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Stockland Developments Pty Ltd

Vincentia Masterplan

Giant Burrowing Frog Surveys in Area 5

Report

January 2006



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1. Introduction

1.1 Aim

GHD Pty Ltd was commissioned by Stockland Developments Pty Ltd (Stockland) to undertake further assessment of the occurrence of the Giant Burrowing Frog (*Heleioporus australiacus*) across the mid slopes of the northern corner of the subject site. This northern corner is known hereafter as “Area 5” in accordance with Department of Environment and Conservation’s (DEC) numbering of specific areas of the subject site.

Stockland is seeking approval for a residential subdivision and concept approval for a district town centre across the 127 hectare (ha) site which is located at the corner of The Wool Road and Jervis Bay Road, Vincentia, NSW (Figure 1). As a part of the Stockland proposal, a Species Impact Statement (SIS) has been prepared (ERM 2005) and this report will form part of the supporting documentation.

The Giant Burrowing Frog is listed as a Vulnerable Species under both the NSW *Threatened Species Conservation Act 1995* (TSC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Although the Director-General’s requirements issued on 17 December 2003 by the NSW National Parks and Wildlife Service (currently DEC) had broadly been met, Stockland agreed to further surveys in Area 5 to ascertain its potential importance as habitat for this species.


1.2 Background

The Giant Burrowing Frog is a large rotund frog that can spend significant periods of time underground during unfavourable conditions and to avoid detection during the day (NPWS 2001). This species has on occasion been found at considerable distance from suitable riparian breeding habitat or other moist habitat indicating an ability to move about relatively freely.

The Giant Burrowing Frog calls mainly in spring and autumn with calling bouts after rains in late summer (Anstis 2002) although Rescei (1996) concluded that the Giant Burrowing Frog could be surveyed at any time of the year, providing it is raining. It is thought to breed through summer and autumn (Cogger 1992) after rains (Robinson 1996). Tadpoles are relatively large and the larval life span in the field varies from 3 to 11 months (Anstis 2002).

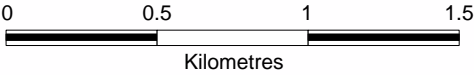
There have been 20 records of this species within 10 km of the subject site with the majority of these clustered to the south (NPWS 2003). Gunninah (2002) reportedly recorded a tadpole of this species on the subject site in a pool upslope of the Central creek during January 2000 (ERM 2005). The next closest observation of this species was across The Wool Road adjacent to the Vincentia Public School and this group of frogs were recorded calling approximately three weeks prior to these surveys (D. Oliver, pers. comm.).



 Study Area

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Figure 1 Site Location



2. Methodology

To ascertain the likely importance of Area 5 as habitat for the Giant Burrowing Frog a number of approaches were used and these along with the survey effort are detailed in Table 1 and survey areas are shown in Figure 2. Surveys were undertaken from 9 to 13 May 2005. The weather was mild and mostly clear although there had been rain in the days prior to these surveys. Daytime temperatures reached around 21 °C whilst nocturnal temperatures dropped to around 13 – 14 °C when surveys were undertaken (between 1800 to 2100 hours). Wind speed varied from nil to very slight during this time.

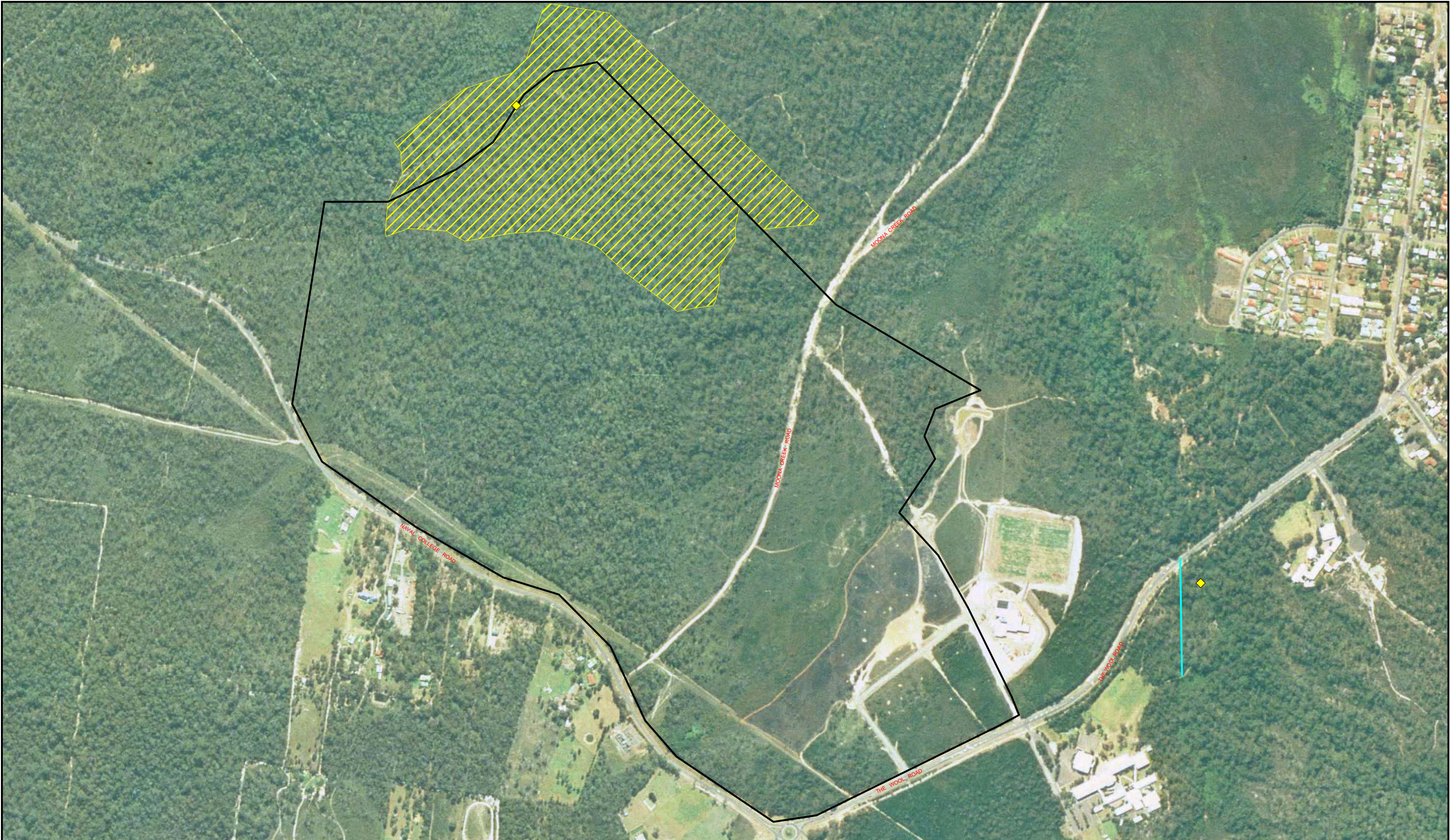
The methodology focussed on using known habitat as a reference site. The Giant Burrowing Frog was noted calling within the creekline to the west of the Vincentia Public School adjacent to The Wool Road approximately three weeks prior to these surveys (D. Oliver, pers. comm.). This area is approximately 1 km from Area 5 on the subject site. This area was used as a reference site as it was considered that calls should also be recorded if this species is present within Area 5.

In the advent that the species was not recorded calling at the reference site due to unsuitable weather conditions, then tadpole surveys at the reference site adjacent to the Vincentia Public School, teamed with tadpole surveys within Area 5, should elicit similar results, ie. either presence or absence at both sites.

Failing all positive or negative recordings of this species it was considered that a visual inspection to determine the suitability of Area 5 to provide habitat for the large tadpole with a long larval stage (from 3 to 11 months) would indicate the potential for this area to be important breeding habitat for this species. A tadpole with such a long development period would require a pool of standing water deep enough to retain at least some water over this period.

Table 1 Techniques & survey effort used to determine likely significance of Area 5 to the Giant Burrowing Frog

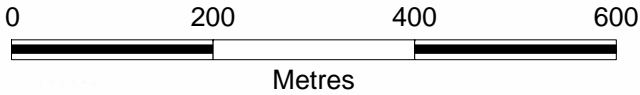
Task	Area	Methodology	Person Hours
Nocturnal call playback	Vincentia Public School creek	5 minutes call playback + 10 min listening period.	0.5
	Western creek riparian area and creekline within JBNP	5 minutes call playback + 10 min listening period.	1.2
Nocturnal listening	Vincentia Public School creek	Listening	1.2
	Western creek riparian area and creekline within JBNP	Listening	1.0
Tadpole searches	Vincentia Public School creek	Dip net dragged through each pool for one to two minutes depending on size & depth.	3.5
	Western creek riparian area and creekline within JBNP	Dip net dragged through each pool for one to two minutes depending on size & depth.	2.0
Habitat searches	Western creek riparian area and creekline within JBNP	Area was walked and deep pools containing water were noted.	2.0
Note: JBNP = Jervis Bay National Park			



- Survey point
- Survey transect
- Habitat searches

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Project: **Giant Burrowing Frog Surveys**

Figure 2 Giant Burrowing Frog Survey Locations



3. Results

No aural or visual observations of adults or tadpoles of the Giant Burrowing Frog were recorded either at the reference site or within Area 5 of the subject site during the present study. Several other species of common frogs were recorded at both the reference site and Area 5 including the Common Eastern Froglet (*Crinia signifera*) and Peron's Tree Frog (*Litoria peronii*). A visual inspection of the entire Area 5 showed that there was no habitat currently suitable for tadpoles with such a long developmental phase as that required by the Giant Burrowing Frog.

4. Discussion

The Giant Burrowing Frog was not recorded within Area 5 during either these surveys or surveys undertaken as a part of the SIS. These results may indicate that this species does not occur in Area 5 due to the lack of suitable habitat. The reference site within the creekline to the west of the Vincentia Public School provides habitat that is structurally different to that within Area 5. The reference site comprises a series of permanent pools connected by flowing water along a sandstone bench. Although some areas appeared to be polluted with rubbish and stagnant water, the overall water clarity was clear and the riparian vegetation largely intact. In contrast the riparian area of the Western creek and Central creek within the subject site and adjacent Jervis Bay National Park are largely unformed swampy areas without a channel or standing water. These areas would become inundated from time to time after major rain events. The Western creek has some deep pools which would retain water for extended periods but these are located toward the Jervis Bay Road and not the northern end of the subject site. A visual inspection of the entire Area 5 showed that currently there was no suitable habitat for tadpoles with such a long developmental phase.

The fact that the Giant Burrowing Frog was not recorded across Area 5 or the reference site may also indicate that this frog may occur within Area 5 but was not recorded on this occasion due to low nocturnal temperatures (around 13 – 14 °C) and relatively dry weather. Given that the reference site is known habitat and that individuals were heard calling within the past month it is likely that temperatures were too low during the present assessment. However, surveys in Area 5 were one of a number of surveys for both adult and tadpole Giant Burrowing Frog undertaken since 2003 (ERM 2006) across the subject site. No records of this species have been made during this time indicating that the subject site is unlikely to currently provide breeding habitat for this species.

Although it is considered that the habitat within Area 5 does not currently provide suitable breeding habitat for this species, this does not preclude the movement of adult Giant Burrowing Frogs through this area. This species has on occasion been found at considerable distance from suitable riparian breeding habitat or other moist habitat indicating an ability to move about relatively freely.



5. Conclusion

Giant Burrowing Frog surveys undertaken for the SIS and additional surveys in Area 5 have failed to record this species on the subject site and specifically within Area 5. The one tadpole recorded on the subject site in 2000 indicates that the broader subject site may provide habitat for this species on occasion. However, the outcome of these additional surveys suggests that there is currently no suitable breeding habitat across Area 5.



6. References

6.1 Personal Communications

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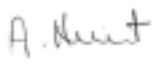

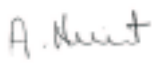
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