



**Office of
Environment
& Heritage**

APPENDIX 'E'
DA130270

Your reference: DA13/0270
Our reference: DOC13/21463
Contact: Richard Bonner, 9995 6833



General Manager
Sutherland Shire Council
Locked Bag 17
SUTHERLAND NSW 1499

Attention: Ms Kylie Rourke, Environmental Assessment Officer

Dear Sir/Madam

I refer to your letter of 10 May 2013 inviting comments from the Office of Environment and Heritage (OEH) on the Statement of Environmental Effects (SEE) Development Application (DA) for the Woollooware Bay Town Centre - Stage 1 Residential Development at 461 Captain Cook Drive, Woollooware.

As Council would be aware, OEH advised the Department of Planning and Infrastructure (DoPI) on the Concept Plan Environmental Assessment for this project noting it was primarily based on a desktop analysis which acknowledged the need for further assessment during subsequent stages to more accurately determine the potential impacts on adjacent sensitive habitats from light spill, increased access, noise and stormwater runoff (see Attachment 2). OEH recommended a range of approval conditions to ensure these impacts were adequately assessed and managed. The NSW Planning Assessment Commission's 27 August 2012 approval includes most of OEH's recommended approval conditions. More recently, OEH provided comments to DoPI on various studies which accompanied the Stage 1 - Retail/Club Precinct component of the project (see Attachment 1).

OEH has reviewed the SEE for this Stage 1 Residential Development application and notes the studies of interest to OEH are, with the exception of minor changes, the same as those which accompanied the Stage 1 - Retail/Club Precinct component of the project. Council is therefore referred to OEH's previous advice on this project at Attachments 1 and 2.

If you have any queries regarding this advice please contact Richard Bonner on 9995 6833.

Yours sincerely

Lou Ewins 21/5/13

LOU EWINS
Manager Planning & Aboriginal Heritage
Regional Operations, Metropolitan
Office of Environment and Heritage

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FILE LOCATION
KRO



Office of
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Attachment 1

Your reference: MP10_0230
Our reference: DOC13/7848
Contact: Richard Bonner, 9995 6833

Ms Karen Jones
Director – Metropolitan & Regional Projects South
Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attn: Mark Brown

Dear Ms Jones

I refer to your letter of 5 March 2013 inviting comments from the Office of Environment and Heritage (OEH) on the Environmental Assessment (EA) for the Woollooware Bay Town Centre Stage 1 – Retail/Club Precinct project, 461 Captain Cook Drive, Woollooware.

OEH's previous (22 November 2011) advice noted the Concept Plan EA was primarily based on a desktop analysis which acknowledged the need for further assessment during subsequent stages of the project to more accurately determine the potential impacts on adjacent sensitive habitats from light spill, increased access, noise and stormwater runoff.

OEH recommended a range of approval conditions to ensure these impacts were adequately assessed and managed. Most of these were included in the Planning Assessment Commission's 27 August 2012 Concept Plan approval.

OEH also recommended that baseline surveys be undertaken over 12 months in the estuarine areas along the northern boundary of the site to determine the significance of this area as habitat for threatened/migratory birds and microbats prior to any further development applications being submitted. The Town Centre EA includes a Microbat Monitoring Report which outlines additional surveys undertaken for microbats in the adjoining mangroves, however, no bird surveys were undertaken, despite the Director-General's Requirement (DGR) that the EA *'include a detailed survey of migratory bird habitat, and determine whether and how they are using the site and adjoining areas, and assess any potential impact or threat to the population.'*

The following comments are provided in relation to some of the Town Centre EA report appendices:

Microbat Monitoring Report (Appendix S)

- Surveys were time limited (3 days involving 1.5 hours in the morning and 1.5 hours in the evening) and would not have detected the full range of species and number of animals using the estuarine area.
- Anabat detectors were not located in areas of greatest potential microbat activity within the mangroves.
- Contrary to DEC's 2004 *draft Threatened Biodiversity Survey and Assessment Guidelines*, no trapping was undertaken.

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- It is not clear whether the aerial extent of the visual searches and hollow watching undertaken as part of this study was adequate to accurately detect the level of microbat use of this habitat.
- While the importance of the habitat is likely to have underestimated, the surveys confirmed microbats are roosting and possibly breeding in the estuarine areas immediately to the north of the site.
- OEH supports the proposed mitigation measures and recommends they be incorporated into any approval conditions.

Vegetation Management Plan (Appendix U) and Landscape Master Plan (Appendix H)

- Within the required 35 to 40m buffer is proposed a 3m wide shared foreshore pathway, timber deck benches, seating terraces, part of a raised spillout deck, picnic facilities, bike racks, a runoff bio swale and areas of turf. In addition, access into the mangroves from the foreshore pathway is proposed to be upgraded. These developments will increase human activity and the subsequent disturbance of adjoining estuarine areas. OEH recommends the recreational uses proposed within the buffer area be reduced and the upgrade of the mangrove boardwalk be reconsidered.
- Species which occur within the Swamp Oak Floodplain Forest Endangered Ecological Community and would naturally occur adjacent to estuarine areas, are proposed to be planted within the buffer area. The Landscape Master Plan indicates the 'vegetated riparian buffer' will comprise of low ground cover vegetation. OEH recommends the planting scheme be reviewed so that the buffer area is more densely planted with suitable trees and shrubs that can screen additional noise and light generated by activities associated with the development. This would more effectively enable this area to function as a buffer to the adjoining estuarine environment.

Review of Noise, Light and Bird Strike Potential (Appendix T) and Noise Impact Assessment (Appendix V)

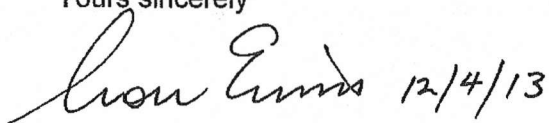
- OEH considers the impacts of construction and operational noise from the Town Centre proposal on fauna habitat in the adjoining estuarine area is uncertain because there has not been sufficient survey work in the estuarine area to ascertain its importance as fauna habitat and the effects of noise on animals is poorly understood.
- Noise levels on the northern side of the Town Centre proposal closest to the estuarine area have not been approximated (not measured). With the additional absence of meaningful data on the biodiversity values of the adjoining area, OEH recommends a precautionary approach to managing construction and operational noise.
- OEH supports the recommendations of the Noise, Light and Bird Strike Potential (section 2.5) and the Noise Impact Assessment (sections 10.3 – 10.4 and 10.6) reports for managing construction noise and recommends they be incorporated into any approval conditions and into an Noise Management Plan (NMP) as part of the Construction Environmental Management Plan.
- OEH also recommends the treatments proposed in section 7 of the Noise Impact Assessment be included in an NMP as part of an Operational Management Plan to reduce any impacts of operational noise on the adjoining estuarine areas. This together with a denser screen of plantings in the proposed buffer area should assist to ameliorate operational noise impacts from plant and equipment at the Town Centre.
- Light spill from the Town Centre has the potential to impact on nocturnal animals such as the Large-footed Myotis and other fauna using the estuarine habitats adjacent to the site. The Review of Noise, Light and Bird Strike Potential (RNLBSP) report only considers the impacts of artificial light on microbats. OEH recommends that the measures to reduce light spill outlined in section 3.2 of the RNLBSP report be incorporated into a Lighting Management Plan required as part of any approval for this proposal. As discussed above,

OEH's recommendation regarding the buffer area could assist in more effectively screening light impacts from the Town Centre.

- OEH supports the measures outlined in section 4 of the RNLBSP report to reduce the potential for bird strike and recommends they also be included in any approvals for this proposal. Given the scale of the development and its proximity to important migratory/shorebird habitat, OEH reiterates the need for a Bird Management Plan to monitor and respond to any ongoing impacts from the Town Centre proposal on this habitat.

If you have any queries regarding this advice please contact Richard Bonner on 9995 6833.

Yours sincerely



LOU EWINS
Manager Planning & Aboriginal Heritage
Regional Operations, Metropolitan
Office of Environment and Heritage



**Office of
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& Heritage**

Attachment 2

Your reference
Our reference:
Contact

MP10_0229
DOC11/45470 & DOC11/45827-01
Richard Bonner: 9995 6833

Michael Woodland
Director – Metropolitan & Regional Projects South
Department of Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

Attn: Mark Brown

Dear Mr Woodland,

I refer to your letter forwarded to the Office of Environment and Heritage (OEH) Wollongong office and received on 4 October 2011 inviting comments on the environmental assessment (EA) of the concept plan for the Cronulla Sharks Development at 461 Captain Cook Drive, Woollooware (MP10_0229) by 21 November 2011. A separate invitation forwarded to OEH's Hurstville Office inviting comments on same by 5 December 2011 was also received on 30 September 2011.

OEH has previously provided input in March and August 2011 to the Director General Environmental Assessment Requirements (DGRs) and the Test of Adequacy Assessment of the EA. These responses are attached for your information. In its submission of 22 August 2011, OEH raised issues with regard to biodiversity, Aboriginal cultural heritage, flooding and acid sulphate soils.

OEH has reviewed the publicly exhibited EA, the issues raised its August submission and provides the following comments.

Biodiversity

OEH considers the EA does not adequately address the DGRs. As a consequence any approval that may be granted will be based on insufficient ecological information about the importance of the adjoining mangroves and mudflats as habitat for threatened species or ecological communities. In addition, the likely impacts of the proposed redevelopment on these habitats and other significant habitat surrounding Woollooware Bay (Towra Point Nature and Aquatic Reserves, the Taren Point Shorebird Endangered Ecological Community and the Towra Point Ramsar site) have not been adequately considered.

OEH notes the Ecological Assessment is primarily based on a desktop analysis which acknowledges the need for further assessment to accurately determine the potential impacts on adjacent habitats resulting from light spill, increased access (e.g. rubbish dumping, trampling, weeds), noise, and stormwater runoff (altered hydrology and water quality). It is proposed additional assessment be deferred to the detailed design phases of the project when identified impacts will be mitigated via a series of management plans, yet to be developed.

The Department of Environment, Climate Change and Water is now known as the Office of Environment and Heritage, Department of Premier and Cabinet

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In the absence of adequate information about the ecological values impacted, OEH recommends the following conditions be considered for incorporation in any approval that may be granted. These recommended conditions are in addition to those proposed in the EA draft Statement of Commitments:

1. Baseline surveys of the adjacent estuarine areas along the northern boundary of the site and Woollooware Bay be undertaken over a period of 12 months using OEH's recommended survey methodologies to determine whether they serve as roosting, breeding or foraging habitat for threatened birds and microbats and to ascertain if they have a role as a movement corridor for these or other threatened fauna. The surveys should be completed prior to the submission of further development applications for the Cronulla Sharks redevelopment.
2. If baseline surveys indicate there is habitat for threatened fauna in the adjacent estuarine areas, targeted surveys for these threatened fauna be undertaken to determine how they use the habitat and the likely impacts of the development on these areas. This information will inform any adaptive management plans recommended below or in the draft Statement of Commitments, as well as the final design of each stage of the development.
3. Material (e.g. seed or cuttings) for future revegetation works should be collected on-site and propagated well before the clearing of any vegetation.
4. Revegetation should not rely on the collection of propagation material from off-site endangered ecological communities (e.g. Coastal Saltmarsh and Swamp Oak Floodplain Forest). The collection of any off-site propagation material would require approval from OEH which may not be provided.
5. Barriers must be constructed to prevent the access of humans and domestic animals during and post construction into mangroves and adjacent estuarine areas. Barriers should not impede the movement of any threatened fauna that use these areas as habitat.
6. Board walks and cycle paths must be designed and constructed to avoid impacts on mangroves and adjoining estuarine areas.
7. A stormwater management plan (SMP) must be prepared detailing how all stormwater runoff will be collected and treated. The SMP should include:
 - a program to measure and monitor pre and post development changes to the quantity and quality of stormwater runoff into adjacent estuarine vegetation;
 - baseline data and fine scale mapping showing the current extent and condition of the adjoining estuarine vegetation communities; and
 - contingency actions to be funded by the proponent should impacts on adjoining estuarine vegetation communities be detected.
8. A noise management plan (NMP) must be prepared to investigate the likely impacts of construction and ongoing operational noise on fauna using the adjacent estuarine areas as habitat. The NMP should:
 - outline management actions that will be undertaken to minimise noise impacts; and
 - include a monitoring program to ascertain the efficacy of actions and any modifications that may be required.
9. A lighting management plan (LMP) must be prepared to investigate and minimise the impacts of light spill on threatened fauna using the adjacent estuarine areas as roosting and foraging habitat. The LMP should include:
 - lighting design criteria that must be met during the construction and operation of the proposed development to avoid impacts on threatened fauna;
 - a program to monitor the impacts of light spill on threatened fauna; and
 - additional measures to reduce light spill impacts on threatened fauna.

10. A bird management plan (BMP) must be prepared to investigate the potential for bird strike from reflective surfaces associated with the development. The BMP should describe the construction materials and design methods that will be used to avoid or minimise the likelihood of bird strike.

Adjacent Towra Point Nature Reserve – Ramsar Wetland Site

The nearby OEH managed Towra Point Nature Reserve (TPNR) includes extensive areas of wetlands listed under the Ramsar convention on Wetlands of International Importance. OEH's general guidelines for development adjoining OEH managed land and water should be reviewed to ensure all relevant issues have been adequately addressed. A copy of these guidelines are available at the following link: <http://www.environment.nsw.gov.au/resources/protectedareas/10509devadideccw.pdf>

In particular, stormwater run-off from the site during and post development has the potential to increase litter, sediment, nutrients, pesticides, heavy metals and other pollutants into the TPNR wetlands.

OEH notes a stormwater management plan (SMP) has not been prepared for the development. It is therefore recommended the following conditions be considered for incorporation in any approval that may be granted. These conditions specifically relate to the protection of wetlands in TPNR. They are additional to condition 7 recommended above and are largely based on issues included in the SMEC Stormwater Drainage and Water Quality Strategy (Appendix K):

11. Stormwater from the site cannot be discharged directly into Woollooware Bay. The stormwater drainage system must intercept all surface run off and convey it away from Woollooware Bay.
12. A detailed flood study must be prepared prior to development that details potential impacts on Towra Point Nature Reserve (TPNR) in the event of a flood and includes strategies for preventing impacts.
13. A leachate management plan must be prepared and implemented to ensure that no leachate from the landfill on the site is exported to the TPNR wetlands.
14. An Acid Sulphate Soil Management Plan (ASSMP) must be prepared and implemented (see comments below).

Acid Sulphate Soils

The site is classified as being of "high probability" of Acid Sulphate Soil (ASS) occurrence at or near the ground surface in the area immediately north of the site exists but no ASS tests have been carried out elsewhere on the site which has been mapped as "disturbed terrain", to determine acid sulphate soil conditions.

In its response to the Test of Adequacy of the EA prior to public exhibition, OEH recommended the preparation of an ASSMP – this was also included as a DGRs. It is noted an ASSMP has not been prepared with the EA indicating ASSMPs will be prepared in accordance with the *Acid Sulphate Soils Assessment Guidelines (ASSMAC 1998)* and submitted with future applications for development. OEH considers deferment of an ASSMP to the development application stage inappropriate. As there is a significant environmental risk associated with the "high probability" classification if ASS materials are disturbed by activities such as shallow drainage, excavation or clearing, OEH again recommends an ASSMP be prepared. This is to ensure that potential impact on building materials and infrastructure as well as potential run-off of acid into sensitive environments is managed and avoided at the planning stage.

Flooding

In its response of 22 August 2011 to the EA Test of Adequacy, OEH raised concerns that the proposal as presented may be impacted by flooding and may adversely impact on flooding in adjacent properties. These concerns were detailed in the environmental assessment requirements provided by OEH in its response of 25 March 2011. OEH requirements were not fully presented in the final DGRs.

The DGRs require the EA to provide an assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effect of climate change, sea level rise and expected increases in rainfall intensity and address measures to be taken to render the site suitable for high density residential development free from flooding.

Suitable arrangements for floodwater and overland flow need to be considered from the earliest stages of the design process, particularly when the site is identified as being on a floodplain. Without this adverse effects on flood behaviour might prove difficult to rectify. While the EA's Draft Statement of Commitments identifies the need for a detailed flood assessment in future applications for the development, the flood assessments should be undertaken at the initial conceptual stage. On this basis, it is not possible for OEH to adequately review the impact of flooding on the development or the mitigation options presented.

OEH's flood concerns raised in its letter of 25 March 2011 are therefore still valid and will form the basis of its review of the future detailed flood modelling. OEH recommends the following condition be considered for incorporation in any approval that may be granted:

15. A detailed flood study must be completed prior to the development stage which includes:

- A description of flood behaviour and flood hazards at the site.
- An assessment of cumulative impact of all proposed development on flood behaviour both upstream and downstream of the site.
- An assessment of the impact of flooding on the proposed development for a range of Annual Exceedance Probability (AEPs) to the Probable Maximum Flood (PMF).
- An assessment of the impact on flood levels due to climate change from increased sea levels and rainfall.
- Recommended flood risk strategies for the development which may include a flood warning system, safe flood evacuation, on site refuge and provisions to minimise any impacts on the effectiveness of flood evacuation of existing communities, noting that access along Captain Cook Drive during a flood may not be available.
- Underground car parking should not be considered unless appropriate flood risk management measures can be implemented to ensure safe operation for a full range of flooding.

Aboriginal Cultural Heritage

As part of the EA, an assessment of the Aboriginal heritage was prepared by Godden MacKay Logan in August 2011. This report notes that no Aboriginal sites have been registered with OEH, within a 1km radius of the development site. However, the wider Kurnell Peninsular area is known for its extensive middens, burials and other evidence of Aboriginal occupation. It should be noted that there are no surveys recorded for the Cronulla area.

The evidence of the development history is augmented by photographs and cadastral maps from as early as the 1860's. These show that the edge of the shoreline has not changed substantially since early settlement and much of the development land is likely to be located on/over original dunes. This landform is a highly sensitive part of the landscape and is highly likely to be associated with evidence of Aboriginal occupation.

The report notes that the area of the development has been covered with between 1.1 and 8.6m of fill deposits and playing fields have been established on the surface of the fill. It is also stated that "natural ground levels are likely to have remained intact under and sealed beneath the introduced material" (p.29). The geotechnical testing referred to in the report provides the information on the depths of the introduced fill but no reference is made to what lies beneath, which could be dunes or mangroves or both. The drawing of the land for the first land grants shows that this land is beyond the mangrove area. If the original surface is dunes, then the potential for Aboriginal objects to be associated with those deposits is high, if the

underlying levels are swamp lands then the potential for associated Aboriginal objects is negligible. This requires further clarification.

A site inspection of the development site confirmed that there is no possibility for any Aboriginal objects to be detected because of the extensive cover of the fill. The assessment reports that there are high levels of disturbance, but this appears to be disturbance of the fill layer where no Aboriginal objects would be expected to occur. The report concludes that the land surface below the fill is likely to be intact. Therefore, if the original land surface is in fact dunes, and would be affected by the proposed development, then there is a high probability that harm to objects could occur.

No assessment of the cultural values is included in the report, though there is a note (section 5.2.3) to the effect that the *"area may hold cultural significance to the Aboriginal people"* (p.32).

OEH recommends incorporation of the conditions be considered for incorporation in any approval that may be granted to confirm no Aboriginal objects, especially burials, are located on the site:

16. An evaluation of the geotechnical testing results to confirm the nature of the deposits below the introduced fill¹.
17. Mapping of the distribution of any original land surface area below the fill to determine whether there are likely to be any areas where Aboriginal objects could occur.
18. Profiling of the old land surface below the fill to show whether the landform adjacent to the swamp lands was suitable for occupation in the past.
19. A cultural assessment of the area by the Aboriginal community.

If you have any queries regarding any of the above matters, please contact Richard Bonner on 9995 6833.

Yours sincerely

G Howard 22/11/2011

GISELLE HOWARD
Director Metropolitan
Environment Protection and Regulation
Office of Environment and Heritage
Department of Premier and Cabinet

1. If the geotechnical testing does not provide detailed information establishing the nature of the underlying deposits, then additional geotechnical testing and/or archaeological testing may be warranted to confirm that the natural land surface below the fill is swamp land and therefore no Aboriginal objects are likely to occur.