

Queensland Competition Authority



AURIZON NETWORK

RAIL INFRASTRUCTURE DAMAGE CLAIM 2013

- Review of Aurizon Network's Review Event Submission
- Revision E
- 13 September 2013



Queensland Competition Authority

AURIZON NETWORK

RAIL INFRASTRUCTURE DAMAGE CLAIM 2013

Review of Aurizon Network's Review Event Submission

- Revision E
- 13 September 2013

Sinclair Knight Merz
ABN 37 001 024 095
32 Cordelia Street, South Brisbane QLD 4101
PO Box 3848
South Brisbane QLD 4101 Australia
Tel: +61 7 3026 7965
Fax: +61 7 3026 7540
Web: www.skmconsulting.com

COPYRIGHT: The concepts and information contained in this document are the property of Sinclair Knight Merz Pty Ltd. Use or copying of this document in whole or in part without the written permission of Sinclair Knight Merz constitutes an infringement of copyright.

LIMITATION: This report has been prepared on behalf of and for the exclusive use of Sinclair Knight Merz Pty Ltd's Client, and is subject to and issued in connection with the provisions of the agreement between Sinclair Knight Merz and its Client. Sinclair Knight Merz accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.



Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
A	26 August 2013	BP Wells	S Hinchliffe	26 August 2013	Updated to include commentary on Aurizon Network's Review Event Submission
B	29 August 2013	BP Wells	S Hinchliffe	29 August 2013	Updated final report
C	30 August 2013	BP Wells	BP Wells	30 August 2013	Incorporating RFI answers from Aurizon Network received on 30 August 2013
D	9 September 2013	BP Wells	BP Wells	9 September 2013	Updated following receipt of information from Aurizon Network on (i) overheads, (ii) consumables, (iii) Neerkol creek resurfacing
E	13 September 2013	BP Wells	BP Wells	13 September 2013	Final submission

Distribution of copies

Revision	Copy no	Quantity	Issued to
A	Updated submission	Electronic	The Authority
B	Updated submission	Electronic	The Authority
C	Updated submission	Electronic	The Authority
D	Updated submission	Electronic	The Authority
E	Updated submission	Electronic	The Authority

Printed:	13 September 2013
File name:	I:\QBIF\Projects\QB10475\Deliverables\Reports\Final report 9-9-2013\QB10475 QCA Report rev E.docx
Author:	J. Leong
Project Manager:	B.P Wells
Name of organisation:	Queensland Competition Authority
Name of project:	Aurizon Network Infrastructure Damage Claim 2013
Document version:	E
Project number:	QB10475



Contents

Executive Summary

Glossary

1	Introduction	5
2	Details of the 26 January 2013 flood event	6
3	Development of SKM’s cost estimation	7
3.1	Methodology	7
3.2	Site visit	7
3.3	Requests for information	10
3.4	Standards, codes and guidelines	11
4	Review of Aurizon Network’s final claim	12
4.1	Inclusion of ordinary labour costs and contractor’s expenses in claim	12
4.1.1	Ordinary labour costs	12
4.1.2	Contractor’s expenses	13
4.2	SKM and Aurizon Network 2013 flood claim comparison	15
4.2.1	SKM preliminary estimate	15
4.2.2	Aurizon Network’s costs estimate	15
4.2.3	Comparison of SKM and Aurizon Network cost estimation per system	19
4.3	Review of Neerkol Creek Bridge claim component	20
4.3.1	External insurance coverage	20
4.3.2	Self-insurance coverage	21
4.3.3	Claim details	21
5	Conclusion	23
Appendix A	Aurizon Network Flood Recovery Plans	24
Appendix B	Photos	13
Appendix C	Photo Locations and flood map of Blackwater, Moura and North Coast Line	26
Appendix D	Register of Request for Information	27
Appendix E	Standard Aurizon Network Reference Drawings	28



Executive summary

The Queensland Competition Authority (the Authority) appointed Sinclair Knight Merz (SKM) on 15 February 2013 to develop a preliminary estimate of the likely cost of repairing the damage to Aurizon Network Pty Ltd's (Aurizon Network) below rail infrastructure along the Blackwater, Moura and North Coast Lines due to 26 January 2013 flooding event. Upon receipt of Aurizon Network's finalised Review Event Submission – Central Queensland Flood January 2013 (Review Event Submission) document, the Authority asked SKM to compare its preliminary estimate with the Aurizon Network's Review Event Submission.

For the development of its preliminary flood damage assessment, SKM undertook site investigations and reviewed Aurizon Network's recovery plans and photographic evidence. The assessment covered damage to railway track, civil infrastructure (such as track, access roads, bridges etc), signalling equipment and overhead wire equipment. SKM's preliminary estimate was based on material quantities derived from an approximately 10% sample size of affected sites.

At the end of July 2013, Aurizon Network submitted its finalised Review Event Submission. In this document, Aurizon Network stated that it was seeking to recover, through a variation to Reference Tariffs, costs of **\$17,157,174**.

After completing a high level review of Aurizon Network's Review Event Submission document, SKM notes that a significant number of sites have been added to the list of sites affected by the floods since the 7 March 2013 (the date when a comprehensive list of affected sites was last given to SKM). The repair activities to these new sites have a combined value of \$1,453,716, including one landslide at Stirrat on the Moura system with a value of \$1,234,456. On 6 September 2013 Aurizon Network provided SKM with a detailed breakdown of claimed consumable costs and overhead costs.

SKM finds that Aurizon Network has included ordinary labour costs of **\$2,301,270** (excluding estimated costs not yet incurred) in its claim. SKM finds that ordinary labour should be covered by the UT3 maintenance allowance and notes that only overtime labour costs should be considered as a necessary additional expense. SKM notes that Aurizon Network has included **\$4,251,000** expenditure that is forecast to be spent in 2013/2014. Because these costs have not been incurred yet, SKM has not been able to review the actual expenditure and therefore is not in a position to recommend that the Authority approves these costs as reasonable until they have been incurred. SKM therefore finds ordinary labour costs and un-incurred costs should not be included in the claim at this time and recommends that the Authority accepts **\$10,604,904** of Aurizon Network's claim.

SKM notes that Aurizon Network is seeking to recover damage caused by 26 January 2013 event only and, as such, the Review Event Submission does not include the damage caused to infrastructure by the flooding events of 24 and 25 February 2013.



Glossary

Abbreviation, Acronyms and Terminology	Description / Definition
Aurizon Network	On 3 December 2012, QR Network Pty Ltd changed its name to Aurizon Network Pty Ltd.
the ‘Authority’	Queensland Competition Authority
BOM	Bureau of Meteorology
CETS	Civil Engineering Track Standards
CRB	Client Requirement Brief
DERM	Department of Environment and Resource Management
GPS	Global Positioning System
LOC	Signal Location Cabin
RFI	Request for Information
SKM	Sinclair Knight Merz



1 Introduction

The Queensland Competition Authority (the Authority) appointed Sinclair Knight Merz (SKM) on 15 February 2013 to develop a preliminary estimate of the likely cost of repairing the damage to Aurizon Network’s below rail infrastructure due to 26 January 2013 flooding event. This assessment covered Aurizon Network’s Blackwater, Moura and North Coast Lines only.

The assessment covers damage to Aurizon Network’s railway track, civil infrastructure, signalling and overhead line equipment.

On 24 and 25 February 2013, a second flooding event affected the Blackwater, Moura and North Coast Lines and many of the works initially repaired were subsequently damaged again. SKM understand that Aurizon Network do not intend to claim for additional damage caused by 24 and 25 February 2013 flood events.

On 30 July 2013 Aurizon Network submitted the Review Event Submission to the Authority. The Authority subsequently requested SKM undertake the following tasks:

- review and comment on Aurizon Network’s labour costs (including contractors, overtime and normal costs) that have been included into the submission;
- review the differences between SKM’s and Aurizon Network’s estimates at the system level; and
- review and assess reasonableness on costs associated with the Neerkol Creek remediation works.



2 Details of the 26 January 2013 flood event

The intensity of the rainfall in the vicinity of Aurizon Network’s Blackwater, Moura and North Coast Lines on 26 January 2013 was significant as recorded by the precipitation radar from Weatherzone as shown below:

Figure 1 – 26 January 2013 precipitation radar

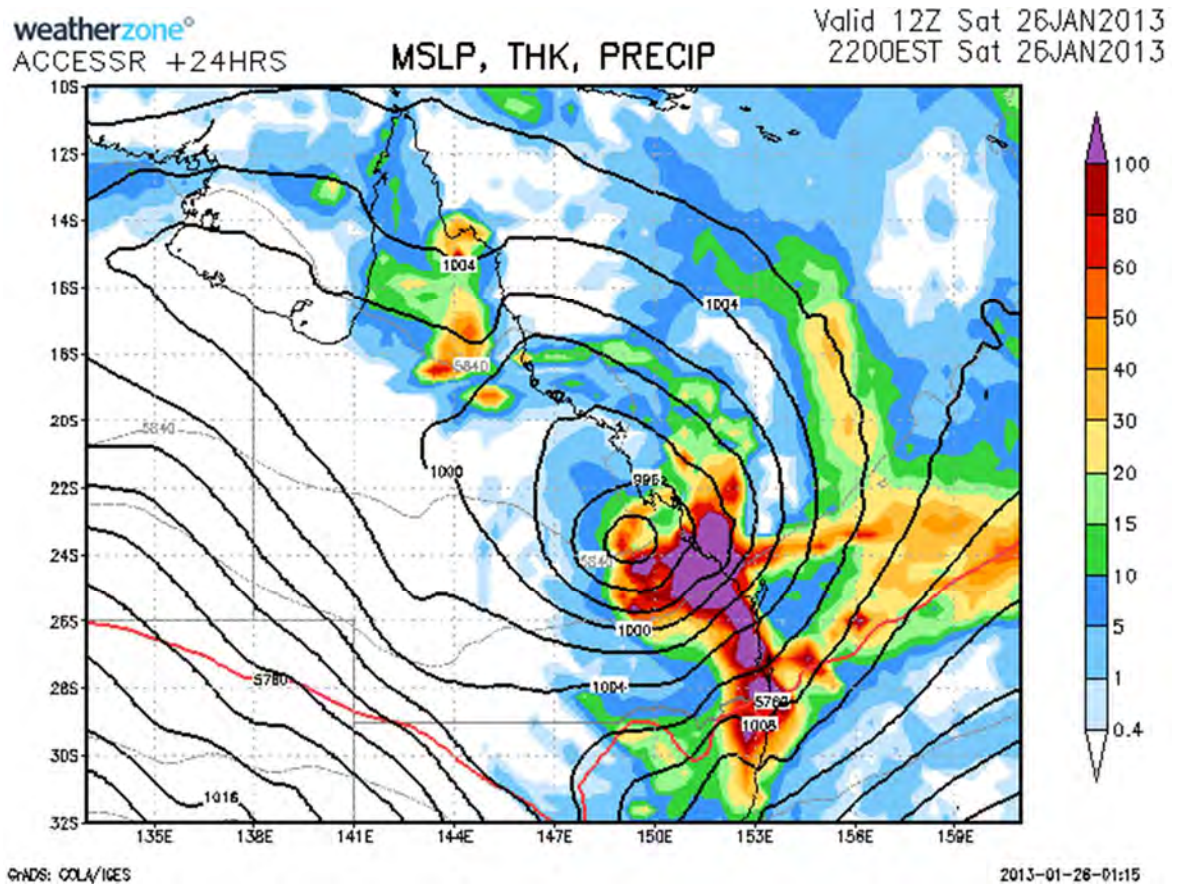


Image kindly supplied by Weatherzone©, www.weatherzone.com.au



3 Development of SKM's cost estimation

3.1 Methodology

SKM assessed the flood damage at 20 sites along the Blackwater, Moura and North Coast Lines before the development of the preliminary estimate to gain an understanding of the magnitude of scale of repair works and the typical repair methodologies used by Aurizon Network to reinstate the rail infrastructure. The selected sites were used as benchmarks and the repair information was used to extrapolate across the full list of affected sites.

SKM's preliminary estimate was based on a typical scope of works and a bill of quantities was developed for each individual site. Aurizon Network provided SKM with the '2013 Flood Recovery Plan' as at 18 February 2013 and an updated version dated 7 March 2013 which detailed the sites affected and the repairs to the railway infrastructure (see **Appendix A** for Aurizon Network Pty Ltd flood recovery plans). Additional information, required by SKM, was requested through a Request for Information (RFI) process.

A cost estimate was developed for each site and compiled into an overall preliminary estimate of the likely costs for the repairs caused by the 26 January 2013 flood events.

3.2 Site visit

To establish the extent and magnitude of the below rail damage caused to Aurizon Network's infrastructure during the January 2013 floods, SKM undertook a two-day site visit on 19 and 20 February 2013.

The site investigations covered the major affected areas detailed in **Table 1**. Photos taken during the visit can be found in **Appendix B**. **Appendix C** contains a map showing photo references based on GPS coordinates collected during the site visits. Aurizon Network provided rail centreline and chainage data for the Blackwater, Moura and North Coast Lines which allowed SKM to reference the photographs to the railway network.

Prior to the site visit, SKM prepared maps showing the likely flooded areas for the Blackwater, Moura and North Coast Lines as shown on the map in **Appendix C**. The flood plain data was sourced from the Department of Environment and Resource Management (DERM) and were overlaid onto aerial photos by SKM.



Table 1 – Site visit locations and brief description of damage

Site	Line	Chainage	Location	Flood Damage Description	Photo Reference
1	Blackwater	8.416km	Gracemere	2 x LOC’s underwater	Photo 1, Photo 2
2	Blackwater	14.870km - 15.014km	Kabra	Both tracks washed out	Photo 3
3	Blackwater	21.422km	Neerkol Creek	Scour at bridge east and west abutments	Photo 4, Photo 5, Photo 6, Photo 7, Photo 8.
4	Blackwater	21.590km – 21.800km	Kabra	Track washed out	Photo 9
5	Blackwater	24.393km	Warren	Up track washed out	No photos
6	Blackwater	25.576km	Warren	Track stability undermined	Photo 10
7	Blackwater	27.591km	Warren	2 x Points motors under water and series of LOC’s underwater	Photo 11
8	Blackwater	94.639km	Aroona	Scour at culvert with minor formation slips along embankment, points machines underwater	Photo 12
9	Blackwater	97.572km	Dawson River (Western end)	Debris on bridge, both tracks washed out, points machines underwater, rock armour washed away	Photo 13, Photo 14
10	Blackwater	97.572km	Dawson River (Eastern end)	Scour at bridge abutment	Photo 14
11	Moura	133.084km	Belldeen	Track washout (single line) including formation, culvert scoured at both ends	Photo 15, Photo 16, Photo 17

Site	Line	Chainage	Location	Flood Damage Description	Photo Reference
12	Moura	89.550km	Mt Rainbow	Land slips where cutting has slid onto track, culverts scoured out and requires replacement, creek has been silted up due to embankment slip, will need clearing out	Photo 18, Photo 19, Photo 20, Photo 21, Photo 22,
13	Moura	89.480km	Mt Rainbow	Landslip on to access road	Photo 23
14	Moura	83.890km	Mt Rainbow	Landslip covering access road	Photo 24
15	Moura	83.510km	Mt Rainbow	Major landslip where the edge of the slip stopped at the toe of ballast along original track alignment. Currently being repaired by Abigroup Contractors.	Photo 25, Photo 26, Photo 27
16	Moura	82.500km – 83.220km	Mt Rainbow	Trackslew by 1m to the Northern side to allow for landslip repairs (associated with Site 15)	Photo 28, Photo 29
17	Moura	61.330km – 61.280km	Clarke	Scour at culvert and washed out ballast	No Photos
18	North Coast	576.760km – 576.860km	Epala	Washout of formation	Photo 30
19	North Coast	610.420km	Oaky Creek	Culvert damage and formation repairs	Photo 31
20	North Coast	573.500km – 574.000km	Ambrose	Ballast washed out from under track	No Photos

Refer to Appendix B & C for copies of photos and their locations



3.3 Requests for information

SKM submitted RFIs to the Authority and Aurizon Network to collect information necessary for the development of the preliminary estimate as summarised in **Table 2**. **Appendix D** contains further details of the submitted RFIs and received responses.

Table 2 – RFI register

RFI No	Date Submitted	Description	Response Received
001	12/03/2013	Request for Client Requirements Briefs (CRBs) for selected sites.	16/04/2013 29/05/2013
002	12/03/2013	Request for updated ‘Flood Recovery Plan’.	19/03/2013
003	12/03/2013	Request for Aurizon Network civil and structural standards.	10/04/2013
004	12/03/2013	Clarification on Aurizon Network’s asset ownership boundaries.	28/03/2013
005	12/03/2013	Clarification on which assets are covered by insurance.	11/04/2013
006	13/08/2013	Requested for updated ‘Flood Recovery Plan’ detailing incremental costs for the flood repairs (including Neerkol Creek).	22/08/2013
007	13/08/2013	Clarification on what capital expenditure (asset renewals and replacement costs) Aurizon Network will be claiming separately from the flood repair claim.	30/08/2013
008	13/08/2013	Clarification of scope of works yet to be undertaken (with estimated value of \$4,251,000) that form part of flood repair claim.	22/08/2013
009	13/08/2013	Clarification of Aurizon Network’s reasons for including internal labour costs in the flood repair claim.	30/08/2013
010	13/08/2013	Clarification of how Aurizon Network’s self-insurance allowance has been expended over the course of UT3.	30/08/2013



011	13/08/2013	Clarification if the repair works at Neerkol Creek are included in the flood repair claim.	22/08/2013
012	13/08/2013	Clarification of what is included in “overheads” cost category.	30/08/2013
013	13/08/2013	Copy of Deloitte Touche Tohmatsu (Deloitte)’s Independent Audit review report.	22/08/2013
014	13/08/2013	Clarification of longer term maintenance issues of flood-affected signalling infrastructure.	30/08/2013
015	13/08/2013	Clarification of un-incurred future asset inspection and maintenance costs included in flood repair claim.	22/08/2013

See Appendix D for RFI’s and responses

Following the submission of draft version of the report (Revision C), Aurizon Network provided significant information on the following aspects of their claim:

- client requirements briefs for 20 key sites (sites where consumables totalled greater than \$50,000)
- breakdown of total consumables (listing third party suppliers and amounts);
- breakdown of total overheads (listing internal and external amounts);
- statement on scope of Neerkol Creek resurfacing works; and
- discussion on escalation included in claim.

3.4 Standards, codes and guidelines

In absence of a clear response to RFI003, SKM has assumed that Aurizon Network (and its contractors) reinstated all railway infrastructure to Aurizon Network’s technical specifications which were based on the following standards:

1. Civil Engineering Track Standards (CETS), QR Ltd, 2010;
2. Civil Engineering Structures Standards (CESS), QR Ltd, 2010; and
3. Fencing repairs follow Queensland Rail drawing number 2614 A (see **Appendix E**).



4 Review of Aurizon Network’s final claim

Aurizon Network submitted their Review Event Submission document on 30 July 2013. **Table 3** provides a summary of Aurizon Network’s claim submission.

Table 3 – Summary of Aurizon Network’s claim

System	Aurizon Network claim	Aurizon Network estimates for works yet to be completed	Aurizon Network claim (excluding estimates for works yet to be completed)
North Coast Line	\$2,500,461	\$135,000	\$2,365,461
Blackwater System	\$8,463,571	\$3,184,000	\$5,279,571
Moura System	\$6,193,142	\$932,000	\$5,261,142
Railway Yards	\$0		
GRAND TOTAL	\$17,157,174	\$4,251,000	\$12,906,174

SKM finds that Aurizon Network’s estimated costs of **\$4,251,000** that have not yet been completed comprise ordinary labour costs of **\$788,500** and consumable costs of **\$3,462,500**.

SKM recommends, until the costs have been actually incurred and substantiated by Aurizon Network, that the maximum claim for completed works should be **\$12,906,173**.

SKM was requested to conduct a high level review of the Review Event Submission document. The Authority stated that this review was required to:

- 1) investigate whether Aurizon Network included normal labour hours into their estimate or only overtime and contractors’ time.
- 2) high level commentary on differences between SKM’s preliminary estimates per system and Aurizon Network’s final claim.
- 3) high level review of the Neerkol Creek bridge component of the claim to appraise reasonableness.

4.1 Inclusion of ordinary labour costs and contractor’s expenses in claim

4.1.1 Ordinary labour costs

Aurizon Network has included normal and overtime labour hours in their final 2013 flood claim submission. In response to RFI009, Aurizon Network has explained why ordinary labour costs should be included in their claim:



Consistent with the 2011 Flood Submission labour costs incurred as part of the flood recovery works have been included in the cost build up and tariff adjustments. UT3 did not provide for costs associated with flood recovery works and therefore are treated as incremental costs.

Aurizon Network has explained that it used internal labour to undertake a significant portion of the flood repair works. Some of this labour was temporarily relocated to the flood affected area from the Goonyella and GAPE systems. The costs for ordinary labour stationed in the Blackwater and Moura systems and labour from other areas would have been considered when developing the tariffs for UT3. SKM finds that Aurizon Network has not explained why the costs of ordinary labour should be included in the flood claim when they should to be covered by the UT3 agreement.

SKM understands that overtime labour hours were necessary to repair the network after the exceptional flooding event.

SKM finds that ordinary labour should be covered by the UT3 maintenance allowance and recommends that the ordinary labour costs of **\$2,301,270** (excluding \$788,500 of Aurizon Network’s estimated costs that have not been completed) should be omitted from Aurizon Network’s claim.

4.1.2 Contractor’s expenses

Aurizon Network explained during discussions on 5 March 2013 that for the more significant landslips and access road damage caused by the floods, local contractors had been engaged to assist in the remediation works. SKM notes that the costs of works undertaken by contractors carried out on the Blackwater, Moura and North Coast Lines for the flooding repairs should be considered over and above normal maintenance activities.

On 6 September 2013 Aurizon Network provided detailed breakdown of costs where external contractors have been used to remediate the flood damaged sites. **Table 4** below summarises the detail provided for external labour and **Table 5** details the external plant hire used for the flood recovery effort.

Table 4 – Summary of external labour costs in Aurizon Network’s flood claim

Description	Amount
[REDACTED]	\$3,069
[REDACTED]	\$35,400
[REDACTED]	\$31,073
[REDACTED]	\$8,535



[REDACTED]	\$7,048
[REDACTED]	\$205,330
[REDACTED]	\$243,000
Various	\$30,540

Table 5 – Summary of external plant hire costs in Aurizon Network’s flood claim

Description	Amount
[REDACTED]	\$332
[REDACTED]	\$109,485
[REDACTED]	\$3,375
[REDACTED]	\$976
[REDACTED]	\$34,312
[REDACTED]	\$1,189
[REDACTED]	\$12,362
[REDACTED]	\$3,048
[REDACTED]	\$889,081
[REDACTED]	\$7,040
[REDACTED]	\$247,894
[REDACTED]	\$5,580
[REDACTED]	\$339,108
[REDACTED]	\$17,609
[REDACTED]	\$43,695
[REDACTED]	\$30,605
[REDACTED]	\$4,728
[REDACTED]	\$34,312
[REDACTED]	\$290,244
[REDACTED]	\$2,379,170
[REDACTED]	\$4,200
[REDACTED]	-\$34,312
[REDACTED]	\$111
Various	\$1,043,100
[REDACTED]	\$92,345

These amounts are discussed further in **Section 4.3.2** below.



4.2 SKM and Aurizon Network 2013 flood claim comparison

4.2.1 SKM preliminary estimate

SKM was not asked to investigate in detail all the sites affected by the 2013 flooding event. As such, SKM developed a cost estimate based on the following:

- photographs and video footage supplied by Aurizon Network;
- Aurizon Network flood recovery plan at 1000 hours on 7 March 2013; and
- material and plant hire costs for the Central Queensland Region.

From the information provided by Aurizon Network, SKM was unable to estimate the following:

- overtime labour costs;
- accommodation and expenses for labour in remote locations;
- consumable costs (e.g. petrol); and
- Aurizon Network overhead costs (such as project management and administration).

4.2.2 Aurizon Network’s costs estimate

Here below is a discussion on Aurizon Network’s cost estimate.

Affected sites added or withdrawn since 7 March 2013

SKM has noted that Aurizon Network has updated the flood recovery plan since the submission dated 7 March 2013. **Table 6** and **Table 7** below show the sites that have been added and withdrawn by Aurizon Network from their 2013 flood claim since 7 March 2013.

Table 6 – Additional sites added to the 2013 flood claim since 7 March 2013

Item	Area	KM Start	KM Finish	Damage
ENCL-1A	Callemondah			Several points underwater
ENCL-20	Rocklands			Overhead maintenance
MSL-07-FF	Stirrat	59.750	61.400	Removal of debris on track and damaged culverts
MSL10.0	Dumgree	110.330		Scoured culvert
MSL10.1	Earlsfield	130.830		Scoured pier and access road
MSL10.4	Fry	77.700		Culvert cleaning
MSL-15-FF	Mt Rainbow	89.732	89.742	Cutting slip, debris on track
MSL-16-FF	Earlsfield	132.235	132.900	Ballast washout, debris on track



MSL23	Fry	63.000	63.300	Debris on track
MSL58	Stirrat	59.820	59.825	DWM

Table 7 – Sites that have been withdrawn from the 2013 flood claim since 7 March 2013

Item	Area	KM Start	KM Finish	Damage
NCL-13	Archer	611.578	611.588	Minor washout
NCL-14	Yarwun	543.620	543.855	Re-rail of track
NCL-15	Yarwun	543.620	543.855	Re-rail of track
NCL-16	Yarwun	543.620	543.855	Re-rail of track
NCL-17	Marmor	599.190	599.774	Re-rail of track
NCL-18	Marmor	600.100	600.767	Re-rail of track
NCL-19	Marmor	594.890		Level crossing re-seal
CL-13	Gracemere	11.059		Replacement of crossing iron work
CL-14	Edungalba	80.683	81.064	Re-rail of track
CL-35	Gracemere	9.150		Fencing repairs
CL-43	Westwood	44.640		Scoured out culvert
FCL-1	Duaringa	109.820	110.020	Re-rail of track
FCL-2	Duaringa	110.840	111.127	Re-rail of track
FCL-3	Wallaroo	115.320	115.456	Re-rail of track
FCL-4	Dingo	138.920	139.127	Re-rail of track
MSL-2	Stowe	14.200		Access road washed out

SKM notes that in response to RFI007, Aurizon Network has explained why some of these sites have been withdrawn from the claim:

The majority of the works were treated as maintenance works, however when the asset was to be completely rebuilt it was treated as a renewal which is a capital expenditure. There were only four (4) jobs treated as a renewal, they were CL35, MSL02, MSL68 and MSL101, which are not included within the 2013 Flood claim.

Escalation

SKM notes that Aurizon Network are still working on some of the 2013 flood recovery sites in the 2013/2014 financial year and Aurizon Network included associated escalation costs for these sites in their claim.

SKM notes that on 5 September 2013, Aurizon Network has explained the escalation that was applied to incurred cost, as follows:



The costs that were incurred in the 2012/2013 financial year, being \$12,906,174 were escalated by applying both WACC and CPI. The rate of WACC was calculated on a 6 month pro-rata basis using the approved UT3 WACC rate, this was due to the majority of these costs being incurred in the January/February. Applying 6 months WACC expresses the costs in end of year 2012/2013 terms. These end of year costs were then escalated at a full year CPI in order to be consistent with other cost inputs used to derive the 2013/14 reference tariffs.

Overheads

Aurizon Network has stated in their Review Event Submission document that they incurred additional incremental business and overhead costs as a result of the flood event. In response to RFI012 seeking clarification of the overhead costs, Aurizon Network has stated that

The UT3 maintenance cost model provides for a “margin” on labour costs, this is generally reflected as an overhead. Aurizon Network has also included external consultancy costs used in preparing this claim, including an audit of the flood cost capture process.

In the Review Event Submission document, Aurizon Network has stated that these costs included:

- Senior management, Engineering expertise and Administrative support involved in activating and coordinating the flood recovery taskforces;
- Project Managers and Engineering resources to develop the recovery plan including the Client Requirement Briefs (CRB); and
- Co-ordination of additional contractor and internal resources.

On 6 September 2013 Aurizon Network provided further breakdown on the items, products or services that are included in the overheads portion of the claim, as shown in **Table 8** below.

Table 8 – Breakdown of Aurizon network’s claimed overhead costs

Description	Amount
Lime Slurry Injection	\$131,160
Labour	\$689,896
Materials	\$182,520
Minor Consumables	\$304,408
Plant Hire	\$4,326
Resurf	\$24,159
Surveying	\$15,215
Travel	\$56,404
Work Protection	\$271,875



Aurizon Network explained that the lime slurry injection costs covered engineering and lime slurry materials needed to stabilise flooded formation. SKM finds this cost reasonable.

Labour covers the Aurizon Network management effort as described in Review Event Submission document. SKM notes that this represents less than 5% of total claim which is reasonable. SKM finds travel costs for the management of the flood activities are reasonable.

SKM notes that Aurizon Network’s breakdown of the minor consumables contained 23 items. SKM noted that one item amounted to \$158,317. Aurizon Network explained that that this cost was related to the engineering services provided by Parsons Brinkerhoff for the flood recovery. SKM finds these costs reasonable.

Following the above review of the major components of the overheads elements of Aurizon Network’s claim, SKM recommends that the Authority approves Aurizon Network’s claimed overheads costs of **\$1,504,659**.

Consumables

SKM notes that any 2013 flood recovery works that will be undertaken in the 2013/2014 financial year are only estimates and actual costs may be different. SKM notes that the estimated costs for these works have been combined under the ‘consumable’ heading.

As shown in **Table 9** below, Aurizon Network catalogues their consumable costs into five main categories. Details of the principle expenses, namely External Labour and External Plant Hire, are listed in **Section 4.1.2** above.

Table 9 – Summary of consumable costs in Aurizon Network’s flood claim

Category	Amount
Credit Card	\$27,371
External Labour	\$563,994
External Plant Hire	\$5,559,589
Material	\$343,955
Travel	\$154,703
Grand Total	\$6,649,612

SKM finds that the breakdown provided by Aurizon Network is greater than the claimed total of incurred costs of **\$5,267,695**. Aurizon Network explained that the difference is due to the fact that additional costs have settled to the SAP account since the submission of their Review Event Submission document at end of July 2013.



In response to request from SKM, on 6 September 2013 Aurizon Network provided Client Requirement Briefs (CRB) for the 20 most significant sites (i.e. sites with consumable costs greater than \$50,000). SKM has reviewed these CRBs and finds that they document the damage to the various sites well, but lack clarity on the resources necessary to complete the repair works. Aurizon Network documented the damage to the affected sites with photographs.

Aurizon Network explained that they could not identify the external labour or external plant hire required at individual sites. Instead they allocated a proportion of the overall costs to the individual sites (i.e. proportion of cost = total cost x length of individual section / total length of affected track). SKM finds that this is unfortunate but a reasonable result given the number of affected sites and the complexity of tracking plant and labour to a specific site.

When comparing the claimed overall costs of the consumables to the works as described in the CRBs, SKM recommends that the Authority approves Aurizon Network's claimed consumable cost of **\$5,267,695** (excluding \$3,462,500 of Aurizon Network's estimated costs that have not been completed).

4.2.3 Comparison of SKM and Aurizon Network cost estimation per system

SKM has undertaken a high level review of Aurizon Network's costs per system for the 2013 flood recovery works as described in the Review Event Submission dated 30 July 2013.

Here below is a discussion of the differences between SKM's preliminary estimate and Aurizon Network's claim and SKM's findings per system.

North Coast Line

With regards the North Coast Line costs, SKM notes that Aurizon Network originally advised the Authority that certain sites would require re-railing as part of the recovery efforts and subsequently, as shown in **Table 7**, these sites have been withdrawn from 2013 flood claim. This has had a significant reduction in costs for the North Coast Line.

SKM notes that its preliminary estimates of quantities of new ballast required on the North Coast Line were significantly higher than those being claimed by Aurizon Network. This discrepancy is due to the inherent inaccuracies when attempting to develop quantity estimations from incomplete photographic records. SKM finds that Aurizon Network's ballast quantities are reasonable.

SKM finds Aurizon Network's overall costs for completed work at the claimed affected sites along the North Coast Line (excluding ordinary labour costs) to be reasonable.

Blackwater System



With regards the Blackwater costs, SKM's preliminary estimate and those from Aurizon Network are comparable. A part from the Neerkol Creek Bridge, there has been no changes to scope of these repair activities between 7 March 2013 and the final submission.

SKM finds Aurizon Network's overall costs for completed work at the claimed affected sites (excluding the Neerkol Creek Bridge) along the Blackwater System (excluding ordinary labour costs) to be reasonable.

Moura System

Aurizon Network increased the scope of works significantly along the Moura System since SKM developed its preliminary cost estimate. Aurizon Network are claiming that the additional sites listed in **Table 6** have a combined value of **\$1,453,716**, SKM notes that the Stirrat site (MSL-7D-FF) has a value of \$1,234,456 and yet did not appear in the list shared with SKM during the site visit on 19 and 20 February 2013. SKM notes that the Moura system was opened to traffic on 6 February 2013, but these additional sites did not appear on the list of affected sites dated 7 March 2013.

Despite these anomalies, SKM finds Aurizon Network's overall costs for completed work at the claimed affected sites along the Moura System (excluding ordinary labour costs) to be reasonable.

Railway Yards

SKM notes that Aurizon Network did not claim for any flood remediation works that were required in the railway yards.

4.3 Review of Neerkol Creek Bridge claim component

4.3.1 External insurance coverage

A meeting between Aurizon Network, the Authority and SKM was held on 5 March 2013. During the discussions, Aurizon Network stated that certain assets along the railway corridor might be covered by insurance. At the time, Aurizon Network was unsure which assets, if any, were covered.

At a follow up meeting with Aurizon Network on 29 May 2013 it was clarified that any works associated with the Neerkol Creek Bridge would be covered by their insurance policy and any claims in regards to this infrastructure would be excluded from their submission to the Authority. However, in the final Review Event Submission dated 30 July 2013 Aurizon Network advised that its application to have the damages to the bridge recovered through the insurance program has been rejected.



4.3.2 Self-insurance coverage

SKM notes that Aurizon Network has stated in the Review Event Submission document that the amount included in UT3 operating costs for self-assurance has been materially exceeded and has clarified, in response to RFI010, where the costs for self-insurance over the course of UT3 have been expended.

4.3.3 Claim details

Aurizon Network is claiming the costs shown in **Table 10** for the Neerkol Creek Bridge flood remediation works.

Table 10 – Neerkol Creek Bridge flood remediation claim

Neerkol Creek Side	West Abutment	East Abutment	Totals
Ballast	\$ 22,336	\$ 22,336	\$ 44,672
Labour	\$ 81,650	\$ 81,650	\$ 163,300
Overtime	\$ 4,353	\$ 4,353	\$ 8,706
Consumables	\$ 102,782	\$ 102,782	\$ 205,564
Resurfacing	\$ 247,992	\$ 247,992	\$ 495,984
Inventory	\$ 8,580	\$ 8,580	\$ 17,160
Overheads	\$ 1,623	\$ 1,623	\$ 3,246
TOTAL	\$ 469,317	\$ 469,317	\$ 938,634

SKM has conducted a high level review of the Aurizon Network claimed costs associated with the Neerkol Creek Bridge flood remediation works and has identified that \$495,984 (or 47.2% of total cost) for the remediation works are contributed to resurfacing of the track on the bridge. SKM asked Aurizon Network to clarify these resurfacing costs given that only \$44,672 worth of new ballast was required at the site.

On 6 September 2013, Aurizon Network provided a statement from the manager responsible for the resurfacing that clarified the requirement as follows:

From an engineering perspective, track resurfacing and dynamic stabilisation was required between the area of 21.590km - 21.800km single line section between Kabra to Warren, due to extensive :

(i) Formation,

(ii) Subgrade and



(iii) Ballast washout, which occurred due to flood waters.

Formation materials sourced during the emergent track restoration, were not able to be compacted fully (Rock filled embankment and 600mm uncompacted capping layer), since from a geotechnical engineering perspective the risk of further wet weather was high. Upon the track infrastructure being reinstated and the ballast being resurfaced, this single line section would continue to settle on a fortnightly basis until maximum compaction and optimal moisture content was achieved, over a few months. The criticality for the track to be maintained within acceptable overhead traction height and stagger measurements, was essential for the continued operation of electrical coal train services.

SKM finds Aurizon Network's overall costs for completed work at Neerkol Creek Bridge along the Blackwater System (excluding ordinary labour costs) to be reasonable.



5 Conclusion

SKM’s site visit and preliminary estimate allowed for a general understanding of the repairs necessary to the Blackwater, Moura and North Coast Lines caused by 26 January 2013 floods and provided an independent assessment of the likely cost of the repair works.

Aurizon Network’s Review Event Submission includes allowances for the following labour costs:

- ordinary labour costs;
- overtime labour costs for Aurizon Network staff; and
- corporate overheads for Aurizon Network staff.

SKM notes that Aurizon Network has combined the remediation works undertaken by external contractors under the ‘consumables’ heading. On 6 September 2013 Aurizon Network provided quantities of materials, plant and equipment details and external labour costs associated with works undertaken by contractors.

SKM recommends that the following costs be omitted from Aurizon Network’s claim:

- | | |
|---|-------------|
| ▪ ordinary labour costs (excluding estimated costs) | \$2,301,270 |
| ▪ estimated costs incomplete work | \$4,251,000 |

In conclusion, SKM finds that **\$10,604,904** of Aurizon Network’s claim for **\$17,157,174** to be reasonable.



Appendix A Aurizon Network Flood Recovery Plans

- Flood Recovery Plan dated 18 February 2013
- Flood Recovery Plan dated 7 March 2013
- Flood Recovery Plan received 22 August 2013



Appendix B Photos

Photo 1 *Blackwater Line,
Gracemere (Chainage
8.416km)*

Repair of previously flooded LOC
cabin



Photo 2 *Blackwater Line,
Gracemere (Chainage
8.416km)*

Repair of previously flooded LOC
cabin





Photo 3 *Blackwater Line, Kabra*
(Chainage 14.870km –
15.014km)

Both tracks washed out (note that
this section has been repaired)



Photo 4 *Blackwater Line, Neerkol*
Creek (Chainage
21.422km)

Damage to railway bridge, eastern
abutment scoured out





Photo 5 *Blackwater Line, Neerkol
Creek (Chainage
21.422km)*

Overview of Neerkol Creek bridge



Photo 6 *Blackwater Line, Neerkol
Creek (Chainage
21.422km)*

Abutment scour at western end of
bridge, note the missing flood rock





Photo 7 *Blackwater Line, Neerkol
Creek (Chainage
21.422km)*

Abutment scour at western end of
bridge, note the extent of scour at
the southern end of the bridge



Photo 8 *Blackwater Line, Neerkol
Creek (Chainage
21.422km)*

Scour at south western end of
Neerkol creek





Photo 9 *Blackwater Line, Kabra*
(Chainage 21.590km –
21.800km)

Track washed out at Kabra



Photo 10 *Blackwater Line, Warren*
(Chainage 25.576km)

Track stability undermined by flood
waters





Photo 11 *Blackwater Line, Warren*
(Chainage 25.591km)

2 x points motors underwater and series of LOC’s underwater



Photo 12 *Blackwater Line, Aroona*
(Chainage 94.639km)

Scour at culvert with minor formation slips along embankment, points machines under water





Photo 13 *Blackwater Line, Dawson River (Chainage 95.572km)*

Debris stuck under Dawson River bridge



Photo 14 *Blackwater Line, Dawson River (Chainage 95.572km)*

Rock armour washed away from Dawson River bridge





Photo 15 Moura Line, Belldeen
(Chainage 133.084km)

Track wash out



Photo 16 Moura Line, Belldeen
(Chainage 133.084km)

Track wash out



Photo 17 Moura Line, Belldeen
(Chainage 133.084km)

Track wash out, note the distance of
the flood rock from the original
position





Photo 18 Moura Line, Belldéen
(Chainage 89.550km)

Railway embankment slipping into creek



Photo 19 Moura Line, Belldéen
(Chainage 89.550km)

Silted up culverts (note the sides of the culvert are scoured out)



Photo 20 Moura Line, Belldéen
(Chainage 89.550km)

Embankment slipping onto the railway





Photo 21 Moura Line, Belldeen
(Chainage 89.550km)

Silted up culverts and collapsed
cess drain



Photo 22 Moura Line, Belldeen
(Chainage 89.550km)

Embankment slipping into cess
drain



Photo 23 Moura Line, Belldeen
(Chainage 89.550km)

Collapsed embankment impeding
access road





Photo 24 Moura Line, Mt Rainbow
(Chainage 83.890km)

Collapsed embankment along
access road



Photo 25 Moura Line, Mt Rainbow
(Chainage 83.510km)

Major embankment slip (railway is
on top of the embankment)



Photo 26 Moura Line, Mt Rainbow
(Chainage 83.510km)

Major embankment slip (note, track
has been slewed 1m to the north to
avoid embankment)





Photo 27 Moura Line, Mt Rainbow
(Chainage 83.510km)

Major embankment slip



Photo 28 Moura Line, Mt Rainbow
(Chainage 82.500km –
83.220km)

Track slew to avoid embankment
slip



Photo 29 Moura Line, Mt Rainbow
(Chainage 82.500km –
83.220km)

Track slew to avoid embankment
slip





Photo 30 *North Coast Line, Epala*
(Chainage 576.760km –
576.860km)

Washout of formation



Photo 31 *North Coast Line, Oaky*
Creek (Chainage
610.420km)

Culvert and formation repaired





Appendix C Photo Locations and flood map of Blackwater, Moura and North Coast Line

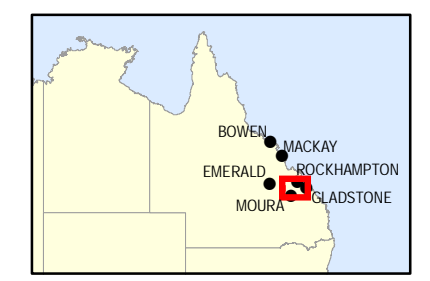
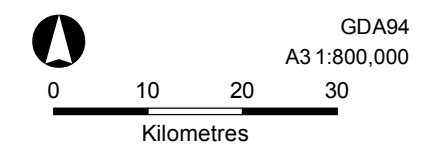
BLACKWATER & MOURA SYSTEMS - PHOTO LOCATIONS



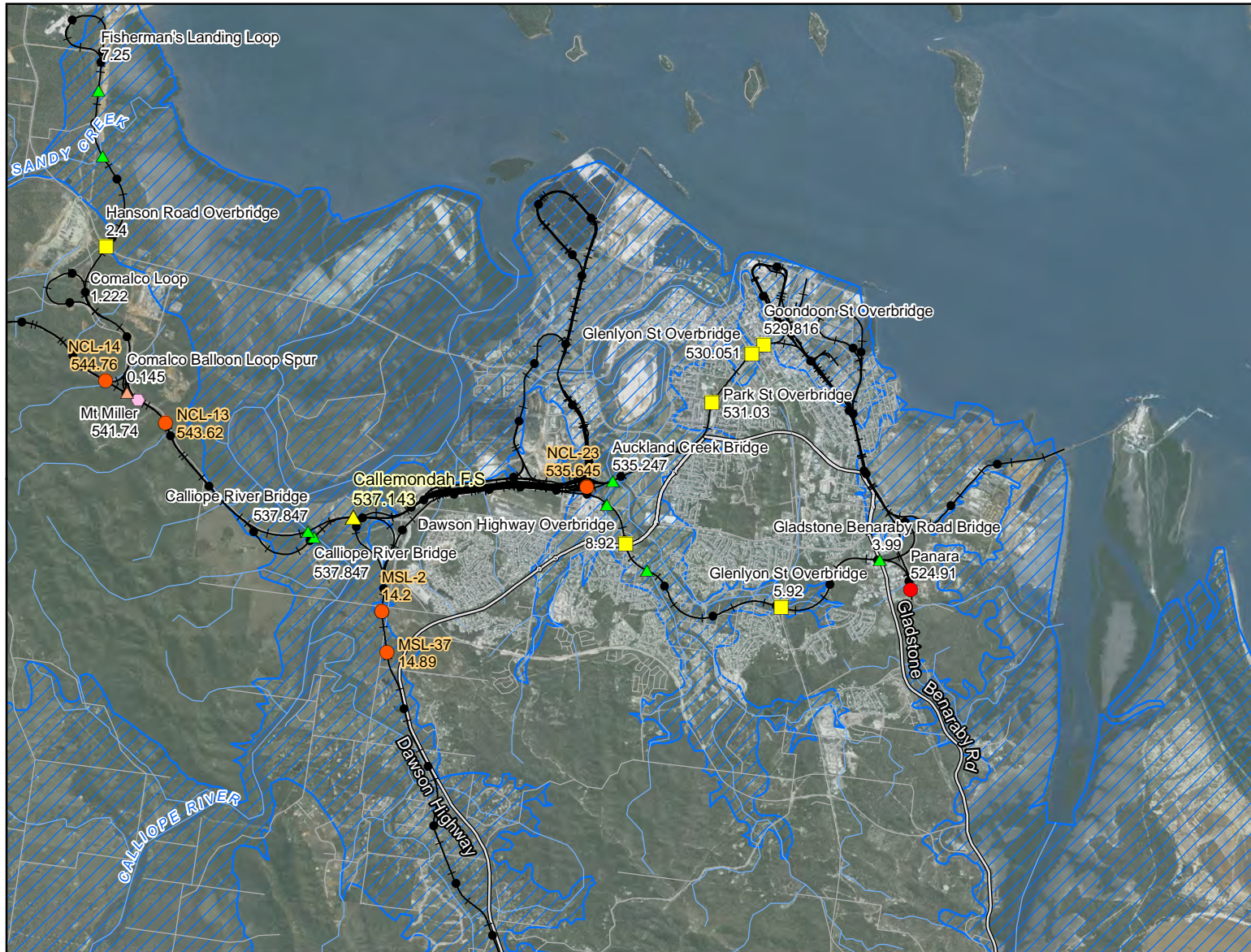
- LEGEND**
- Photo Location
 - Towns
 - + Railway
 - == Highway
 - ▨ DERM Floodplain Assessment Overlay

Based on or contains data provided by Aurizon Network Pty Ltd 2013 © Aurizon Network Pty Ltd. In consideration of Aurizon Network Pty Ltd permitting use of this data you acknowledge and agree that Aurizon Network Pty Ltd gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



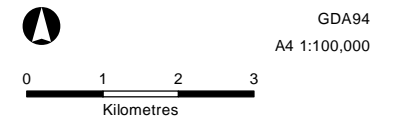
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 1 OF 31



Legend

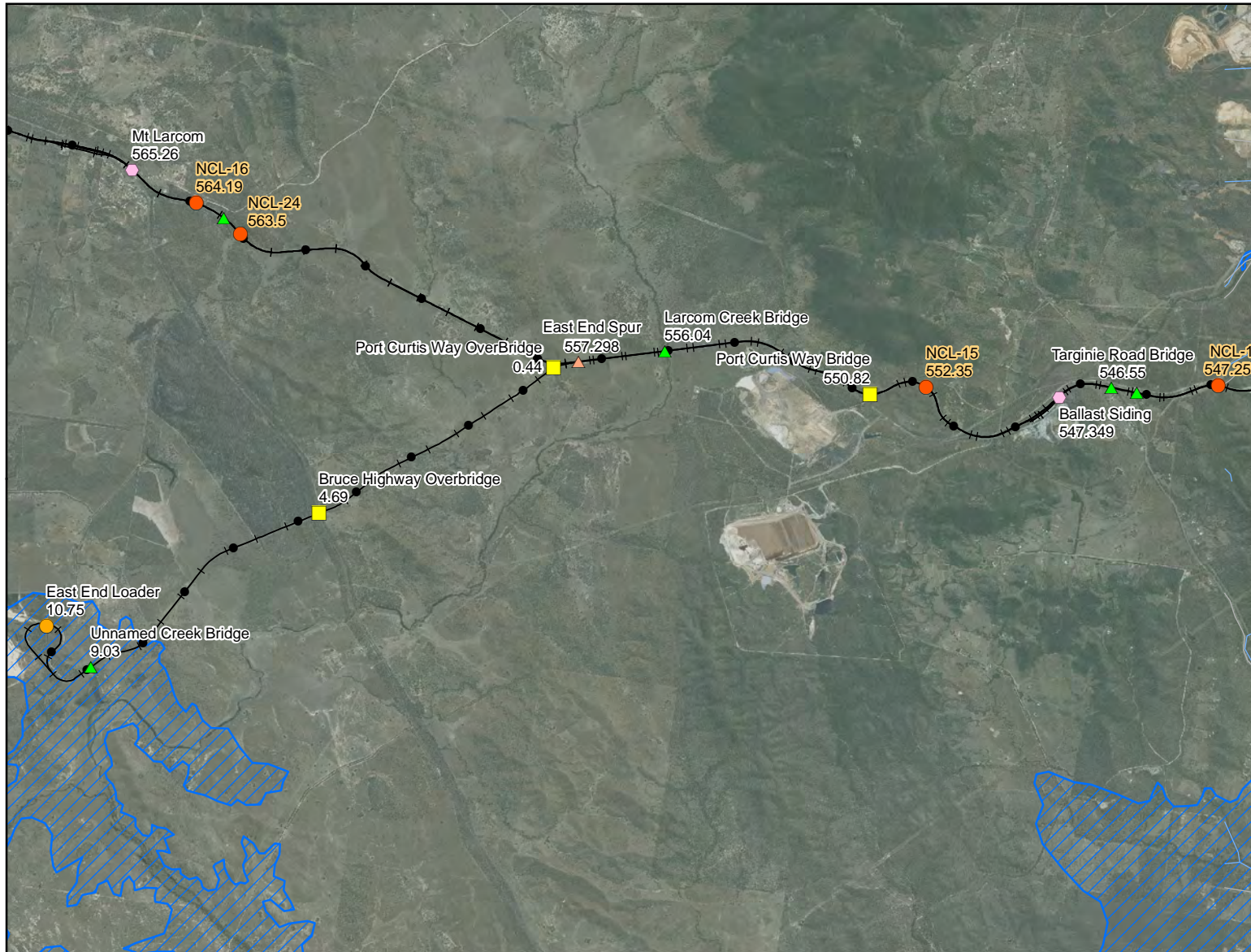
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 2 OF 31



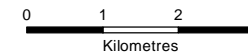
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



GDA94
A4 1:100,000



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

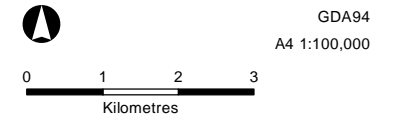
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 3 OF 31



Legend

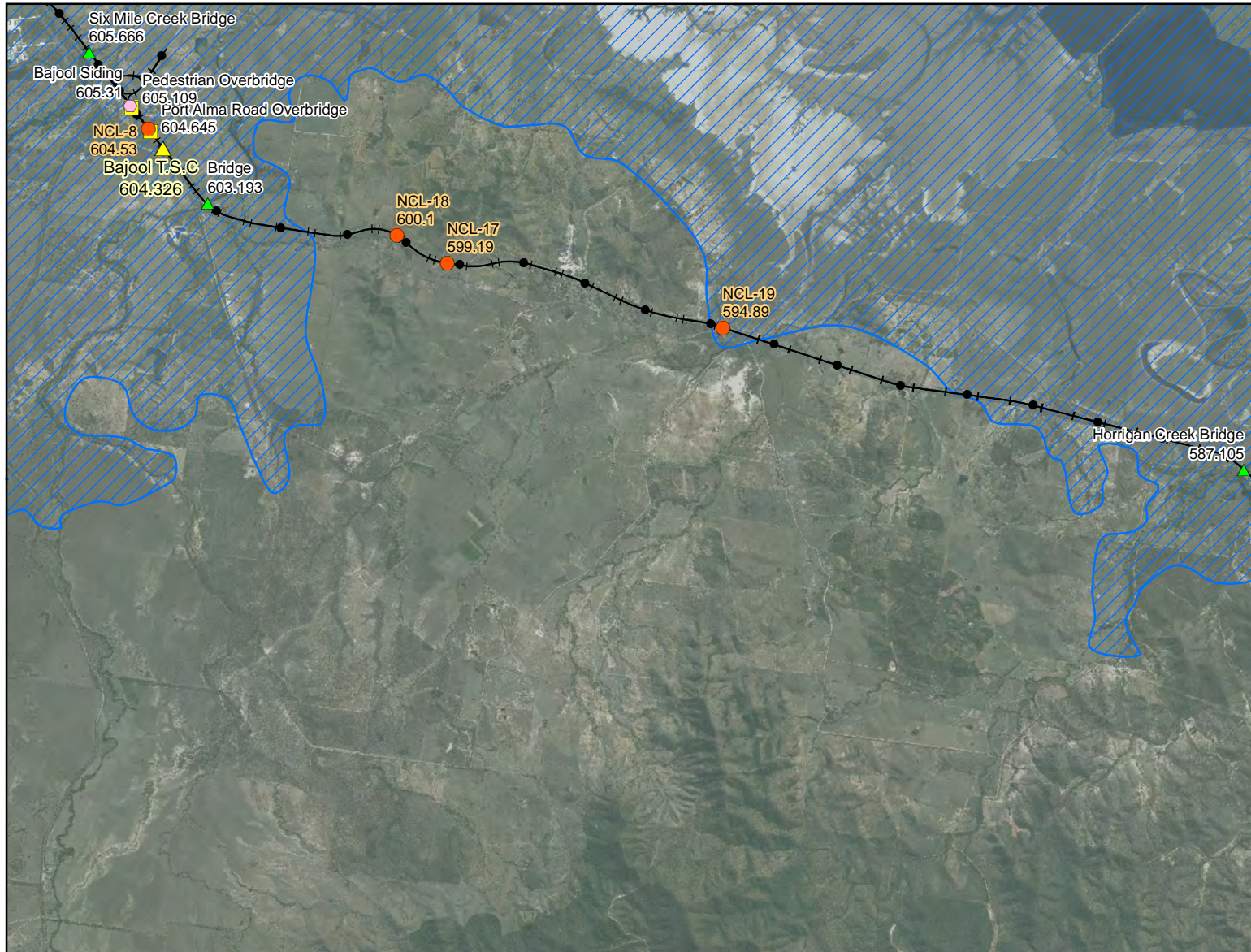
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 4 OF 31



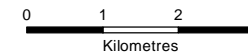
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.

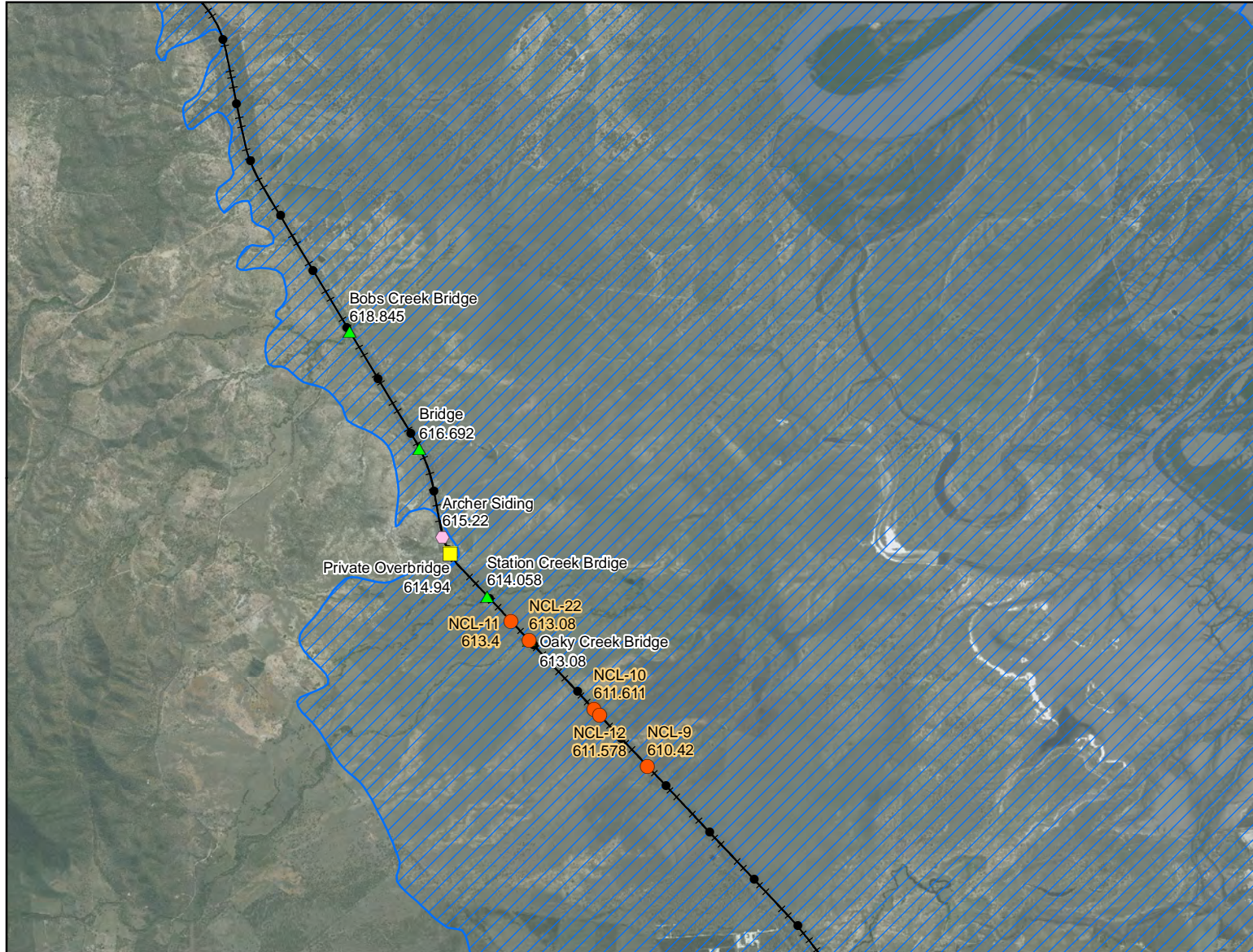


GDA94
A4 1:100,000



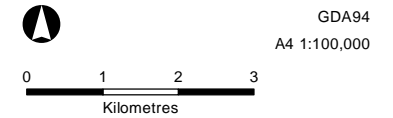
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 5 OF 31



- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features**
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

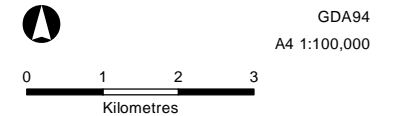
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 6 OF 31



Legend

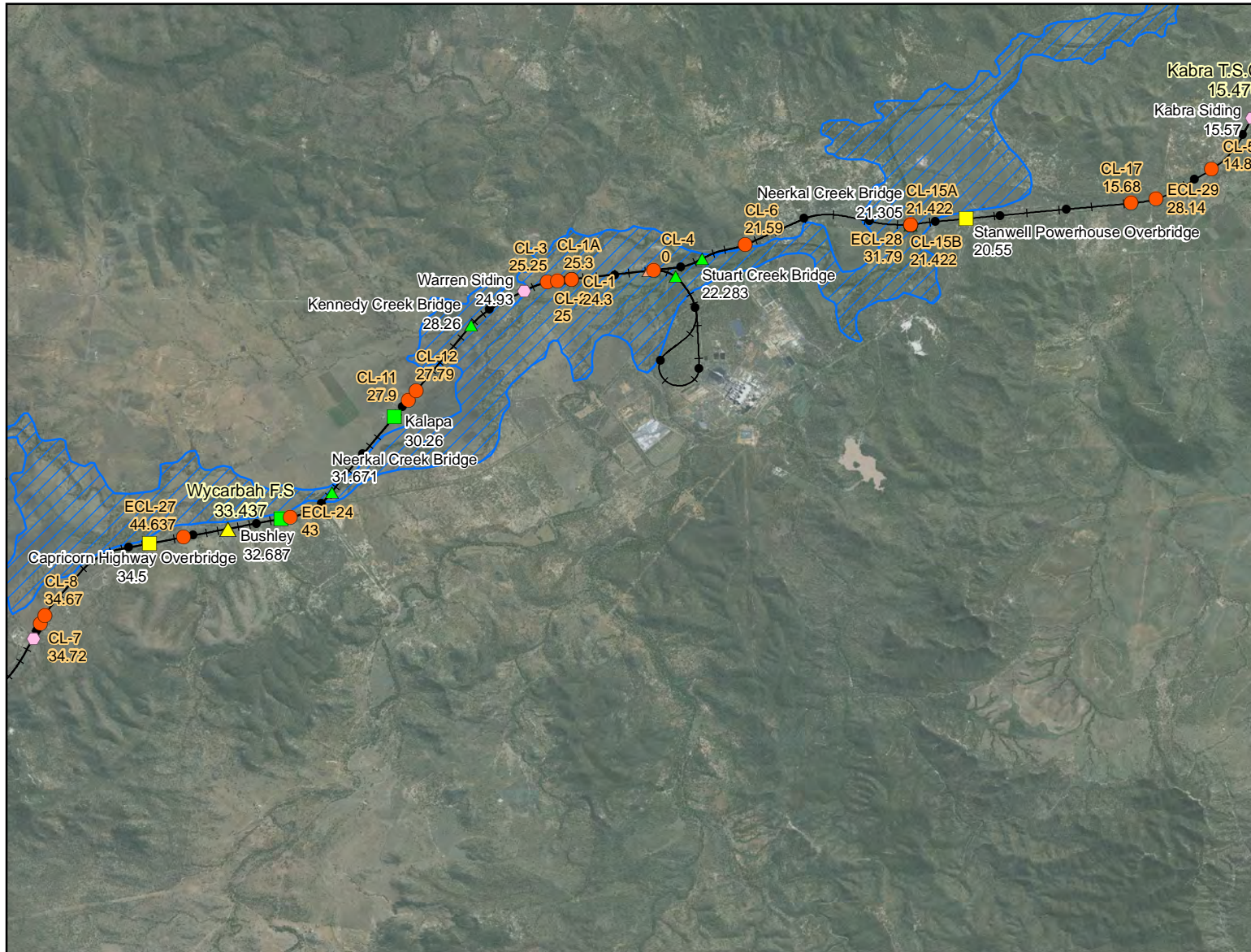
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 7 OF 31



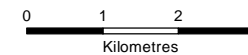
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.

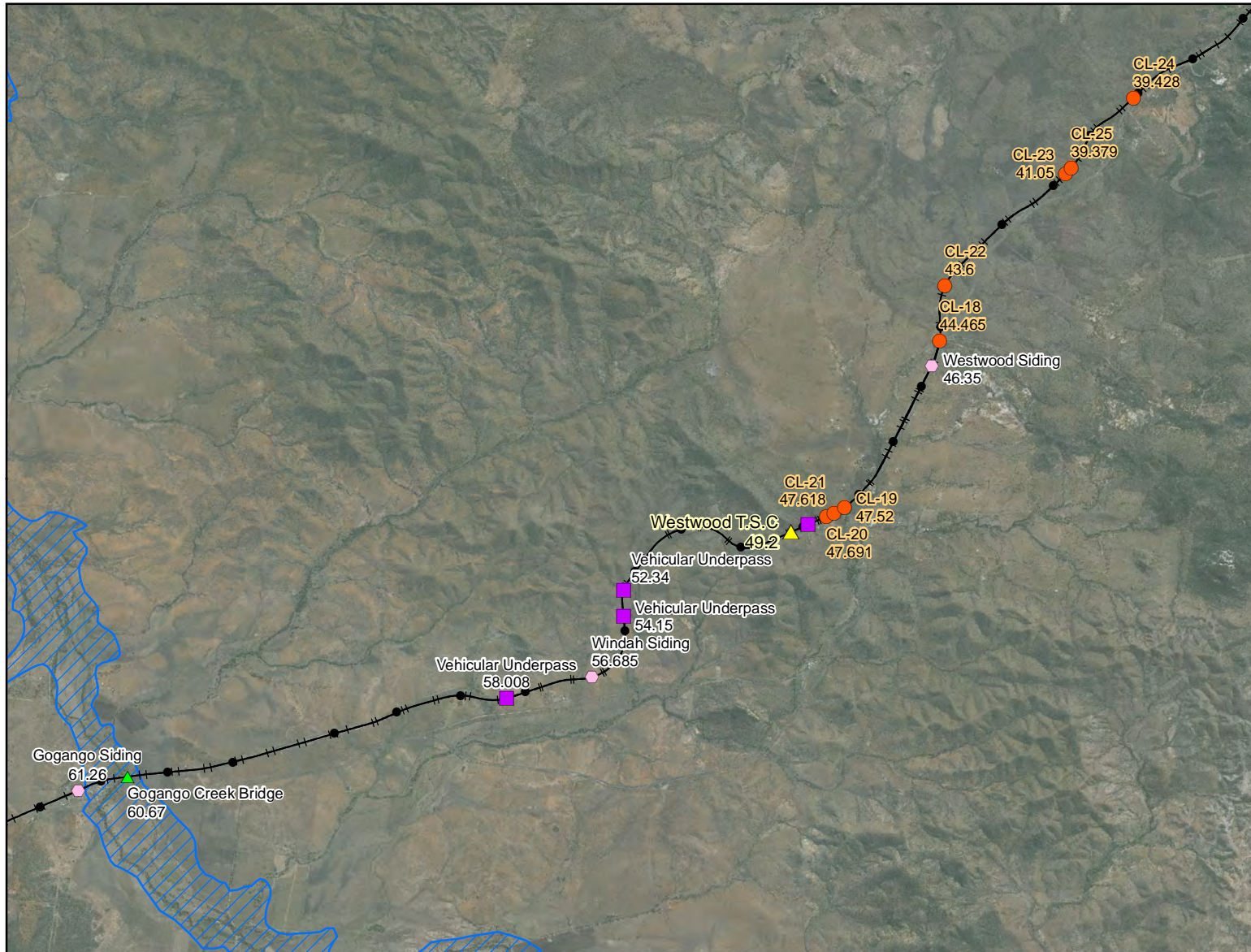


GDA94
A4 1:100,000



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

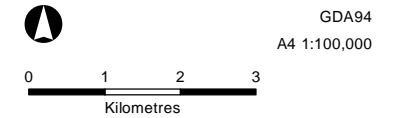
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 8 OF 31



Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



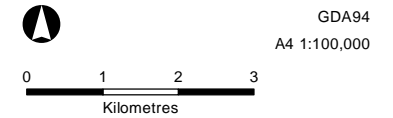
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 9 OF 31



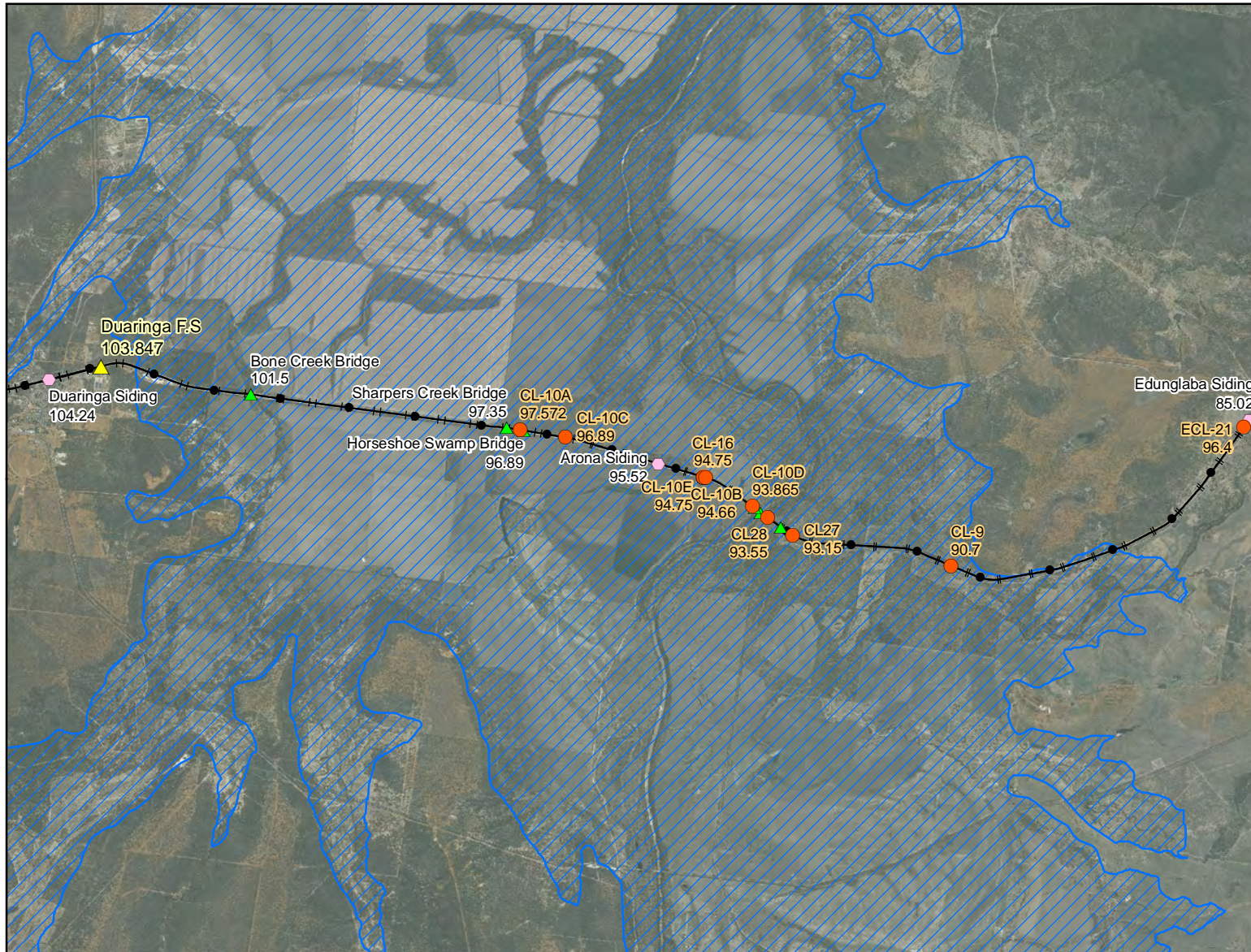
- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features**
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

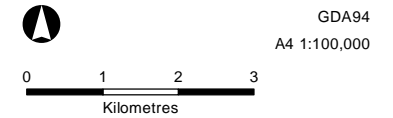
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 10 OF 31



Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features:
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

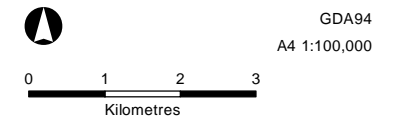
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 11 OF 31



Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



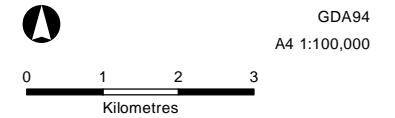
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 12 OF 31



- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features**
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



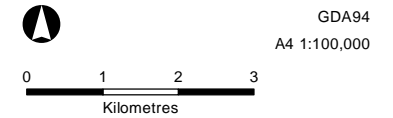
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 13 OF 31



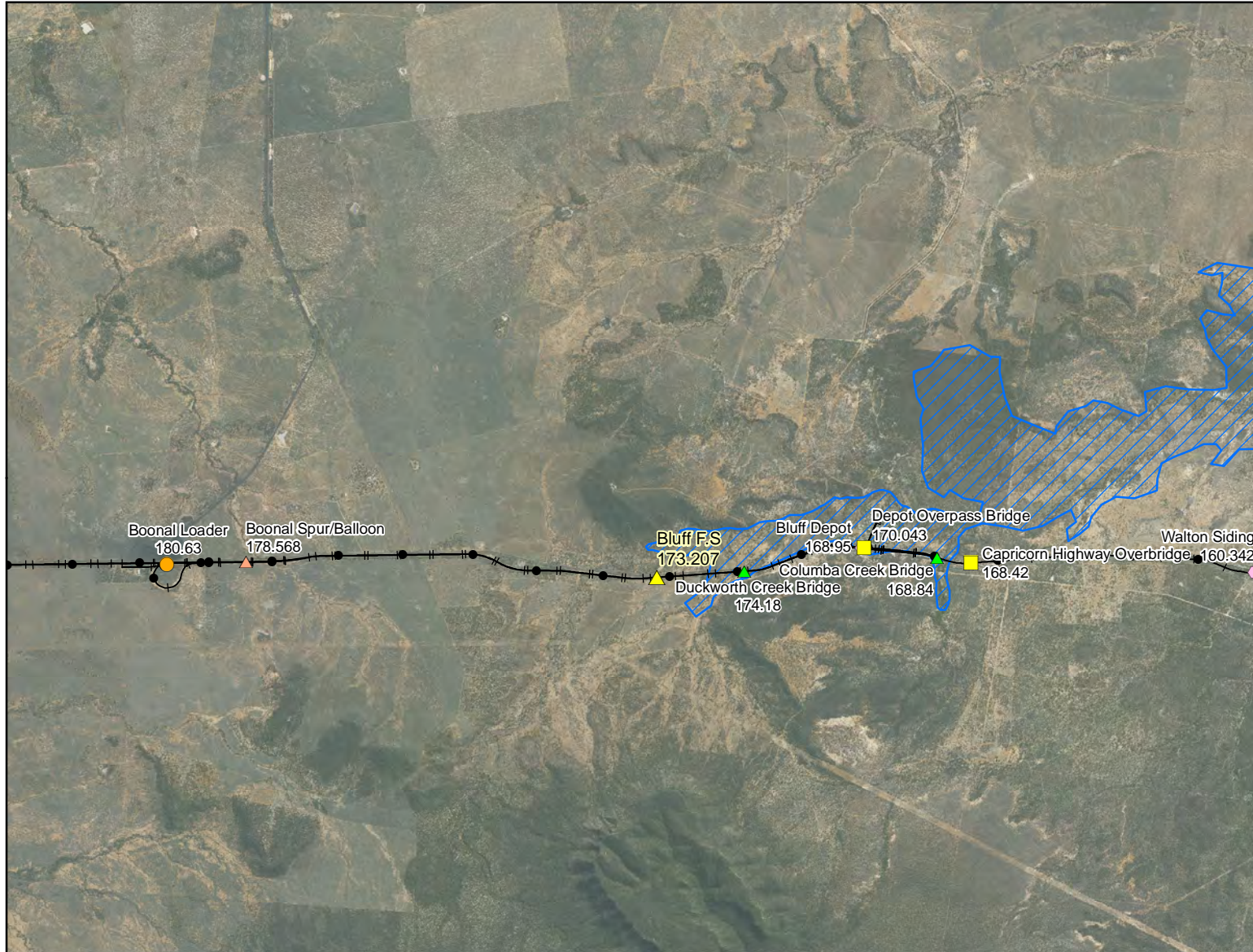
- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features**
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 14 OF 31



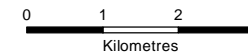
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features:
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.

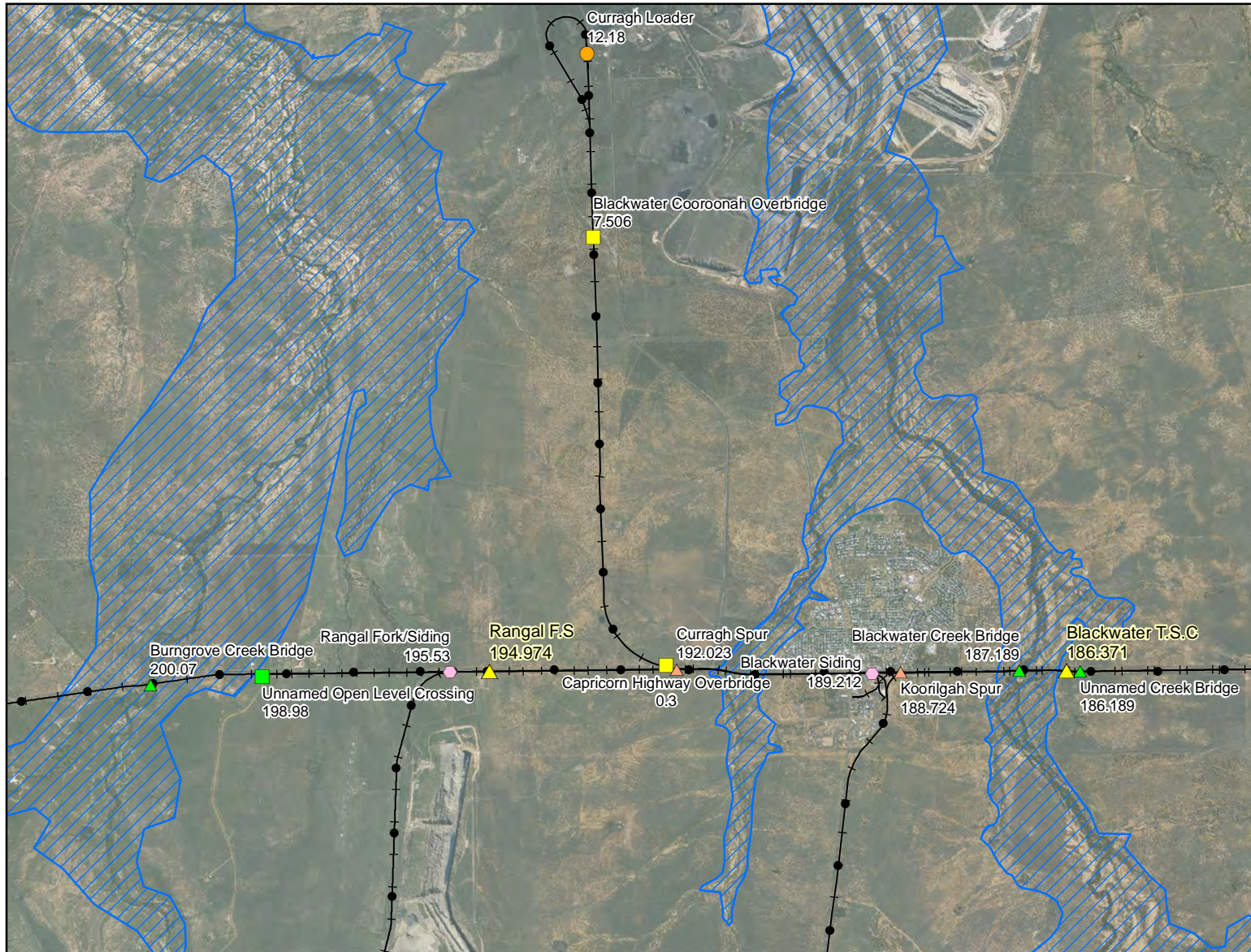


GDA94
A4 1:100,000



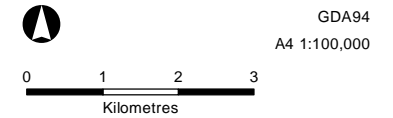
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 15 OF 31



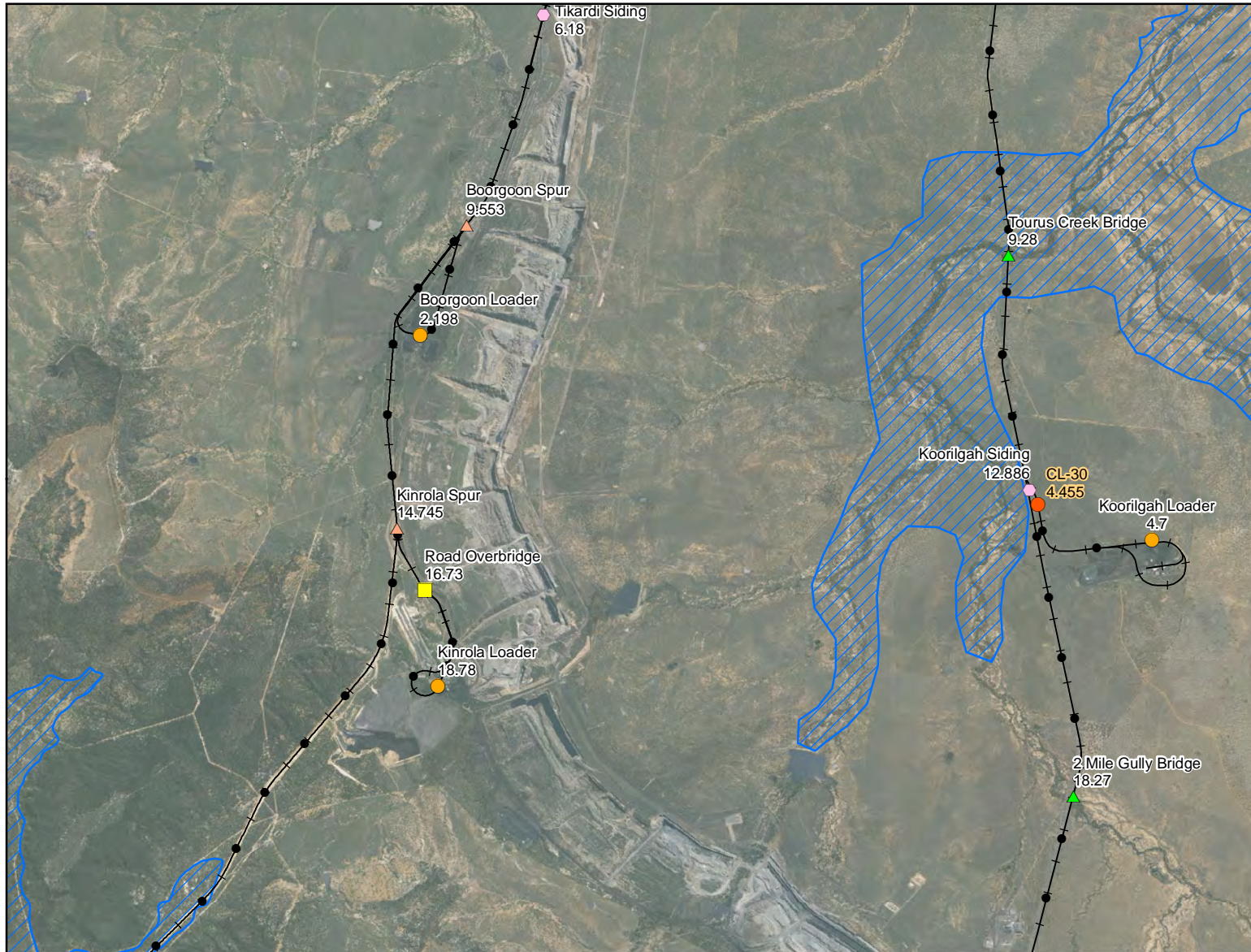
- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features**
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 16 OF 31



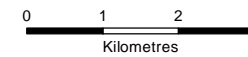
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.

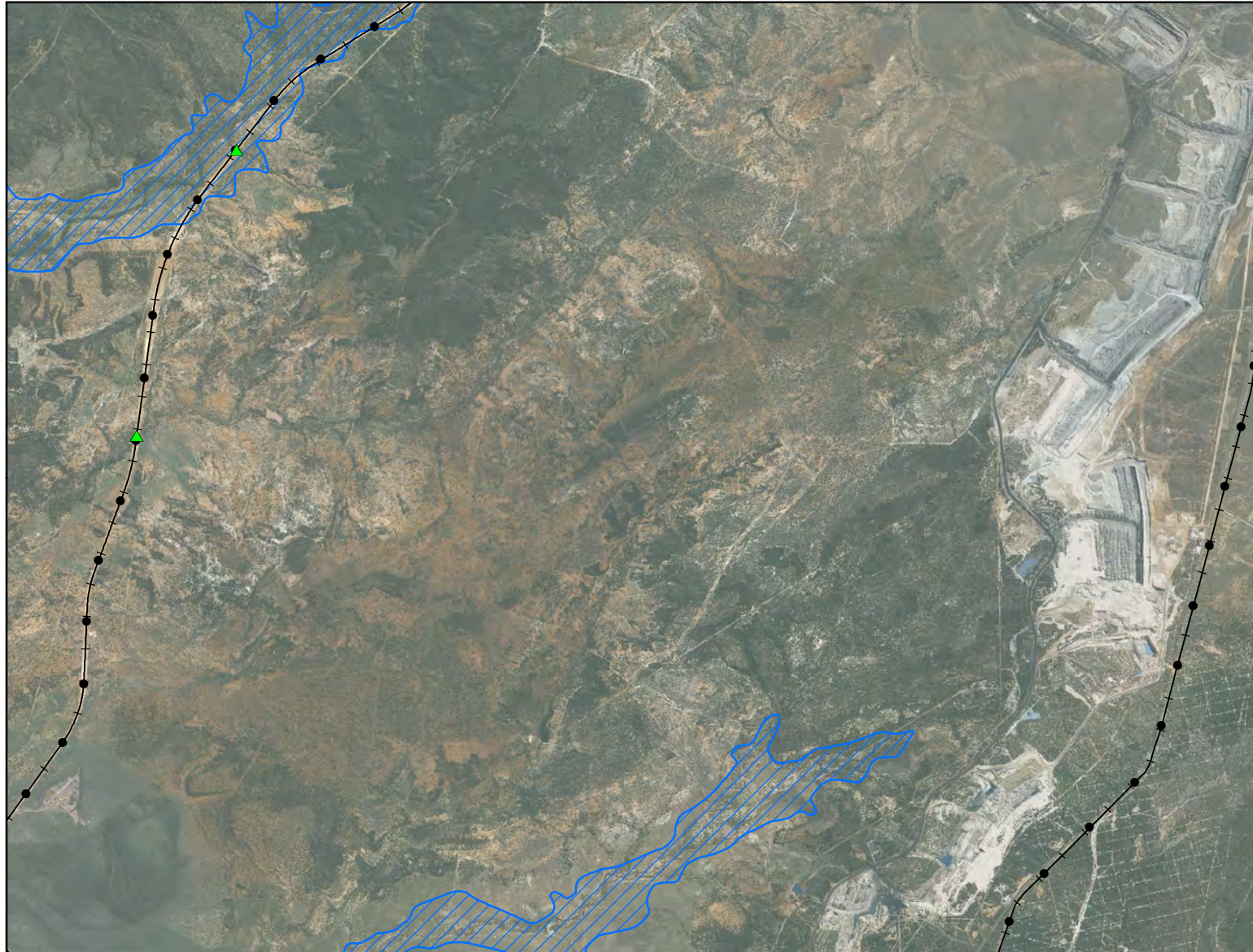


GDA94
A4 1:100,000



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 17 OF 31



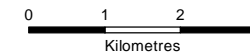
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features:
- Start
 - Fork
 - Machinery/Loader
 - ◇ Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



GDA94
A4 1:100,000



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 18 OF 31



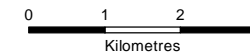
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features:
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



GDA94
A4 1:100,000



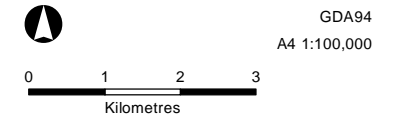
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 19 OF 31



- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - +— Railway
 - Roads
 - == Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



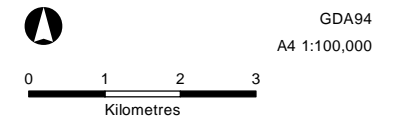
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 20 OF 31



- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features**
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 21 OF 31



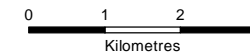
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features:
- Start
 - Fork
 - Machinery/Loader
 - ◇ Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



GDA94
A4 1:100,000



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 22 OF 31



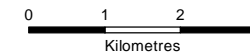
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.

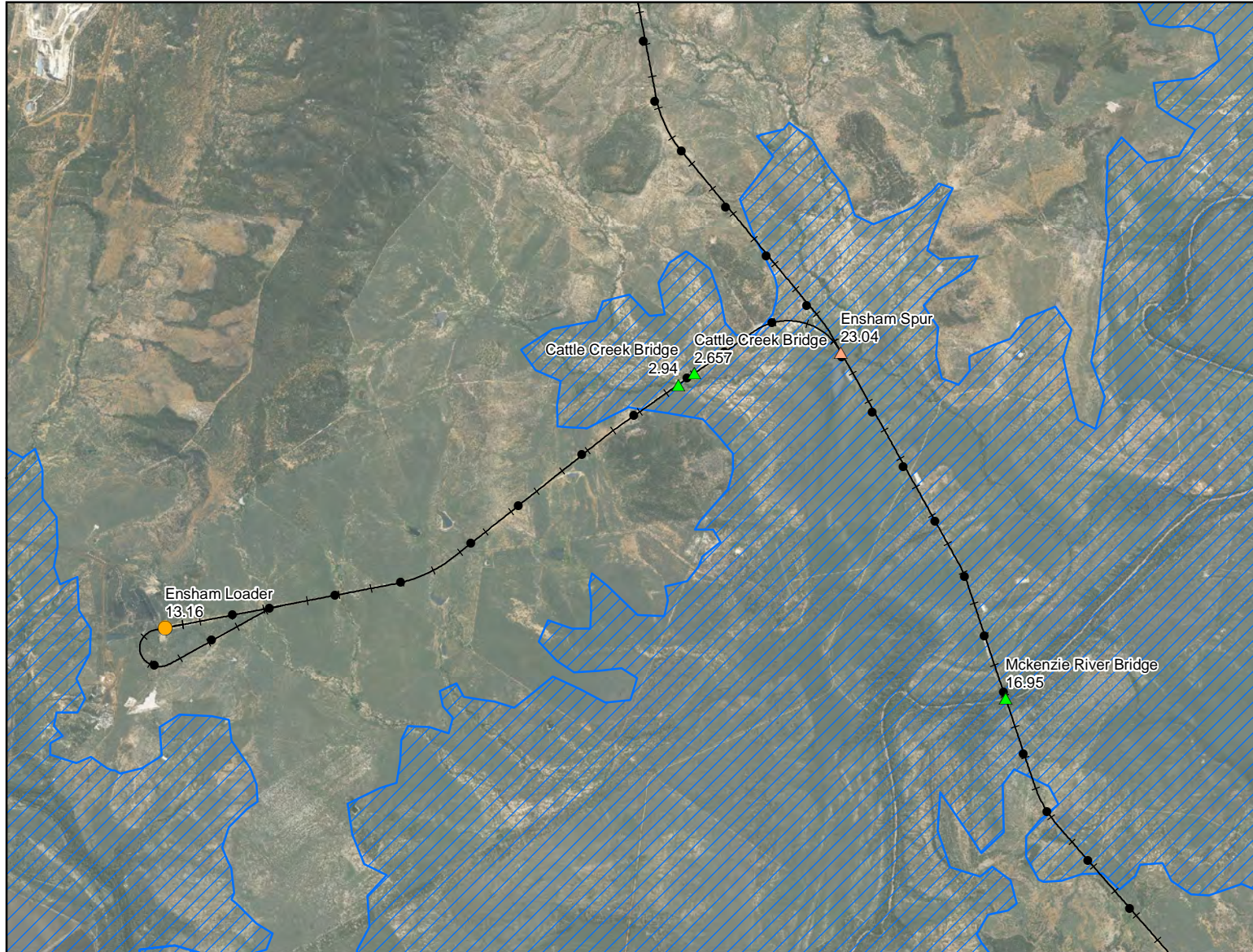


GDA94
A4 1:100,000



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

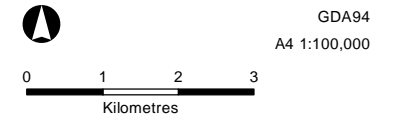
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 29 OF 31



Legend

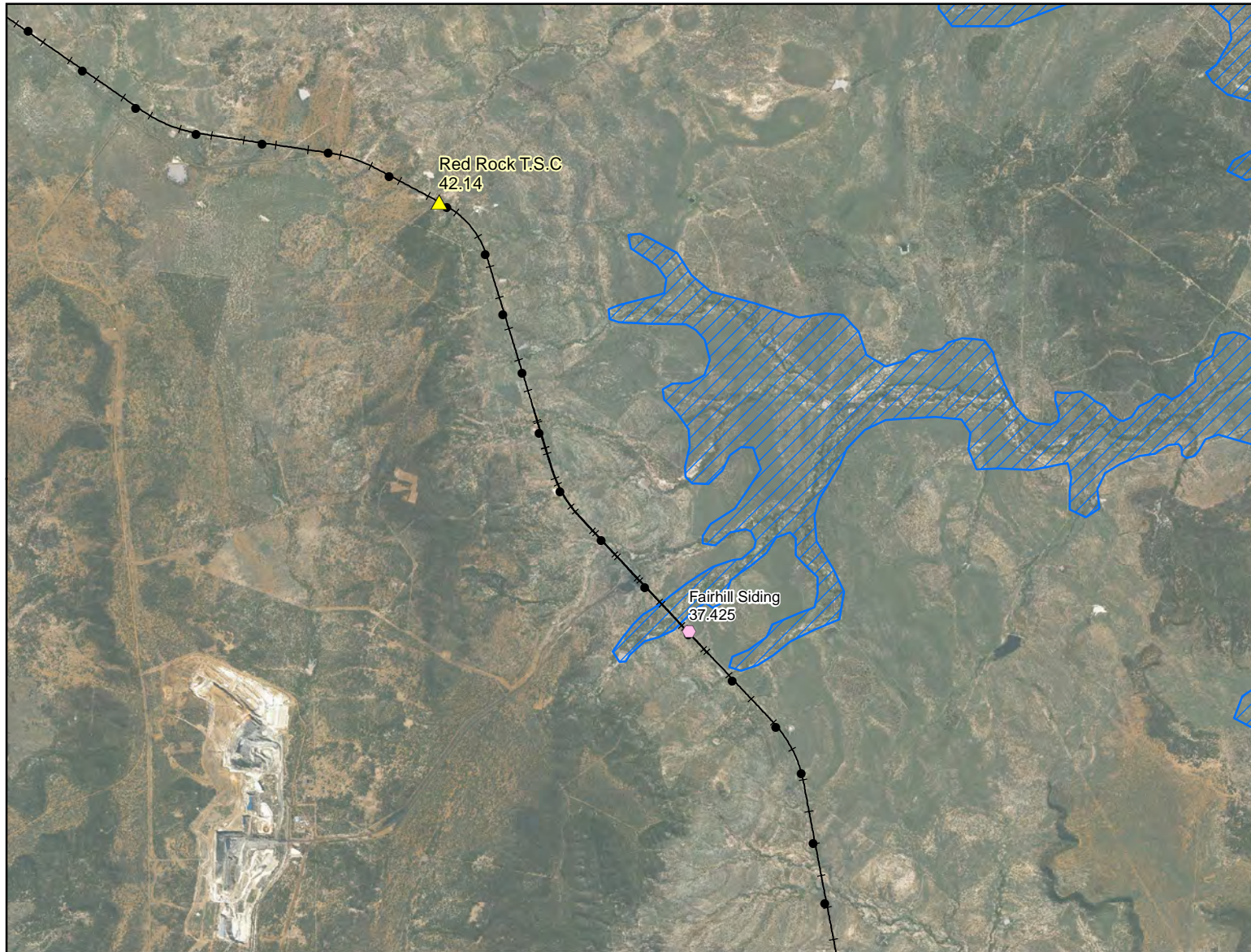
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features:
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 30 OF 31



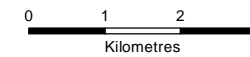
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - ◇ Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.

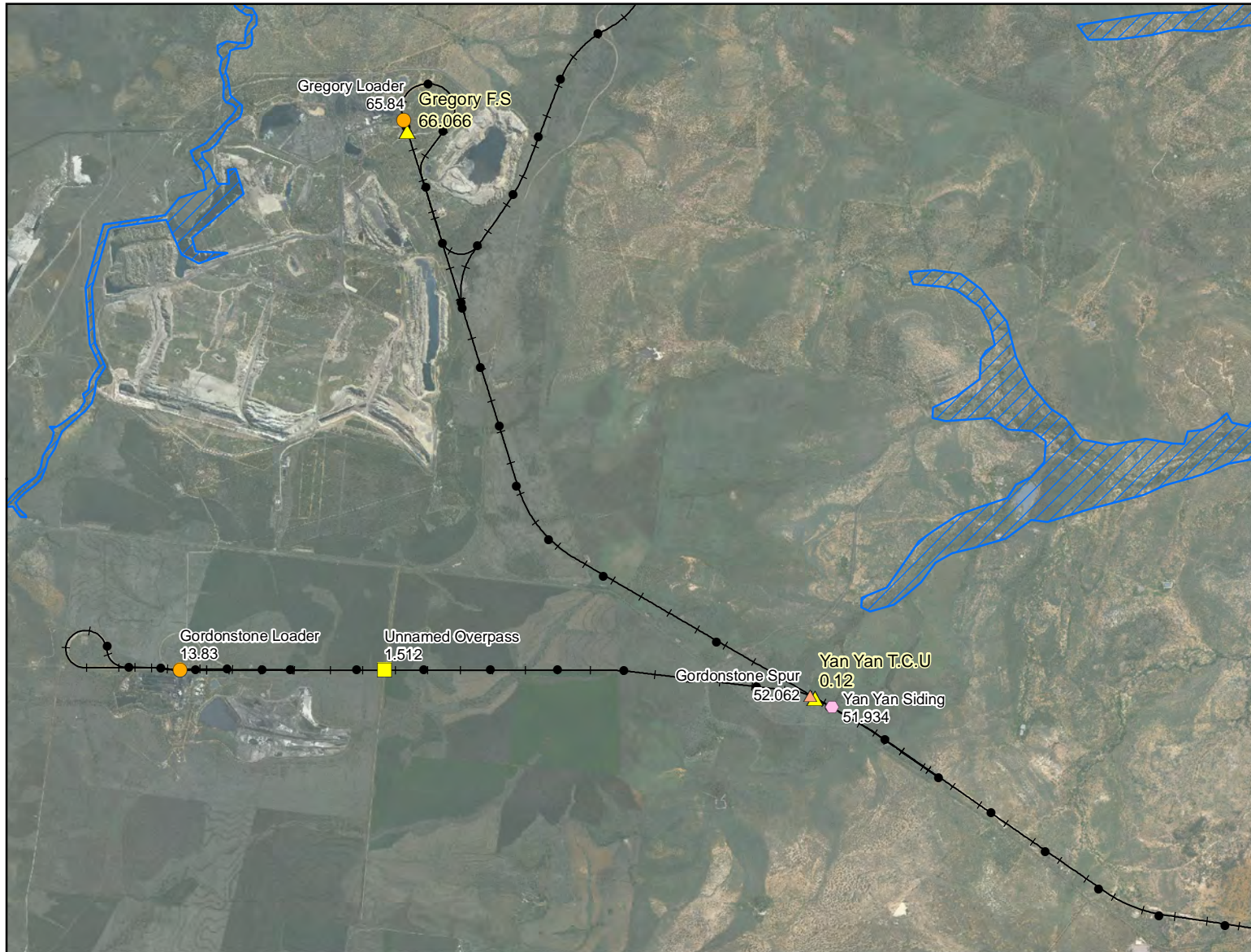


GDA94
A4 1:100,000



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 31 OF 31



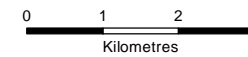
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



GDA94
A4 1:100,000



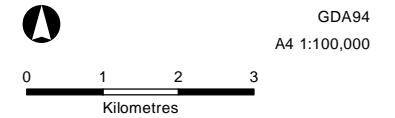
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 23 OF 31



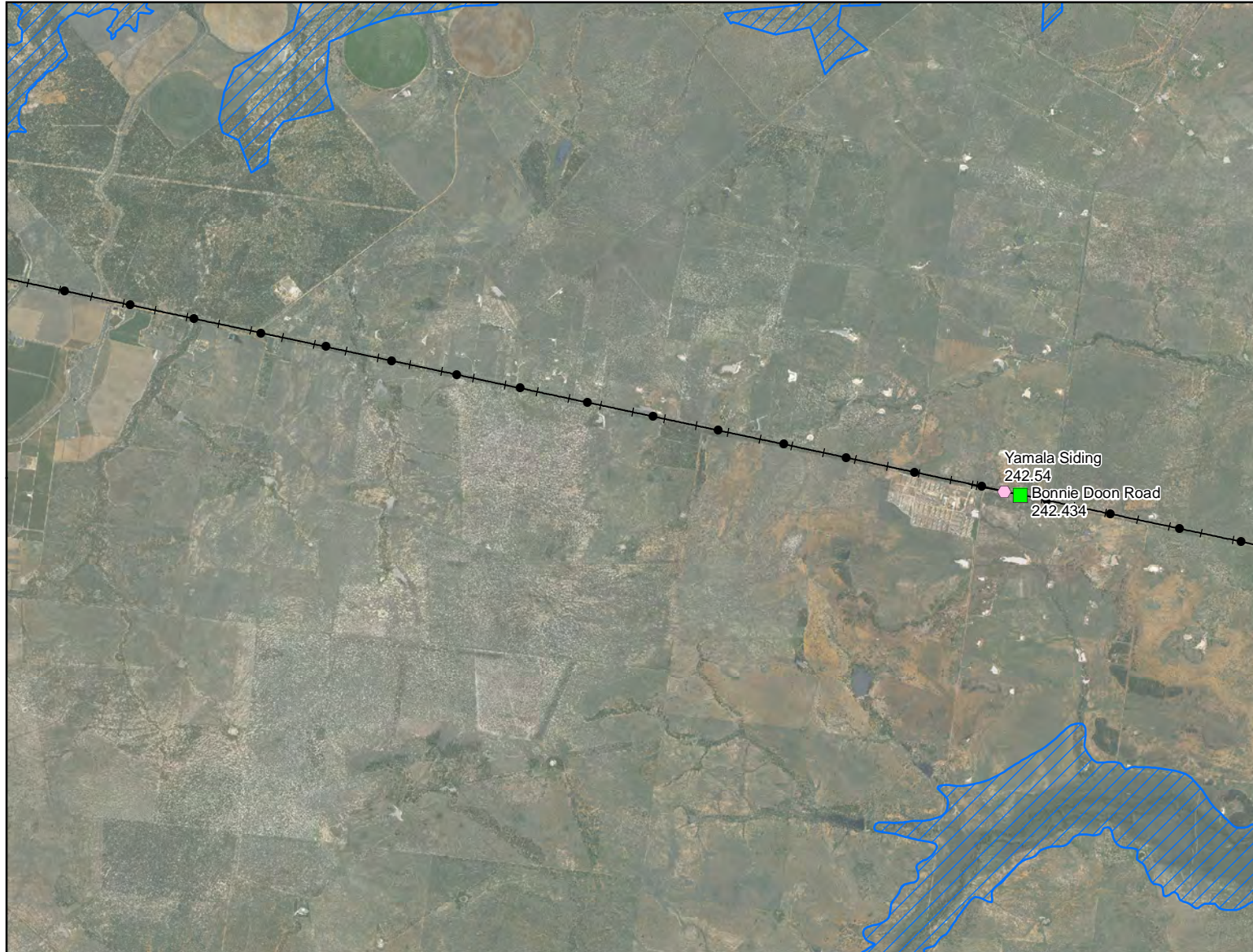
- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features:
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

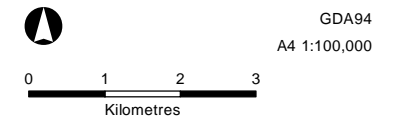
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 24 OF 31



- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features**
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

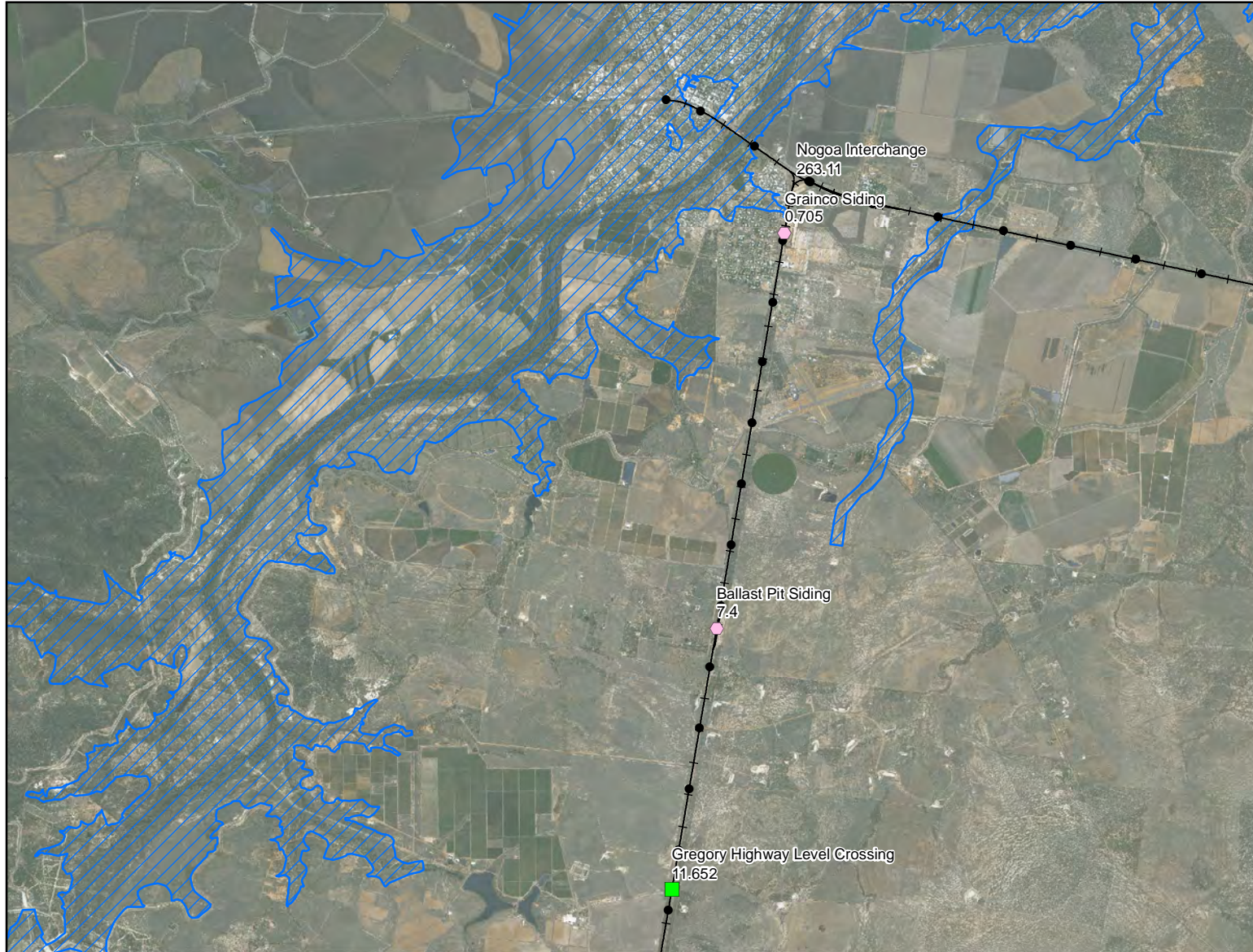
Yamala Siding
242.54
Bonnie Doon Road
242.434

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

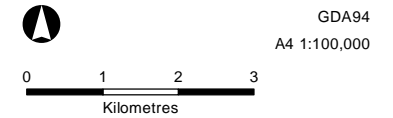
BLACKWATER SYSTEM - GLADSTONE TO EMERALD 25 OF 31



Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 26 OF 31



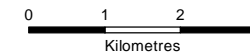
Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.

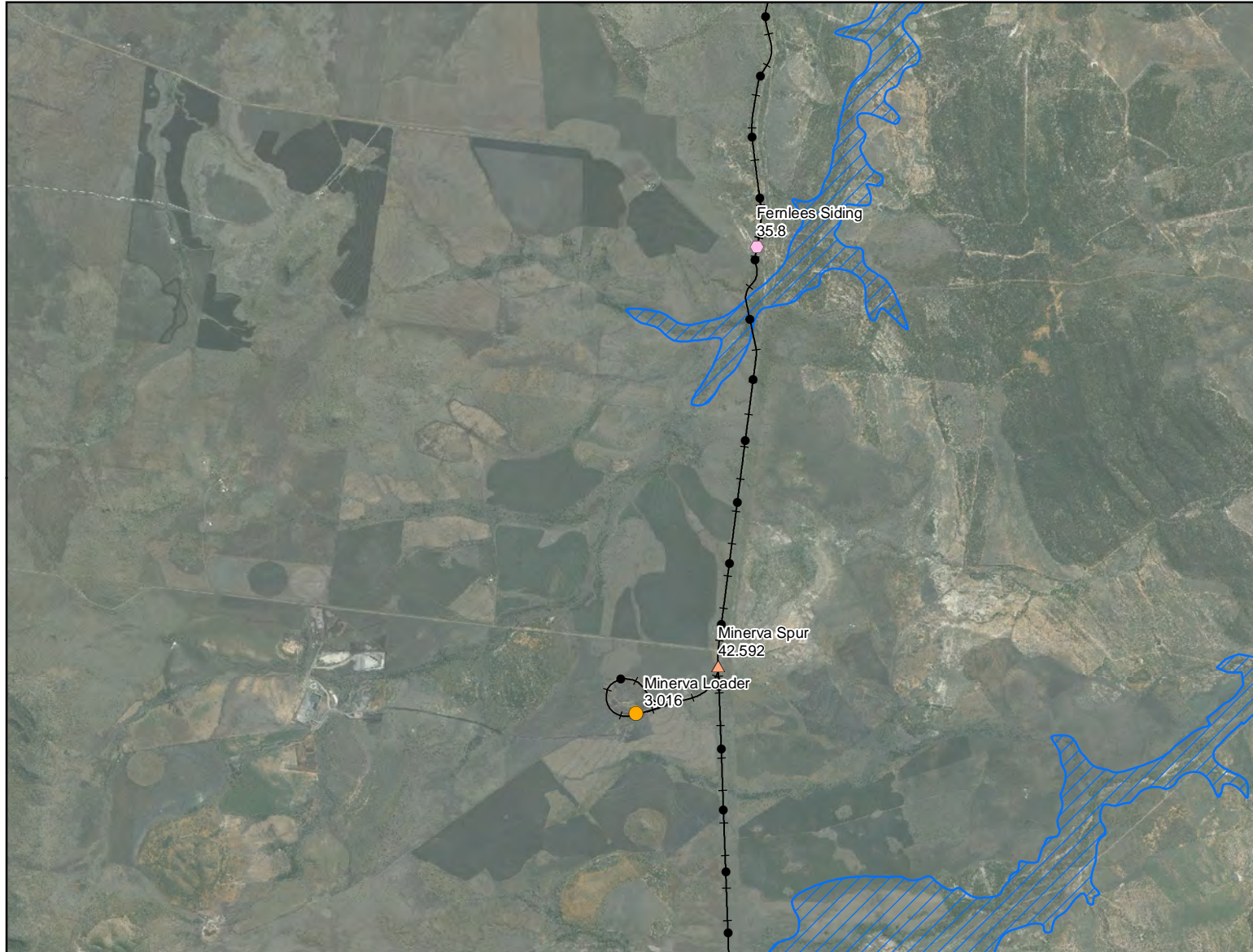


GDA94
A4 1:100,000



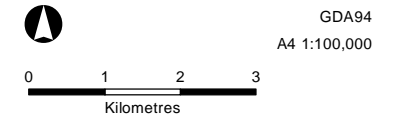
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM

BLACKWATER SYSTEM - GLADSTONE TO EMERALD 27 OF 31



- Legend**
- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.



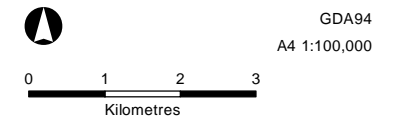
QB10448 - RAIL INFRASTRUCTURE DAMAGE CLAIM



Legend

- Km Posts
 - Rail Damage
 - Watercourse
 - Railway
 - Roads
 - Highway
 - ▨ DERM Floodplain Assessment Overlay
- Location of Features
- Start
 - Fork
 - Machinery/Loader
 - ◇ Siding
 - Level Crossing
 - Overbridge
 - Underpass
 - ▲ Bridge
 - ▲ Spur
 - ▲ Electrical Equipment

Sinclair Knight Merz does not warrant that this document is definitive nor free of errors and does not accept liability for any loss caused or arising from reliance upon information provided herein.





Appendix D Register of Request for Information

RFI - ID Number	Date Sent Out	Sent By	Sent To	Response Received	Duration	Status	Subject
0001	12/03/2013	J Leong	C Belanger	16/04/2013	35 days	Closed	Video and phography of all sites
0002	5/03/2013	J Leong	C Belanger	10/04/2013	36 days	Closed	Request for latest flood recovery plan
0003	5/03/2013	J Leong	C Belanger	10/04/2013	36 days	Closed	Request for track and civil standards
0004	5/03/2013	J Leong	C Belanger	10/04/2013	36 days	Closed	Clarification on Aurizon Networks and Queensland Rail boundaries
0005	5/03/2013	J Leong	C Belanger	10/04/2013	36 days	Closed	Clarification on what costs will be captured
0006	13/08/2013	J Leong	C Belanger	22/08/2013	9 days	Closed	Electronic copy of Aurizon Networks flood recovery costs to date
0007	13/08/2013	J Leong	C Belanger	30/08/2013	17 days	Closed	Clarification on what is a 'asset renewal'
0008	13/08/2013	J Leong	C Belanger	22/08/2013	9 days	Closed	What is to be included in the future works
0009	13/08/2013	J Leong	C Belanger	30/08/2013	17 days	Closed	Clarify why internal labour costs are included
0010	13/08/2013	J Leong	C Belanger	30/08/2013	17 days	Closed	How self-insurance allowance has been expended over the course of UT3
0011	13/08/2013	J Leong	C Belanger	22/08/2013	9 days	Closed	Repair of Neerkol Creek
0012	13/08/2013	J Leong	C Belanger	30/08/2013	17 days	Closed	Clarify what is included in overheads
0013	13/08/2013	J Leong	C Belanger	23/08/2013	10 days	Closed	Deloitte report
0014	13/08/2013	J Leong	C Belanger	30/08/2013	17 days	Closed	Longer term maintenance issues of flood-affected signalling infrastructure
0015	13/08/2013	J Leong	C Belanger	22/08/2013	9 days	Closed	Un-incurred future asset inspection and maintenance costs



Appendix E Standard Aurizon Network Reference Drawings

