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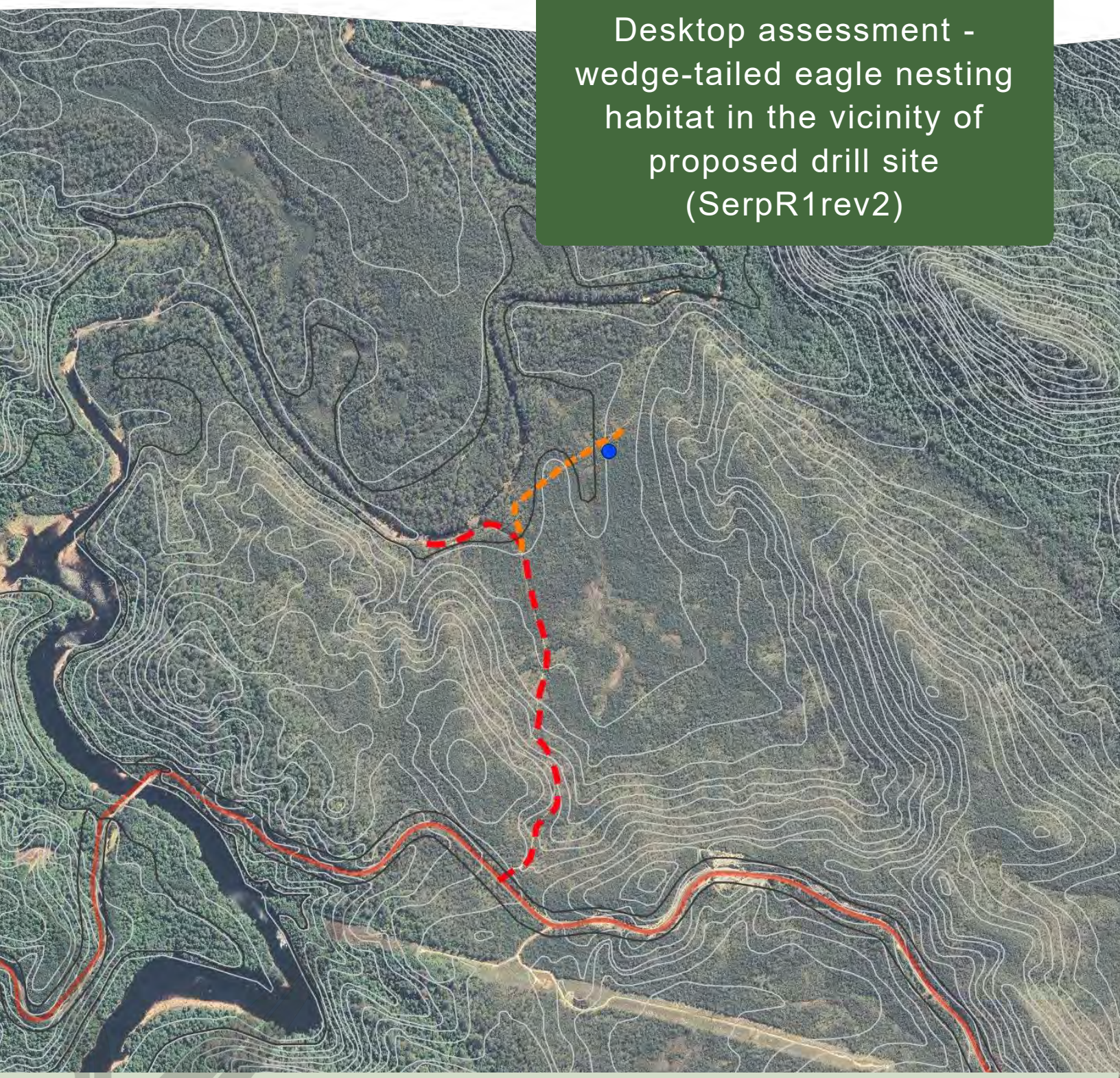
Desktop assessment - wedge-tailed eagle nesting habitat in the vicinity of proposed drill site (SerpR1rev2)



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Contents

1. Background **2**

2. Nearby nest records **3**

3. Nesting habitat in the vicinity **3**

4. Sources of disturbance to nesting eagles **5**

5. Guidance for protection and management of nesting habitat **5**

6. Potential disturbance associated with the drill site **6**

7. Potential visual disturbance **6**

8. Conclusions **10**

9. References **11**

1. Background

Enviro-dynamics have been engaged by Venture Minerals to conduct a desktop analysis of potential nesting habitat for the endangered Tasmanian wedge-tailed eagle (*Aquila audax fleayi*) in the vicinity of a proposed drill site (SerpR1rev2) in order to assist with the planning requirements of Mineral Resources Tasmania (MRT). The proposed drilling site is within Exploration License EL45/2010.

The proposed drill site is located within the Meredith Range Regional Reserve north of Pieman Road and east of the Wilson River (Figure 1). To facilitate the proposed exploration drilling, the proponent is seeking to upgrade a section of 4WD track and to clear a small patch of native vegetation around the drill site.

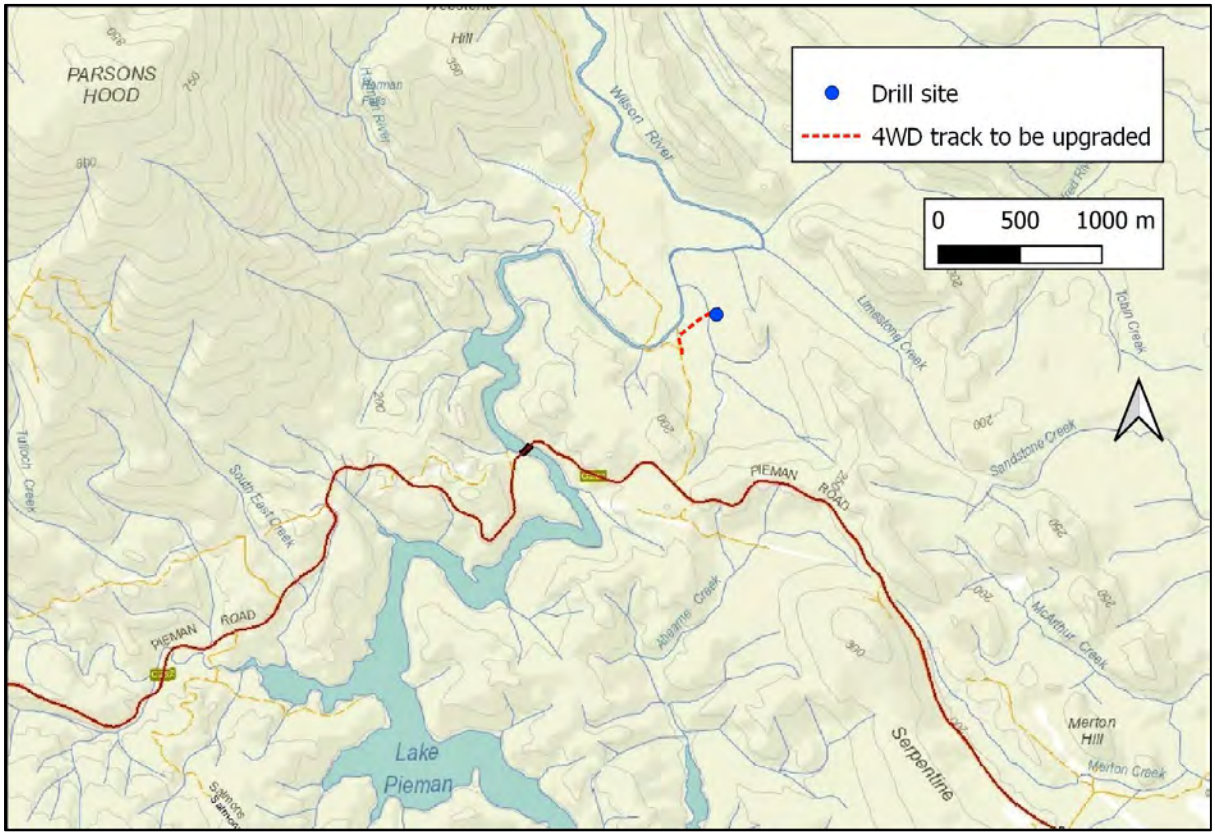

Figure 1 – Location of proposed works

Proposed vegetation clearance for access is approximately 1125 m^2 of regrowth native vegetation on an existing 4WD track, while the circular cleared pad at the drill site will occupy approximately 1125 m^2 of Smithton peppermint (*Eucalyptus nitida)* dry forest and woodland (DNI).

A natural values assessment of the site conducted by Matt Rose of Natural Capital in 2022 describes relatively open forest with a canopy height of 5-10 m. This is consistent with the forest canopy layer on theLIST which is derived from LIDAR data

and shows a canopy surrounding the site which is typically 7-9 m high, with regular spot heights of 14-15 m and occasional spot heights of up to 18 m (theLIST 2023).

2. Nearby nest records

A search of the Natural Values Atlas (DNRE, 2023) reveals no records of wedge-tailed eagle nests within 1 km of the site, with the nearest nest record located approximately 2.5 km away to the north (Figure 2).

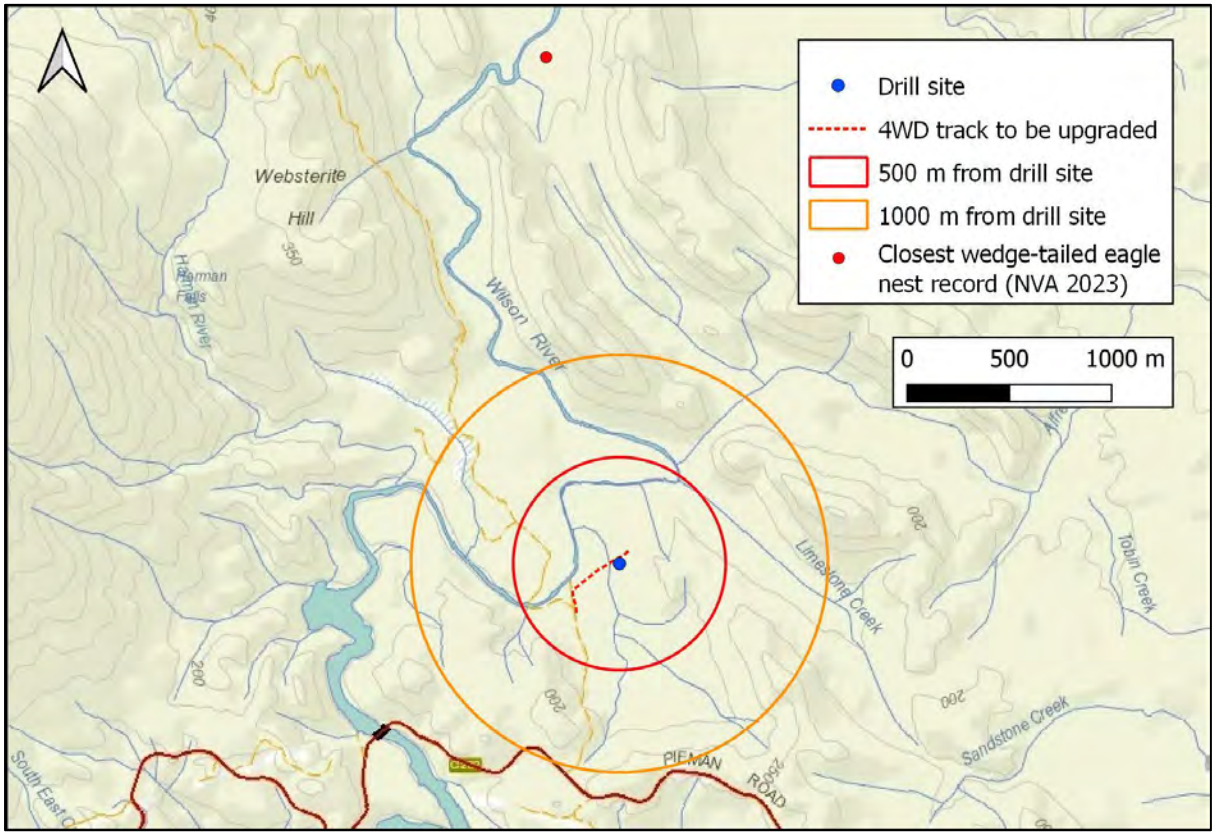

Figure 2 – Nearest wedge-tailed eagle nest record

3. Nesting habitat in the vicinity

Modelling of wedge-tailed eagle nesting habitat has been conducted by the Forest Practices Authority (FPA, 2014) and is available through the Natural Values Atlas (NVA) and theLIST.

The modelling indicates six relatively large areas of high probability nesting habitat (high probability sites) located within between 320 m and 780 m of the drill site and distributed from the north through to the south-west of the site (Figure 3). For the purposes of this assessment, these high probability sites have been numbered from 1-6 and for practicality of modelling, the centre of each site has been considered as a potential nest site.

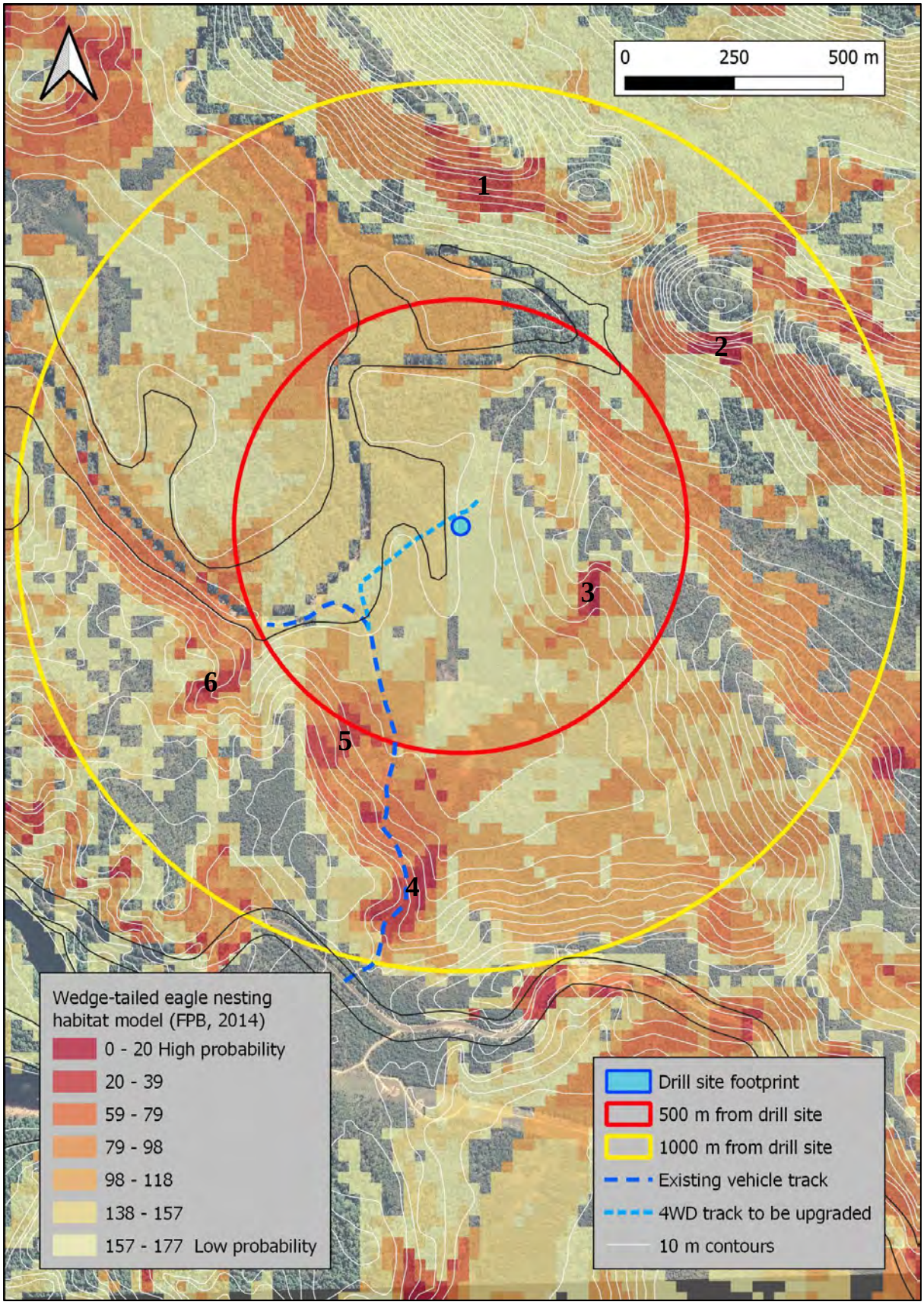

Figure 3 – Wedge-tailed eagle nesting habitat modelling for the landscape surrounding the proposed drill site (FPA, 2014)

4. Sources of disturbance to nesting eagles

The following background information has been summarised from Fauna Technical Notes No. 1 (FPA, 2014) which is derived from the work of Mooney and Holdsworth (1991), Mooney and Taylor (1996), Mooney (1997) and Mooney (2000).

Wedge-tailed eagles are most sensitive to disturbance during the breeding season, with peaks of increased sensitivity occurring at main events (eg laying) and spread throughout the breeding season (July to February). The main sensitivity is early in the breeding cycle – July to October. Birds may abandon nests at any stage if disturbance exceeds a certain threshold and nests disturbed in one year may result in the nest not being used in subsequent years, although with appropriate management reoccupation can occur (Mooney and Taylor 1996). The effects of disturbance are cumulative and:

- increase with intensity, proximity, spread and duration of disturbance,
- increase when the nest is the focus of disturbance,
- are greater if they occur above the nest compared to below the nest (see reserve design considerations above),
- are dependent on timing in relation to the breeding season,
- are dependent on individual responses, and
- may decrease with regularity and predictability.

In terms of what constitutes disturbance, the following is a summary of the guidance provided on the Threatened Species Link page for wedge-tailed eagles (NRE, 2022). Disturbance to avoid includes:

- Removal of nest trees or surrounding vegetation,
- Investigating nests during the breeding season,
- Visible human activity in proximity to the nest,
- Extreme audible activity in proximity to the nest (eg loud machinery), and
- The addition of structures in the vicinity of nests which increase the risk of collisions because they are difficult to perceive in flight (e.g., power lines).

5. Guidance for protection and management of nesting habitat

Standard advice from the Department of Natural Resources and the Environment (NRE) in relation to eagle nests is that a 500 m buffer and a 1 km line-of-sight buffer should be applied from any development during the breeding season (the standard advice). These prescriptions derive from the Fauna Technical Notes No. 1 produced

by the Forest Practices Authority (FPA, 2006 and 2014) in relation to management of active nests. In this context, the line-of sight model based on no vegetative cover was developed in response to potential clear-fell of forest in the landscape around a nest. It is arguably an inappropriate model for other forms of development where little or no vegetative clearance is planned (Mooney, pers comm).

6. Potential disturbance associated with the drill site

a) The access route to the site passes close to two high probability sites and could potentially be line-of-site to other high probability sites. Vehicle activity, an increase in vehicle activity, and/or a change in the pattern of vehicle activity could disturb nesting eagles.

b) Activity at the drill site could be visible to nesting birds from the nest, from nearby roosts, and/or on the wing and this new visual disturbance may be perceived as a threat.

c) People and machinery may be audible to nesting birds from the nest, from nearby roosts, and/or on the wing and this new auditory disturbance may be perceived as a threat.

7. Potential visual disturbance

An assessment of potential visual disturbance has been requested as part of this desktop assessment. To give some indication as to potential visual disturbance associated with the proposed drill site to an eagle nest located in any of the high probability sites identified in Figure 3, a viewshed analysis was undertaken using the Visibility Analysis tool within QGIS 3.10 to model line-of-sight from the nest.

The modelling assumes a nest located roughly in the centre of the high probability sites at a height of 25 m above the ground and with no vegetative screening. A target height of 2 m was applied (a height that captures most human activity). While the forest surrounding the drill site would undoubtedly provide some vegetative screening, it is beyond the scope of a desktop assessment to model that screening, particularly given the other assumptions which apply. As such, the modelling provides only an indication of potential visual impact.

The results of this viewshed analysis for each of the high probability sites is shown in Figures 4-9.

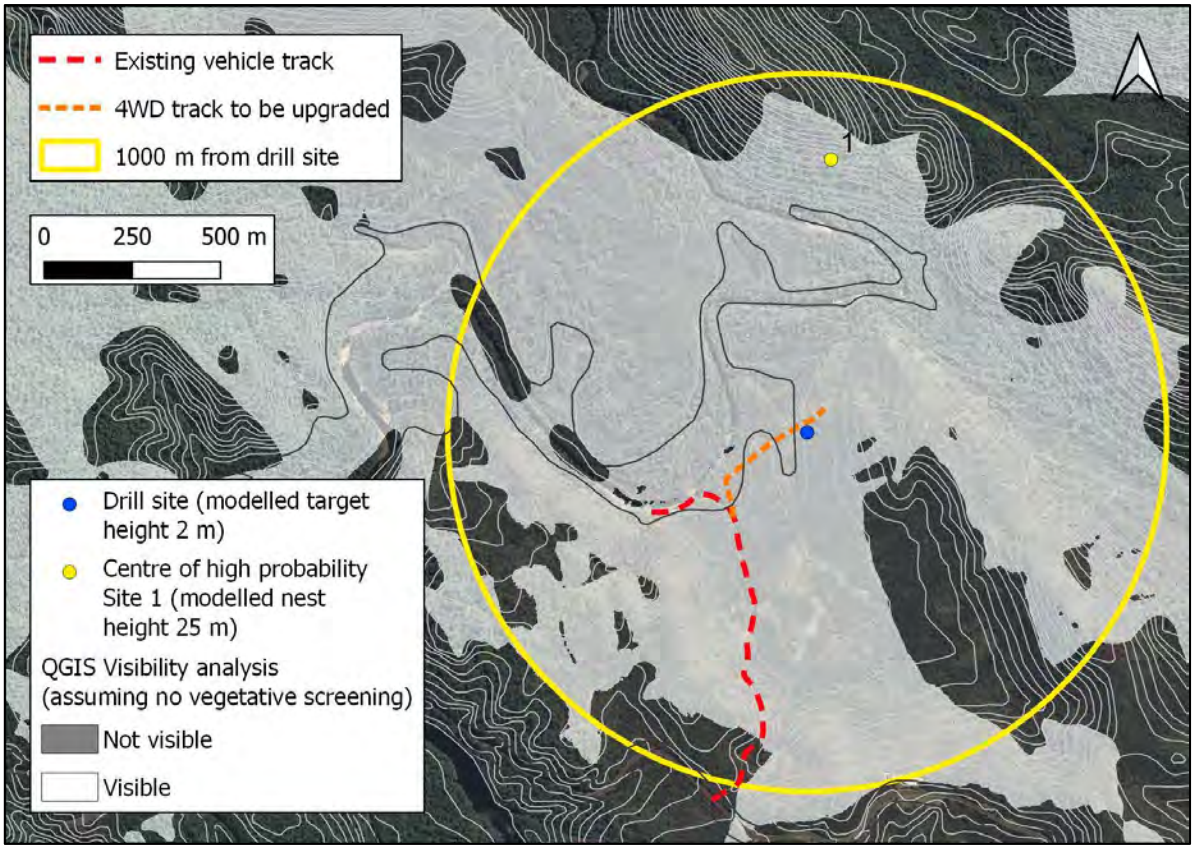

Figure 4 – Viewshed analysis for high probability Site 1

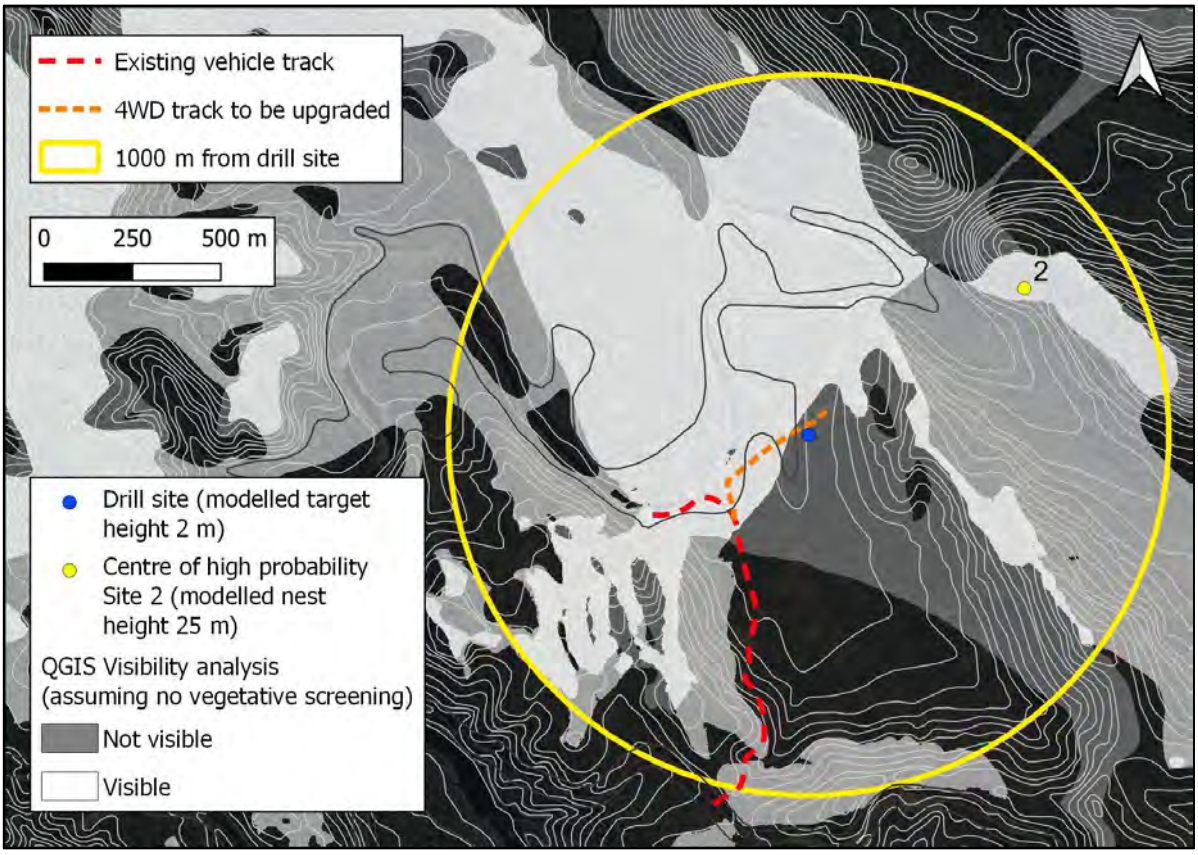

Figure 5 – Viewshed analysis for high probability Site 2

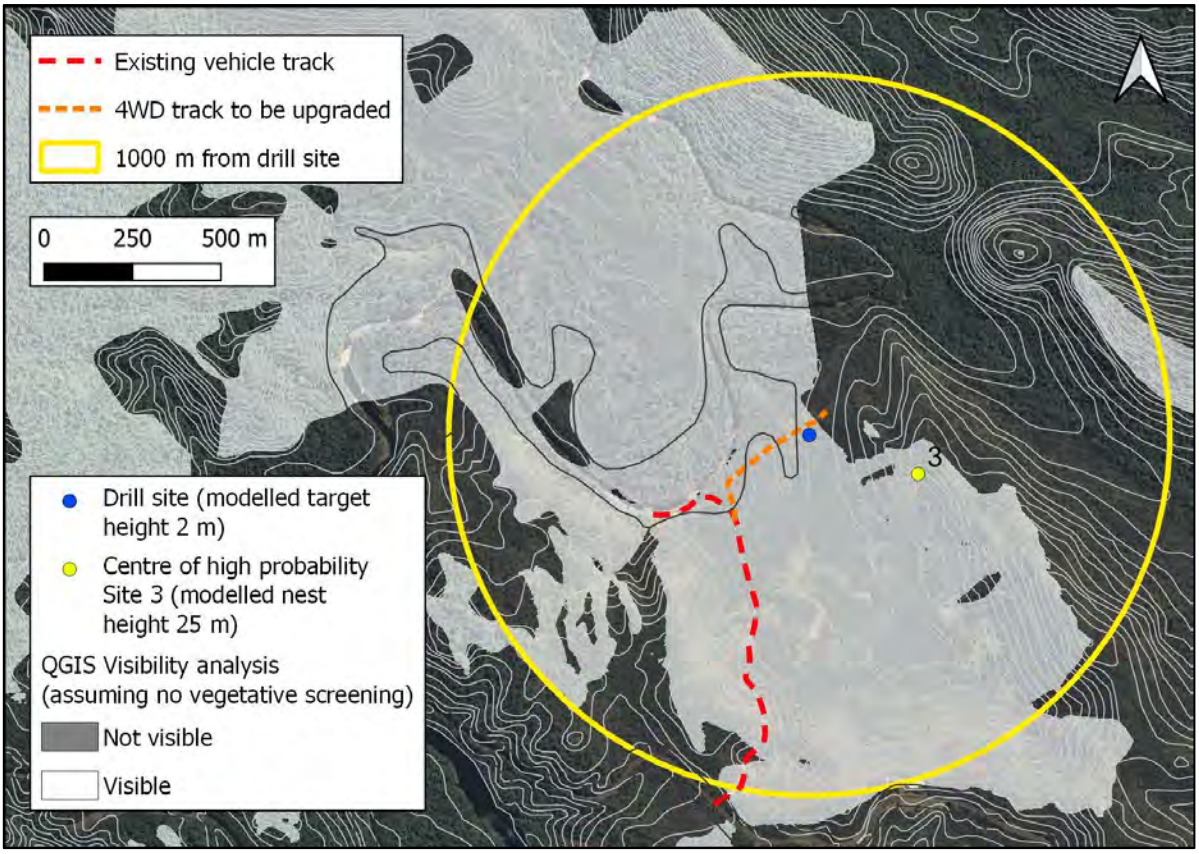

Figure 6 – Viewshed analysis for high probability Site 3

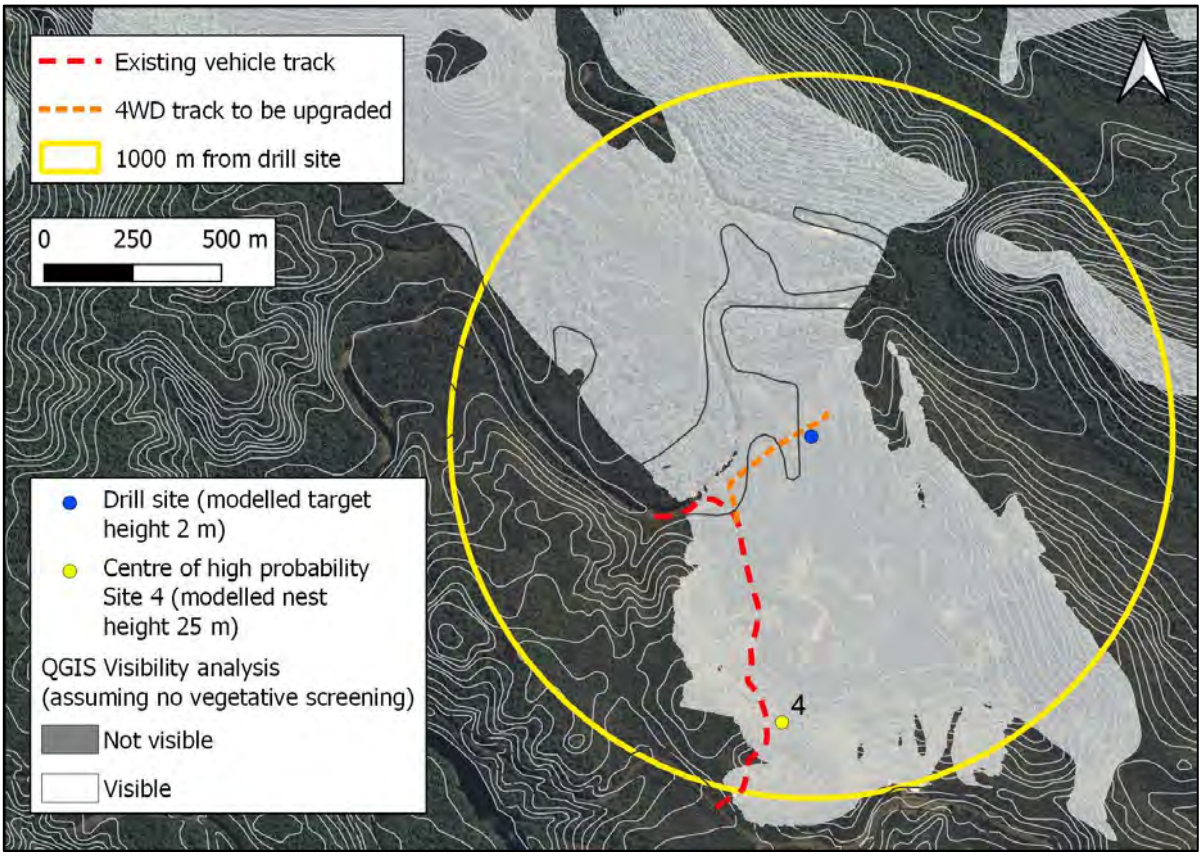

Figure 7 – Viewshed analysis for high probability Site 4

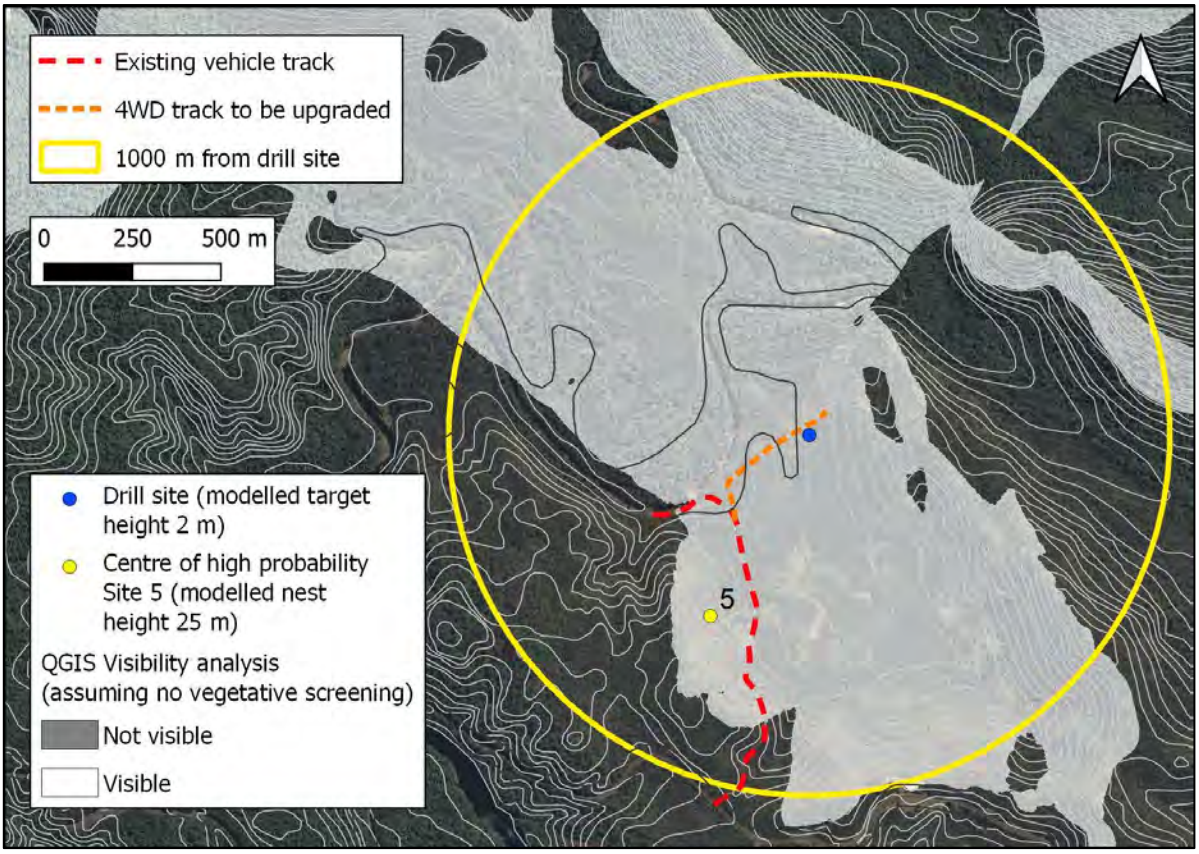

Figure 8 – Viewshed analysis for high probability Site 5

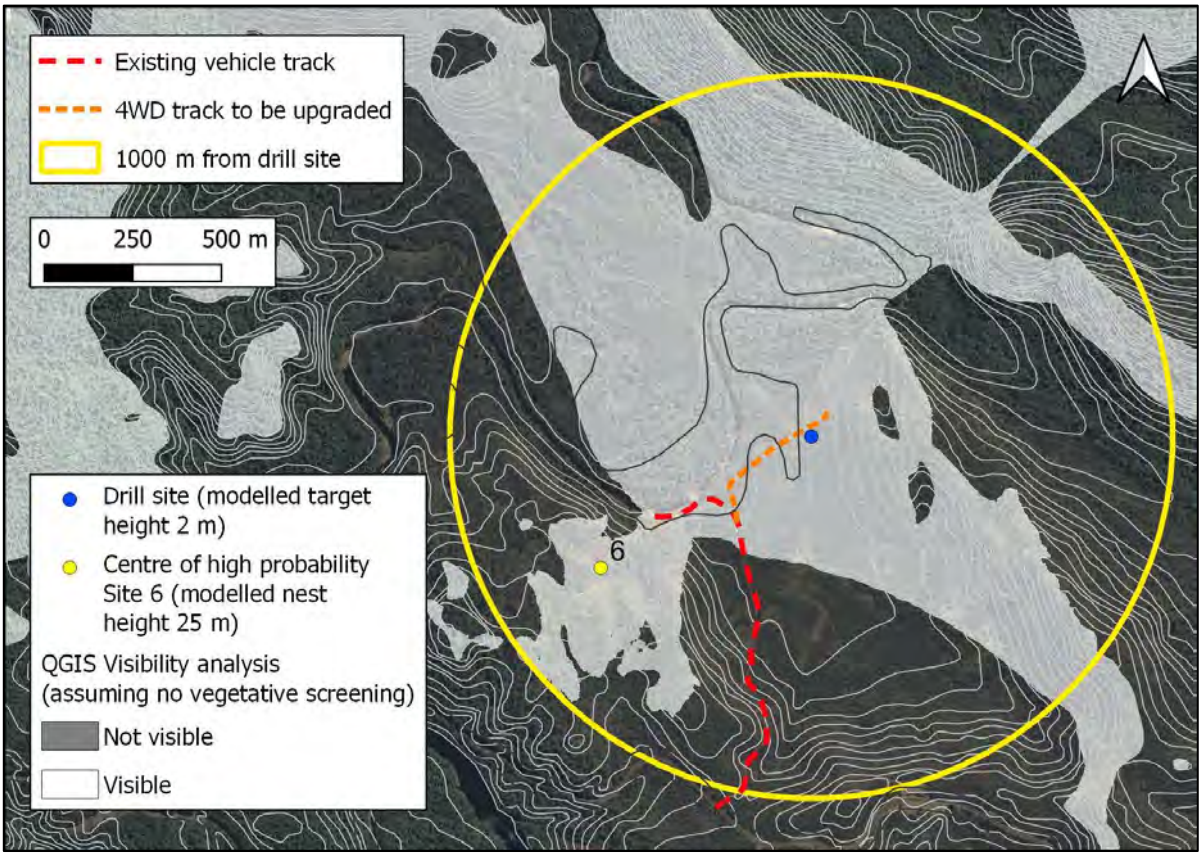

Figure 9 – Viewshed analysis for high probability Site 6

8. Conclusions

a) There is good nesting habitat for wedge-tailed eagles within 1 km of the proposed drill site and it is possible that there is an active eagle nest nearby.

b) Activities associated with the proposed drill site could potentially be line-of-sight to a nest located nearby.

c) A conservative approach is appropriate in managing potential disturbance to nesting eagles because they are known to be sensitive to disturbance and it is not possible to predict how any given breeding pair will respond to a new source of disturbance, an increase in disturbance or a change in the background pattern of disturbance.

d) A ground survey should be conducted prior to any works being conducted to ascertain whether any of the high probability sites identified in this report support an active wedge-tailed eagle nest.

e) If an active nest is identified, no works should be conducted within the breeding season (July to February).

9. References

Forest Practices Authority 2006, Fauna Technical Note No. 1. Eagle nest searching, activity checking and nest management, Forest Practices Authority, Hobart.

Forest Practices Authority 2014, 'Eagle nest searching, activity checking and nest management', Fauna Technical Note No. 1, Forest Practices Authority, Hobart

Forest Practices Authority 2014, 'Wedge-tailed eagle nesting habitat model', Fauna Technical Note No. 6, Forest Practices Authority, Hobart, Tasmania.

Mooney, N. and M. Holdsworth (1991). The effects of disturbance on nesting Wedge-tailed Eagles in Tasmania. Tasforests 3 pp25-33.

Mooney, N. and R. Taylor (1996). Value of eagle nest site protection in Raptors in a Human Landscape. Eds Bird, D., Varland, D. and J.Negro. RRF.

Mooney, N. (1997). Conservation of Wedge-tailed eagles in Tasmania; the Blunderbuss Approach. Aust Raptor studies 2. RAOU.

Mooney, N. (2000). Appearance Vs Performance; Managing Endangered Eagles in Forestry Operations. Raptors at Risk. (eds) Chancellor, R. and B. Meyburg. WWGBP.

Natural State (2022). Natural values assessment, Venture Minerals Limited, Proposed drill site within Exploration License EL45/2010 Serpentine Ridge.

Nature Conservation Act 2002. Available at https://www.legislation.tas.gov.au/view/html/inforce/current/act-2002-063

NRE, 2023, 'Natural Values Atlas', https://www.naturalvaluesatlas.tas.gov.au/

NRE 2023, 'Threatened Species Link', http://www.threatenedspecieslink.tas.gov.au/

Threatened Species Protection Act 1995. Available at https://www.legislation.tas.gov.au/view/html/inforce/current/act-1995-083