29 June 2016

SF2012/002625; WST12/00018/03

The Manager
Mining Projects
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

**Attention: Phillipa Duncan**

Dear Ms Duncan

**SSD-5157: Lots 1, 6 and 7 DP 752879, Lot 20 DP 250872 and Lot 7300 Section 11 DP 56652; Gilgai Road, Miandetta; Nyngan Scandium Mine Project**

Thank you for your email on 25 May 2016 referring SSD-5157 to Roads and Maritime Services for comment.

Roads and Maritime notes the proposed development is for the construction and operation of a scandium mine 21 kilometres west of Nyngan. The proposed mine is projected to operate for 21 years and produce 175,000 tonnes per annum of low and high grade ore and 38 tonnes per year of scandium oxide. Operation activities will occur 24 hours a day, seven days per week and generate, on average, 70 vehicle movements per day.

The proposed mine site entrance will be from Gilgai Road. Vehicles leaving the site will turn right into Gilgai Road, cross the Hermidale Rail line and then enter the Barrier Highway. Gilgai Road has the default rural speed limit of 100km/h and carries, on average, 40 vehicles per day. The Barrier Highway, at this location, is a sign posted 110km/h speed zone that carries, on average, 841 vehicles per day.

Sight distance at the intersection of Gilgai Road and the Barrier Highway is 200 metres towards the west and 700 metres towards the east. For a 110km/h speed zone, to achieve Safe Intersection Sight Distance (SISD), Roads and Maritime requires 300 metres sight distance in each direction.

The existing intersection of Gilgai Road and Barrier Highway will not be able to safely accommodate additional traffic generated by the proposed development. In particular, there is inadequate sight distance to the west for vehicles turning right from Gilgai Road into the Barrier Highway. The proposed development will significantly increase traffic on Gilgai Road, and significantly increase the occurrences of vehicles performing this turning movement.

The applicant needs to provide additional information demonstrating how a high level of safety can be provided at this intersection for motorists. The additional information needs to include:

- Further analysis and investigation of the intersection detailing what works are required to achieve a minimum SISD of 300 metres at the intersection. If the works required to achieve SISD are unfeasible, alternate measures to achieve a high level of safety need to be provided. The installation of advance intersection warning signs alone are not a sufficient measure and other measures such as lighting and an acceleration lane for traffic turning right into Barrier Highway may need to be employed.

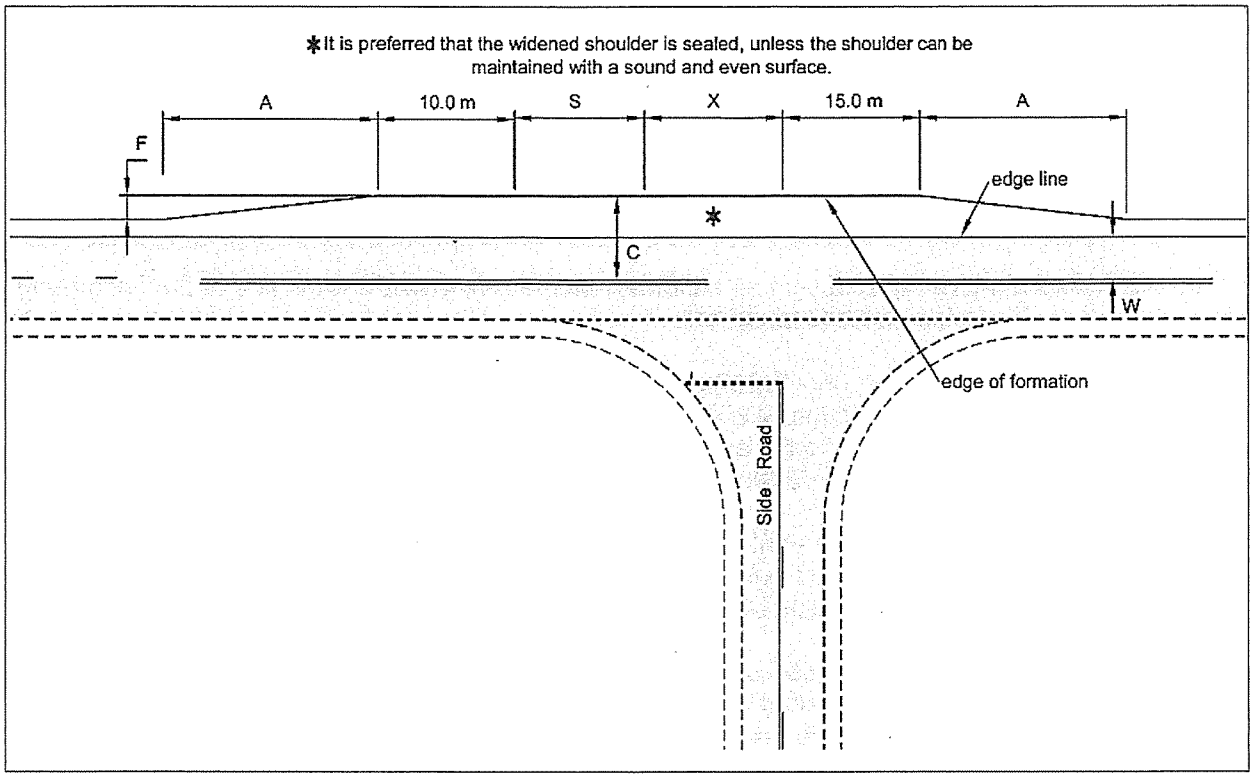
- A detailed survey of the existing intersection treatment. The Basic Right (BAR) turn treatment on the Barrier Highway needs to be in accordance with Figure 7.5 Part 4A *Austroads Guide to Road Design*. Please note the Barrier Highway at this location is open to 36.5 metre road trains, meaning, the eastbound lane and adjoining sealed shoulder needs to be a minimum width of seven metres. Further, the auxiliary left turn lane needs to be in accordance with Figure 8.3 Part 4A *Austroads Guide to Road Design* (copies are enclosed). Any upgrade to the existing intersection needs to be designed to ensure a minimum distance of 40 metres is maintained on Gilgai Road between the hold lines at the rail level crossing and at the approach to the Barrier Highway.

- Details on measures and programs to be employed by the applicant to enforce, or at least encourage, mine staff to travel to and from work safely and/or reduce the exposure of mine staff to risks, such as driver fatigue, by minimising travel or providing safe travel options.

Please confirm with Roads and Maritime that the development application will not be determined until such time as Roads and Maritime has had an opportunity to comprehensively assess the development application following provision of the additional information. To discuss this matter further, please contact Andrew McIntyre, Manager Land Use Assessment, on 02 6861 1453.

Yours faithfully

Susie Mackay
Network & Safety Manager
Western




Notes:

1. This treatment applies to the right turn from a major road to a minor road.
2. The dimensions of the treatment are defined thus:

W = Nominal through lane width (m) (including widening for curves). Width to be continuous through the intersection.

C = On straights – 6.5 m minimum

7.0 m minimum for Type 1 & Type 2 road trains

On curves – widths as above + curve widening (based on widening for the design turning vehicle plus widening for the design through vehicle).

A = $\frac{0.5VF}{3.6}$

Increase length A on tighter curves (e.g. those with a side friction demand greater than the maximum desirable). Where the design through vehicle is larger than or equal to a 19 m semi-trailer the minimum speed used to calculate A is 80 km/h.

V = Design speed of major road approach (km/h).

F = Formation/carriageway widening (m).

S = Storage length to cater for one design turning vehicle (m) (minimum length 12.5 m).

X = Distance based on design vehicle turning path, typically 10–15 m.

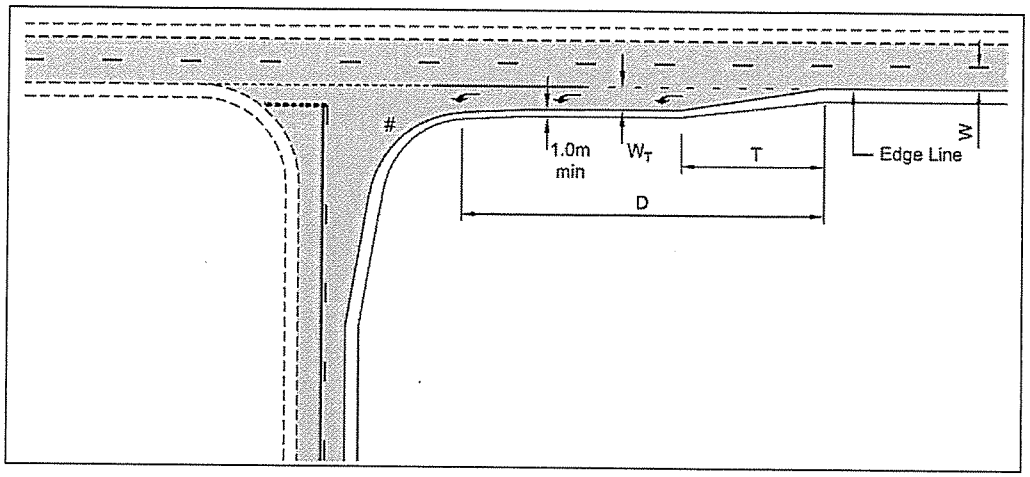
Source: QDMR (2006).

Figure 7.5: Basic right (BAR) turn treatment on a two-lane rural road

### 8.2.2 *Rural Auxiliary Left-turn Treatment – Short Turn Lane [AUL(S)] on the Major Road*

An AUL(S) turn treatment is shown in Figure 8.3. This treatment is suitable where there are low to moderate through and turning volumes (Section 4.8). For higher volume sites, a full-length AUL turn treatment is preferred. The required length of treatment is shown in Table 8.2.

The AUL(S) layout should not be used where there is reduced visibility to the turn treatment. Left-turning drivers on the major road need to perceive the location of the deceleration lane and the side road in time to make the necessary speed reduction in the through lane prior to diverging.




Notes:

1. # for setting out details of the left-turn geometry, use vehicle turning path templates and/or Table 8.2.
2. Approaches to left-turn slip lanes can create hazardous situations between cyclists and left-turning motor vehicles. Treatments to reduce the number of potential conflicts at left-turn slip lanes are given in this guide.
3. The dimensions of the treatment are defined as follows. Values of D and T are provided in Table 8.2.

W = Nominal through lane width (m) (including widening for curves). For a new intersection on an existing road, the width is to be in accordance with the current link strategy.

WT = Nominal width of the turn lane (m), including widening for curves based on the design turning vehicle = 3.0 m minimum.

T = Physical taper length (m) given by:

$$T = \frac{0.5VF}{3.6}$$

V Design speed of major road approach (km/h).

Source: QDMR (2006).

**Figure 8.3: Rural AUL(S) treatment with a short left-turn lane**

**Table 8.2: Dimensions for AUL(S) treatment on major leg**

| Design speed of major road approach (km/h) | Diverge/deceleration length D (m)1 | Taper length T (m)2 |
|---|---|---|
| 50 | 15 | 15 |
| 60 | 25 | 15 |
| 70 | 35 | 20 |
| 80 | 45 | 20 |
| 90 | 55 | 25 |
| 100 | 70 | 30 |
| 110 | 85 | 30 |
| 120 | 100 | 35 |

1. Based on a 20% reduction in through road speed at the start of the taper and a value of deceleration of 3.5 m/s² (Table 5.2). Adjust for grade using the 'correction to grade', Table 5.3.

2. Based on a turn lane width of 3.0 m.

Source: QDMR (2006).