield	22	22
Withersfield	Willows	16	17
Willows	Bogantungan	38	38
Bogantungan	Drummond	40	45
Drummond	Pine Hill	20	21
Pine Hill	Mambo	16	16
Mambo	Alpha	20	20
Alpha	Beta	32	31
Beta	Jericho	26	28
Jericho	Alice	33	34
Alice	Lochnagar	16	16
Lochnagar	Barcaldine	35	36
Barcaldine	Saltern	20	20
Saltern	Deroora	25	27
Deroora	Ilfracombe	35	37
Ilfracombe	Longreach	28	28
Longreach	Darr	35	40
Darr	Morella	42	41
Morella	Rimbanda	29	26
Rimbanda	Chorregon	30	27
Chorregon	Dillcar	39	40
Dillcar	Winton	40	38
Emerald	Yamboyna	22	23
Yamboyna	Amah	22	22
Amah	Jurema	3	3
Jurema	Capella	25	25
Capella	Retro	19	18
Retro	Moonda	6	7
Moonda	Karin	25	25
Karin	Clermont	23	22

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APPENDIX G

Altitudes

Location	Altitude in metres
Tolmies	208
Comet	167
Yamala	182
Emerald	180
Taraborah	232
Anakie	251
Withersfield	255
Willows	262
Bogantugan	336
Hammond's Gap	524
Drummond	448
Pine Hill	357
Mambo	386
Alpha	351
Beta	403
Jericho	350
Alice	304
Lochnagar	320
Barcaldine	267
Saltern	276
Deroora	260
Ilfracombe	214
Longreach	189
Darr	204
Morella	254
Rimbanda	227
Chorregon	256
Dillcar	212
Winton	188
Stamford	294
Corfield	257
Hughenden	329
Nogoa	186
Gindie	227
Fernlees	249
Zamia	298
Springsure	325
Yamboyna	189
Amah	217
Jurema	217

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Capella	230
Retro	267
Moonda	256

Nanya	254
Karin	255
Clermont	268

Yalleroi	356
Blackall	285
Emmet	254
Yaraka	216

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APPENDIX H

Rollingstock Gauges

