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Ernest Dupere
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Re: Proposed Georges Cove Marina - terrestrial ecological assessments

Dear Ernest,

1 Introduction

EMGA Mitchell McLennan (EMM) has been engaged to review and update the ecological assessment for a proposed marina development at No 146 Newbridge Road Moorebank. The review aims to identify and fill information gaps and provide an updated assessment of the potential ecological impacts of the proposal.

The project area is approximately 13 ha of a 22 ha site in the Liverpool Local Government Area (LGA). The site is a sand and gravel extraction quarry, operated by Benedict Industries. Benedict Industries is proposing to stabilise the bank of the Georges River on the eastern boundary of the site.

1.1 Background

A previous application was made to Liverpool City Council for development consent for the marina. Director General's Environment Assessment Requirements (DGR 563) were received on 29 July 2011. The environmental impact statement (EIS) addressing these DGRs and supporting the marina application was submitted to Liverpool City Council and the Department of Planning in January 2012. The EIS included a flora and fauna assessment report by Total Earth Care (2006 and 2011). The aquatic assessment by Marine Pollution Research (2010) has been considered elsewhere.

Consent for the Georges Cove Marina was granted to Tanlane Pty Ltd by the Sydney West Joint Region Planning Panel (JRPP) as the Consent Authority on 22 August 2014 with support from Liverpool City Council. The validity of the Consent was challenged by the proposal's sole objector, Moorebank Recycling Pty Ltd in the NSW Land and Environment Court. The court ruled in favour of the objector, declaring that the Consent was invalid and that Tanlane should commission a Preliminary Contamination Investigation, reapply for a consent and supply the Preliminary Contamination Investigation to the JRPP as part of the application.

Benedict is therefore re-applying for consent for the proposed Georges Cove Marina.

This letter reviews the Total Earth Care (2006 and 2011) ecological assessments and provides additional information to ensure that the Secretary's Environmental Assessment Requirements (SEARs), issued on 24 April 2015, have been addressed. This included updated database searches to ensure that none of the species identified at the site, or that have the potential to occur, have been listed under the *Threatened Species Conservation Act 1995* (TSC Act), *Fisheries Management Act 1994* (FM Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or EPBC Act since the previous reports were completed.

2 Review

2.1 Previous ecological assessments

2.1.1 Flora and fauna assessment 2006

A flora and fauna assessment was completed to support a rezoning application (Total Earth Care 2006). The assessment included site surveys and classification of ecological constraints within the project area.

Desktop searches were completed for a 5 km radius of the project area in 2004, followed by two days of survey (23 August 2004 and 11 January 2005) including:

- identification of plant species;
- mapping and classification of plant communities;
- targeted searches for plant species of conservation significance;
- diurnal observation of fauna;
- searches for fauna evidence; and
- targeted searches for habitat types of threatened fauna.

A total of 99 plant species were recorded, including 58 introduced species. Three plant communities were identified:

- Riparian Woodland;
- Riparian Scrub; and
- Cleared and Disturbed vegetation.

Three plant species of regional significance were identified: Blue Box (*Eucalyptus baueriana*), River Peppermint (*Eucalyptus elata*) and Fringed Wattle (*Acacia fimbrata*) along the western and southern drainage channels (in the south-west and west of the site). None of these are listed as Rare or Threatened Australian Plants (ROTAP) species or threatened under the TSC Act or the EPBC Act.

The assessment concluded that biodiversity values present only provided low to moderate constraints to development. This report was used as the basis for the 2011 flora and fauna assessment.

2.1.2 Flora and fauna assessment 2011

An updated flora and fauna assessment was completed to support the development application for the Georges Cove Marina (Total Earth Care 2011). The assessment assessed the conservation significance of biodiversity values at the site and provided an indication of the potential constraints to the development of the marina.

Updated database searches (5 km) were completed prior to a field survey on 5 September 2011. The survey included:

- identification of plant species;
- mapping and classification of plant communities;

- targeted searches for plant species of conservation significance;
- diurnal observation of fauna including aural and visual detection of birds and frogs;
- searches for fauna evidence; and
- targeted searches for habitat types of threatened fauna.

A total of 87 plant species were recorded, including 49 introduced species. Four plant communities were identified:

- River Flat Eucalypt Forest (previously identified as Riparian Woodland);
- Swamp Oak Floodplain Forest;
- Reconstructed Vegetation (previously identified as Riparian Scrub); and
- Cleared and Disturbed vegetation.

Both the River Flat Eucalypt Forest and Swamp Oak Floodplain Forest meet the description of endangered ecological communities (EECs) listed under the TSC Act. An assessment of significance under Section 5A of the *Environmental Planning and Assessment Act 1979* (EP&A) Act was not completed for the EECs as only a small area of each occurs within the project area and the areas are degraded.

Four plant species of regional significance were identified (Blue Box, River Peppermint, Fringed Wattle and Gosford Wattle (*Acacia prominens*)) along the western and southern drainage channels. None of these are listed as ROTAP or threatened species under the TSC Act or the EPBC Act.

No threatened fauna species were identified during the surveys. However, the riparian woodland along the Georges River was considered to provide potential habitat for the Cumberland Plain Land Snail (*Meridolum corneovirens*), threatened microbats (Eastern Bentwing Bat (*Miniopterus schreibersii oceansis*), Southern Myotis (*Myotis macropus*), Eastern Freetial-bat (*Mormopterus norfolkensis*), Yellow-bellied Sheathtail Bat (*Saccolaimus flaviventris*)) and the Grey-headed Flying Fox (*Pteropus poliocephalus*) which were recorded in the adjacent Boral site (ERM 2002). An assessment of significance under Section 5A of the EP&A Act was completed for potential impacts on the Eastern Freetail-bat and Yellow-bellied Sheathtail Bat. The assessment concluded that potential impacts would not be significant on these species.

The assessment concluded that the proposed marina is unlikely to significantly impact on native flora and fauna in the project area. However, a number of recommendations were made to reduce the potential impacts of the proposal.

2.2 Database searches and assessment of gaps

2.2.1 Database searches results

Updated searches were undertaken on 8 April 2015 of the following databases:

- NSW Wildlife Atlas (10 km radius);
- Fisheries threatened and protected species record viewer (Liverpool LGA); and
- SPRAT database (10 km radius).

An additional eight threatened species were identified during the searches, which had not considered in the previous ecological assessments (Table 1). Of these, five have a low potential for impacts from the

proposed marina development; Australasian Bittern, Eastern Osprey, Koala, Scarlet Robin and Spotted Harrier. While impacts to the other three species are unlikely.

Table 1 Threatened species not considered in the previous assessments

Species	Status		Number of records[1]	Habitat requirements present?	Potential for impacts from the proposal
	TSC Act	EPBC Act			
Australasian Bittern (*Botaurus poiciloptilus*)	E	E	1	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha spp*.) and spikerushes (*Eleocharis spp*.). Some potential habitat occurs, however there are few records of the species in the area.	Low potential
Eastern Osprey (*Pandion cristatus*)	V		4	Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Some potential habitat occurs along the Georges River and in the ponds.	Low potential given large home ranges and availability of similar habitat in the locality
Koala (*Phascolarctos cinereus*)	V	V	6	Primary food trees have been recorded in the project area including Forest red gum (*E. tereticornis*), Cabbage gum (*E. amplifolia*) and Swamp mahogany (*E. robusta*). A number of known secondary food trees were also recorded. Potential habitat occurs, though records are sparse in the locality.	Low potential and restoration works will improve habitat values along the Georges River
Marsdenia viridiflora R. Br. subsp. *viridiflora* population	E		326	Grows in vine thickets and open shale woodland. No suitable habitat in the project area.	Unlikely
Netted Bottle Brush (*Callistemon linearifolius*)	V		11	Grows in dry sclerophyll forest on the coast and adjacent ranges. Suitable habitat is not considered to occur in the project area.	Unlikely
Scarlet Robin (*Petroica boodang*)	V		1	Dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. Some marginal potential habitat occurs.	Low potential
Spotted Harrier (*Circus assimilis*)	V		5	Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. Some potential habitat occurs.	Low potential given large home ranges and availability of similar habitat in the locality
Tadgell's Bluebell (*Wahlenbergia multicaulis*) population	E		3	Most sites are closely aligned with the Villawood Soil Series. The bluebell is found in disturbed sites and grows in a variety of habitats including forest, woodland, scrub, grassland and the edges of watercourses and wetlands. No suitable habitat in the project area.	Unlikely

Notes: 1.Records since 1 January 1990 within a 10 km radius.

Recent records also occur in proximity to the site for the following species:

- Little Lorikeet – recorded adjacent to the site;
- Varied Sittella – recorded across the Georges River; and
- Little Eagle – recorded adjacent to the site.

Given the highly mobile nature of these species and the availability of habitat in adjacent areas where these have been recorded, the impacts of the proposed marina will be minimal to such species should they use the area. Further, the proposed restoration work along the Georges River, which forms part of the project, will improve habitat quality for such species into the future.

2.2.2 Identified gaps

Site surveys completed for the previous assessments were not adequate to identify a range of threatened flora and fauna species that could occur. However, targeted flora surveys would have identified most of the threatened flora species at the site, if they do occur. To compensate for this, and as no nocturnal surveys were completed, the assessment assumed that threatened microbats would occur at the site. It is considered that all threatened species that have the potential to occur at the site have now been adequately assessed and impacts are unlikely to be significant.

In the absence of an appropriate design or controls, there is the potential for the two EECs identified in the project area to be impacted directly and indirectly from the proposed marina development. The previous studies did not assess the impacts of any such activities under Section 5A of the EP&A Act. This has been identified as a gap and as such, an assessment has been completed below.

i Assessment of significance for EECs

Section 5A of the EP&A Act provides the criteria that must be considered in the assessment of the significance of potential impacts on all threatened species listed under the TSC Act. This assessment of significance has been undertaken in accordance with *Threatened Species Assessment Guidelines: The Assessment of Significance* (DECC 2007).

1. *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;*

This question is not relevant as River-flat Eucalypt Forest and Swamp Oak Floodplain Forest are communities rather than individual species.

2. *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;*

This question is not relevant as River-flat Eucalypt Forest and Swamp Oak Floodplain Forest are communities.

3. *In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:*

    a) *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;*

    b) *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 extinction;*

The local occurrence of River-flat Eucalypt Forest (ie within a 5 km radius of the site) covers approximately 270 ha, while Swamp Oak Floodplain Forest covers approximately 95 ha (OEH 2013). The local occurrence contains some larger patches of the two floodplain communities, but mostly occurs in a highly fragmented state along the Georges River and its tributaries, surrounded by residential and industrial land.

It is not anticipated that any components of the floodplain EECs will be removed for the proposed marina. The previous assessment assumes that up to 0.2% of River Flat Eucalypt Forest and 0.3% of Swamp Oak Floodplain Forest occurring at the site will be removed by the project. This is a very small proportion of the community within the site and the locality.

All works will be undertaken in a manner that minimises any impacts to remnant trees or to the few (if any), characteristic understorey species. However, the works may require machinery to work around remnant trees, to install rock armouring along the bank, which may result in compaction, erosion and/or sedimentation in the EEC areas.

It is important to note that the proposal includes the restoration of the River-flat Eucalypt Forest and Swamp Oak Floodplain Forest areas along the Georges River under the Voluntary Planning Agreement (VPA) and associated Vegetation Management Plan. This will increase the amount and condition of the EECs at the site and in the locality.

4. *In relation to the habitat of a threatened species, population or ecological community:*

    a) *the extent to which habitat is likely to be removed or modified as a result of the action proposed;*

    b) *whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action;*

    c) *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;*

Only small areas of the EECs (up to 0.2% of River Flat Eucalypt Forest and 0.3% of Swamp Oak Floodplain Forest occurring at the site) may be removed (eg for temporary access tracks to allow riverbank stabilisation works) or indirectly impacted by the construction of the proposed marina (eg by construction noise). The work will require an opening along the western bank of the Georges River which will result in fragmentation of habitat for the community. However, there is already existing gaps along the bank between areas of floodplain EEC at the site.

The modification will not isolate any remnants of River Flat Eucalypt Forest, Swamp Oak Floodplain Forest or their habitat.

The small areas of River Flat Eucalypt Forest and Swamp Oak Floodplain Forest to be removed are not considered important for the long-term survival of the communities in the locality. The floodplain vegetation patch is only small and already isolated from other remnants.

5. *Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly);*

Critical habitat has not been declared for River Flat Eucalypt Forest and Swamp Oak Floodplain Forest. Therefore, the proposed development will not have an adverse effect on critical habitat.

6. *Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan; and*

River Flat Eucalypt Forest and Swamp Oak Floodplain Forest do not have recovery plans. Management objectives for the communities aim to maximise the extent of occurrence and condition across NSW. Any removal of small patches of EEC required will not reduce the occurrence or condition of the ecological community in the locality.

7. *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 threatening process.*

A key threatening process relevant to the removal of the trees is 'the clearing of native vegetation'. The removal of the small areas of River Flat Eucalypt Forest and Swamp Oak Floodplain Forest classifies as the

clearing of native vegetation, as the works will remove parts of one or more strata layers of vegetation in these areas.

Conclusion: The removal of up to 0.2% of River Flat Eucalypt Forest and 0.3% of Swamp Oak Floodplain Forest within the project area will not have a significant impact on the EEC in the locality as:

- the proposed clearing is minor;
- the remnant patch of floodplain EECs is not considered to be important;
- the modification will not isolate the communities; and
- remaining areas at the site will be retained, protected and enhanced by the proposed marina.

3 Conclusion

The previous ecological assessments for the proposed Georges Cove Marina have been reviewed. Updated searches have been completed and information gaps have been identified and filled.

No significant impacts to threatened species, populations and communities are anticipated from the construction and operation of the marina. Therefore a species impact statement is not required.

While the proposal will require the removal and modification of some areas of aquatic and terrestrial habitat, it will result in an overall improvement in the quality and amount of available habitat within the site.

Yours sincerely

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References

Department of Environment and Climate Change (DECC) 2007, *Threatened Species Assessment Guidelines: The Assessment of Significance,* Department of Environment and Climate Change NSW

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Total Earth Care 2006, *Flora and Fauna Assessment: Proposed Rezoning of the Benedict Site No. 146 Newbridge Road, Moorebank,* prepared for Benedict Industries Pty Ltd

Appendix D2

Total Earth Care, Flora and Fauna Assessment, November 2011