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15 December 2008

Buildev Properties Pty Ltd
PO Box 826
NEWCASTLE NSW 2300

Attention: Mark Daniels

Dear Mark

Addendum Report – Flora and Fauna Assessment. Alteration to the Location of a Proposed Access Road, Extractive Industry (Major Project 05_0174), Coxs Lane Fullerton Cove.

We refer to the above and provide a report that assesses the potential ecological impacts of clearing and habitat modification required for the construction of an access road for a proposed extractive industry at Coxs Lane, Fullerton Cove.

1. Background

Orogen Pty Ltd has been commissioned by Buildev Properties Development Pty Ltd to prepare an addendum report to the Environmental Assessment (EA) prepared by Orogen (2008a) for a proposed extractive industry (Major Project 05_0174) at Coxs Lane, Fullerton Cove.

Detailed design refinement has resulted in an alteration to the location of the access road to the site from Coxs Lane. A copy of the design plan showing the proposed new alignment for the access road is provided in the Final Project Report at Appendix E. The new alignment for the access road will result in the removal of 0.02 hectares of a narrow band of Swamp Forest vegetation associated with Coxs Lane table drain (in the road reserve), 0.02 hectares of Dry Sclerophyll Dune Woodland/Open Woodland and 0.08 hectares of Derived Grassland. A total of 23 trees would require removal as part of the proposed design change.

This addendum report provides an assessment of the impact of removing vegetation between Coxs Lane and Zircon Lane ('study area'). Vegetation recorded to the north of Zircon Lane was assessed as part of the original EA (Orogen 2008a) and is not subject to further assessment. The 'subject site' refers to the same land defined as the 'subject site' in the EA (*ie.* Lot 3 DP 11519, Lot 1 DP 794575, Lot 1910 DP 55701, Lot 1 DP 1006307, Lot 201 DP 39968, Lot 991 DP 627179, Fullerton Cove).

2. Survey Methods

A site inspection was undertaken by Orogen on 12 November 2008 as part of the field investigations for this addendum report. A total of four (4) person hours was spent surveying the study area in light drizzle.

Methods used in the field investigations within the study area are detailed below. Given the small area of vegetation proposed for removal (with much of it comprising Derived Grassland), detailed fauna surveys were not considered to be warranted and were thus not undertaken.

Botanical Survey

A botanical survey of the study area was undertaken using the Random Meander technique (Cropper, 1993) to verify vegetation community types, inventory dominant floristics and search for TSC/EPBC listed flora species and endangered ecological communities (EEC) known or potentially occurring in the locality.

Fauna Habitat Assessment

A fauna habitat assessment was conducted for all habitat types occurring within the study area. The habitats were assessed for specific habitat features for Threatened species such as hollow-bearing trees, nest sites, rocky outcrops, water courses, wetland habitats, leaf litter and caves/drains or other structures suitable for roosting or denning purposes.

Fauna Transects

A fauna transect search was undertaken throughout all habitats within the study area. During the traverse, specific attention was given to searching for raptor nests, feeding signs of Glossy Black Cockatoo (*Calyptorhynchus lathami*), latrine sites for Spotted-tailed Quoll (*Dasyurus maculatus maculatus*), worn glider runs in trees and nest/roost sites for Threatened owls.

3. Survey Results

Vegetation Communities

The following vegetation communities were recorded within the study area during the survey:

- *Melaleuca quinquenervia – Eucalyptus robusta* Swamp Sclerophyll Forest (Dunal);
- *Angophora costata – Eucalyptus pilularis* Dry Sclerophyll Woodland/Open Woodland (Dunal); and
- Derived Grassland (Dunal).

The Swamp Sclerophyll Forest was recorded as a narrow band of vegetation along the table drain of Coxs Lane within the road reserve. The Dry Sclerophyll Dunal Woodland/Open Woodland was recorded on the western edge of an existing dunal woodland remnant on the site. The Derived Grassland (derived from the

removal of tree and shrub stratums of Dry Sclerophyll Dune Forest) was similarly recorded to the immediate west of the existing dune woodland remnant on the site.

The three (3) vegetation communities recorded in the study area comprised a total of twenty-three (23) trees (refer Appendix E of Final Project Report for a Survey Plan showing all 23 trees proposed for removal).

Threatened Flora Species and Endangered Ecological Communities

No Threatened flora species were detected within the study area during the botanical survey. The study area was not found to support any TSC/EPBC Act-listed EEC's.

Whilst the Swamp Forest is analogous to the Endangered Ecological Community (EEC) *Swamp Sclerophyll Forest on Coastal Floodplain* listed under Part 3, Schedule 1 of the *Threatened Species and Conservation Act, 1995* (*TSC Act*) with regards to vegetative structure and floristics, the study area lies on Quaternary (dunal) sands (based on regional geology mapping 1:250000 Newcastle Map sheet) and is not considered to be a coastal floodplain (ie. derived from fluvial processes). Consequently, the Swamp Forest vegetation community is not considered to be an EEC in the strict sense of the Final Determination (for the EEC).

The initial surveys undertaken for the EA identified, however, that the Dune Woodland/Open Woodland community may contain habitat for two (2) locally occurring Threatened orchid species (*Diuris praecox* and *Diuris arenaria*). Recommendations were subsequently made in the EA to undertake targeted surveys within this community during the appropriate flowering period for these orchids. The targeted surveys have since been undertaken, and the orchids were not detected within the subject site. Details of the targeted orchid surveys are provided in a separate report (Orogen, 2008c)

Habitat Assessment and Threatened Fauna Species

The vegetation within the study area represents potential foraging resources for a variety of nectivorous and insectivorous species such as birds, microchiropteran bats, and scansorial mammals, including the Squirrel Glider (*Petaurus norfolcensis*) and Brush-tailed Phascogale (*Phascogale tapoatafa*). The vegetation in the study area also represents potential hunting habitat for the Threatened owls and raptors such as the Square-tailed Kite (*Lophoictinia isura*).

The fauna surveys undertaken for the EA (Orogen 2008a) detected the following Threatened fauna species within the subject site: Powerful Owl (*Ninox strenua*), Masked Owl (*Tyto novaehollandiae*), Grey-headed Flying-fox (*Pteropus poliocephalus*), Eastern Freetail-bat (*Mormopterus norfolkensis*), Little Bentwing-bat (*Miniopterus australis),* Southern Myotis (*Myotis macropus*), and Greater Broad-nosed Bat (*Scoteanax rueppellii*). These Threatened species would also be expected to utilise habitats in the study area for part of their life cycle requirements.

No obvious tree hollows were recorded during the site inspection and thus the site would be expected to provide limited roosting and denning resources for the suite of locally occurring hollow obligates. No caves or cave substitutes were recorded in the study area during the site inspection.

The south-eastern corner of the subject site has been mapped as containing 'Supplementary Koala Habitat' by the Port Stephens Council Comprehensive Koala Plan of Management (CKPoM)((Port Stephens Council, 2002). The proposed clearing area contains five (5) *Eucalyptus robusta,* and this species is listed as a 'preferred' Koala food tree by the Port Stephens Council CKPoM. In addition, the remaining tree species within the study area represent potential browse species for the Koala. There was, however no evidence (scats or scratches) of Koala utilisation identified during the field reconnaissance for the proposed access road. There was also no evidence of Koala utilisation detected during the surveys for the EA (Orogen 2008a).

The table drain of Coxs Lane provides ephemeral aquatic habitat, including potential habitat for the Wallum Froglet (*Crinia tinnula*). The table drain is unlikely to provide a core breeding area for the Wallum Froglet given a lack of permanent standing water (although pools were recorded during the site inspection).

4. Section 5A Assessment

A Section 5A Assessment was prepared to determine whether the proposed clearing is likely to have a *significant effect* on TSC Act listed Threatened species, populations or ecological communities, or their habitats.

The Subject Species considered for the Section 5A Assessment are provided in **Table 4.1** shown below and are identical to the suite of Threatened species considered for the EA (Orogen 2008a).

The Section 5A Assessment is based on the proposed removal of 23 trees, comprising:

- 0.02 ha of Swamp Sclerophyll Forest;
- 0.02 ha of Dry Sclerophyll Dune Woodland; and
- 0.08 ha of Derived Grassland.

The Section 5A Assessment is provided as **Attachment 1**.

Table 4.1 — Subject Species Considered for the Section 5A Assessment

Species Group	Common Name
Crinia tinnula	Wallum Froglet
Lophoictinia isura	Square-tailed Kite
Xanthomyza phrygia	Regent Honeyeater
Lathamus discolor	Swift Parrot
Ninox strenua	Powerful Owl
Ninox connivens	Barking Owl
Tyto novaehollandiae	Masked Owl
Dasyurus maculatus maculatus	Spotted-tailed Quoll
Phascogale tapoatafa	Brush-tailed Phascogale
Petaurus norfolcensis	Squirrel Glider
Phascolarctus cinereus	Koala
Pteropus poliocephalus	Grey-headed Flying-fox
Mormopterus norfolkensis	Eastern Freetail Bat
Falsistrellus tasmaniensis	Eastern False Pipistrelle
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat
Miniopterus australis	Little Bentwing-bat
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat
Myotis macropus	Southern Myotis
Scoteanax rueppellii	Greater Broad-nosed Bat
Mormopterus beccarii	Beccari's Freetail Bat

Section 5A Conclusion

Based on information provided in Attachment 1, it is concluded that the additional clearing and/or modification of habitat required for the proposed access road is unlikely to have a significant effect on Threatened species, populations or ecological communities, or their habitats. The preparation of a Species Impact Statement is therefore not required for the proposal.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The proposed clearing is also unlikely to result in a significant impact to any Threatened species or migratory species protected by the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*). The proposed clearing will not affect any EEC's or any other Matters of National Environmental Significance protected by the *EPBC Act.*

5. Mitigation Measures

While the proposed clearing is not likely to cause a significant impact upon any Threatened species, populations or endangered ecological communities, a number of mitigation measures are recommended in order to reduce the potential for impacts to flora and fauna (and their habitats) associated with the proposal. These mitigation measures are detailed in the Statement of Commitments provided in Section 4 of the Final Project Report and would be applicable to the additional clearing for the access road.

6. Conclusion

An assessment of the potential impacts associated with additional clearing of vegetation to accommodate the proposed realignment of the access road to an extractive industry at Coxs Lane, Fullerton Cove has been undertaken. This assessment report is an addendum to the Environmental Assessment prepared for the proposed Extractive Industry at Cox's Lane (Orogen, 2008a).

The assessment concludes that the proposed clearing is not likely to significantly impact upon Threatened species, populations or ecological communities listed under the TSC Act 1995 and thus the preparation of a Species Impact Statement is not required.

Should you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully
Orogen Pty Ltd

DR JUSTIN MELEO
Project Director
Attachments – 1. Section 5A Assessment Table

References

Cropper, S.C. (1993) *Management of Endangered Plants*, CSIRO Publications, Melbourne.

Orogen, (2008a). Major Project 07_0145. Environmental Assessment. Extractive Industry Coxs Lane, Fullerton Cove. Unpublished report prepared for Buildev Properties Pty Ltd.

Orogen, (2008b). Flora & Fauna Assessment. Extractive Industry Coxs Lane, Fullerton Cove. Unpublished report prepared for Buildev Properties Pty Ltd ATF The George Street Residential Unit Trust.

Orogen, (2008c). *Targeted Diuris Surveys at Fullerton Cove Sand Extraction Site*. Unpublished report prepared for Buildev Properties Pty Ltd.

Port Stephens Council, (2002). *Port Stephens Council Comprehensive Koala Plan of Management (CKPoM) – June 2002*. Prepared by Port Stephens Council with the Australian Koala Foundation.

Attachment 1 - Section 5A Assessment Table

Part	Section 5A Criteria	Assessment
a)	*In the case of a Threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction*	The proposal will result in the removal of 0.02 hectares of Swamp Sclerophyll Forest, 0.02 hectares of Dry Sclerophyll Dune Woodland and 0.08 hectares of Derived Grassland. A total of 23 trees would require removal as part of the proposal. The proposal will not result in the removal of Threatened flora species or EECs. The proposal will result in the removal of 0.12 hectares (total) of potential foraging and limited roosting/denning habitat for the Subject Species. This impact would not be expected to place any of the Subject Species' populations at risk of extinction based on the negligible extent of habitat removal and areal extent of suitable habitats in the adjoining Stockton and Tomago Sandbeds (relative to those in the study area).
b)	*In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction;*	No Endangered Populations are known from the Fullerton Cove locality.
c)	*In the case of a critically endangered or endangered ecological community, whether the action proposed:*	
	i) Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	No critically endangered or endangered ecologically communities were identified within the study area.
	ii) Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of	As per c) i)

Attachment 1 - Section 5A Assessment Table

Part	Section 5A Criteria	Assessment
	extinction;	
d)	*In relation to the habitat of a threatened species, population or ecological community:*	
	i) The extent to which habitat is likely to be removed or modified as a result of the action proposed, and	Refer a)
	ii) Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and	The proposal will not contribute to any further isolation or fragmentation of habitats.
	iii) The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	Refer part a).
e)	*Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly);*	The proposed clearing and habitat modification will not have an adverse effect on any critical habitat listed under the *TSC Act.*
f)	*Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan;*	An approved recovery plan has been prepared under the *TSC Act* for the three Large Forest Owls - Powerful Owl, Sooty Owl and Masked Owl and a draft recovery plan has been prepared for the Barking Owl and Koala. Considerations of these recovery plans are outlined below. No other recovery plans prepared under the *TSC act* are applicable to the remaining Subject Species and there are no threat abatement plans applicable to the proposal for the Subject Species. LARGE FOREST OWLS

Attachment 1 - Section 5A Assessment Table

Part	Section 5A Criteria	Assessment
		The proposal is considered to be consistent with Recovery Objective 4 of the recovery plan prepared for the Large Forest owls as the potential impacts to these species have been assessed and addressed through the environmental assessment process for the proposal. The proposal is also considered to be consistent with Recovery Objective 5 as the area of habitat to be removed is not considered a significant area (in terms of size, quality and importance) of habitat for the Powerful Owl or Masked Owl and no known or potential nesting habitat will be removed. The remaining objectives of the recovery plan prepared for the three Large Forest Owls are not considered to be relevant to the proposal and more specifically relate to the responsibilities of government agencies. BARKING OWL The recovery objectives of the recovery plan prepared for the Barking Owl are not considered to be relevant to the proposal and more specifically relate to the responsibilities of government agencies. The proposal is, however, considered to be generally consistent with Recovery Objective 3 in that mitigation measures will be undertaken as a component of the proposal in an effort to reduce the potential impacts of the proposal on the Barking Owl and its habitat. KOALA The removal of potential or known Koala habitat may not be consistent with Recovery Objectives 1 and 2 of the Draft Recovery Plan prepared for the Koala. Notwithstanding, the potential habitat proposed to be removed (23 trees comprising 5 'preferred' feed trees) is not a significant area (in terms of size, quality and importance) of habitat for the Koala. The proposal would not be expected to impact upon the Koala's core breeding population on the Tomago Sandbeds. The remaining objectives of the recovery plan prepared for the Koala are not relevant to the proposal and more specifically relate to government agencies.
g)	*Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key*	

Attachment 1 - Section 5A Assessment Table

Part	Section 5A Criteria	Assessment
	threatening process;	
	Anthropogenic climate change	The use of machinery during construction and clearing of some vegetation will make a contribution to anthropogenic climate change through release of stored carbon from vegetation and greenhouse gas emissions associated with use of fossil fuels. The clearing of vegetation will also reduce the vegetation available for Carbon dioxide cycling. The impact of the proposal on anthropogenic climate change however is negligible in the context of other activities in the region and will be offset to some degree by the proposed revegetation strategies detailed in the Statement of Commitments formulated for the project.
	Clearing of native vegetation	As per Parts (a) and (d).
	Invasion and/or establishment of Native Plant Communities by Lantana camara, Chrysanthemoides monilifera, exotic perennial grasses, and exotic vines and scramblers*	The modified ecotypes occurring within the study area are currently exposed to significant edge effects and a number of exotic species were observed within each of the vegetation communities within the subject site. The additional clearing and habitat modification associated with the proposal will not significantly increase opportunities for any KTP listed weed species becoming established within or adjoining the clearing areas. In addition, the Statement of Commitments outlined in the Final Project Report includes revegetation, habitat enhancement and weed management within the retained vegetation communities which will aim to reduce level of weed species currently occurring within the subject site.
	The remaining KTP's listed by Schedule 3 the *TSC Act* are not considered relevant to the additional clearing or habitat modification for the augmented access road alignment.	