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16 August 2011

Assessment of Significance on threatened flora species, populations and ecological communities of:

1. **Proposed re-zoning of the elevated land on the existing New Brighton Golf Course (Nuwarra Road, Moorebank) for residential purposes**
2. **Upgrading the New Brighton Golf Course and facilities at Nuwarra Road, Moorebank and Cantello Avenue, Hammondville**

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Contents

1.0 Introduction

This Assessment of Significance using the 7 part test has been prepared in response to Liverpool City Council's letter dated 4 August 2011 (Appendix 1) and from discussion with Karen Visman of Liverpool City Council dated 10 August 2011. The flora assessment (Clements *et al.* 2011) identified the flora constraints (Figure 1) and conservation options for future development on:

- the approximately 64 ha on the current New Brighton golf course (Lot 103, DP 1070029; Lot 1, DP 85111; and Lots 21 and 22, DP 733092) at 180 Nuwarra Road, Moorebank to the north of the M5 Motorway, and
- the approximately 18 ha on the former Greenwood golf course owned by New Brighton Golf Club (Lot 2210, DP1090818; and Lot 52, DP717957) Cantello Avenue, Hammondville and about 5.5 ha to the east south of the M5 Motorway (the Site, Figures 1, 2).

1.1 Findings of the flora assessment

Clements *et al.* (2011) found that:

- The Site is on the western bank of the Georges River, with the landform generally less than 10 m AHD, except in the northwest. The low-lying land has been modified on both the former Greenwood Golf Course and on the New Brighton Golf Course, with buggy ways, fairways and greens tending to be higher than between-fairway vegetation. Most of the Site between the fairways is mapped as Environmentally significant land (Liverpool City Council 2008);
- The locations of former Greenwood golf course fairways, mapped on an orthotopographic map by a club member, is relatively consistent with the clearing pattern on the 1970 aerial photograph;
- On the New Brighton Golf Course, there are cut drains in the between fairway vegetation. The dams on the New Brighton Golf Course have recently been enlarged to irrigate the golf fairways above 10 m AHD (OzGreen 2004). The former Greenwood Golf Course had two dams surrounded by constructed batters, of which, one remains;
- During the surveys, the fairways on the New Brighton Golf Course were in use and the fairways on the former Greenwood Golf Course were being colonised by mainly exotic grass and herb species with scattered native ground layer species;
- The low-lying land on the Site is mapped by Clark and Jones (1991) and Hazelton *et al.* (1989) as being on alluvium. The soil descriptions in Hazelton *et al.* (1989) for the Berkshire Park and Richmond Soil Landscapes and onsite soil survey appear to be consistent with that of the coastal floodplain as defined in the Final Determinations;
- A total of 349 species (216 native, 120 exotic and 13 non-local Australian native species) were recorded from 34 quadrats (0.04 ha in size) and 40 Spot locations during 2003, 2004, 2006, 2009 and 2011, located mainly on areas between existing and former fairways (Figure 1);
- From comparisons with the Final Determinations, all of the predominantly native vegetation occurring original soils on the low-lying land meets the listed criteria for endangered ecological communities on floodplains. It is stated in paragraph 7 of final determination for River-Flat Eucalypt Forest on Coastal Floodplains that:

  > *River-Flat Eucalypt Forest on Coastal Floodplains may adjoin or intergrade with several other endangered ecological communities, which collectively cover all remaining native vegetation on the coastal floodplains of New South Wales.*

- Part of the low-lying land had been modified by filling, construction of dams and former and present golf course activities and therefore the vegetation in these

areas failed to meet criteria of any of the listed endangered ecological communities;

- On the low lying land, the vegetation between fairways included bands of degraded remnant bushland. The remnant bushland had been invaded by grasses used for the fairways, especially *Cynodon dactylon* (Couch), *Pennisetum clandestinum* (Kikuyu), and other exotic species. Despite the extent of degradation, the between-fairway areas with original soils on the low-lying land meet the listed criteria for an intergrade (mapped as constrained area on Figure 1) of the endangered ecological communities:
    - Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion;
    - River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions; and
    - Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.
- The vegetation on the higher land consisted of planted native and non-local native trees with a mown understorey and the mown golf fairway. The vegetation of the higher land failed to meet the criteria of any listed endangered ecological communities;
- Of the listed threatened species, *Acacia pubescens*, listed as vulnerable under the National and State legislation, was recorded on the top of a fill embankment adjacent to the new Hammondville housing estate, immediately north of the Greenwood Golf Course boundary. This location is outside the area where any works are proposed. Therefore it will not be considered in the Assessment of Significance; and
- No other threatened species were recorded despite targeted searches in March 2011.

The intergrade of the three endangered ecological communities was recorded on the low-lying land and on the northern boundary of the New Brighton Golf Course and is considered as a combined endangered ecological community for purposes of the Assessment of Significance.

1. 2 Recommendations of the flora assessment

It is recommended as part of the upgrading of the golf course and rezoning of the higher land that:

- Any future re-design of the golf course utilise the existing and former fairways on the two golf courses as far as practicable;
- Any future re-designed golf course should be on the existing and additional constructed raised free-draining land;
- All water and nutrient runoff from the fairways should be directed to bioswales. The water and associated nutrients should be directed for re-use on the fairways and greens rather than flowing into the vegetation between fairways;
- Natural drainage on the low lying land should be re-established to allow water movement to the Georges River as part of the conservation management plan;
- In the riparian zone adjoining the Georges River, the landform should be reconstructed to mimic a free-draining natural landform and local-native vegetation be re-established as part of the conservation management plan;
- Within the riparian zone, a bicycle track/boardwalk should be considered in consultation with Council;
- The conservationally constrained land including between fairway vegetation and adjoining land on the low lying land should be conserved and carefully bush regenerated as part of the conservation management plan. The aims of the

management plan should be to increase the natural resilience of the coastal floodplain vegetation;
- Any loss of conservationally constrained land should be offset in a ratio of 1:8, that is 1 ha for constrained land cleared or modified resulting in rehabilitation of at least 8 ha of the existing degraded constrained land as part of the biodiversity offset strategy to be discussed with Council; and
- Local native species should be grown from seed collected from remnant vegetation onsite or nearby for use in rehabilitation of the between fairway vegetation as part of the conservation management plan.

The conservation management plan is to include:
- clear aims to enhance, conserve and protect of the local indigenous plants on the Site, as well as minimising risk to on site and adjoining bushland during and after construction;
- objectives;
- realistic targets;
- regular monitoring (1, 3, 6, 12, 18, 24 monthly then yearly) which includes monitoring of any corrective action requests in reports;
- regular reporting (including corrective action requests and reassessment of targets as required) within one month post monitoring; and
- The bush regeneration works are to be carried out by qualified bush regenerators under the supervision of a bush regenerator/restoration ecologist with at least 5 years experience.

2.0 The proposal

The proposed development (Figure 2) includes:
- Residential rezoning of approximately 16 ha of elevated land on the existing New Brighton Golf Course;
- Upgrade the golf course with the upgraded fairways, golf holes and tees largely restricted to the existing fairway and former golf courses, as recommended by Clements *et al.* (2011);
- Improvements to the club facilities; and
- Dedication of a foreshore reserve along the Georges River as part of the proposal.

There are existing cut drains through the between-fairway vegetation on the low-lying land of the New Brighton Golf Gourse. On the proposed preferred golf course layout dated 15 July 2010 (Figure 2), some of the existing drainage channels are retained and additional ponds in the east are proposed. Preliminary analysis of the required water usage indicates that large volumes of irrigation water are not likely be required for the golf course upgrade. Further water usage analysis will be undertaken as part of the water sensitive design for this project during the development assessment stage.

It is assumed for the Assessment of Significance that all water and nutrient runoff from the fairways will be directed to bioswales on the edge of the fairways. The water and associated nutrients should be directed for re-use on the fairways and greens. The final proposal should be designed to minimise the risk of nutrient-enriched water flowing into and through the vegetation between fairways.

3.0 Assessment of Significance

In the Threatened Species Assessment Guidelines dated August 2007, it is stated that:

> *Under the Threatened Species Conservation Amendment Act 2002, factors to be considered when determining whether an action, development or activity is likely to significantly affect threatened articles s5A of the Environmental Planning and Assessment Act 1979 (EP&A Act), s94 Threatened Species Conservation Act 1995 and s220zz Fisheries Management Act 1994 (FM Act) have been revised.*

The Assessment of Significance under the TSC Act, known previously as the Eight Part Test, is now known as the Assessment of Significance.

The objective of an Assessment of Significance is to:

> *improve the standard of consideration afforded to threatened species, populations and ecological communities, and their habitats through the planning and assessment process, and to ensure this consideration is transparent (Threatened Species Assessment Guidelines, dated August 2007).*

The revised factors for the Assessment of Significance maintain the same intent as the Eight Part Test but focus on:

> *consideration of likely impacts in the context of the local rather than the regional environment as the long-term loss of biodiversity at all levels arises primarily from the accumulation of losses and depletions of populations at a local level.*

The Threatened Species Assessment Guidelines 2007 are to facilitate:

> *a consistent and systematic approach when determining whether an action, development or activity is likely to significantly affect threatened species, populations or ecological communities, or their habitats in a direct or indirect manner ... Where there is any doubt regarding the likely impacts, or where detailed information is not available, a Species Impact Statement should be prepared.*

The vegetation of the constrained land, located on the between-fairway areas on original unmodified soils on the low-lying land, meet the listed criteria for intergrades of the endangered ecological communities:

- Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion;
- River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions; and
- Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.

The combination of the three endangered ecological communities is defined in the Final Determinations as an endangered ecological community and is mapped (Figure 1) as constrained land.

The proposal does not propose to develop the between fairway vegetation areas on original unmodified soils (the constrained land), and the flora recommendations are directed to minimise risk of potential indirect impacts. The Assessment of Significance has nonetheless been completed for the constrained land (Figure 1) .

3.1 Assessment of Significance for the endangered ecological community (the constrained land)

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,

Not applicable. The vegetation of the constrained land, located on the between-fairway areas on original unmodified soils on the low-lying land, meet the listed criteria for the intergrade of the endangered ecological communities:

- Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion;
- River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions; and
- Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.

This combined endangered ecological community is defined in the Final Determinations as an endangered ecological community.

It is not a threatened species.

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,

Not applicable. The constrained land, located on the between-fairway areas original unmodified soils on the low-lying land, meet the listed criteria for the intergrade of the endangered ecological communities:

- Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion;
- River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions; and
- Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.

This combined endangered ecological community is defined in the Final Determinations as an endangered ecological community.

It is not an endangered population.

c) in the case of an endangered ecological community or critically 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

In the *Threatened Species Assessment Guidelines The Assessment of Significance* (dated August 2007), local occurrence is defined as:

> ***Local occurrence****: the ecological community that occurs within the study area. However the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.*

The **subject site** is the area directly affected by the proposal. The **study area** is the subject site and any additional areas which are likely to be affected by the proposal,

either directly or indirectly. The study area should extend as far as is necessary to take potential impacts into account.

The proposal is to re-design of the golf course by utilising the existing and former fairways on the two golf courses. The endangered ecological community (the constrained land on Figure 1) is not proposed to be cleared. The endangered ecological community is not directly impacted by the upgrading of the fairways.

To minimise risk of indirect impact of nutrient and water input, the fairway runoff water is to be directed to drainage bioswales for re-use as irrigation water.

Hence, the risk of direct and indirect impact is minimised.

Therefore the proposal is not likely to have any adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

(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 extinction,

The proposal does not involve the clearing of the endangered ecological community (the constrained land on Figure 1).

The proposed use of bioswales on the edges of fairways and re-establishment of natural drainage on the low lying land will result in the existing nutrient-enriched fairway runoff no longer being directed to the endangered ecological community. Hence, the proposal will reduce the ongoing risk of nutrient-enriched weed growth on the edge of existing fairways and the former raised fairways.

The proposal to re-establish natural drainage on the low lying land will result in the cut drains present throughout the endangered ecological community being filled in and any mounds removed.

Therefore, the proposal is not 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.

d) In relation to the habitat of threatened species, populations or ecological community:

i. The extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The endangered ecological community on the low-lying land between the existing and former raised fairways is not proposed to be removed or modified as a result of the proposed action.

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 endangered ecological community on the low-lying land between the existing and former raised fairways is currently fragmented by the existing and former

fairways. It is not proposed to further fragment or isolate the existing endangered ecological community from other areas of habitat as a result of the proposed action.

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

No habitat is proposed to be removed or modified.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

- No critical habitat has been declared for the endangered ecological communities or their intergrades in the listed criteria for the endangered ecological communities:
    - *Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion*;
    - *River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions*; and
    - *Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.*

From the Register of Critical Habitat in NSW (Office of Environment and Heritage website: http://www.environment.nsw.gov.au/criticalhabitat, accessed 15 August 2011):
Critical habitat recommendations (pending finalisation) exist for:

- Bomaderry zieria within the Bomaderry bushland;
- Eastern Suburbs Banksia Scrub Endangered Ecological Community on public exhibition to 18 April 2006;
- *Wollemia nobilis* (the Wollemi Pine) on public exhibition to 9 December 2005.

Critical habitat declarations (final) exist for:

- Gould's Petrel;
- Little penguin population in Sydney's North Harbour;
- Mitchell's Rainforest Snail in Stotts Island Nature Reserve;
- Wollemi Pine.

Therefore the proposal will not have an adverse effect on critical habitat (either directly or indirectly).

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

The recovery plans of the endangered ecological communities *Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion* and *River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions* are included in the Cumberland Plain Recovery Plan (Office of Environment and Heritage website (http://www.environment.nsw.gov.au/resources/threatenedspecies/20100501CumberlandPlain.pdf, accessed 11 August 2011).

The objectives of the Cumberland Plain Recovery Plan are:

1. To build a protected area network, comprising public and private lands, focused on the priority conservation lands

2. To deliver best practice management for threatened species, populations and ecological communities across the Cumberland Plain, with a specific focus on the priority conservation lands and public lands where the primary management objectives are compatible with conservation
3. To develop an understanding and enhanced awareness in the community of the Cumberland Plain's threatened biodiversity, the best practice standards for its management, and the recovery program
4. To increase knowledge of the threats to the survival of the Cumberland Plain's threatened species, populations and ecological communities, and thereby improve capacity to manage these in a strategic and effective manner

The proposed action is not to remove or modify any of the endangered ecological community.

The constrained vegetation along the Georges River foreshore is part of the 40 m wide riparian corridor, which is to be dedicated to Council (Figure 2).

Therefore the proposal is consistent with the objectives or actions of the recovery plan.

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 threatening process.

Key Threatening Process	Comments
Clearing of native vegetation	Proposal should not result in clearing of native vegetation. If any vegetation were to be removed it would be offset at a ratio of 1:8 in the approximately 25 ha of existing degraded vegetation between the fairways and in the 40 m wide newly dedicated reserve along the Georges River.
High frequency fire resulting in the disruption of life cycle processes in plants and…loss of vegetation structure and composition	The land is on a floodplain and the vegetation is separated by mown fairways, therefore high frequency fire is not likely.
Infection of native plants by *Phytophthora cinnamomi*	No evidence of *Phytophthora cinnamomi* infection was observed during the surveys. Risk of introduction needs to be controlled.
Invasion by native plant communities by exotic perennial grasses	Invasion by native plant communities by exotic perennial grasses was widespread, especially by *Axonopus fissifolius, Bromus catharticus, Ehrharta erecta, Paspalum dilatatum, Pennisetum clandestinum* and *Setaria parviflora*. The proposed action is likely to decrease the threat of invasion by exotic perennial grasses due to maintenance of the native vegetation.
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. lat)	*Lantana camara* was not recorded during the surveys.

Key Threatening Process	Comments
Removal of dead wood and trees	The proposal is not likely to remove dead wood or trees.

The action proposed is likely to reduce the existing key threatening processes on the land, namely invasion by native plant communities by exotic perennial grasses.

In conclusion, the proposed action to re-design of the golf course by utilising the existing and former fairways and rezoning of the higher land is not likely to result in a significant effect on the endangered ecological community within the region or locality.

4.0 Ameliorative and compensatory measures

The area 40 m from the top of bank along the Georges River foreshore is to be dedicated to Council (Figure 1). It is recommended as part of the proposal that in the riparian zone that:

- the landform be reconstructed to mimic a free-draining natural landform and local-native vegetation be re-established as part of the vegetation management plan; and
- a bicycle track/boardwalk should be considered in consultation with Council.

Other ameliorative and compensatory measures proposed for the conservationally constrained land including between fairway vegetation and adjoining land on the low lying land are:

- conserve and carefully bush regenerate the land as part of the conservation management plan. The aims of the management plan are to increase the natural resilience of the coastal floodplain vegetation; and
- Use only local native species grown from seed collected from remnant vegetation onsite or nearby, for use in rehabilitation of the between fairway vegetation as part of the conservation management plan.

A similar award-winning project was successful designed and completed by Mirvac at Magenta Shores on the NSW Central Coast (Clements *et al.* 2010, Hazelton and Clements 2009).

References

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Flora assessment: Lot 103, DP 1070029; Lot 1, DP 85111; and Lots 21 and 22, DP 733092; 180 Nuwarra Road, Moorebank; and Lot 2210, DP1090818; and Lot 52, DP717957; Cantello Avenue, Hammondville. Prepared for Mirvac. Dated 2 April 2011.

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Figures

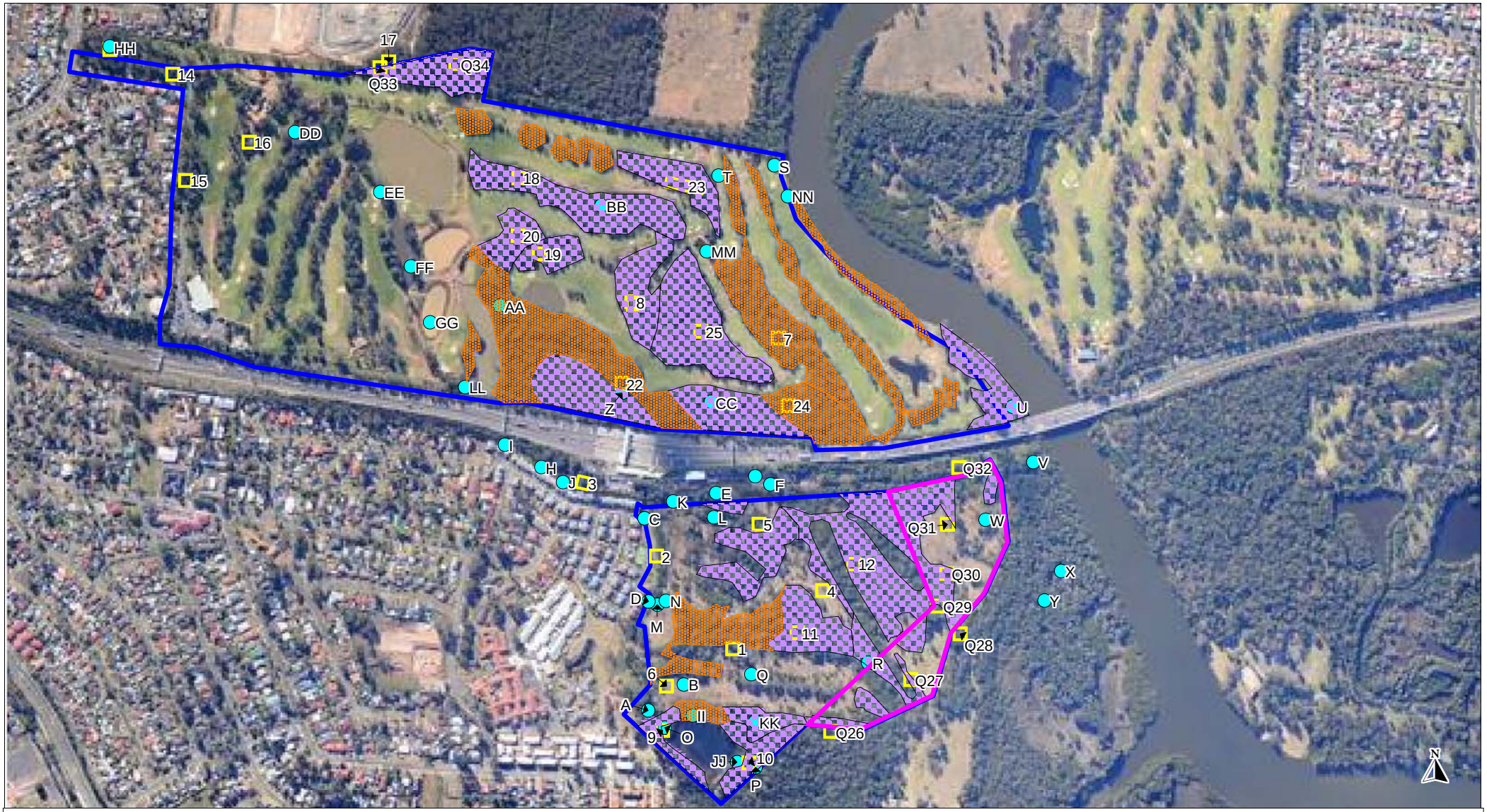

Figure 1.
Approximate flora constraints and sampling locations overlaid on the Nearmap aerial photograph (dated15 July 2010)

PROPOSED SCORECARD

Hole	Par	Length	Hole	Par	Length
1	5	500	10	4	295
2	3	140	11	5	450
3	4	310	12	4	280
4	3	150	13	5	510
5	5	470	14	3	170
6	4	375	15	5	440
7	4	340	16	3	155
8	3	150	17	4	420
9	5	500	18	3	160
out	36	2935	in	36	2880
			out	36	2935
			total	72	5815

Legend

Site boundary

Land on Lot 52 DP 717957

0 170 340
metres

Figure 2.
Proposed golf course layout

Appendix 1.
Liverpool City Council's letter dated 4 August 2011 and email correspondence with Council dated 10 August 2011

Our Ref: RZ-9/2011– 130281/2011
Office Contact: Murray Wilson
Contact: 9821 9569

4 August 2011

Nino Babani
Mirvac Homes Pty Ltd
Level 26, 60 Margaret Street
SYDNEY NSW 2000

Dear Nino

Re: Draft Rezoning of land owned by New Brighton Golf Course

Council writes in response to your rezoning submitted to facilitate residential use, an extension of the golf course and reclassification of open space at Lieutenant Cantello Reserve.

A preliminary assessment of the proposed rezoning has been undertaken and the following matters require your urgent attention before Council can proceed with the assessment of planning proposal.

Proposed Zoning and Permissibility
The proposed R1 General Residential zone aims to ensure that housing densities are concentrated in locations accessible to public transport, employment, services, and facilities. The proposal does not comply with this vision.

The R1 General Residential zone under Liverpool Local Environmental Plan 2008 (LLEP 2008) will permit the following land uses (amongst others):

Dual Occupancies, Multi Dwelling Housing and Residential Flat Buildings, These uses are not considered appropriate for the whole site, particularly adjacent to the existing residential area of Moorebank.

LLEP 2008 aims to reduce densities in remote areas and encourage development around centres, and as such the R2 Low Density Residential might be more appropriate for the site. The proposal meets the objectives stipulated in the LLEP 2008 for Low Density Residential.

Proposed Yield
Council recommends that the applicant reconsider the proposed yield. Council generally agrees with the proposed "quiet" dwellings proposed along the M5 Motorway to assist in providing an acoustic barrier. However, the master plan is to be further refined to reduce dwelling densities.

The Lot Size Map and the Floor Space Ratio maps need to be amended from the Proposed Area 2 to indicate Area 3. Clause 4.1 of the Liverpool Local Environmental Plan 2008 (LLEP 2008) allows for the minimum subdivision lot size of 300 sqm, and if the lot adjoins a rear or side lane, the minimum lot size of 240 sqm is permitted. Therefore it is deemed

appropriate to stipulate Area 3 for the residential portion. Refer to the Clause 4.1 and 4.4 for further clarification.

Dwelling Density Map – The proposed amendment to the dwelling density map stipulates a maximum yield of 310 dwellings. The map needs to be amended to reflect a reduced number of maximum dwellings.

Peter L

Metropolitan Plan for Sydney 2036

More information is required in the planning proposal to ensure the planning proposal complies with the dwelling targets and the strategic direction for housing Sydney's Population stipulated in the Metropolitan Plan for Sydney 2036.

X

Advice from Flooding and Drainage

Council's Flooding and Drainage section has reviewed the planning proposal and supporting documentation has provided the following advice:

The western part of the existing NBGC proposed for residential development (RE2 to R1) is not affected by the 1% AEP (1 in 100 year) flood. However, the lower section of the land is affected by the probable maximum flood (PMF). Council's flood control policy does not restrict residential development on lands above the 1% AEP flood level. Therefore, in principle we do not have any objection with respect to the proposed rezoning of this land for residential development.

- *The section of the land proposed for rezoning from RE1 to RE2 is affected by the 1%AEP flood and the area is classified as medium and high risk flood zone. The land can be used for recreational purpose without any filling of high risk zone of the floodplain. Any development proposal within the medium risk zone will be assessed on its merits and appropriate flood controls will apply at the time of assessment.*

- *The section of the land (40m wide along Georges River) proposed for rezoning from RE2 to RE1 is affected by the 1%AEP flood and classified as high risk flood zone. The area must remain in its existing landform and no filling or alteration to landform shall be permitted.*

- *In addition to above, the proposed public access road/walking trail under the M5 Motorway shall not involve any filling. Development within the flood planning area (1%AEP plus 0.5m) shall be carried out in compliance with Council's DCP 2008 and NSW Floodplain Development Manual.*

Advice from Sustainable Environment

Council's Sustainable Environmental section has reviewed the Flora Assessment and Fauna Study and has provided the following advice.

Peter L

Planning Proposal

It is recommended that the application demonstrates whether the proposal is in accordance the Greater Metropolitan Regional Environmental Plan (REP) No 2-Georges River Catchment, including required buffer widths from environmentally sensitive areas. Reference is made within point 6 to Section C Point 9 for a discussion of this REP, however no discussion is included in this section. It is considered that this recommendation is consistent with the requirements of other rezonings in the area, including Coopers Paddock.

Stephen

Fauna Survey and Assessment

The provided 7-part Tests are based on a number of assumptions (such as those outlined in Part A of the Green and Golden Bell Frog 7-part Tests). It is recommended that a discussion is provided as to whether it is expected that these assumptions could be adhered to by the proposed layout provided in Figure 2 of the Planning Proposal. Any proposed deviations from these assumptions should be assessed by the 7-part Tests.

It is recommended that the definition of 'locality' is clarified. In some instances, it is defined as a 10 km radius around the subject site, in other instances it is defined as a 5 km radius around the subject site.

It is recommended that 7-part Tests are also provided for the fauna species which were considered possible irregular vagrants (the Square-tailed Kite, Swift Parrot and Regent Honeyeater).

Part A of the 7-part Tests for many of the microchiropteran species makes reference to the Large-eared Pied Bat. It is recommended that this is rectified.

It is recommended that the following sentence which is included in some of the 7-part Tests is further supported:
Individuals occurring in the locality are likely to be part of a local viable population that occurs throughout the Sydney Basin Bioregion.

Some of the 7-part Tests state that the subject site is about 64.3 ha in size. However, this area does not seem to include the area south of the South Western Motorway. It is recommended that the entire site is included.

It is recommended that the 7-part Test provided for the Cumberland Plain Land Snail provides a discussion on relevant sections of the Cumberland Plain Recovery Plan.

Flora Assessment
It is recommended that a vegetation community map is provided to illustrate the extent of each identified vegetation community type.

It is recommended that an assessment of significance (7 part test) is included for all threatened flora species, populations and ecological communities which may be affected directly or indirectly by the proposal shown in Figure 2 of the Planning Proposal.

Should you require any further information on this matter, please do not hesitate to contact Murray Wilson, Senior Strategic Planner, on 9821 9569.

Yours sincerely

Theo Zotos
A/Manager Strategic Planning

Gmail by Google

Anne Clements <acabotanic@gmail.com>

New Brighton

4 messages

Anne Clements <mail@acabotanic.com> **10 August 2011 14:16**
To: Karen Visman <naturalres@liverpool.nsw.gov.au>, Murray Wilson Planner <m.wilson@liverpool.nsw.gov.au>
Cc: Chris Newman <Chris_Newman@mirvac.com>, Peter Lawrence <peter.plan4@bigpond.com>

Karen,
Thanks you for your advice this morning. I understand for your written advice to Council you require a 7 part test.

The former Greenwood fairways are mainly on raised land and hence not on coastal floodplain soils. We set the constraint areas for the proposal, namely largely restricting the proposed upgraded golf course to the former Greenwood fairways and to the existing golf course.

As the proposed upgrade has followed our advice and hence avoiding areas of conservation significance, the 7 part test would be a null test.

To provide a brief background, I have worked with Mirvac as the Environmental Manager for their award winning Magenta Shores golf course, housing and tourist development on the NSW Central Coast. The online links to scientific papers are:

Sustainability **2010**, *2*(3), 717-741; doi:10.3390/su2030717 http://www.mdpi.com/2071-1050/2/3/717/
Sustainability **2009**, *1*(2), 319-334; doi:10.3390/su1020319 http://www.mdpi.com/2071-1050/1/2/319/

I also presented a paper last week in China on the role of micorrhizal fungi in the restoration of coastal sand ecosystems at Magenta Shores.

I plan to complete the 7 part test by early next week.
Regards
Anne

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Karen Visman <NATURALRES@liverpool.nsw.gov.au> **10 August 2011 14:25**
To: Anne Clements <mail@acabotanic.com>

Thanks Anne.

From: acabotanic@gmail.com [mailto:acabotanic@gmail.com] **On Behalf Of** Anne Clements
Sent: Wednesday, 10 August 2011 2:16 PM
To: Karen Visman; Murray Wilson
Cc: Chris Newman; Peter Lawrence
Subject: New Brighton

[Quoted text hidden]

[Quoted text hidden]

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Anne Clements <mail@acabotanic.com> **10 August 2011 14:29**
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Chris Newman <Chris_Newman@mirvac.com> **10 August 2011 14:35**
To: Anne Clements <mail@acabotanic.com>

Thanks Anne.

From: acabotanic@gmail.com [mailto:acabotanic@gmail.com] **On Behalf Of** Anne Clements
Sent: Wednesday, 10 August 2011 2:30 PM
To: Chris Newman
Subject: Fwd: New Brighton

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