

**DINGLEY CORRIDOR – WARRIGAL ROAD TO
WESTALL ROAD**

**SOUTHERN BROWN BANDICOOT
TARGETED SURVEY**

VicRoads Eastern Projects



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1. EXECUTIVE SUMMARY

VicRoads Eastern Projects engaged Brett Lane and Associates Pty. Ltd. to conduct a targeted Southern Brown Bandicoot survey in heathy woodland habitat situated west of Westall Road and north of Spring Road, Dingley, southeast Melbourne. This location is within the alignment of the proposed Dingley Bypass.

The targeted Southern Brown Bandicoot survey was undertaken using best-practice methods to determine whether the species or its habitat was present in areas that may be impacted upon by the proposed road development. Techniques used to detect the species included: infrared cameras; hair tubes; and active searching.

The targeted survey provided no evidence of Southern Brown Bandicoot utilising the study. The results of this survey and the lack of any recent records of Southern Brown Bandicoot within and surrounding the study area, suggest that the species is unlikely to occur. Potential impacts on Southern Brown Bandicoot from the proposed development are considered to be unlikely and not significant. Therefore, no implications regarding the Southern Brown Bandicoot pertain to the current development proposal.

2. INTRODUCTION

VicRoads Eastern Projects engaged Brett Lane and Associates Pty. Ltd. to conduct a targeted Southern Brown Bandicoot survey in heathy woodland habitat situated west of Westall Road and north of Spring Road, Dingley, southeast Melbourne.

This investigation was commissioned to provide information on the presence of the Southern Brown Bandicoot. Implications under various national, state and local legislation and policy have been outlined.

Specifically, the scope of the investigation included:

- A site survey involving:
 - Setting three infrared cameras over a period of 15 nights; and
 - Setting 30 hair tube traps for a period of 16 days in potential habitat on the site (450 hair tube nights).
- Identification of hair samples and GPS mapping of any threatened fauna recorded.
- A report presenting the results of the survey.

This report is divided into the following sections:

Section 3 presents the sources of information and species biology.

Section 4 presents the methods of the survey.

Section 5 presents the results of the assessment.

Section 6 presents the regulatory implications.

Section 7 presents the conclusions and recommendations.

This investigation was undertaken by a team from Brett Lane & Associates Pty. Ltd., comprising Teisha Sloane (Zoologist), James Iaconese (Zoologist) and Alan Brennan (Senior Ecologist & Project Manager).

3. SPECIES BIOLOGY

3.1. Description

The Southern Brown Bandicoot (*Isodon obesulus obesulus*) is a small ground dwelling marsupial with glistening golden brown fur with black guard hairs, long, pointed snout, small eyes, rounded ears, a compact body, large rump and sparsely furred short, thin tail approximately half of the body length (DSE 2007). The Southern Brown Bandicoot is largely solitary and usually forages alone at night.

3.2. Distribution

Southern Brown Bandicoot is primarily found in New South Wales, Victoria and South Australia. Victorian populations are presently found in five major groups or loose sub-populations centred around Portland – Mt Gambier, Grampians National Park, Otway Ranges, South-central (Port Phillip – Western Port – Wilson’s Promontory) and East Gippsland. With the exception of the Grampians region, the species is normally not found further than 100 kilometres inland from the coast.

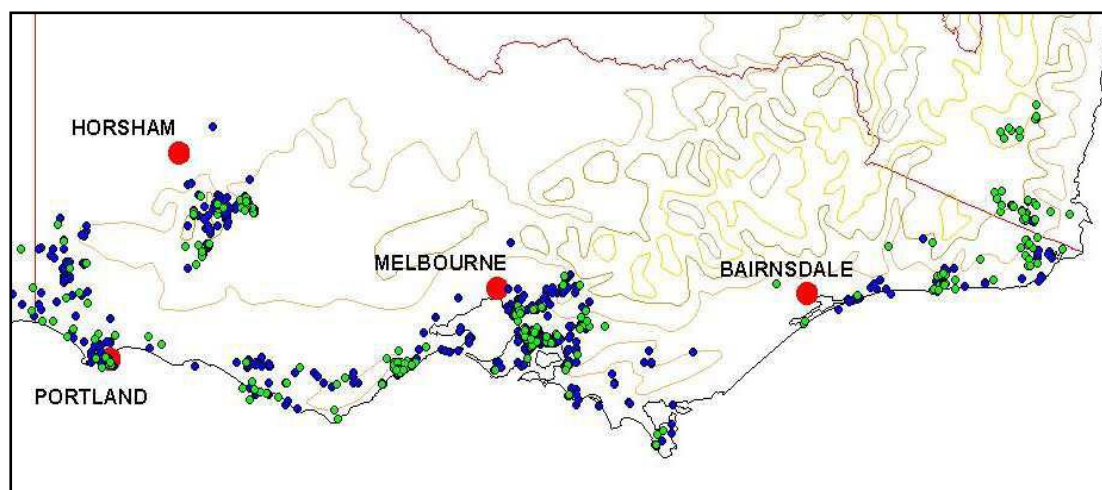


Figure 1: Southern Brown Bandicoot distribution map (Source: Brown 2004).

Blue dots represent official record before 1985; green dots represent official records from 1985 to present.

The home-range area of Southern Brown Bandicoots varies with habitat type, quality and availability of food resources. Home ranges of Southern Brown Bandicoots have been recorded between 0.5 hectares up to 6 hectares (NPWS 2001).

3.3. Habitat

In recent decades, Southern Brown Bandicoot has disappeared from areas of intensive agriculture and urban development. It inhabits heath, shrubland and heathy forest and woodland. It is usually associated with well-drained soils and dry heath communities (Menkhorst 1995). The critical habitat feature appears to be the dense cover of low growing vegetation (DSE 2007).

3.4. Threats

The key threats to bandicoot populations can be summarised as:

- Predators;
- Vehicles;
- Isolation;
- Habitat loss;
- Weeds; and
- Fire.

Current threats to Southern Brown Bandicoot include vegetation clearance for agriculture and developments, too-frequent fires and predation by introduced carnivores, especially foxes and cats (Maxwell *et al.* 1996). The presence of the species relies heavily on habitat quality and opportunities for dispersal between sites. Habitat fragmentation has the effect of not only reducing the area of available habitat, but isolating remaining habitat patches from each other.

3.5. Legislative Protection

Southern Brown Bandicoot is listed as *endangered* under the EPBC Act and is listed as *near-threatened* on the DSE threatened species advisory list (DSE 2007).

4. METHODS

4.1. Existing information

Existing records of the Southern Brown Bandicoot within and surrounding the study area was obtained from the Atlas of Victorian Wildlife (AVW), a database administered by DSE (Viridans Biological Databases 2010). For the purpose of this report, 'study area' refers to the proposed development area. This search listed all Southern Brown Bandicoot found within a ten kilometre search region the approximate centre point of the study area, coordinates: latitude 37° 59' 43" S and longitude 145° 09' 34" E.

The presence or likelihood of occurrence in the study area of nationally threatened fauna species was obtained through the EPBC Act Protected Matters Search Tool (DEWHA 2010).

4.2. Targeted Survey

The targeted survey was conducted between January 6th and January 21st 2011 using methods consistent with the DSE's Biodiversity Precinct Planning Kit (DSE 2009).

During the initial flora and fauna survey, potential Southern Brown Bandicoot habitat was identified. Targeted surveys were undertaken in this habitat (Figure 2).

The following three techniques, described below, were used during the targeted survey:

- Infrared camera;
- Active searching; and
- Hair tubes.

Bait was used for the infrared camera and hair tube methods, and was comprised of a mixture of oats, peanut butter and honey – a combination which has been found to successfully attract bandicoots in previous surveys. The bait was placed in a snap spoon tea infuser nailed into the ground, which allowed the animals to be attracted to the bait without removing it from the site.

4.2.1. *Infrared Camera*

The infrared camera used for this targeted survey was a CAMERA-DTC-530, which is triggered by animal movements using a Passive Infrared motion sensor. Cameras were set to detect motion between 20:30 and 7:30. Each camera was placed approximately 20 centimetres from the ground. A baiting station was situated approximately 40 to 50 centimetres from the camera to attract animals. Pictures were then viewed to identify which species had frequented the baiting station.

4.2.2. *Active Searching*

Active searching was undertaken on two occasions: whilst setting-up the targeted survey and during data collection on day 8 and 15. The whole survey location was walked slowly and species encountered were identified.

4.2.3. Hair Tubes

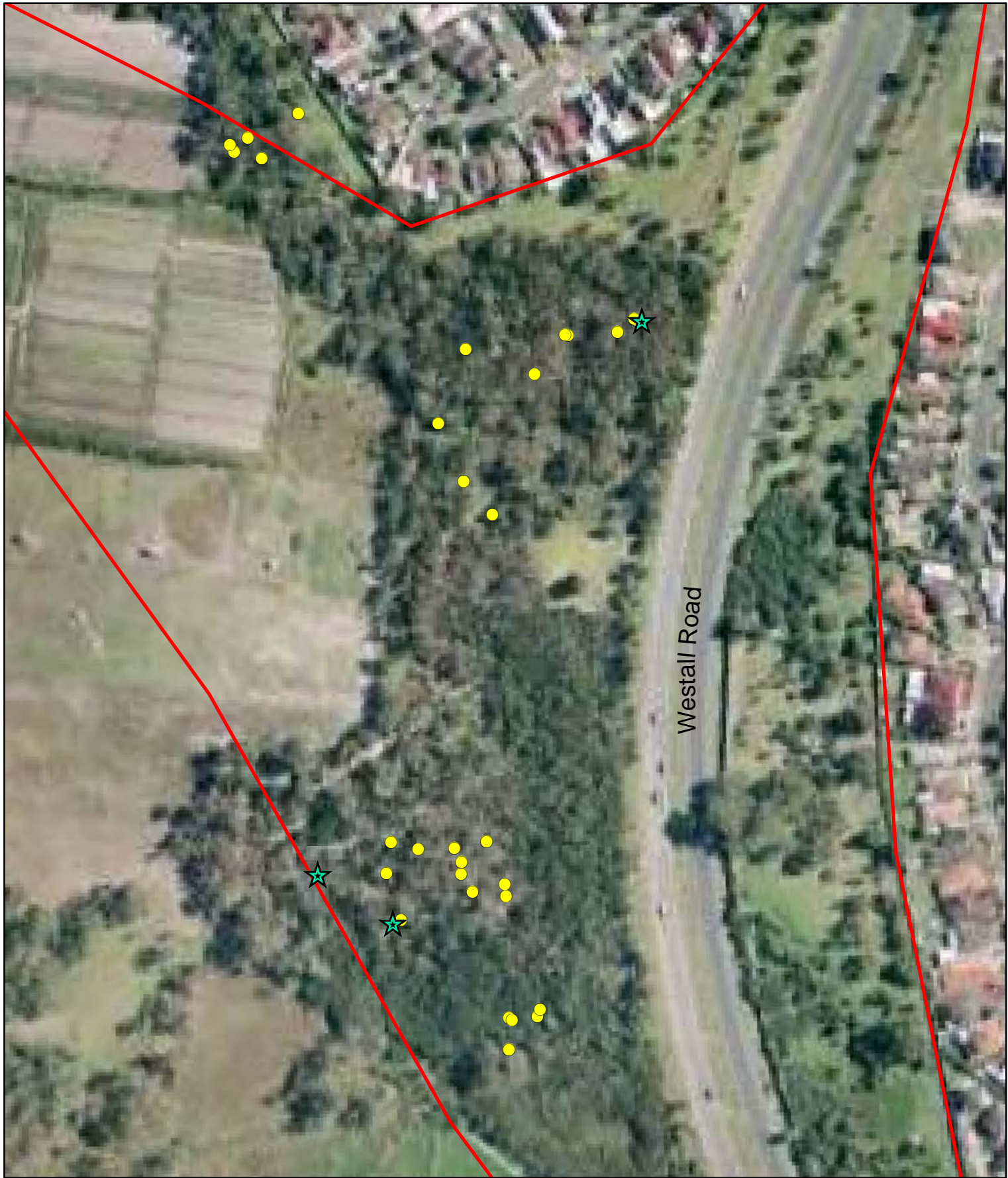
A total of 30 hair tubes were placed throughout the habitat in transect lines 10 metres apart. Bait was placed in each hair tube to attract animals. The hair tubes were left out for 15 consecutive nights. Hair samples were sent to an appropriate expert, Hans Brunner, for analysis.

4.3. Limitations of field assessment

Where feasible, all efforts are made to schedule Southern Brown Bandicoot field surveys in optimal weather conditions and times of year. Nevertheless, field surveys usually fail to record all species present for various reasons, including the seasonal absence of some species and short survey duration. Rare or cryptic species are often missed in short surveys. Conducting an intensive targeted Southern Brown Bandicoot investigation with multiple survey techniques increases the chance of detecting the presence of this threatened species.

As the primary purpose of the investigation was to assess the presence of the Southern Brown Bandicoot in the study area, the review of existing information, combined with the field survey were considered sufficient to complete this aspect of the assessment.

Wherever appropriate, a precautionary approach has been adopted in the discussion of implications. That is, where insufficient evidence is available on the occurrence or likelihood of occurrence of a species, it is assumed that it could be in an area of suitable habitat, and the implications under legislation and policy are considered accordingly.



Legend

- Study Area
- ★ Infrared Camera
- Hair Tube

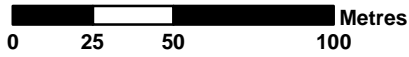


Figure 2: Targeted Bandicoot Survey		
Project: Dingley Corridor - Warrigal Rd to Westall Rd		
Client: VicRoads Eastern Projects		
Project No.: 8094.9	Date: 03/02/2011	Created By: T.Sloane / M.Ghasemi
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5. RESULTS

5.1. Existing information

The AVW holds ten records of Southern Brown Bandicoot within ten kilometres of the proposed Dingley Bypass, the most recent record dated in 1990 (Appendix 1). The location of these records in the wider region is presented in Figure 3.

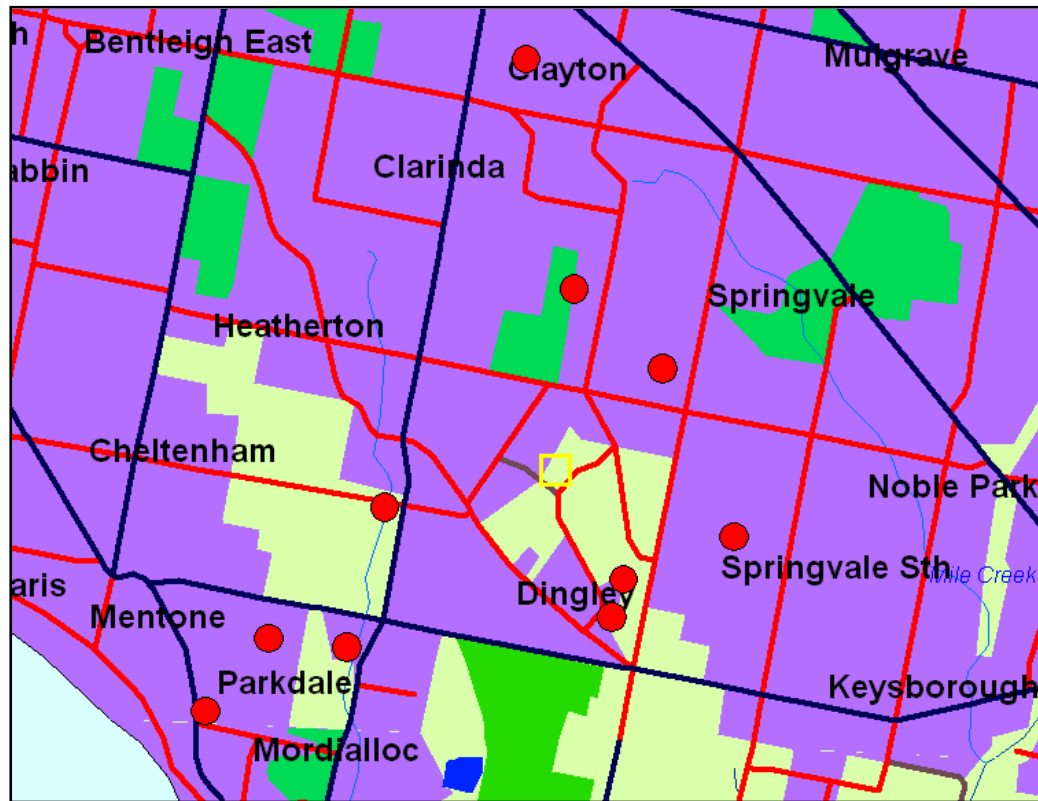


Figure 3: Map of existing records from the AVW (2010).

The yellow box shows the approximate survey location. The red dots present the location of the Southern Brown Bandicoot records \pm 10 kilometres.

The EPBC Act Protected Matters Search Tool indicates that the Southern Brown Bandicoot has the potential to occur in the study area.

5.2. Habitat Assessment

One moderate sized but somewhat isolated remnant patch of heathy woodland remains at the end of the alignment, west of Westall Road and north of Spring Road. The predominant vegetation type class in the study area was Damp Sands Herb-rich Woodland. There is a varied shrub and ground layer comprising mainly native shrubs and sedges. Most conspicuous species are Mat-rushes, Sword-sedges, Austral Bracken, Coast Wattle, Blackwood, Coast Tea-tree, Blackberry, and Kangaroo Apple. Blackberry thickets and swamp scrub have the potential to support Southern Brown Bandicoots, as these habitats have a thick understorey in which the species can shelter from predators.

Diggings and scratchings of European Rabbit were evident in the sandy soils within this habitat.

5.3. Survey results

5.3.1. *Infrared Camera*

Six species were recorded by the infrared cameras. Five were introduced species, including the Fox, Goat, Black Rat, Spotted Turtle Dove and Common Myna. One indigenous species, Common Bronzewing, was recorded.

No Southern Brown Bandicoots were recorded.

5.3.2. *Active Searching*

No Southern Brown Bandicoots or signs of the species were observed during the active searching.

5.3.3. *Hair Tubes*

Thirty hair-tubes were laid out across the study area. From these, two samples contained hair and were sent to hair analyst Hans Brunner to ascertain species type. The hair tube samples were identified as Brush-tailed Possum.

No Southern Brown Bandicoot hairs were identified.

6. IMPACTS AND REGULATORY IMPLICATIONS

6.1. Proposed development and direct impacts

The proposed development will involve the construction of an approximately six kilometre long bypass between Warrigal Road and Westall Road, Victoria. The proposed development footprint supports one site which was originally considered to support Southern Brown Bandicoot habitat. This was located at the end of the alignment, west of Westall Road and north of Spring Road. However, no Southern Brown Bandicoot was recorded during the assessment and none are considered likely to occur based on the lack of evidence found in this study. Therefore, impacts on Southern Brown Bandicoot from the proposed development are considered to be unlikely and not significant.

6.2. EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* contains a list of threatened species and ecological communities that are considered to be of national conservation significance. Any impacts on these species considered significant requires the approval of the Australian Minister for the Environment. If there is a possibility of a significant impact on nationally threatened species or communities or listed migratory species, a Referral under the EPBC Act should be considered. The Minister will decide after 20 business days whether the project will be a 'controlled action' under the EPBC Act, in which case it cannot be undertaken without the approval of the Minister. This approval depends on a further assessment and approval process (lasting between three and nine months, depending on the level of assessment).

Evidence of Southern Brown Bandicoot was not recorded in the study area and impacts on the species from the proposed development are considered to be unlikely and not significant. Therefore the provisions of this Act with regard to the Southern Brown Bandicoot do not currently apply to the study area.

6.3. FFG Act

The Victorian *Flora and Fauna Guarantee Act 1988* lists threatened flora and fauna species to provide for their protection and management. The FFG Act has limited direct application to private land. However, Clause 15.09 of the Planning Scheme makes reference to this Act. The local planning authority is likely to consider impacts on FFG Act-listed species and communities when deciding on planning permit applications.

Evidence of Southern Brown Bandicoot was not recorded during the survey and it is unlikely that they utilise the study area. Therefore, provisions under the FFG Act do not apply and a licence is not necessary.

6.4. EE Act

Under the *Environment Effects Act 1978*, proponents are required to prepare a Referral to the state minister for Planning, which will determine if an Environment Effects Statement (EES) is required for the project. Criteria related to flora and fauna are:

- Potential clearing of ten hectares or more of native vegetation from an area with endangered EVC, or vegetation that is or is likely to be, of very high conservation significance according to Victoria's Native Vegetation Management Framework, except where authorised under an approved Forest Management Plan or Fire Protection Plan;
- Potential long-term loss of a significant proportion (1 to 5% depending upon conservation status of species concerned) of known remaining habitat or population of a threatened species in Victoria;
- Potential long-term change to a wetland's ecological character, where that wetland is Ramsar listed, or listed in 'A Directory of Important Wetlands in Australia';
- Potential major effects upon the biodiversity of aquatic ecosystems over the long term;
- Potential significant effects on matters listed under the *Flora and Fauna Guarantee Act 1988*.

One or a combination of these criteria may trigger a requirement for a Referral to the Victorian Minister for Planning who will determine if an EES is required.

Impacts to Southern Brown Bandicoot from the proposed development have been assessed as unlikely and not significant. Therefore a Referral to the state Minister for Planning will not be required under the EE Act.

6.5. DSE advisory lists

Rare and threatened species advisory lists administered by the Department of Sustainability and Environment include flora and fauna species known to be rare or threatened throughout the state. Although the advisory list has no statutory status, the Responsible Authority will consider impacts on any species on the list when assessing a planning application.

The results of this survey suggest that Southern Brown Bandicoot do not utilise the study area. Impacts from the proposed development are considered unlikely to occur and not significant.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

No evidence of Southern Brown Bandicoot utilising the study area was recorded during the targeted survey. The results of this survey and the lack of any recent records of Southern Brown Bandicoot within the search region, suggest that the species is unlikely to occur. Impacts on Southern Brown Bandicoot from the proposed development are considered to be unlikely and not significant. Therefore, no legal implications pertaining to Southern Brown Bandicoot apply to the current proposal.

7.2. Mitigation Recommendations

Consideration should be given to including the mitigation measures described below in a construction and operational environmental management plan for the project. This would ensure that Southern Brown Bandicoot would be protected during the construction and operation of the proposed development.

- During construction:
 - All construction staff must be trained in the identification of Southern Brown Bandicoot in the eventuality that a bandicoot is found during construction activities;
 - Any Southern Brown Bandicoot identified during construction is to be immediately salvaged and relocated;
 - All incidental native fauna captured to be translocated to release site;
 - Relocation site for Southern Brown Bandicoot to be discussed with DSE. Release site must contain suitable habitat (preferably fox baited) nearby to the study area;
 - Any injured Southern Brown Bandicoot are to be taken to the local vet immediately;
 - Stockpiles to be removed/chipped immediately following clearing to prevent fauna sheltering in stockpiles;
 - All excavation holes must be covered every evening to ensure no animals get trapped; and
 - No pets to be taken onsite.
- Post-Construction:
 - Where necessary, revegetate local indigenous species to establish a dense low growing understorey that can be used as habitat;
 - Revegetation areas should be fenced until they have established;
 - Fox control measures should be implemented in the area; and
 - Habitat connectivity should be maintained or developed with revegetation works.

8. REFERENCES

- Department of Environment, Water, Heritage and the Arts 2010, *Environmental Protection and Biodiversity Conservation Act 1999, Protected Matters Search Tool*. Department of Environment, Water, Heritage and the Arts, Canberra, viewed 29th September 2010, <<http://www.environment.gov.au>>.
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- NPWS 2001, Threatened Species Information – Southern Brown Bandicoot Profile. National Parks and Wildlife Services. <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10439>
- Viridans Biological Databases 2010, Atlas of Victorian Wildlife, Viridans Pty. Ltd., Bentleigh East, Victoria.

Appendix 1: AVW Historical Records of Southern Brown Bandicoot

Common Name	Scientific Name	EPBC	FFG	DSE	Latitude	Longitude	Date	Location
Southern Brown Bandicoot	<i>Isoodon obesulus obesulus</i>	EN		NT	37° 57' 30"	145° 08' 45"	16-Nov-90	Dingley Road Reserve, Springvale
					37° 59' 26"	145° 06' 13"	19-Jun-89	roughly 2 km s of Baeside
					37° 59' 09"	145° 08' 25"	23-Oct-86	roughly 2 km sw of Springvale
					37° 59' 24"	145° 05' 34"	21-Feb-64	Braeside
					37° 55' 30"	145° 07' 30"	24-Apr-57	within 2 km of Clayton
					37° 58' 30"	145° 06' 29"	1-Dec-66	within 2 km of Braeside
					37° 58' 54"	145° 08' 30"	11-Aug-86	Dingley
					37° 59' 54"	145° 05' 04"	01-Jan-1866	Mordialloc
					37° 57' 00"	145° 07' 59"	16-Mar-87	within 2 km of Heatherton
					37° 58' 35"	145° 09' 24"	22-Oct-83	Coomoora Reserve, Keysbrough