



GEOLYSE

REVIEW OF TRAFFIC CONTROL DEVICES HERA MINE TO HERMIDALE SIDING

**PREPARED FOR
YTC RESOURCES LTD**

MAY 2014

REVIEW OF TRAFFIC CONTROL DEVICES

HERA MINE TO HERMIDALE SIDING

PREPARED FOR:

YTC RESOURCES LTD

MAY 2014



GEOLYSE

POSTAL ADDRESS PO Box 1963
LOCATION 154 PEISLEY STREET
TELEPHONE 02 6393 5000
EMAIL ORANGE@GEOLYSE.COM

ORANGE NSW 2800
ORANGE NSW 2800
FACSIMILE 02 6393 5050
WEB SITE WWW.GEOLYSE.COM

Report Title:	<i>Review of Traffic Control Devices</i>
Project:	<i>Hera Mine to Hermidale Siding</i>
Client:	<i>YTC Resources Ltd</i>
Report Ref.:	<i>214112_REO_001A.docx</i>
Status:	<i>Final</i>
Issued:	<i>7 May 2014</i>

Geolyse Pty Ltd and the authors responsible for the preparation and compilation of this report declare that we do not have, nor expect to have a beneficial interest in the study area of this project and will not benefit from any of the recommendations outlined in this report.

The preparation of this report has been in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All information contained within this report is prepared for the exclusive use of YTC Resources Ltd to accompany this report for the land described herein and is not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes apart from those stated therein.

Geolyse Pty Ltd accepts no responsibility for any loss, damage suffered or inconveniences arising from, any person or entity using the plans or information in this study for purposes other than those stated above.

TABLE OF CONTENTS

BACKGROUND	1
1.1 INTRODUCTION	1
REVIEW OF TRAFFIC CONTROL DEVICES.....	2
2.1 REVIEW EXTENTS	2
2.2 CONDITION OF CONSENT	2
2.3 SITE INSPECTION	2
2.3.1 BURTHONG ROAD.....	2
2.3.2 PRIORY TANK ROAD/NYMAGEE-HERMIDALE ROAD.....	3
2.3.3 BARRIER HIGHWAY- HERMIDALE SIDING ACCESS ROAD	12
2.3.4 ALIGNMENT.....	13
2.3.5 GRAVEL PAVEMENT	14
CONCLUSION	15
REFERENCES.....	16
PLATES	
Plate 1: YTC Site Access looking north along Burthong Road	1
Plate 2: YTC Site Access.....	1
Plate 3: Burthong Road looking north	2
Plate 4: Priory Tank Road and Burthong Road Intersection looking north from Burthong Road	2
Plate 5: Priory Tank Road and Canbelego Road Intersection looking north along Priory Tank Road	3
Plate 6: Priory Tank Road and Canbelego Road intersection looking east from looking west from Graham Street	3
Plate 7: Nymagee-Hermidale Road gravel pavement section showing current poor condition.....	4
Plate 8: Nymagee-Hermidale Road gravel pavement section showing current poor condition.....	4
Plate 9: Nymagee-Hermidale road looking north.....	5
Plate 10: Nymagee-Hermidale Road and Nyngan Street intersection looking east from Nyngan Street	5
Plate 11: Nymagee-Hermidale Road and Nyngan Street intersection looking north from Nymagee Street	6
Plate 12: Hermidale Siding.....	6
TABLES	
Table 2.1 – Burthong Road Traffic Control Devices.....	3
Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices.....	4
Table 2.3 – Barrier Highway and Hermidale Siding Access Road Traffic Control Devices	13

Background

1.1 INTRODUCTION

YTC Resources Ltd (YTC) are operating a mine located just south of the township of Nymagee, NSW. Cobar Shire Council (Council) have imposed a Condition of Consent on YTC to undertake a review of the existing traffic control devices on the proposed haul route from the mine to Hermidale Siding to identify any deficiencies and recommend appropriate upgrades in accordance with the applicable AUSTROADS standards.

Geolyse have been appointed by YTC to undertake the review of devices, identification of deficiencies and upgrade recommendations.

Review of Traffic Control Devices

2.1 REVIEW EXTENTS

The review of traffic control devices was undertaken from the southern extent of bitumen sealed pavement on Burthong Road (approximately 6.1km south of the Priory Tank Road intersection), along Priory Tank Road through the Nymagee township onto the Nymagee-Hermidale Road to Hermidale, then onto the Barrier Highway and into the Hermidale Siding (a total length of approximately 82km).

2.2 CONDITION OF CONSENT

The review of traffic control devices was undertaken in accordance with the Council Condition of Consent. The Council Condition of Consent states:

- (b) *Undertake a review of the existing traffic control devices on Burthong Road and Priory Tank Road, which:*
 - i. *Reviews all existing traffic devices, including traffic signs, traffic signals, pavement markings, guide posts, delineators and safety barriers, and identifies any deficiencies; and*
 - ii. *Recommends appropriate upgrades in accordance with the applicable AUSTROADS standards.*

It should be noted that the Council Condition of Consent relates to the original proposed haul route from the mine north along Burthong Road and then west along Priory Tank Rd to the Kidman Way. A previous report by Geolyse 'Review of Traffic Control Devices- Priory Tank Road and Burthong Road, Nymagee' assesses traffic control devices along the original haul route. The information contained within this report provides the assessment of the traffic control devices along the proposed amended haul report as described in **Section 2.1**.

2.3 SITE INSPECTION

The site inspection was undertaken on the 29th and 30th April 2014, the weather during the inspection was generally clear and fine with some rain falling on the night of the 29th April. The inspection commenced at the southern extent of bitumen sealed pavement on Burthong Road. The vehicle odometer was used to identify the location of identified traffic control devices. It should be noted that temporary signage was not recorded.

2.3.1 BURTHONG ROAD

Burthong Road, from the southern extent of bitumen seal to the Priory Tank Road intersection, is a 7m wide two-lane, two-way sealed road with gravel shoulders and table drains either side. The section of Burthong Road inspected is a straight alignment, with a posted speed limit of 100km/hr. No pavement markings were evident on Burthong Road in the section inspected. Traffic control devices located on Burthong Road are detailed in **Table 2.1** below.

Table 2.1 – Burthong Road Traffic Control Devices

Road Chainage (km) from southern extent of bitumen seal	Traffic Control Device	Recommendation
0-6.1	Guideposts nominally 300m apart located in pairs either side of road	Maximum spacing normally 200m, however given the straight and flat alignment and very low traffic volumes current spacing considered adequate
0-6.1	No pavement markings	Centreline pavement marking would assist road users, however assuming AADT <300 the warrants are not met
0.2	Twin guideposts either side delineating flood causeway	No change required
1.3	Twin guideposts either side delineating flood causeway	No change required
2.2	YTC Heavy Vehicle Site Access (under construction at time of inspection). Heavy Vehicle Access Signage provided. 4m wide shoulder widening on west side of Burthong Rd.	Suggest 'Trucks Entering' Warning Sign be placed on north and south approaches to the heavy vehicle site access.
2.7	YTC Light Vehicle Site access. Access signage provided directing heavy vehicles to Heavy Vehicle Access. 3m bitumen seal widening either side of road	No change required.
2.7	3 guideposts on site access splay either side delineating 450mm RCP culvert under site access.	No change required.
3.2	Guideposts delineating a 850mm x 150mm concrete box culvert beneath road. No headwalls, vertical face 2m from edge of bitumen seal.	No change required.
4.7	Twin guideposts either side delineating flood causeway	No change required
5.3	Twin guideposts either side delineating flood causeway	No change required
5.8	Twin guideposts either side delineating flood causeway	No change required
5.9	T-Intersection Warning Sign on western side	No change required
6.1	Priory Tank Road Intersection	Currently no priority given to either Priory Tank Road or Burthong Road. Suggest a Give Way sign and linemarking be provided on Priory Tank Road east to give priority to Burthong Road/Priory Tank Road north.

2.3.2 PRIORY TANK ROAD/NYMAGEE-HERMIDALE ROAD

Priory Tank Road and Nymagee-Hermidale Road are generally 7m wide two-lane, two-way sealed roads with gravel shoulders and table drains either side. A 13km section of Nymagee-Hermidale Road is unsealed. The section of Priory Tank Road and Nymagee-Hermidale Road inspected has a varying posted speed limit of 100km/hr and 50km/hr. No pavement markings were evident on Priory Tank Road in the section inspected or on Nymagee-Hermidale Road. Traffic control devices located on Priory Tank Road and Nymagee-Hermidale Road are detailed in **Table 2.2** below.

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
0-74.5	Guideposts nominally 200m apart located in pairs either side of road on straight sections of alignment.	Guide posts limited on section of unsealed Nymagee-Hermidale Road. Suggest additional guideposts be installed either side of road at nominal 200m spacing with reduced spacing on curves.
0-74.5	No pavement markings	Centreline pavement marking would assist road users, however assuming AADT <300 the warrants are not met
0	Directional Signage and 6m x 600mm bi-directional hazard marker	Suggest Directional Sign to YTC Mine be installed
0	Guideposts on all approaches to intersection either side of road	No change required
0.1	Trucks Please Stop to Drop Dust Before Entering Town Sign adjacent to northbound lane	No change required
0.2	50 Ahead sign adjacent to northbound lane	No change required
0.2	T intersection warning sign adjacent to southbound lane	No change required
0.3	Truck Stop here adjacent to northbound lane	No change required
0.4	50 Speed restriction sign adjacent to southbound lane, sign adjacent to northbound lane missing	Suggest 50 speed restriction sign to be installed adjacent to northbound lane
0.4	100 speed restriction signs on back of 50 speed restriction signs facing north	No change required
0.4	Concrete causeway with depth markers and guide posts either side at either end.	No change required
0.8	Floodway warning sign adjacent to southbound lane	No floodway warning sign on northbound approach, suggest sign be installed.
0.8	Directional Guide sign adjacent to northbound lane	No change required
0.8	Distance guide sign adjacent to southbound lane	No change required
1.0	Intersection with Gilgunnia-Canbelego Road in Nymagee township. Give way sign on westbound approach to intersection	No linemarking on intersection, priority not clear. Suggest hold line linemarking be installed. Suggest centreline linemarking also be installed on all legs of the intersection.
1.0	Intersection with Graham Street in Nymagee township. Give way on eastbound approach on Graham Street	No linemarking on intersection, suggest hold line linemarking be installed. Suggest centreline linemarking be installed on all legs of the intersection.
1.0	Directional signage	No change required.
1.2	50 Speed restriction sign adjacent to westbound lane	No change required
1.2	Directional signage adjacent to westbound lane	No change required
1.2	Distance guide sign adjacent to eastbound lane	No change required
1.4	Road Closed Local traffic Only (folded) adjacent to eastbound lane	No change required

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
1.4	Nymagee Guide sign adjacent to eastbound lane	No change required
1.5	Floodway warning sign adjacent to eastbound lane	No change required
1.5	300diam. RCP culvert with headwalls 2.5m from edge of seal, single guidepost either side of road	No change required
1.6	50 Speed restriction sign adjacent to westbound lane.	Suggest 50 sign to eastbound side of road be installed
1.8	Floodway, guideposts either side at either end.	No change required
1.9	50 Ahead sign adjacent to westbound lane	No change required
2.0	Truck stop here sign adjacent to westbound lane	No change required
2.0	Floodway warning sign adjacent to westbound lane	No change required
2.6	Curve warning sign adjacent to eastbound lane	No change required
2.7	Guideposts at closer spacing on curve	No change required
2.9	Distance guide sign adjacent to eastbound lane	No change required
2.9	Curve warning sign adjacent to westbound lane	No change required
2.9	Trucks Please Stop to Drop Dust Before Entering Town Sign adjacent to northbound lane	No change required
2.9	Curve warning sign adjacent to eastbound lane	No change required
3.1	Guideposts at increased spacing through curve	No change required
3.3	No curve warning sign adjacent to westbound lane	Suggest curve warning sign be installed
3.4	T intersection warning sign adjacent to eastbound lane	No change required
3.5	Intersection with Priory Tank Road (Condobolin Road). Directional signage, temporary hazard marker signage, guideposts either side of directional signage. Give way sign on southbound approach to intersection	Suggest hazard marker signage be replaced. Suggest Hold line linemarking be installed.
3.7	T-intersection warning sign adjacent to westbound lane	No change required
4.5	Guideposts closer spacing on curve	No change required
4.9	Reduce Speed Guide sign adjacent to eastbound lane	No change required
5.1	Curve warning and advisory speed 55km/hr warning sign adjacent to eastbound lane	No change required

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
5.3-5.5	Guideposts at closer spacing through curve. Uni-directional hazard marker signage adjacent to westbound lane facing both directions	No change required
5.7	Curve warning and advisory speed 55km/hr warning sign adjacent to westbound lane	No change required
5.9	Reduce Speed Guide sign adjacent to westbound lane	No change required
6.1	Distance Guide Sign adjacent to westbound lane	No change required
6.7	Curve Warning Sign adjacent to eastbound lane	No change required
6.9	Distance Guide sign adjacent to eastbound lane	No change required
6.9	Guideposts closer spacing on curve	No change required
7.0	Causeway warning sign adjacent to westbound lane	No sign on eastbound approach, suggest Causeway warning sign be installed.
10.9	Causeway warning sign adjacent to eastbound lane	No change required
11.0	Causeway, guideposts at either side at either end	No change required
11.1	Causeway warning sign adjacent to westbound lane	No change required
11.7	Guideposts at closer spacing	No change required
12.0	Distance Guide sign adjacent to eastbound lane	No change required
12.0	750diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road	No change required
14.1	Curve Warning Sign adjacent to eastbound lane	Suggest advisory speed 75km/h be added
14.1	Directional Guide sign	No change required
14.2	Road Open to All Traffic Sign	No change required
14.2	Guideposts at closer spacing on crest and curve	
14.4	Curve warning and advisory speed 75km/hr warning sign adjacent to westbound lane	No change required
14.5	Guideposts at closer spacing	No change required
15.3	Peisley Road intersection. Directional signage and hazard marker signage.	Suggest T-intersection warning signs be installed on approaches.
15.5	Distance Guide sign adjacent to westbound lane	No change required
15.9	Gravel Road ahead warning sign adjacent to eastbound lane	No change required
16.0	Gravel pavement. Pavement 6-7m wide in varying condition. Guideposts limited generally.	Suggest guideposts be installed at maximum 200m spacing with additional posts installed on curves and crests.

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
16.3	Distance Guide sign adjacent to eastbound lane	No change required.
16.3	No curve warning signs on approaches to curve.	Suggest curve warning signs be installed on approach to curves.
17.2	Dip warning sign adjacent to westbound lane. No sign on eastbound approach. No curve warning sign adjacent to westbound lane.	Suggest Dip warning sign and curve warning sign be installed.
18.1	Limited Guideposts. No curve warning sign.	Suggest additional guideposts be installed and curve warning signs be installed on approach to curves.
18.1	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required.
18.6	No curve warning sign or guideposts.	Suggest additional guideposts be installed and curve warning signs be installed on approach to curves.
18.6	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required. Note culvert exposed by scour on westbound lane
19.6	800 x 600 RCB culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
20.4	Distance guide sign	No change required
20.6	450diam. RCP culvert with headwalls 2m from edge of seal, single guidepost either side of road.	No change required
21.3	450diam. RCP culvert with headwalls 2m from edge of seal, single guidepost either side of road.	No change required
22.3	800 x 600 RCB culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
23.4	450diam. RCP culvert with headwalls 2m from edge of seal, single guidepost either side of road.	No change required
23.8	450diam. RCP culvert with headwalls 2m from edge of seal, single guidepost either side of road.	No change required
23.9	450diam. RCP culvert with headwalls 2m from edge of seal, single guidepost either side of road.	No change required
24.3	Curve warning sign adjacent to eastbound lane	No change required
24.3	Caution Blue heliotrope- please don't spread it sign.	No change required
24.5	800 x 600 RCB culvert with headwalls <1m from edge of seal, single guidepost either side of road.	Note headwall at edge of eastbound lane.
24.6	Curve warning sign adjacent to westbound lane	No change required

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
24.9	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost westbound side of road.	Suggest guidepost be installed on eastbound lane side of road.
25.3	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
25.6	Curve warning sign adjacent to eastbound lane	No change required
25.6	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
25.8	Guideposts at closer spacing on curve	No change required
26.1	Distance guide sign	No change required
26.4	Curve warning sign adjacent to westbound lane	No change required
27.2	Causeway depth markers. No causeway warning signs on approaches.	Suggest causeway warning signs be installed on approaches.
28.8	Bitumen seal. 7m wide with tabledrains either side. Guideposts at nominal 200m spacing.	No change required.
30.8	Sarona Downs Road intersection. Directional signage. Additional guideposts opposite minor road.	No change required.
30.9	T-intersection warning sign on westbound approach.	Suggest T-intersection warning sign be installed on eastbound approach.
31.9	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
32.1	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
32.7	Healeys Road intersection. Directional signage.	Suggest T-intersection warning sign be installed on eastbound approach.
33.0	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
33.1	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
33.2	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
33.4	Guideposts closer spacing on curve	Suggest curve warning signs be installed on approaches.
33.4	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
33.5	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
33.7	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
34.0	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
34.3	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
34.7	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required
35.9	Distance guide sign. Curve warning sign on eastbound approach.	No change required.
36.0	Guideposts closer spacing on curve	No change required
36.2	Curve warning sign on westbound approach.	No change required.
37.4	Horizontal curve with no guideposts on curve or curve warning signs.	Suggest guideposts be installed on curve at maximum 100m spacing and curve warning signs be installed on approaches.
37.7	Guideposts at 100m spacing.	No change required.
38.0	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
38.1	Curve warning sign on eastbound approach.	No change required.
38.3	Guideposts closer spacing on curve	No change required.
38.5	Curve warning sign on westbound approach.	No change required.
38.5	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
38.6	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
38.7	Curve warning sign on eastbound approach.	No change required.
38.8	Guideposts at closer spacing on curve	No change required.
38.8	Direction guide sign.	No change required.
38.9	Curve warning sign on westbound approach.	No change required.
39.0	Curve warning sign on eastbound approach.	No change required.
39.2	Guideposts at closer spacing on curve	No change required.
39.3	Curve warning sign on westbound approach.	No change required.
39.8	Distance guide sign	No change required.
42.4	2 x 800 x 600 RCB culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required.
44.0	Guideposts at 200m spacing	No change required.
44.7	Distance guide sign	No change required.
47.0	Scholl bus route 27km ahead warning sign	No change required.

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
47.9	Jeffreys Road intersection. Directional signage only.	Suggest T-intersection warning signs be installed on approaches.
47.9	Miandetta Road intersection. Directional signage. Hazard marker signage.	Suggest T-intersection warning signs be installed on approaches.
47.9	Nyngan via Hermidale 73km sealed road sign. Nyngan 70km via unsealed road sign.	No change required.
50.4	Distance guide sign.	No change required.
50.8	Warning Coolatai grass sign	No change required.
51.4	Warning Coolatai grass sign	No change required.
52.9	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
55.0	Whitebarrow Creek sign.	Suggest Floodway warning signs be installed on approaches
55.0	T-intersection warning sign on eastbound approach.	No change required.
55.2	Cobar Road intersection. Directional signage.	No change required.
55.3	T-intersection warning sign on westbound approach.	No change required.
56.9	2 x 450diam. RCP culvert with headwalls 2m from edge of seal, two guideposts either side of road.	No change required.
57.2	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
58.1	2 x 800 x 600 RCB culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
59.5	Distance guide sign.	No change required.
59.6	Report That Fire sign.	No change required.
59.6	Trethowans Road intersection. Directional signage.	Suggest T-intersection warning signs be installed on approaches.
61.0	Causeway warning sign on eastbound approach.	No change required.
61.2	450diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required.
61.3	Causeway warning sign on westbound approach	No change required.
62.2	Curve warning and advisory speed 85km/hr warning sign adjacent to eastbound lane	No change required.
62.4	450diam. RCP culvert with headwalls 2m from edge of seal, single guidepost either side of road.	No change required.
62.5	Guideposts at closer spacing on curve.	No change required.
62.8	Curve warning and advisory speed 85km/hr warning sign adjacent to westbound lane	No change required.

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
63.2	2 x 600diam. RCP culvert with headwalls 1m from edge of seal, single guidepost either side of road.	No change required.
63.6	Curve warning and advisory speed 85km/hr warning sign adjacent to eastbound lane	No change required.
63.9	Guideposts at closer spacing on curve.	No change required.
64.2	Curve warning and advisory speed 85km/hr warning sign adjacent to westbound lane	No change required.
64.4	2 x 800 x 600 RCB culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
66.6	2 x 800 x 600 RCB culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
68.9	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
70.6	Causeway depth markers.	Suggest causeway warning signs be installed on approaches.
71.1	Causeway depth markers.	Suggest causeway warning signs be installed on approaches.
71.2	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
71.7	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
71.9	School Bus Route adjacent to westbound lane.	No change required.
72.4	4 x 800 x 600 RCB culvert with headwalls 2m from edge of seal, two guideposts either side of road.	No change required.
72.7	Currans Road intersection. Directional signage. Hazard marker signage.	Suggest T-intersection warning signs be installed on approaches.
72.8	Rubbish tip intersection. Directional signage.	Suggest T-intersection warning signs be installed on approaches.
72.8	800 x 600 RCB culvert with headwalls 2m from edge of seal, two guideposts either side of road.	No change required.
73.1	800 x 600 RCB culvert with headwalls 2m from edge of seal, two guideposts either side of road.	No change required.
73.2	Horizontal curve.	Suggest curve warning signs be installed on approaches to curve.
73.3	50 ahead sign adjacent to eastbound lane	No change required.
73.5	Guideposts at closer spacing on curve	No change required.
73.5	Distance guide sign	
73.5	50 speed restriction sign either side of road. 100 speed restriction on reverse side.	No change required.

Table 2.2 – Priory Tank Road and Nymagee-Hermidale Road Traffic Control Devices

Road Chainage (km) from Burthong-Priory Tank Road intersection	Traffic Control Device	Recommendation
73.5	50/100 linemarking on road.	No change required.
73.8	Children crossing warning sign.	No change required.
73.8	Mouramba Street intersection. Directional signage	No change required.
73.9	T-intersection warning sign.	No change required.
73.9	Children crossing warning sign.	No change required.
73.9	Bitumen seal 20m wide, kerb and gutter both sides.	No change required.
74.0	Nyngan Street intersection. No Directional signage above hazard marker signage. Hazard marker signage. Give way on west and east approach to intersection.	Suggest directional signage be provided above hazard marker signage.
74.1	Train warning sign adjacent to eastbound lane.	Suggest curve warning sign be provided on approach to curve.
74.2	Railway crossing guide sign on outside of curve. Guideposts at closer spacing on curve.	Suggest uni-directional hazard marker signage be provided on curve in both directions.
74.2	Stop sign ahead warning sign and Look for trains adjacent to eastbound lane.	No change required.
74.3	Railway level crossing. Railway crossing sign either side of road on both approaches. Stop sign and Look for Trains on both approaches.	Suggest hold line linemarking be provided.
74.4	Train warning sign either side of road.	No change required.
74.4	Stop sign ahead warning sign and Look for trains adjacent to westbound lane.	No change required.
74.4	Quanda Street intersection. Directional signage. Give way on Quanda St approach.	Suggest T- intersection warning sign be provided on eastbound approach.
74.4	2 x 600diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
74.5	Barrier Highway intersection. Give way sign on eastbound approach. Directional signage. Hazard marker signage. Edge line, hold line and continuity line linemarking. 50 speed restriction sign either side.	No change required.

2.3.3 BARRIER HIGHWAY- HERMIDALE SIDING ACCESS ROAD

The Barrier Highway is a 9m wide two-lane, two-way sealed road with sealed shoulders and table drains either side. The Hermidale Siding access road is a 7m wide two-lane, two-way sealed road with gravel shoulders and table drains either side. The section of Barrier Highway inspected has a posted speed limit of 100km/hr. The Hermidale Siding access road does not currently have a posted speed limit. Edge line, centreline, hold line, continuity line and double barrier line pavement markings were evident on the Barrier Highway in the section inspected. Double Barrier line pavement markings were evident on the Hermidale Siding access road adjacent to the intersection with the Barrier Highway. No pavement marking was evident elsewhere on the Hermidale Siding access road. Traffic control devices located on the Barrier Highway and Hermidale Siding Access Road are detailed in **Table 2.3** below.

Table 2.3 – Barrier Highway and Hermidale Siding Access Road Traffic Control Devices

Road Chainage (km) from Burthong- Priory Tank Road intersection	Traffic Control Device	Recommendation
74.6	Barrier Highway. 9m bitumen seal. 2 x 3.5m travel lanes. 1m sealed shoulder either side. Edge line and centreline linemarking. Guideposts at 200m spacing.	No change required.
74.7	Train on side road warning sign adjacent to westbound lane.	No change required
74.8	Rest Area 2km ahead guide sign adjacent to westbound lane.	No change required.
74.8	4 way intersection warning sign adjacent to eastbound lane.	No change required.
74.8	5 x 800 x 600 RCB culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
74.9	Truck warning 200m sign adjacent to eastbound lane.	No change required.
74.9	Distance guide sign adjacent to eastbound lane.	No change required.
75.0	4 way intersection with Hermidale Siding access road. Stop signs on minor road approaches. Directional signage. Hazard marker signage opposite northern minor road approach. Hold line, continuity line and double barrier line linemarking. Solar powered light poles north and south of intersection.	Suggest guideposts be added on splays of intersection.
75.1	2 x 450diam. RCP culvert with headwalls 1m from edge of seal, two guideposts either side of road.	No change required.
75.2	Hermidale Siding access road. 7m wide bitumen seal. Tabledrains either side.	No change required.
75.2	Evacuation marshall point sign.	No change required.
75.2	No guideposts, directional signage or speed restriction signage evident.	Suggest guideposts be installed at maximum 50m spacing, suggest directional signage on approach to and within siding be installed, suggest speed restriction signage be installed.
75.4	Hermidale Siding. Gravel pavement	Suggest directional and speed restriction signage be provided.

2.3.4 ALIGNMENT

A review of the alignment of Priory Tank Road, Nymagee-Hermidale Road, Barrier Highway and Hermidale Siding Access Road was not part of the scope of this project and no survey information was available to check the conformance of the vertical and horizontal alignment to AUSTROADS standards. Whilst it appears generally that appropriate signage is provided for the alignment it is suggested that horizontal and vertical curves be checked for conformance to AUSTROADS standards to determine whether additional signage is required.

2.3.5 GRAVEL PAVEMENT

A 13km section of the Nymagee-Hermidale Road is currently unsealed. The section of Nymagee-Hermidale Road which is unsealed appears to generally be formed with a 6-7m width with gravel shoulders and table drains either side. The formation visually appears suitable for the intended use of haul trucks however the pavement itself is likely to require constant maintenance if it is to remain unsealed given the expected usage. No testing on the pavement formation was undertaken to determine the suitability of the pavement for the intended use.

The section of unsealed pavement on the Nymagee-Hermidale Road is currently in poor condition in some sections following the recent wet period; however maintenance with a grader would improve the condition of the road greatly. In the long term the section of gravel pavement would benefit from being sealed to reduce ongoing maintenance costs.

The gravel pavement within the Hermidale Siding will likely also require ongoing maintenance to keep it in a reasonable condition.

Conclusion

A review of traffic control devices from the Hera Mine to the Hermidale Siding via the Nymagee-Hermidale Road was undertaken to determine whether any deficiencies exist and to recommend appropriate upgrades. The review showed that generally the existing traffic control devices are in accordance with AUSTROADS standards. The deficiencies that were discovered were generally related to signage and linemarking.

It was noted that many of the existing culvert headwalls were located within the clear zone of 5.5m for a 100km/hr design speed, however the practice of delineating the culvert locations with single/double guideposts either side of the road, the low traffic volumes, availability of runoff areas and small culvert sizes mean that the hazard to motorists is deemed to be relatively low and hence no safety barriers are required.

References

AUSTROADS, 2010. Guide to Road Design, Robell House, Sydney, Australia

AUSTROADS, 2006. Guide to Traffic Engineering Practice, Robell House, Sydney, Australia

Plates



Plate 1: YTC Site Access looking north along Burthong Road



Plate 2: YTC Site Access



Plate 3: Burthong Road looking north



Plate 4: Priory Tank Road and Burthong Road Intersection looking north from Burthong Road



Plate 5: Priory Tank Road and Canbelego Road Intersection looking north along Priory Tank Road



Plate 6: Priory Tank Road and Canbelego Road intersection looking east from looking west from Graham Street



Plate 7: Nymagee-Hermidale Road gravel pavement section showing current poor condition.



Plate 8: Nymagee-Hermidale Road gravel pavement section showing current poor condition.



Plate 9: Nymagee-Hermidale road looking north



Plate 10: Nymagee-Hermidale Road and Nyngan Street intersection looking east from Nyngan Street



Plate 11: Nymagee-Hermidale Road and Nyngan Street intersection looking north from Nymagee Street



Plate 12: Hermidale Siding