Waterfront Surveys
AUSTRALIA

Marine Habitat Survey

Address | 16 Addison Road, Manly

Owner | Ms Sarah Joyce

Survey Date | 18 February 2019

Report Date | 25 February 2019

Job Number 19-030-04

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1. Report Background

1.1 Purpose of the Report

NSW Councils require that all proposed waterfront development works involving dredging be reviewed for compliance with environmental regulations. The aim of these regulations is to protect the marine environment, in particular the local fauna and flora such as seagrasses, mangroves and macroalgae. Roads and Maritime Services ("RMS") is the authority responsible for administering all land below the MHWM in Sydney Harbour. The authorities responsible for conducting the assessment during the planning stage of the proposed waterfront development are the RMS and the NSW Department of Primary Industries (Fisheries) (in cases where marine flora is present).

The purpose of this report is to provide all the necessary data required for an assessment to be done by both the RMS and NSW Fisheries.

1.2 Environmental Considerations

In summary, the main environmental considerations that require assessment by RMS and NSW Fisheries for waterfront development applications are:

a) Protection of seagrasses;
b) Protection of mangroves;
c) Conservation of the existing ecology;
d) Impacts from dredging;
e) Wetlands Protection Area Considerations; and
f) Sydney Regional Environmental Plan 2005 ("SREP").

The regulations upon which the environmental considerations are based are discussed below.

The Fisheries Management Act 1994 ("FM Act") applies to habitat and aquatic flora and fauna that have the potential to be affected by a proposed waterfront development. The objectives of the FM Act are to conserve, develop and share the fisheries resources of NSW for the benefits of present and future generations, and in particular to protect key fish habitats and to promote ecologically sustainable development. The FM Act states that

> *a person must not cut, remove, damage or destroy marine vegetation on public water land, or on the foreshore of any land or lease, except under the authority of a permit issued by the Minister under this Part (205) or of an aquaculture permit*.

Two Fish Habitat Protection Plans have also been developed under the FM Act. The first plan deals broadly with dredging and reclamation activities, fish passage requirements, the protection of marine vegetation (in particular mangroves and seagrasses), and the importance of snags. The second plan is specific to the protection of seagrasses. Scientific research has shown that seagrasses are important to the ecology of shallow estuarine environments as they stabilise sediments and maintain water quality, provide shelter and food critical to the survival of a wide variety of juvenile fishes and mobile invertebrates

(many of which are of commercial or recreational importance) and play an important role in the cycling of nutrients within estuaries. Seagrasses are a fragile ecological habitat, with many major estuaries in NSW having lost as much as 85% of their seagrass beds in the past 30 to 40 years. In 2012 the population of *Posidonia australis* seagrass (commonly known as strapweed) was listed as an Endangered Population in the estuaries of Sydney under the Fisheries Management Act (Part 7A).

1.3 The Property

The proposed waterfront development of the demolition and rebuild of a new raised swimming pool in the same footprint is planned for 16 Addison Road, Manly ("The Property").

For details of the existing structures at The Property and the proposed waterfront development refer to Sections 2.1 and 3.1 respectively.

1.4 On-Site Survey Methodology of The Property

The on-site survey of The Property was conducted at 12:15 on 18 February 2019 by Rick Johnson of Waterfront Surveys Australia. The weather conditions at the time of the survey were sunny with a mild NE breeze. The water surface was calm and underwater visibility was approximately 3 m. At the time of the survey the tide was dropping, with an approximate tidal height of 0.8 m.

The on-site survey area included the footprint of the proposed structures, and extended a further 10 m in all directions. The survey was conducted from the shore and inspection of the seabed was done on foot and snorkel. Photos of each habitat were taken using an underwater digital camera and a description of each differing habitat, and species list of aquatic flora and fauna observed within the survey area, was recorded.

2. Existing Property Details

2.1 Existing Structures at The Property

The Property is located at Little Manly, North Harbour – 230 m south-west of Little Manly beach. The Property faces in a south-easterly direction.

The existing structures present at The Property at the time of the on-site survey (cover photo and Photos 1 - 4) were a dilapidated concrete swimming pool surrounded by a concrete platform on the northern and western sides.

2.2 Existing Ecology at The Property

2.2.1 Existing Ecology Based on Observations from the On-Site Survey

a) Intertidal Ecology

The intertidal zone within the on-site survey area of The Property consisted of natural and artificial habitats. A natural tall rock face was fronted by a concrete reclamation area which surrounded the northern and landward sides of a concrete and brick swimming pool (Photos 1 - 4). Seaward of the outer pool wall was a 1.5 m wide natural rock platform (Photos 2 and 6).

The internal pool walls and outer pool wall were colonised by a medium density cover of Sydney rock oysters (*Saccostrea glomerat*a; Photo 5), along with periwinkles (*Austrocochlea porcata* and *Bembicium nanum*), limpets (*Cellana tramoserica* and *Siphonaria denticulata*) and mulberry whelks (*Morula marginalba*). The seaward natural rock platform was colonised by a diverse high density cover of biota (Photo 6) including brown algae (encrusting *Ralfsia verrucosa* and turfing filamentous), red coralline algae (*Amphiroa anceps* and *Corallina officinalis*), green filamentous alga, barnacles (*Chthamalus antennatus* and *Tesseropora rosea*), cunjevoi (*Pyura stolonifera*) and calcareous tube worms (*Galeolaria caespitosa*).

b) Subtidal Ecology

The subtidal zone within the on-site survey area of The Property consisted of artificial and natural habitats. The floor of the swimming pool provided an artificial subtidal habitat (Photo 7). The natural subtidal seabed off the edge of the intertidal rock platform consisted of moderately sloping boulders that transitioned onto sand 8.5 m off the rock platform (Photos 1, 2 and 8).

The pool floor was colonised at its northern end (Photo 7) with brown bubbleweed (*Sargassum* sp.), red coralline alga and green algae (green sea fingers *Codium fragile* and turfing filamentous), bubbleweed and red coralline alga. The natural rocky seabed was colonised by red encrusting alga, bubbleweed and kelp (Photo 8). The density of kelp directly offshore of the pool was of much lower density than on the neighbouring property to the north (Photo 1).

Fish observed during the survey included yellowfin bream (*Acanthopagrus australis*) and luderick (*Girella tricuspidata*).

c) Seagrass and Mangroves

There was a bed of high density *Zostera* located 8.8 m seaward of the edge of the intertidal rock platform, which is 10.3 m away from the nearest building works (arrowed in Photo 1).

No mangroves were observed within the on-site survey area of The Property.

2.2.2 Existing Ecology Based on Government Published Records

NSW Fisheries has done extensive mapping of the aquatic vegetation in Sydney Harbour. The latest aquatic vegetation maps (Creese et al. 2009) indicate the absence of seagrass in the vicinity of The Property (there is mixed *Posidonia/Zostera* mapped nearby).

NSW Government Department of Infrastructure, Planning and Natural Resources (2005a and b) prepared a Sydney Regional Environmental Plan (SREP) and a Development Control Plan (DCP) for the Sydney Harbour Catchment. The aquatic ecological community adjacent to The Property is described as "mixed rocky intertidal and sand" (NSW DIPNR 2005a).

As The Property is located within a designated Wetlands Protection Area (NSW DIPNR, 2005b), it is also a RMS requirement to address the wetland protection considerations (see the table in Section 3.2.2(d) in this report.

3. Proposed Waterfront Development

3.1 Proposed Structures of the Waterfront Development

The proposed waterfront development at The Property consists of the:

- demolition of the existing swimming pool and concrete platform surrounds;
- construction of a new raised swimming pool and concrete platform in the footprint of the existing pool and platform; and
- carrying out of repairs to the seawall as required.

3.2 Assessment of Potential Impacts of the Proposed Development to the Existing Ecology of The Property

3.2.1 Summary of Findings

In summary, the potential impacts on the aquatic ecology at The Property from the proposed demolition and rebuild of a new raised swimming pool in the same footprint are expected to be minimal, temporary and unlikely to cause significant damage to any marine life.

The *Zostera* seagrass habitats within the survey area were located over 10 m away from the edge of the new pool wall, and would not be directly or indirectly impacted by any of the construction works. There are no earthworks planned (except perhaps a pile to support the staircase at the back of the concrete platform). It is expected that the biota colonising the existing pool and surrounds would re-colonise the new pool as it would be constructed in the same location of similar design and materials. The existing natural intertidal rock platform seaward of the pool and the natural rocky subtidal seabed would not be negatively impacted by this development.

3.2.2 Detailed Listing of Findings

The potential impacts to the existing ecology of The Property are assessed in detail below in relation to the six main environmental considerations:

a) Protection of seagrasses;
b) Protection of mangroves;
c) Conservation of the existing ecology
d) Impacts from dredging;
e) Wetlands Protection Area Considerations; and
f) Sydney Regional Environmental Plan 2005 (“SREP”).

a) Protection of seagrasses

No ecological impact from the proposed development as the seagrass present in the survey area was located over 10 m away from the edge of the new pool wall.

b) Protection of Mangroves

No ecological impact from the proposed works as there were no mangroves present in the survey area.

c) Conservation of the Existing Ecology

Development Works	*Potential Impact to Existing Ecology*	
	Summary	*Discussion*
Removal of the existing pool and pool wall	Loss of attached intertidal and subtidal biota	The removal of the existing pool would result in the loss of the attached intertidal and subtidal biota. However, the proposed replacement pool is to be constructed of the same (or very similar) materials, so it is expected that a very similar assemblage of intertidal and subtidal fauna and flora would colonise the new structures over time.

d) *Impacts from Dredging*

No ecological impact from the waterfront development as there is no dredging required.

e) Wetlands Protection Area Considerations

As the subject property is located within a designated Wetlands Protection Area, it is a Roads and Maritime Services requirement to address the wetland protection considerations (Part 6, Clause 63 in the Sydney Regional Environment Plan, 2005). These are discussed below:

Wetland Protection Considerations	*Response and Discussion*
The development should have a neutral or beneficial effect on the quality of water entering the waterways	The development would have a neutral effect on the water quality as no earthworks are planned
The environmental effects of the development on the growth of native plant communities, the survival of native wildlife populations, the provision and quality of habitats for both indigenous and migratory species, the surface and groundwater characteristics of the site on which the development is proposed to be carried out	There would be no environmental effects on native plant communities, wildlife populations or surface and groundwater characteristics on site
Whether adequate safeguards and rehabilitation measures have been, or will be, made to protect the environment	Silt curtains should be installed off the front of the pool to protect the nearby *Zostera* seagrass bed from any potential sedimentation during construction
Whether carrying out the development would	The development is consistent with the nine

be consistent with the principles set out in The NSW Wetlands Management Policy, 1996	principles set out in the above policy
Whether the development adequately preserves and enhances local native vegetation	The development would have no impact on the local native vegetation
Whether the development application adequately demonstrates how the development will preserve and enhance the continuity and integrity of the wetlands, how soil erosion and siltation will be minimised both during and after completion, how appropriate on-site measures are to be implemented to ensure that the intertidal zone is kept free from pollutants arising from the development, that the nutrient levels in the wetlands do not increase as a consequence of the development, that stands of vegetation (both terrestrial and aquatic) are protected or rehabilitated, and that the development minimises physical damage to aquatic ecological communities	Nutrient levels and the continuity within the wetland habitat would not be affected.
Whether conditions should be imposed on the carrying out of the development requiring the carrying out of works to preserve or enhance the value of any surrounding wetlands	The only conditions that would need to be imposed would be the use of silt curtains off the front of the pool to protect the nearby *Zostera* seagrass bed from any potential sedimentation

f) Sydney Regional Environmental Plan 2005 ("SREP")

Section 21 of the SREP addresses Matters for Consideration for biodiversity, ecology and environment protection in the Sydney Harbour Catchment.

- *Development should have a neutral or beneficial effect on the quality of water entering the waterways.*

The development would have a neutral effect on the water quality with no earthworks planned.

- *Development should protect and enhance terrestrial and aquatic species, populations and ecological communities and, in particular, should avoid physical damage and shading of aquatic vegetation (such as seagrass, saltmarsh and algal and mangrove communities).*

The development would have no environmental effect on aquatic species.

- *Development should promote ecological connectivity between neighbouring areas of aquatic vegetation (such as seagrass, saltmarsh and algal and mangrove communities).*

The development has no negative impacts on the connectivity between neighbouring areas of aquatic vegetation.

- *Development should avoid indirect impacts on aquatic vegetation (such as changes to flow, current and wave action and changes to water quality) as a result of increased access.*

It is predicted that there would be no changes to flow, current and wave action and water quality as a result of increased access.

- *Development should protect and reinstate natural intertidal foreshore areas, natural landforms and native vegetation.*

The natural intertidal foreshore areas at the site would not be impacted by the development as the proposed construction sits within the footprint of the existing structures.

- *Development should retain, rehabilitate and restore riparian land.*

There is no riparian land at The Property.

- *Development on land adjoining wetlands should maintain and enhance the ecological integrity of the wetlands and, where possible, should provide a vegetative buffer to protect the wetlands.*

The development would maintain the ecological integrity of the adjoining wetlands.

- *The cumulative environmental impact of development.*

There would be negligible cumulative environmental impact of the development.

- *Whether sediments in the waterway adjacent to the development are contaminated, and what means will minimise their disturbance.*

It is unlikely that sediments in front of the development are contaminated.

3.3 Conclusion

In summary, the potential impacts on the aquatic ecology at The Property from the proposed demolition and rebuild of a new raised swimming pool in the same footprint are expected to be minimal, temporary and unlikely to cause significant damage to any marine life.

The *Zostera* seagrass habitats within the survey area were located over 10 m away from the edge of the new pool wall, and would not be directly or indirectly impacted by any of the construction works. There are no earthworks planned (except perhaps a pile to support the staircase at the back of the concrete platform). It is expected that the biota colonising the existing pool and surrounds would re-colonise the new pool as it would be constructed in the same location of similar design and materials. The existing natural intertidal rock platform seaward of the pool and the natural rocky subtidal seabed would not be negatively impacted by this development.

Appendix A - On-site Survey Photos

The following photographs taken by Rick Johnson during the on-site survey conducted at The Property on 18 February 2019 are provided overleaf:

- Photos 1 - 6. Existing pool structures and intertidal habitats at The Property.
- Photos 7 - 8. Artificial and rocky subtidal habitats at the site.

Photo 1. Existing concrete swimming pool and concrete platform at The Property. The red arrow indicates the *Zostera* seagrass bed 10.3 m off the pool wall.

Photo 2. Existing swimming pool (viewed looking south), fronted by a natural intertidal rock platform and rocky subtidal seabed.

Photo 3. Intertidal habitats present in the swimming pool include the inner pool walls and stairs, and the outer pool wall.

Photo 4. View of the pool looking north east.

Photo 5. Medium density cover of Sydney rock oysters colonising the swimming pool stairs.

Photo 6. Oysters colonising the low pool wall and a diverse assemblage of biota colonising the rock platform in front.

Photo 7. Subtidal flora colonising the northern end of the internal pool floor.

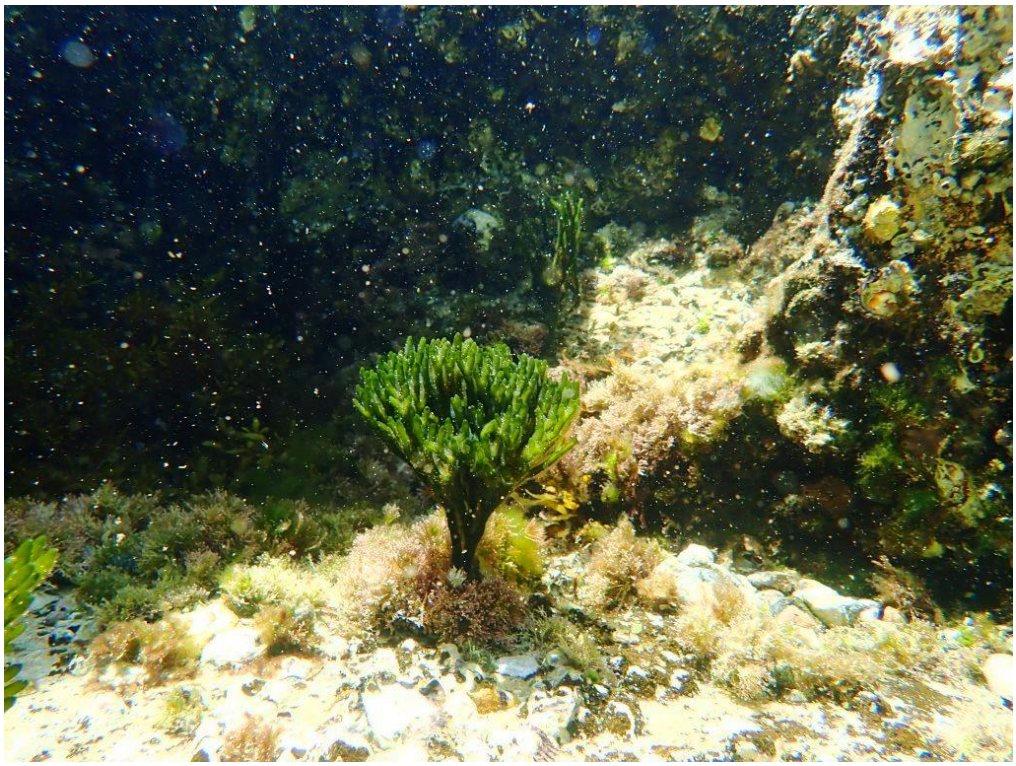

Photo 8. Brown macroalgae colonising the shallow boulders of the subtidal seabed.

Appendix B - References

Creese, R. G., Glasby, T. M., West, G. and Gallen, C. (2009). *Mapping the habitats of NSW estuaries*. Industry & Investment NSW Fisheries Final Report Series 113. Port Stephens, NSW, Australia. 95pp.

NSW Government Department of Infrastructure, Planning and Natural Resources (2005a). *Sydney Harbour Foreshores and Waterways Area: Development Control Plan.*

NSW Government Department of Infrastructure, Planning and Natural Resources (2005b). *Sydney Harbour Catchment: Sydney Regional Environment Plan.*