Biodiversity Assessment

Manly Wharf Extension

Squillace Architects Pty Ltd

26 June 2020

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The business of sustainability

ERM

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Biodiversity Assessment

Manly Wharf Extension

David Nicholson
Technical Director

Jane Barnett
Partner

ERM Sydney

Level 15, 309 Kent Street

Sydney NSW 2000

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Acronyms and Abbreviations

Name	Description
AOBV	Area of Outstanding Biodiversity Value
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BOSET	Biodiversity Offset Scheme
BV Map	Biodiversity Values Map
CEMP	Construction Environmental Management Plan
DCP	Development Control Plan
DEE	Department of the Environment and Energy
DPI	Department of Primary Industries
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
ERM	Environmental Resources Management
FM Act	Fisheries Management Act 1994
SAII	Serious and Irreversible Impact
TEC	Threatened Ecological Community

1. INTRODUCTION

1.1 Background

Environmental Resources Management Australia (ERM) was engaged by Squillace Architects on behalf of Hugos Manly to prepare an updated Biodiversity Assessment for proposed alterations and additions to the existing East Esplanade building. The proposed alterations are to provide an extension of alfresco dining for Hugos Manly Restaurant (refer to **Figure 1.1**).

Based on a review of the original assessment (ERM 2010), two ecologically sensitive receptors were identified with regards to potential impacts from alteration to the wharf and remain the focus of this updated assessment:

- Seagrass beds within the area, inclusive of the Commonwealth listed Threatened Ecological Community of '*Posidonia australis* seagrass meadows of the Manning-Hawkesbury Ecoregion', which have the potential to be overshadowed by the proposed development and the potential to be disturbed during the construction phase of the redevelopment project.
- A NSW listed endangered population of Little Penguin (*Eudyptula minor*) in the Manly Point area. This population is known to utilise areas underneath and surrounding the Manly Wharf. Noise, vibration, light and other pollution from the development area were identified as having the potential to impact this endangered population.

The updated assessment is based on a combination of desktop review and aerial photo interpretation and provides an updated assessment of potential impact on the seagrass beds as well as the Little Penguin population at Manly only. Assessment of any additional threatened species listed under the *Biodiversity Conservation Act 2016*, *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the *Fisheries Management Act 1994* (FM Act) is outside of the current scope.

Since the preparation of the original assessment (ERM 2010) there have also been legislative changes that are addressed within this assessment. Specifically the introduction of the *Biodiversity Conservation Act* 2016 (BC Act). The BC Act replaced the *NSW Threatened Species Conservation Act 1995*, the *NSW Nature Conservation Trust Act 2001* and parts of the *NSW National Parks and Wildlife Act 1974*. The BC Act establishes mechanisms for:

- The management and protection of listed threatened species of native flora and fauna (excluding fish and marine vegetation) and threatened ecological communities (TECs).
- The listing of threatened species, TECs and key threatening processes.
- The development and implementation of recovery and threat abatement plans.
- The declaration of critical habitat.
- The consideration and assessment of threatened species impacts in development assessment process.
- Biodiversity Offsets Scheme, including the Biodiversity Values Map and method to identify serious and irreversible impacts (SAII).

The BC Act establishes a new regulatory framework for assessing and offsetting biodiversity impacts on proposed developments. Where development consent is granted, the authority may impose as a condition of consent an obligation to retire a number and type of biodiversity credits determined under the Biodiversity Assessment Method (BAM). A Biodiversity Values Map and Biodiversity Offsets Scheme Entry Threshold (BOSET) tool are available to identify the presence of mapped biodiversity values within land proposed for development as well as the clearing thresholds that would trigger application of the BAM. ERM has reviewed the BOSET and can confirm that the site is not currently mapped on the BV Map.

An updated test of significance has been prepared for the endangered population of Little Penguin (*Eudyptula minor*) in accordance with Section 7.3 of the BC Act and is provided in **Appendix C**.

1.2 Site Description

A description of key site features as it related to this updated assessment are provided below in **Table 1.1**.

Table 1.1 Site Description

Site Feature	Description
Location	The Subject Site is located at Hugo's Manly Restaurant at Manly Wharf, 1 E Esplanade, Manly NSW 2095
Local Council	The Subject Site is located within the Northern Beaches Council Local Government Area
Aquatic Ecological Habitats	The Development Control Plan (DCP) Map 14 for Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2004 indicates "mixed rocky intertidal and sand" aquatic habitat along the Manly Cove eastern shore with seagrass beds offshore and Sheet 16 for the DCP indicate 'wetlands' along the complete eastern foreshore of Manly Cove to Manly Point (and beyond).
Key Fish Habitat Mapping	Key Fish Habitat is listed within the area by the Department of Primary Industries: https://www.dpi.nsw.gov.au/fishing/habitat/publications/pubs/key-fish-habitat-maps
Ecologically Sensitive Receptors	Two ecologically sensitive receptors were identified with regards to potential impacts from the proposed development (ERM 2010) and remain the focus of this updated assessment: ■ Seagrass beds within the area, inclusive of the Commonwealth listed Threatened Ecological Community of *Posidonia australis* seagrass meadows of the Manning-Hawkesbury Ecoregion; and ■ A NSW listed endangered population of Little Penguin (*Eudyptula minor*) at which exists within the Manly Point area.

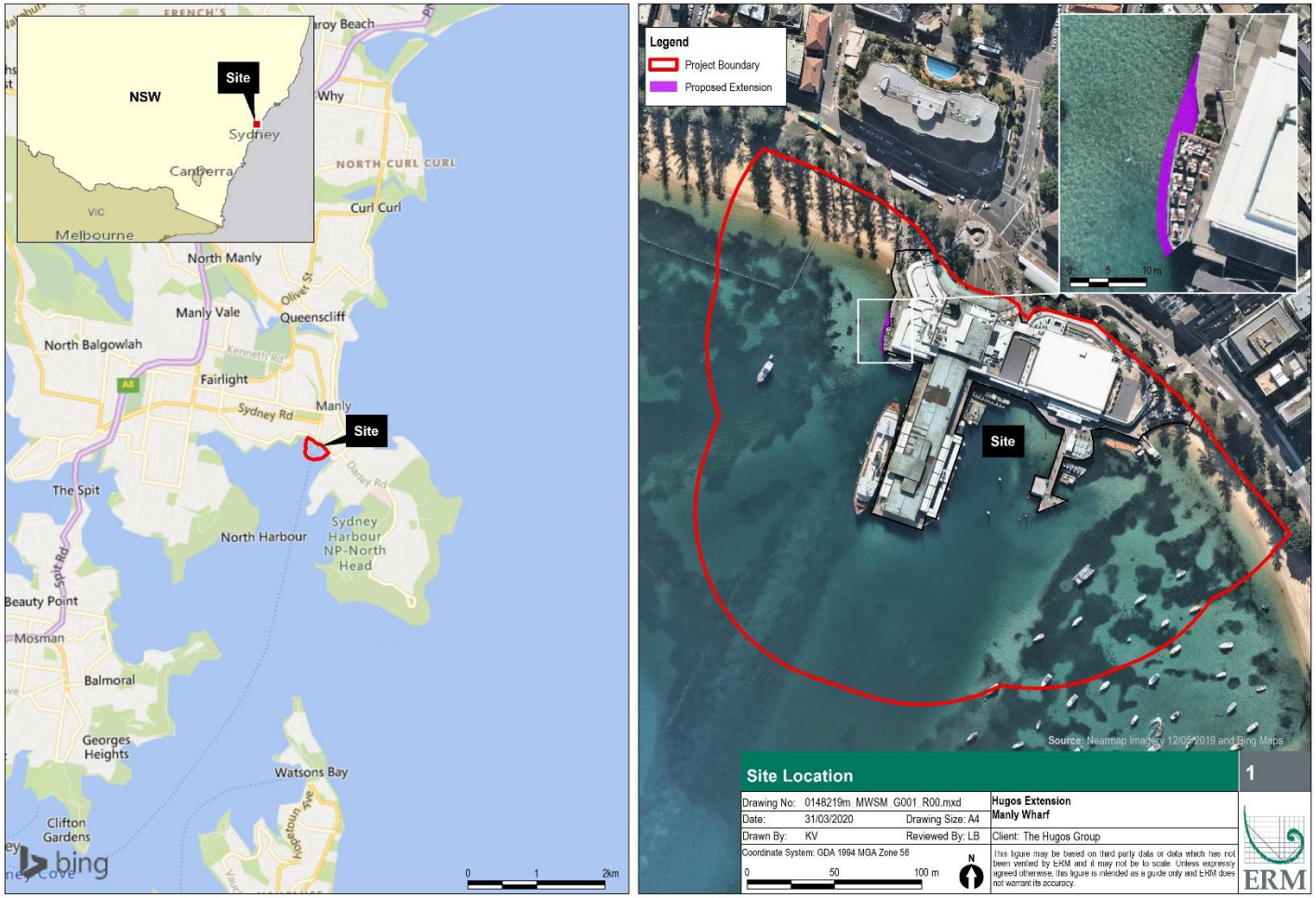

Figure 1.1 Site Location

1.3 Description of the Proposal

This assessment is based on the proposal to increase the alfresco dining area of Hugo's Manly Restaurant. This development requires an increase to the Manly wharf deck footprint over the water by 37m^2 (**Appendix A**). The development will require the installation of three additional piles, the removal and replacement of one existing pile, and the reparation of one existing pile to support the additional decking. The locations of new and existing piles are displayed in **Appendix A**. The piles will have an approximately 300 mm toe diameter, with the disturbed seabed surface area being approximately 0.3m^2 per pile. The construction phase of this project will occur over 3-4 weeks.

2. EXISITING ENVIRONMENTAL CONTEXT

2.1 Seagrass Mapping

ERM has determine the seagrass extent within the Manly Cove area as shown in **Figure 2.1**. This was constructed from visual interpretation of satellite imagery from May 2019 of the Many Cove area. The proposal avoids impact on the mapped seagrass beds, including those indicated in **Figure 2.2**, the 2013 Department of Primary Industries (DPI) Fisheries seagrass map for Manly Cove (DPI 2013). DPI mapping indicates that areas surrounding the Manly Wharf contain a mixture of seagrass species, including a combination of *Posidonia australis, Zostera species* and *Halophila species*. Whilst the proposal avoids impact on the indicated seagrass beds, there is an absence of field surveys to determine precise distribution of the seagrass community directly surrounding and underneath the Manly Wharf. It is recommended that a detailed seagrass survey be undertaken to further confirm the absence of seagrass within or near the project area if the Project will impact this habitat.

Review of the recent analysis of *P. australis* by Evans et al. (2018) indicates an area dominated by *P.australis* is located to the east of the wharf, however the mapping does not detail distribution of the seagrass on the western side of the wharf, where the development is to occur (Evans et al., 2018). The recent analysis suggests that the *P. australis* meadows are declining at an average rate greater than 10% per year, exceeding the global rate of seagrass decline (Evans et al., 2018). Between 2009 and 2014 a loss of 36.6% of *P. australis* was recorded on the eastern side of Manly Wharf (Evans et al., 2018). It is suggested that the primary disturbance was boat moorings resulting in sediment destabilisation.

It is also stated that once degradation of *P. australis,* a large, slow-growing seagrass, has begun it is a self-perpetuating process, and hence the ability of *P. australis* to recover from disturbances and habitat fragmentation is considered extremely low (Evans et al., 2018).

Six locations within New South Wales (Port Hacking, Botany Bay, Sydney Harbour, Pittwater, Brisbane Waters and Lake Macquarie) have suffered significant population decline and have been listed as endangered populations under the Threatened Species Schedules of the *Fisheries Management Act 1994.* The general locality around the Manly Wharf is considered likely to form part of the Sydney Harbour population and in the absence of detailed field survey and recent distribution mapping, we have assumed that any areas of seagrass surrounding the proposed development could contain *P. australis.*

A permit issued by the Department of Primary Industries will be required under Section 205 of the *Fisheries Management Act 1994* (FM Act) for the harm of marine vegetation if seagrass beds are to be impacted by the proposed development. The FM Act sets out provisions to protect marine vegetation (mangroves, seagrass and seaweeds whether alive or dead) from harm, where harm means to gather, cut, pull up, destroy, poison, dig up, remove, injure, prevent light from reaching or otherwise harm the marine vegetation, or any part of it. Consultation should occur with the Department of Primary Industries to determine the requirement for a permit under Section 205 of the Fisheries Management Act 1994 (FM Act) in this regard. If a permit is required, a proposal should be submitted as an integrated development application to Council prior to the application for a permit.

Any proposed action that is expected to have an impact on the EPBC listed ecological community would also need to be referred to the Minister under the EPBC Act, or assessed under the accredited process between the Commonwealth and the State of NSW. Potential impacts are further addressed within **Section 3**.

2.1.1 EPBC Act Posidonia australis endangered population

The *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion was listed in May 2015 as endangered under the EPBC Act. The Seagrass Meadows are reported by the Department of the Environment and Energy (2018) as:

- an important driver of fisheries productivity and estuarine biodiversity
- protect water quality by filtering the water, removing and recycling nutrients; stabilise sediment on the seabed; and are an important blue carbon store
- support a diverse range of fauna—providing habitat, shelter and food resources. Included in this fauna are the protected Weedy Seadragon (*Phyllopteryx taeniolatus*), Manly's population of endangered Little Penguin (*Eudyptula minor*) and various migratory shorebirds. They also provide nursery habitat and feeding grounds for commercially and recreationally important fish species such as various bream, sea mullet and leatherjacket fish species
- are limited to the Hawkesbury and Manning Shelf bioregions and are known to occur in Wallis Lake, Port Stephens, Lake Macquarie, Brisbane Water, Hawkesbury River, Pittwater, Port Jackson (Sydney Harbour), Botany Bay, Port Hacking and around Broughton Island
- may correspond to country and have cultural significance to a number of Indigenous groups, including the Worimi, Awabakal, Darkinjung, Guringai (Kuring-gai) Eora, and Dharawal (Tharawal/Dariwal)
- include six populations of *Posidonia australis* listed as endangered under NSW fisheries management legislation; and
- contribute to the health and wellbeing of local residents. For example, by supporting snorkelling, diving, fishing and other recreational activities, including seeing local wildlife.

Note that the exact distribution and coverage of *P. australis* within the seagrass communities immediately surrounding Manly Wharf is not known and, in the absence of detailed field survey and recent mapping, we have assumed that any areas of seagrass surrounding the proposed development could contain *P. australis*. This precautionary approach provides the best level of protection for *P. australis* should it occur within the potentially impacted areas.

Potential impacts are further addressed within **Section 3**.

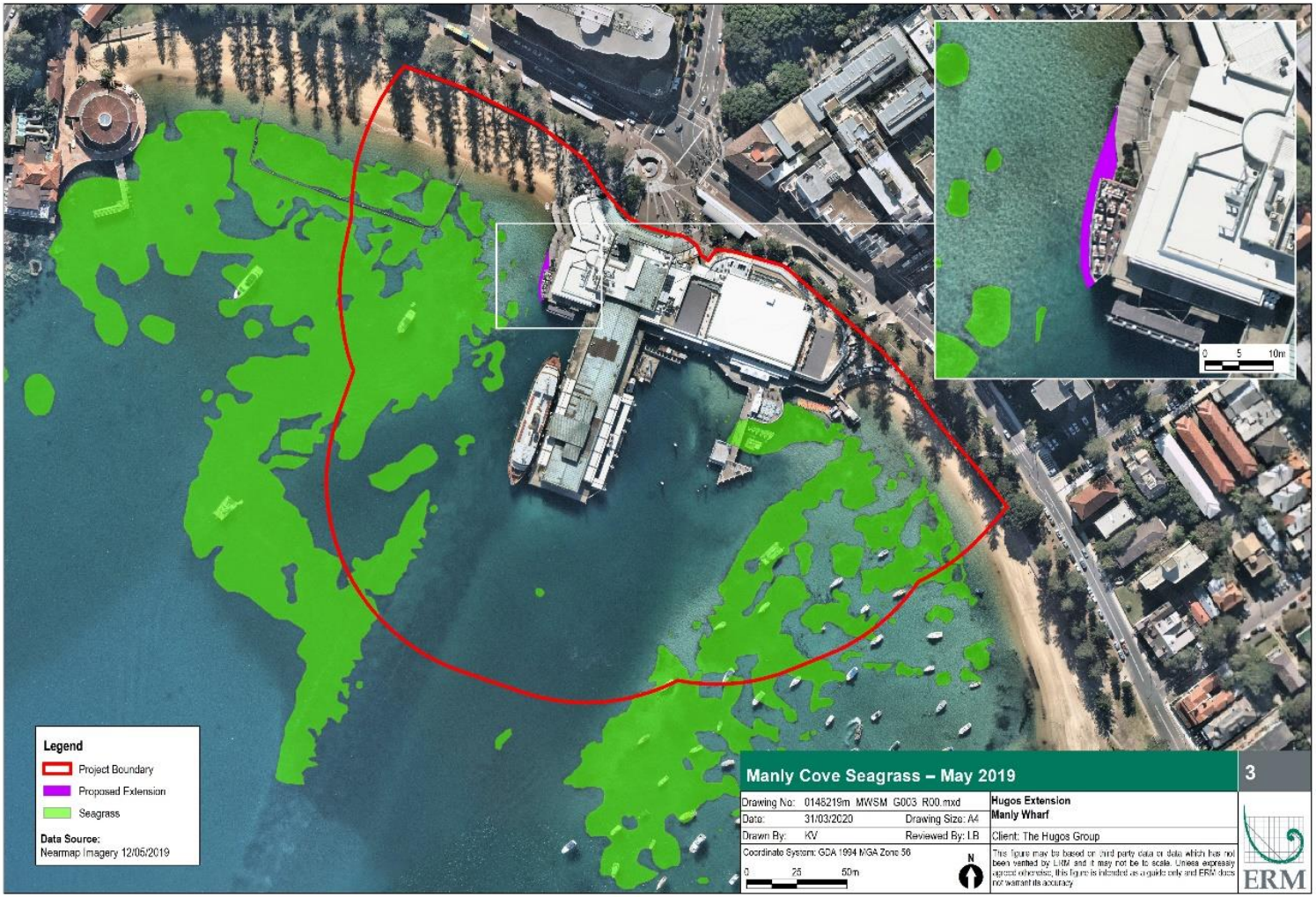

Figure 2.1 Seagrass mapping within locality

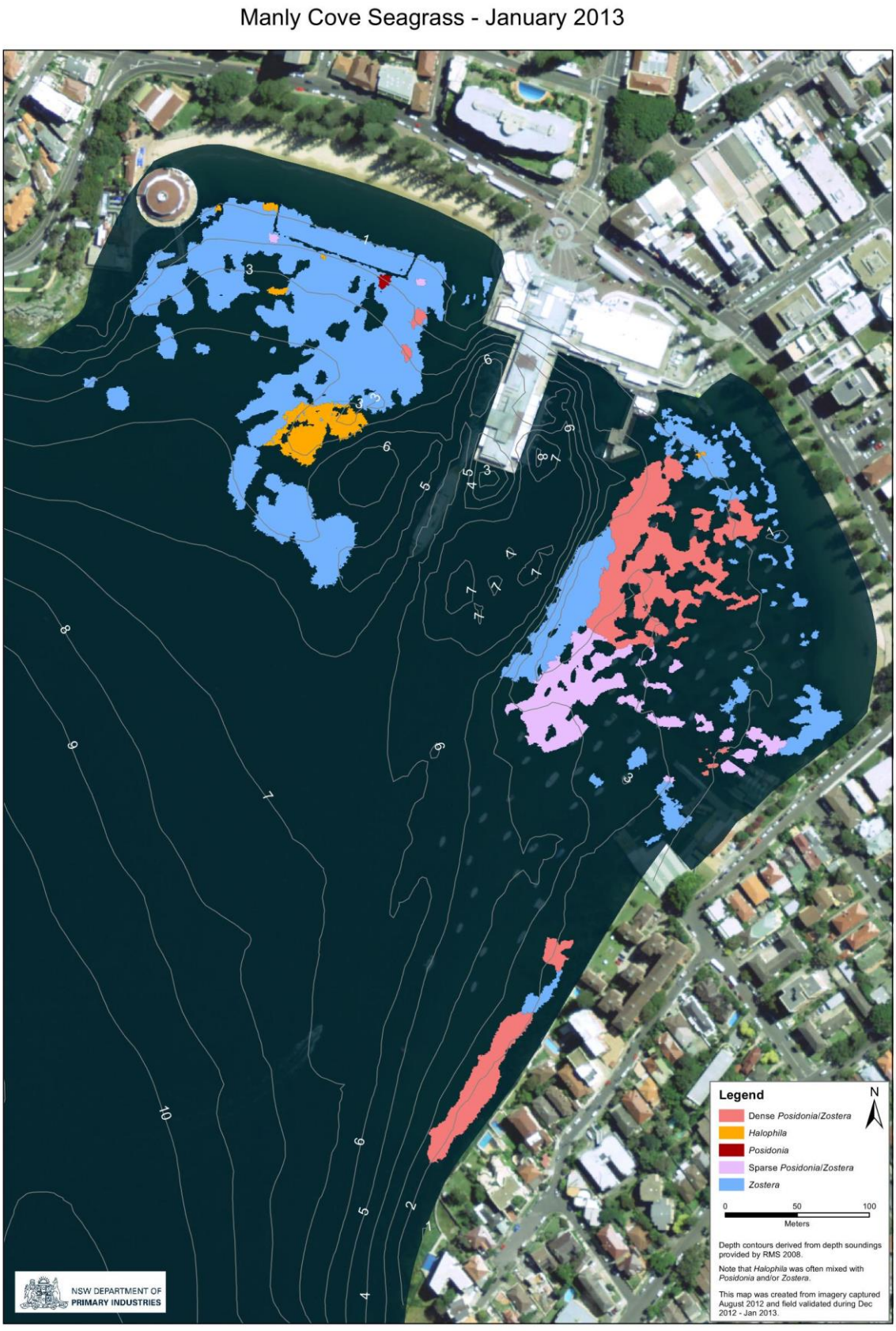

Figure 2.2 Department of Primary Industries Manly Cove Seagrass Mapping

2.2 Little Penguin Endangered Population

Manly is home to a colony of Little Penguins which are the only mainland breeding colony left anywhere in NSW. This endangered population as listed under the BC Act, occurs from just north of Smedley's Point to Cannae Point, North Sydney Harbour, Manly. The Manly population is made up of only 28 breeding pairs after the population was heavily reduced due to fox predation in the 2015 pre-breeding season (OEH 2019). The little penguins are an icon of Manly where they often come to nest nightly between July and February (peak breeding season) (OEH 2020).

Every breeding season people come to Manly Wharf to see the Little Penguins. Male penguins start returning to the colony in May/June to find or reconstruct a suitable burrow for nesting and to attract females. At this time they may spend all day in their burrows (OEH 2020). Time of egg-laying varies slightly from year to year but has been recorded at Manly as early as the first week of June. The peak breeding season however is generally from July to February. The Manly penguins also moult between December and February and it is at this time when they are most vulnerable as they do not always moult deep in the burrows, but often only in shallow depressions (OEH 2020).

Monitoring of the Little Penguin population at Manly has been undertaken in one form or another since 1996, when landing site counts were organised by the National Parks and Wildlife Service (NPWS) and Manly Environment Centre. Since the 2002/03 breeding season a single protocol has been followed to ensure the data is standardised and comparable. The Little Penguin Recovery Program Coordinator stated that surveys conducted over the previous two years have included additional areas, including the Manly Wharf. Based on a review of the 2018/2019 Monitoring Report (OEH 2019), one breeding pair was identified at the Manly Wharf during the 2018/2019 monitoring period. Based on personal communication from the Little Penguin Recovery Program Coordinator, the pair was not recorded during the most recent survey period (2019-2020), however Little Penguins were observed prospecting and swimming within the immediate area of Manly Wharf during the study and are known to be regular visitors to the wharf.

In the absence of detailed field surveys and mapping, we have assumed that the site continues to provide important habitat features for this local population. The major threats to the Manly population as listed on the threatened species profile (OEH 2020) that relate to this proposal include:

- The loss of suitable habitat.
- Disturbance around nesting areas from movement, noise and light from nearby buildings, waterway and fishing activities is another threat.
- Penguins will delay their arrival to the nest to feed their chicks if they perceive any disturbance. This means that there is less food for the young as the longer the adults are delayed, the more food will be digested by them.
- Pollution may adversely impact the colony.
- Industrial and urban inputs into the harbour can also contaminate the penguins' food source.

While the immediate area surrounding the wharf itself is not registered as an Area of Outstanding Biodiversity Value (AOBV) (previously known as Critical Habitat) for this population under the BC Act, the proposed development will occur just 575 m from the nearest AOBV located at Manly Point (see **Figure 2.3**). Potential impacts to this population are further addressed within **Section 3**.

Figure 2.3 Little Penguin Population within Locality

3. IMPACTS AND MITIGATION MEASURES

3.1 Seagrass Habitat and *Posidonia australis*

3.1.1 Potential Impacts (if Piling is required)

Potential Impact from construction activities are summarised as follows:

- Three additional piles will need to be driven into the seabed, along with the removal and replacement of one existing pile. This is estimated to disturb 0.3m^2 of seabed per pile. Based on the data that we have assessed to date, all of the piles will be driven into bare sand. Both the pile removal and pile driving will result in the potential disturbance to seagrass beds and temporary disturbance to water quality. Given the potential low density of seagrass in this location it is not considered that this loss would have any material impact on fish habitat in the locality
- Pile placement and deck construction works will require a floating crane barge to be used for 3-4 weeks. This may present additional shading and/or physical damage impacts to these adjacent habitats. The risk of additional losses of habitat for construction works can be minimised by including specific aquatic habitat protection conditions to the project within a detailed Construction Environmental Management Plan (CEMP) – see also **Section 3.1.2** below.
- Contaminated runoff could cause a reduction in nearby water quality and debris could be dropped into the water from the wharf. Management and mitigation measures are recommended in **Section 3.1.2**.

The proposed redevelopment works constitute coastal development, a key threat that is recognised as contributing to the decline in extent of the ecological community (DOE 2015). The impact of coastal development on the ecological community is described as:

> *The ecological community can be impacted by coastal development directly through removal of seagrass and indirectly through: shading which limits the photosynthetic capacity of the seagrass; increased runoff, sedimentation and pollution that decrease water and sediment quality and therefore light availability; and changed wave or current patterns and/or sediment stability that lead to erosion and burial of the seagrass* (DOE 2015).

The design of the redevelopment and the associated overshadow diagrams indicate that there will be no increase in the overshadowing of seagrass as a result of the proposed development (**Appendix B**). The maximum extent of overshadowing is likely to occur during June mornings (9am) when approximately 73m^2 of water is subject to a temporary reduction in sunlight due to the proposed redevelopment ***(*Appendix B*).*** Aerial imagery indicates this overshadowing will not have an impact on current seagrass meadows as shown in **Figure 2.1**.

The risk of extinction of an endangered population generally increases if any factor operates to reduce the population size. The overshadowing projections indicate that the areas of seagrass, including those of *P. australis*, within Manly Cove will not be overshadowed, therefore will be unaffected by the proposed development**. Appendix C** (Assessment of Significance) provides a full discussion of the impacts of overshadowing for the endangered population of *P. australis*; however, it has been concluded that the effects of the proposal will be nil.

3.1.2 Mitigation Measures

FM Act Permit to harm marine vegetation

Seagrasses are protected as Type 1 highly sensitive fish habitat under the New South Wales FM Act. Whilst the proposal avoids impact on the mapped seagrass beds indicated in **Figure 2.1** and **Figure 2.2**, there is an absence of field surveys of the area to determine precise distribution of the seagrass community directly surrounding and underneath the Manly Wharf. It is recommended that a seagrass survey is undertaken to further confirm the absence of seagrass within or near the project area. If seagrass is to be disturbed, a permit issued by the Minister for Primary Industries will be required under Section 205 of the FM Act for the harm of marine vegetation.

NSW DPI Fisheries guidelines (2013) state that DPI will not generally approve proposals that result in the loss of Type 1 or Type 2 habitat without adequate mitigation and compensation measures in place, and Section 3.3.3 of the Guidelines outlines the policy for rehabilitation and compensation measures, including a requirement of at least a 2 for 1 replacement ratio. Compensatory measures will need to be considered to meet the intentions of the Fisheries Guidelines and would be incorporated into the Fisheries' permit application.

Construction Environmental Management Plan

The Construction Environmental Management Plan (CEMP) must also include specific aquatic habitat protection conditions including:

- All contractors undertaking construction work must ensure that their activities do not cause any harm to the marine vegetation habitats adjoining the project footprint.
- Include detailed procedures and protocols to minimise the risk of disturbance or spread of the pest algae species *Caulerpa taxifolia*
- Mooring lines or cables must not be laid across the marine vegetation
- Containment of all runoff and appropriately treating it prior to disposal to the environment
- Waste management policies and guidelines
- Prevention of accidental spills and/or contamination
- For works that are required to be performed outside the daylight hours additional mitigation measures should be implemented. This may include directing any lighting away from the water's edge, known penguin burrows and access routes between the water and penguin burrows (NSW NPWS 2003) and erecting barriers to reduce light that may impact on penguin habitat.

3.2 Little Penguin Endangered Population

3.2.1 Potential Impacts

As the site does provide suitable nesting and moulting habitat for Little Penguins and the local population is known to utilise the habitats at the Manly Wharf any additional disturbance within this area has the potential to impact the local population. Without the implementation of strict mitigation and management controls, these impacts could result in a decline of the local population.

Potential direct impacts to the Manly population include:

- The loss of suitable habitat
- Light, noise and vibration disturbances to breeding individuals.

Potential indirect impacts to the Manly population include:

- Disturbance around nesting areas from movement, noise and light
- Changes in behaviour due to vibration, noise and light

- Contaminated runoff has the potential to cause a reduction in nearby water quality and impact food sources.
- Potential impacts from the increased human presence / activity within the area post development, as a result of the new facilities available.

It is recognised that the penguin population has continued to live with existing disturbances in the Manly Wharf area such as regular ferries, boats and a high number of human activities along the wharf and foreshore. As assessed within **Appendix D**, based on the implementation of the recommended mitigation measures, any impacts are likely to be minor in nature and will have a temporary impact on the population only.

3.2.2 Mitigation Measures

As the site does provide suitable nesting or moulting habitat for Little Penguins and the local population is known to utilise the habitats at the Manly Wharf there a number of important management and mitigation measures that will need to be applied to ensure that the proposal does not present any significant impact.

Most importantly, seasonal timing of works needs to be considered as the Little Penguin is considered to be more susceptible to disturbances during certain times of the year such as breeding and moulting. The NSW *Biodiversity Conservation Regulation 2017* under the BC Act recognises the peak breeding season for the Little Penguin to occur from July to February, with moulting occurring from December to February for the population within the Manly Point area

No intrusive construction works will occur between July and February to minimise risk for local little penguin transiting the area. Intrusive construction works refer to works that generate noise, light and vibration impacts. Intrusive construction works include but is not limited to:

- Excavations;
- Drilling;
- Piling; and
- Night works.

Painting during daylight hours is an example of non-intrusive construction works as it does not generate significant noise, light or vibration impacts.

Additional mitigation measures will be included within the CEMP and are presented in **Table 3.1** below.

Table 3.1 Management and Mitigation Measures, Little Penguin Population

Potential Impact	Mitigation Measure
Potential noise disturbance from the development area.	The construction phase of the project requires the use of machinery such as a floating crane barge, including a pile driving hammer to install the piles. It is assumed that general construction timings of 7am to 5pm Monday to Saturday will be utilised for the works, this is considered to fall within the hours of higher use of the Manly Wharf and therefore additional disturbances of noise from the development area above the existing background noise is considered minor. Noise attenuation devices and barriers will need to be used for any works outside of the normal hours of operation or for any work that is considered to involve excessive noise emissions. The underwater noise caused by pile driving activities is potentially harmful to marine life. Noise mitigation measures should be in place to minimise the underwater noise impacts.

Potential Impact	Mitigation Measure
Potential vibration disturbance from the development area.	Pile driving activity is anticipated to result in vibration disturbances during the construction period. Vibration mitigation measures should be in place to minimise impacts on native fauna, particularly the Little Penguin population (e.g. use of vibratory hammer in place of an impact hammer).
Potential light emissions from the development area.	For works that are required to be performed outside the daylight hours, additional mitigation measures should be implemented. This may include directing any lighting away from the water's edge, known penguin burrows and access routes between the water and penguin burrows.
Potential runoff and sedimentation from development area.	Installing devices to prevent runoff and to control sedimentation impacting on Little Penguin habitat.
Potential impacts from the ongoing increased human presence / activity within the area post development, because of the new facilities available.	Human traffic areas and walkways utilising and leading to and from the new development area are to be located as such that no access will be available to areas of Little Penguin habitat or burrows and awareness should be raised as to the presence of the endangered population within the area and the need to protect and minimise disturbances to this population.
Potential for disturbances during periods where the Penguin Population is considered sensitive.	Undertaking any major works that may disturb penguins and/or their habitat should be performed outside the breeding and moulting season of the Little Penguin (NSW NPWS 2003). No construction works will occur between July and February to minimise risk for local Little Penguin transiting the area.
Potential impacts to seagrasses adjacent to the Manly Wharf because of their use as potential foraging habitat for the Little Penguin.	Any overshadowing of the seagrasses adjacent to the Manly Wharf should be limited as this habitat has the potential to be utilised by the endangered population of Little Penguins. Aquatic habitat protection conditions including minimising impacts to the seagrass habitats will be included in the CEMP.

4. CONCLUSIONS

It is concluded that, based on the presented information, the deck extension proposal at Manly Wharf can be undertaken with a low risk of impact on seagrass habitats and the local population of Little Penguin provided that the recommended mitigation measures are strictly implemented.

The overshadowing figures presented in **Appendix B** and the findings of the *Assessment of Significance* for seagrasses presented in **Appendix C** indicate there are negligible impacts from overshadowing and the proposed development is unlikely to affect the seagrass beds adjacent to the Manly Wharf. There is the potential for runoff associated with the construction activities which could affect water quality; however, containment and treatment of all runoff from the construction site will ensure mitigation of such threats. ERM concludes that the proposed redevelopment will not result in any major impacts to the commonwealth listed threatened ecological community of *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion, and in turn the endangered population of *Posidonia australis* in Sydney Harbour. However, for further confirmation of the absence of seagrass within and nearby the proposed development a detailed seagrass field survey is recommended if pile driving is to be taken forward as the preferred option. Consultation with the Department of Primary Industries is recommended under Section 205 of the Fisheries Management Act 1994 (FM Act) to determine the need for the permit.

Based on the timing of the works, occurring for 3-4 weeks outside of the Little Penguin breeding season, the potential impacts to the endangered population will be limited to possible minor runoff and indirect disturbances from noise, light and vibration largely from the construction phase of works. These impacts can be mitigated by implementing noise and vibration mitigation measures, reducing the use of heavy machinery and equipment where possible, and by limiting the hours of operation of the constructions to fall within the regular operations of the transport and use of the Manly Wharf area.

Assessment of any additional threatened species listed under the *Biodiversity Conservation Act 2016, Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) or the Fisheries Management Act 1994 (FM Act)* is outside of the current scope.

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APPENDIX A ARCHITECTURAL PLAN AND STRUCTURAL LAYOUT

HUGOS, MANLY

MANLY WHARF, SHOP 1 LOT 1 MANLY WHARF EAST ESPLANADE, MANLY

AS4676-2004 DESIGN, CONSTRUCTION AND FIT-OUT OF FOOD PREMISES:

2.4 - FLOOR TILES TO BE BUTT JOINTED OR OPEN JOINTS EPOXY GROUTED
2.6 - FLOOR/WALL INTERSECTIONS ARE TO BE COVED. PREFORMED MATERIALS TO BE CONTINUED MIN. 75MM UP WALL
3.5 - THE INTERSECTION OF WALLS AND CEILING TO BE TIGHT JOINTED, SEALED AND DUSTPROOF
3.6 - CEILING LIGHT FITTINGS TO BE INSTALLED FLUSH OR WITH APPROVED DUST/VERMIN PROOF DIFFUSER
5.2 - EXPOSED PIPES FIXED BY BRACKETS TO SPACE 25MM OFF WALL AND 100MM OF HORIZONTAL SURFACES
5.3 - ALL OPENINGS MADE FOR SERVICE PIPES TO BE MADE VERMIN PROOF
11.4 - ALL LEGS ARE TO BE OF NON-CORROSIVE SOLID OR TUBULAR METAL OR MOULDED PLASTIC
11.5 - OPEN ENDS OF TUBULAR STEEL LEGS MUST BE CAPPED
11.6 - LEGS DESIGNED SO THAT FITTINGS ARE RAISED 150MM OFF FLOOR, MIN. 25MM FROM WALL, OR ALTERNATIVELY, REAR LEGS CAN BE OMITTED AND BRACKETS USED
11.7 - BRACKETS ARE TO BE NON-CORROSIVE, TUBULAR METAL (WITH CAPPED ENDS) ,SOLID METAL OR FLAT STEEL
13.2 - ANY CREVICES BETWEEN FITTINGS, WALLS, EQUIPMENT ETC., TO BE PROVIDED WITH COVER FLASHING OR SEALED.
14.7 - SALAMANDERS AND SIMILAR EQUIPMENT SHALL NOT BE LOCATED DIRECTLY ABOVE OTHER COOKING APPLIANCES WHERE VENTILATION IS DECREASED
17.7 - SHELVING TO BE KEPT MIN. 25MM CLEAR OF WALLS, OR JOINT SEALED APPROPRIATELY.
DOORS TO BATHROOMS TO BE FITTED WITH SELF-CLOSING DEVICES
KITCHEN AND BAR EQUIPMENT TO BE INSTALLED TO MANUFACTURER'S DETAILS
ALL FLOOR TO WALL JUNCTIONS IN KITCHEN AND BAR AREAS TO BE COVED TO A MINIMUM RADIUS OF 30M

DRAWING LIST:

01 LOCATION PLAN NTS * SITE LOCATION

02 SITE PHOTO - DRONE PHOTOGRAPH OF EXISTING SITE AND CONDITION

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DEVELOPMENT APPLICATION

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NOTES

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P4	12.06.20	DA SUBMISSION
P3	26.05.20	DA SUBMISSION
P2	16.04.20	DA SUBMISSION
P1	13.03.20	FOR CLIENT REVIEW

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ARCHITECTS
INTERIOR DESIGNERS

SYDNEY
1/80 Albion Street, Surry Hills NSW 2010
Ph: +61 2 8354 1300
ABN: 24 132 554 753

MELBOURNE
Level 2 , 333 Flinders Lane
Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
ABN: 34 137 620 538

NOMINATED ARCHITECT
Vince Squillace Reg No. 6468 (NSW), 17219 (VIC), 3677 (QLD)

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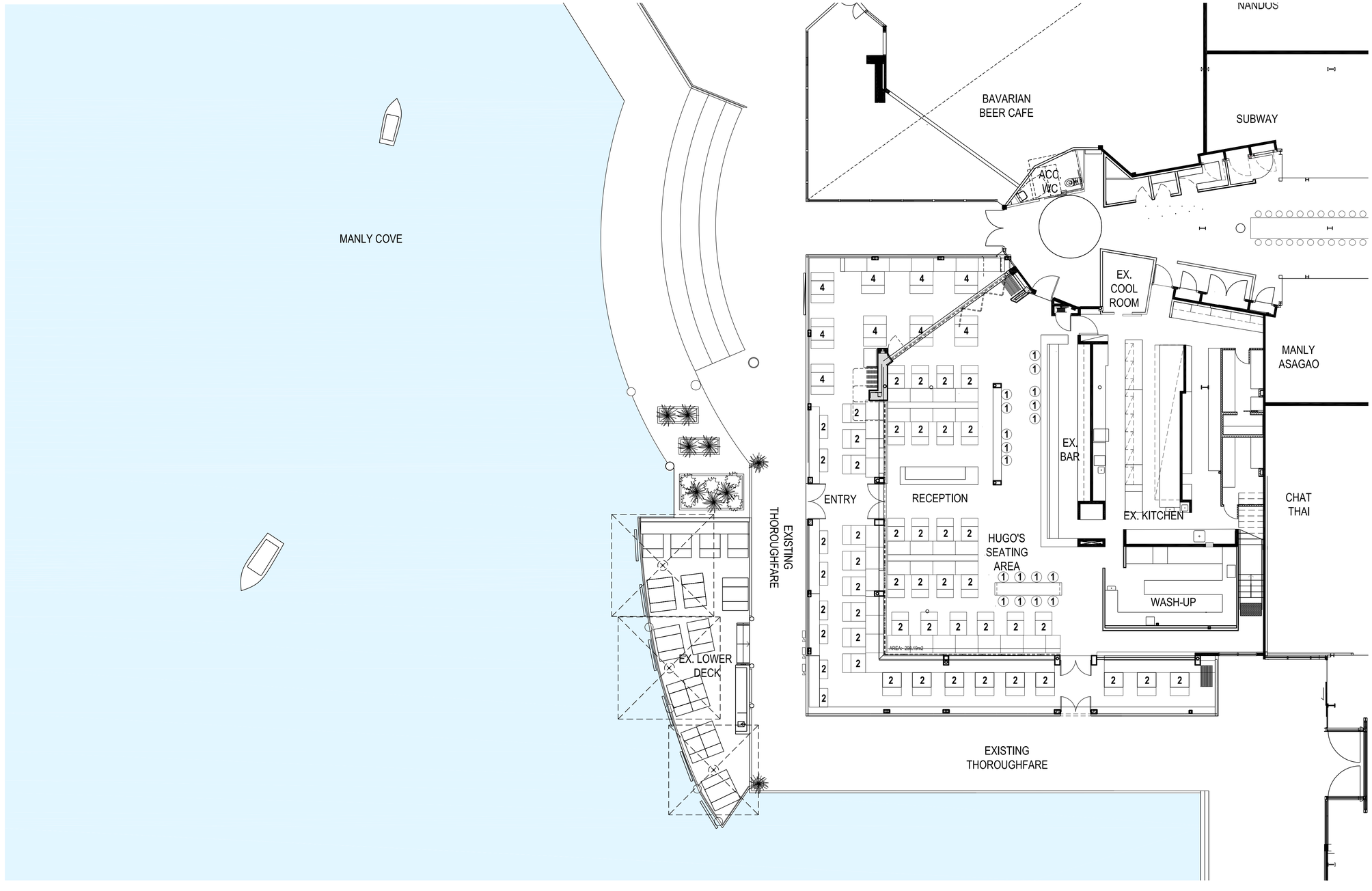
HUGOS MANLY

DRAWING NO. DA 000
ISSUE P4

JOB NO. HUG0704
SCALE NTS NTS
DATE 12.06.20

DRAWING TITLE
COVER SHEET

DRAWN BY GC / AE
CHECKED BY VS



1 / - SITE PLAN- EXISTING
scale - 1:100 @ A1, 1:200 @A3

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INTERIOR DESIGNERS

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ABN: 24 132 554 753

MELBOURNE
Level 2 , 333 Flinders Lane
Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
ABN: 34 137 620 538

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Vince Squillace Reg No. 6468 (NSW), 17219 (VIC), 3677 (QLD)

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DA 001

ISSUE
P4

JOB NO.
HUG0704

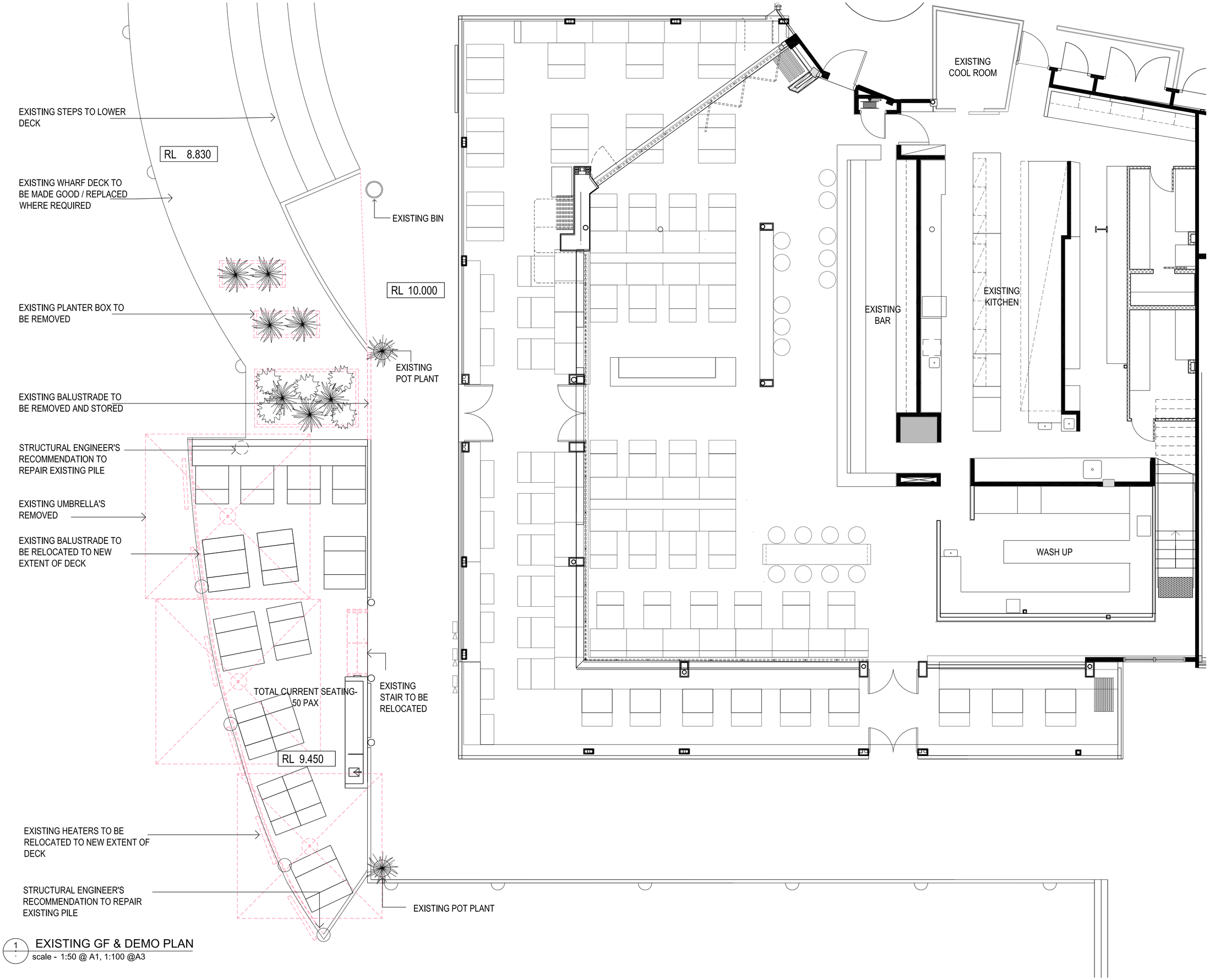
SCALE
1:100 @A1
1:200@A3

DATE
12.06.20

DRAWING TITLE
SITE PLAN
EXISTING

DRAWN BY
GC / AE

CHECKED BY
VS



1 EXISTING GF & DEMO PLAN
scale - 1:50 @ A1, 1:100 @A3

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STATUS
DEVELOPMENT APPLICATION

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NOTES

DRAWING LEGEND

ITEMS TO BE DEMOLISHED

ISS	DATE	PURPOSE OF ISSUE
P4	12.06.20	DA SUBMISSION
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P2	16.04.20	DA SUBMISSION
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INTERIOR DESIGNERS

SYDNEY
1/80 Albion Street, Surry Hills NSW 2010
Ph: +61 2 8354 1300
ABN: 24 132 554 753

MELBOURNE
Level 2 , 333 Flinders Lane
Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
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Vince Squillace Reg No. 6468 (NSW), 17219 (VIC), 3677 (QLD)

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PROJECT
HUGOS MANLY

DRAWING NO. DA 002
ISSUE P4

JOB NO. HUG0704
SCALE 1:50 @A1 1:100@A3
DATE 12.06.20

DRAWING TITLE
EXISTING GROUND FLOOR & DEMOLITION PLAN

DRAWN BY GC / AE
CHECKED BY VS

PROPOSED EXTENSION OF DECK AS PER STRUCTURAL ENGINEERS DETAIL

PROPOSED GENERAL PUBLIC BENCH SEATING TO EXTEND FROM EXISTING STAIR

PROPOSED LOW LEVEL PLANTER BOX

ADDITIONAL WHARF DECKING FOR GENERAL PUBLIC USE

EXISTING FLAG POLE TO BE RETAINED AND RELOCATED

EXISTING PILE TO BE REPLACED AS PER STRUCTURAL ENGINEERS DETAIL

NEW STRUCTURAL PILE TO STRUCTURAL ENGINEERS DRAWINGS

RL 8.830

RL 10.000

RL 9.450

STACKED WINDOW POSITION

NEW OPERABLE FRAMELESS SLIDING WINDOWS FOR SECURITY PURPOSES

2300

EXISTING BIN

EXISTING POT PLANT

4290

2 DA201

EQ

TOTAL CURRENT SEATING- 50 PAX
PROPOSED SEATING- 80 PAX

EXISTING BALUSTRADE RELOCATED TO EDGE OF NEW DECK TO COMPLY WITH BCA

3660

EXISTING STAIR AND HANDRAILS TO BE RELOCATED

EXISTING REMOVABLE HEATERS RELOCATED

NEW COLLAPSIBLE UMBRELLAS TO DECK

EXISTING STRUCTURAL PILES TO BE RETAINED

2 DA301

PROPOSED EXTENSION OF DECK TO STRUCTURAL ENGINEERS DETAIL

4880

EXISTING COLLAPSIBLE UMBRELLA TO BE RELOCATED

1650

NEW STRUCTURAL PILE TO STRUCTURAL ENGINEERS DETAIL

TOTAL CURRENT INTERNAL SEATING- 150 PAX
TOTAL CURRENT SEATING- 200 PAX

TOTAL PROPOSED SEATING- 266 PAX

WASH UP

1100

2400

PROPOSED SEATING- 36 PAX

NEW OUTDOOR FURNITURE

SURFACE MOUNTED NEW HEATERS

EXISTING POT PLANT

NEW OPERABLE FRAMELESS SLIDING WINDOWS FOR SECURITY PURPOSES

NEW STACKED WINDOW POSITION

NEW LOW LEVEL REMOVABLE PLANTER

EXISTING PILE TO BE REPAIRED AS PER STRUCTURAL ENGINEERS DETAIL

1 - FLOOR PLAN- PROPOSED
scale - 1:50 @ A1, 1:100 @A3

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STATUS
DEVELOPMENT APPLICATION

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NOTES

DRAWING LEGEND

NEW CONSTRUCTION

EXISTING APPROVED RESTAURANT. NO NEW WORKS.

ISS	DATE	PURPOSE OF ISSUE
P9	12.06.20	DA SUBMISSION
P8	26.05.20	DA SUBMISSION
P7	22.05.20	FOR REVIEW
P6	13.05.20	FOR REVIEW
P5	07.05.20	FOR REVIEW
P4	29.04.20	FOR REVIEW
P3	27.04.20	FOR REVIEW
P2	16.04.20	DA SUBMISSION
P1	29.08.19	FOR CLIENT REVIEW

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INTERIOR DESIGNERS

SYDNEY
1/80 Albion Street, Surry Hills NSW 2010
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ABN: 24 132 554 753

MELBOURNE
Level 2 , 333 Flinders Lane
Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
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DRAWING NO.
DA 100

ISSUE
P9

JOB NO.
HUG0704

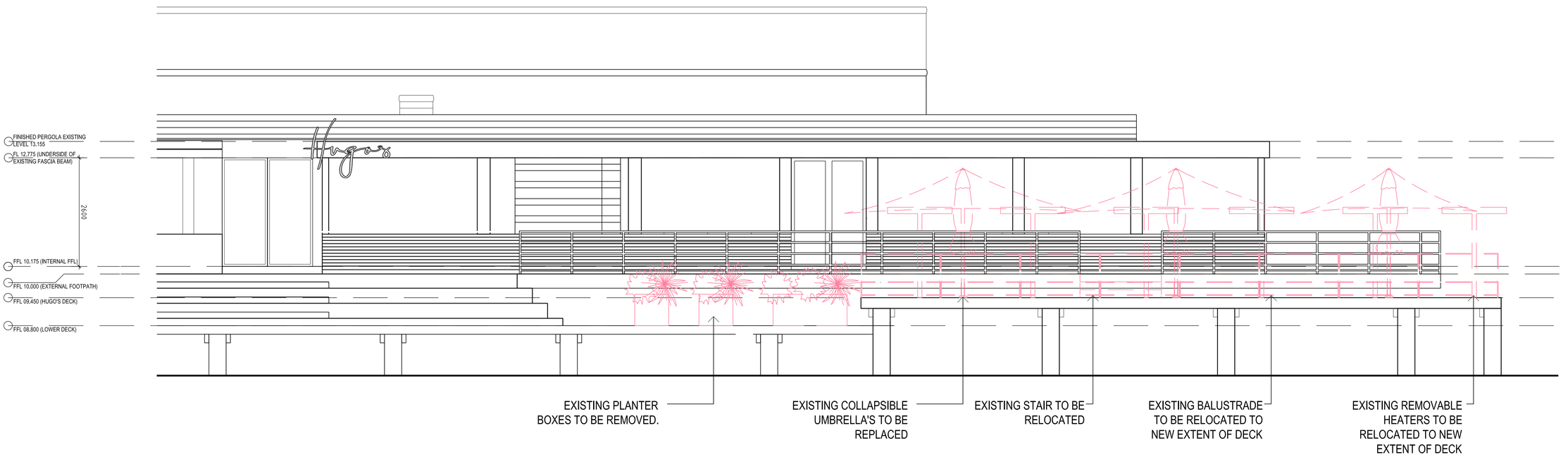
SCALE
1:50 @A1
1:100@A3

DATE
12.06.20

DRAWING TITLE
GENERAL ARRANGEMENT PLAN PROPOSED

DRAWN BY
GC

CHECKED BY
VS



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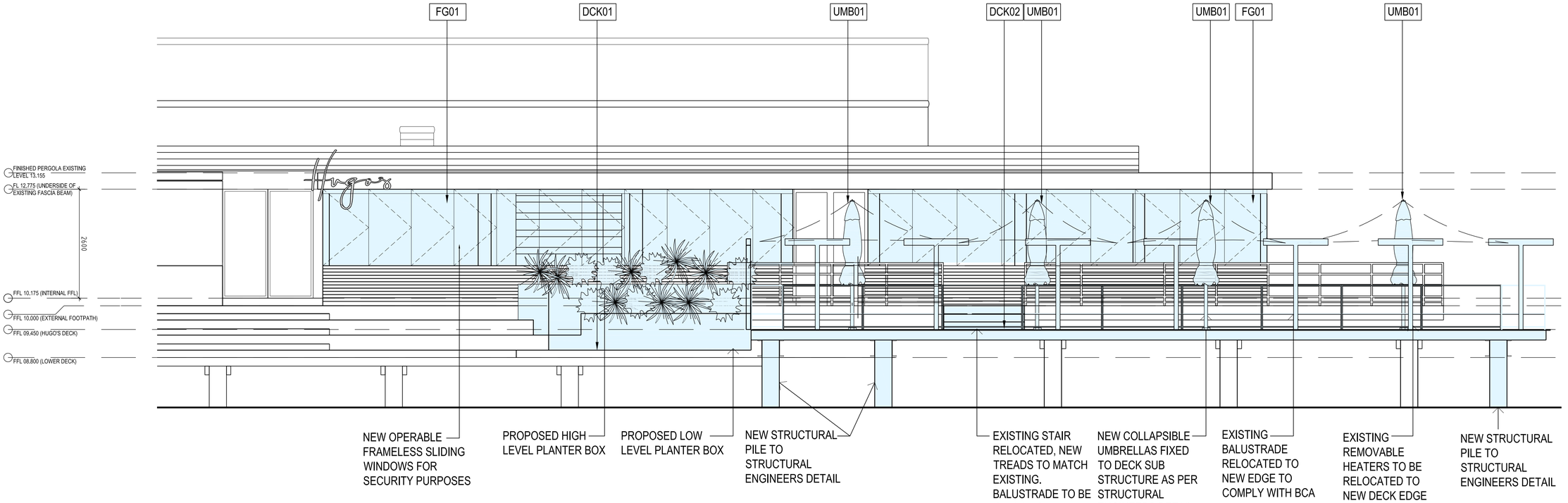

2 PROPOSED WEST ELEVATION
scale - 1:50 @ A1

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EXISTING CONSTRUCTION
NEW CONSTRUCTION
ITEMS TO BE DEMOLISHED

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SYDNEY
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Ph: +61 2 8354 1300
ABN: 24 132 554 753

MELBOURNE
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Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
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DRAWING NO.
DA 201

ISSUE
P4

JOB NO.
HUG0704

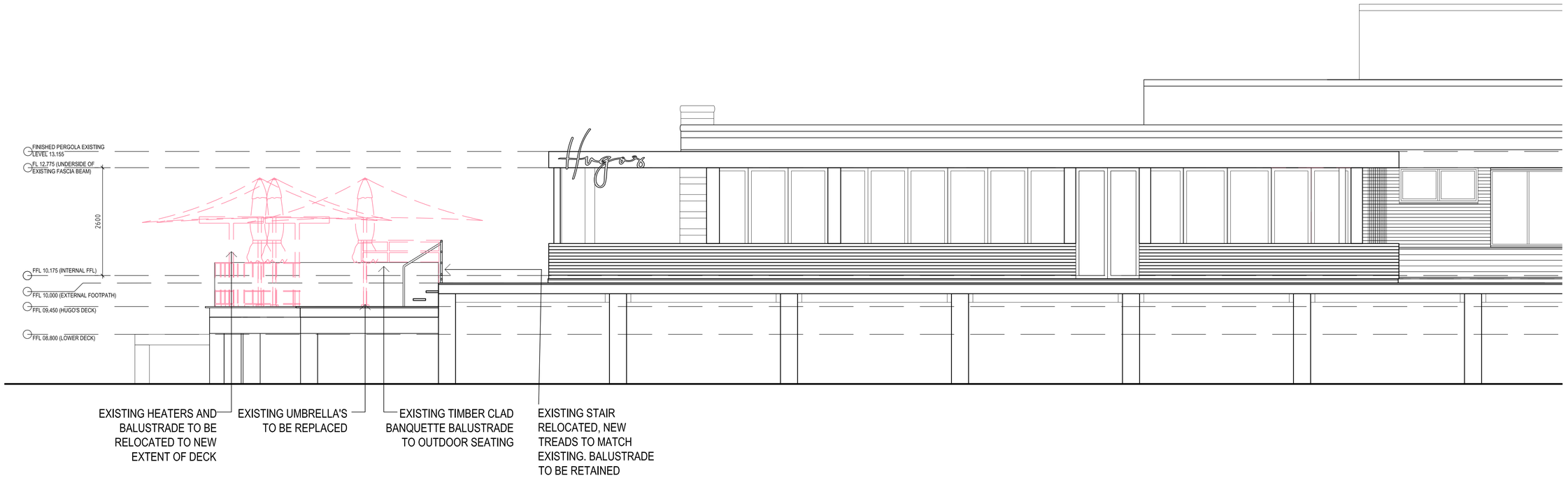
SCALE
1:50 @A1
1:100@A3

DATE
12.06.20

DRAWING TITLE
EXISTING / PROPOSED ELEVATION

DRAWN BY
GC / AE

CHECKED BY
VS



1 EXISTING SOUTH ELEVATION / SECTION AA'
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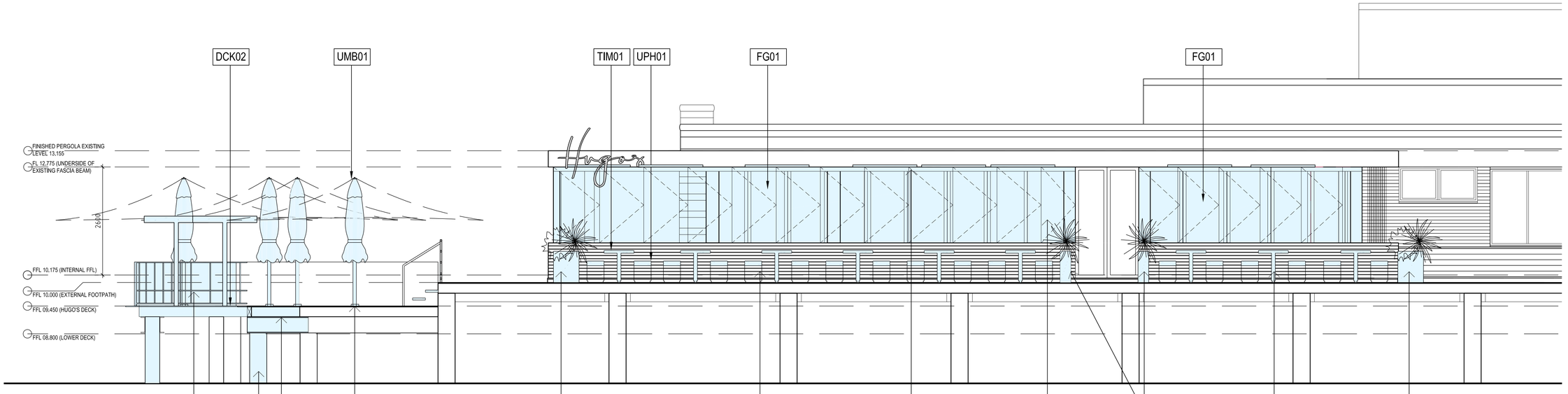

2 PROPOSED SOUTH ELEVATION / SECTION AA'
scale - 1:50 @ A1

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EXISTING CONSTRUCTION

NEW CONSTRUCTION

ITEMS TO BE DEMOLISHED

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P2	16.04.20	DA SUBMISSION
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SYDNEY
1/80 Albion Street, Surry Hills NSW 2010
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Level 2 , 333 Flinders Lane
Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
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DRAWING NO.
DA 301

ISSUE
P4

JOB NO.
HUG0704

SCALE
1:50 @A1
1:100@A3

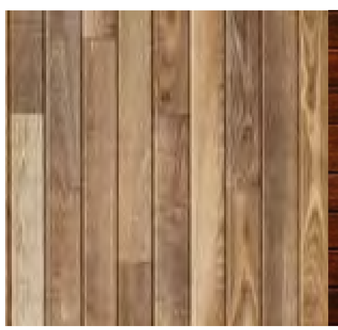
DATE
12.06.20

DRAWING TITLE
EXISTING / PROPOSED SECTION

DRAWN BY
GC / AE

CHECKED BY
VS

1 PERSPECTIVE OF PROPOSED DECK ADDITION
scale - NTS



DCK.01 NEW PUBLIC AREA DECKING TO MATCH EXISTING

DCK.02 NEW HUGO'S DECKING TO MATCH EXISTING BLACKBUTT

UMB.01 WHITE OUTDOOR SQUARE UMBRELLAS

TIM.01 NORTH COAST BLACKBUTT OUTDOOR FURNITURE TO MATCH EXISTING

UPH.01 CREAM LEATHER UPHOLSTRY

FG.01 OPERABLE FRAMELESS SLIDING WINDOWS FOR SECURITY PURPOSES

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SYDNEY
1/80 Albion Street, Surry Hills NSW 2010
Ph: +61 2 8354 1300
ABN: 24 132 554 753

MELBOURNE
Level 2 , 333 Flinders Lane
Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
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DA 903

ISSUE
P4

JOB NO.
HUG0704

SCALE
1:50 @A1
1:100@A3

DATE
12.06.20

DRAWING TITLE
PERSPECTIVES AND FINISHES SCHEDULE

DRAWN BY
GC / AE

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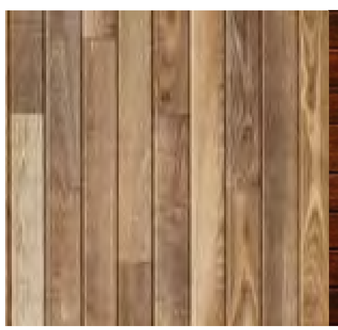
VS

1 PERSPECTIVE OF PROPOSED SOUTHERN SEATING
scale - NTS



DCK.01 NEW PUBLIC AREA DECKING TO MATCH EXISTING

DCK.02 NEW HUGO'S DECKING TO MATCH EXISTING BLACKBUTT

UMB.01 WHITE OUTDOOR SQUARE UMBRELLAS

TIM.01 NORTH COAST BLACKBUTT OUTDOOR FURNITURE TO MATCH EXISTING

UPH.01 CREAM LEATHER UPHOLSTRY

FG.01 OPERABLE FRAMELESS SLIDING WINDOWS FOR SECURITY PURPOSES

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SYDNEY
1/80 Albion Street, Surry Hills NSW 2010
Ph: +61 2 8354 1300
ABN: 24 132 554 753

MELBOURNE
Level 2 , 333 Flinders Lane
Melbourne VIC 3000
Ph: +61 3 9629 4888| Fax: +61 3 9649 7444
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Vince Squillace Reg No. 6468 (NSW), 17219 (VIC), 3677 (QLD)

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DA 904

ISSUE
P3

JOB NO.
HUG0704

SCALE
1:50 @A1
1:100@A3

DATE
29.05.20

DRAWING TITLE
PERSPECTIVES AND FINISHES SCHEDULE

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VS

APPENDIX B OVERSHADOW DIAGRAMS OF MANLY WHARF

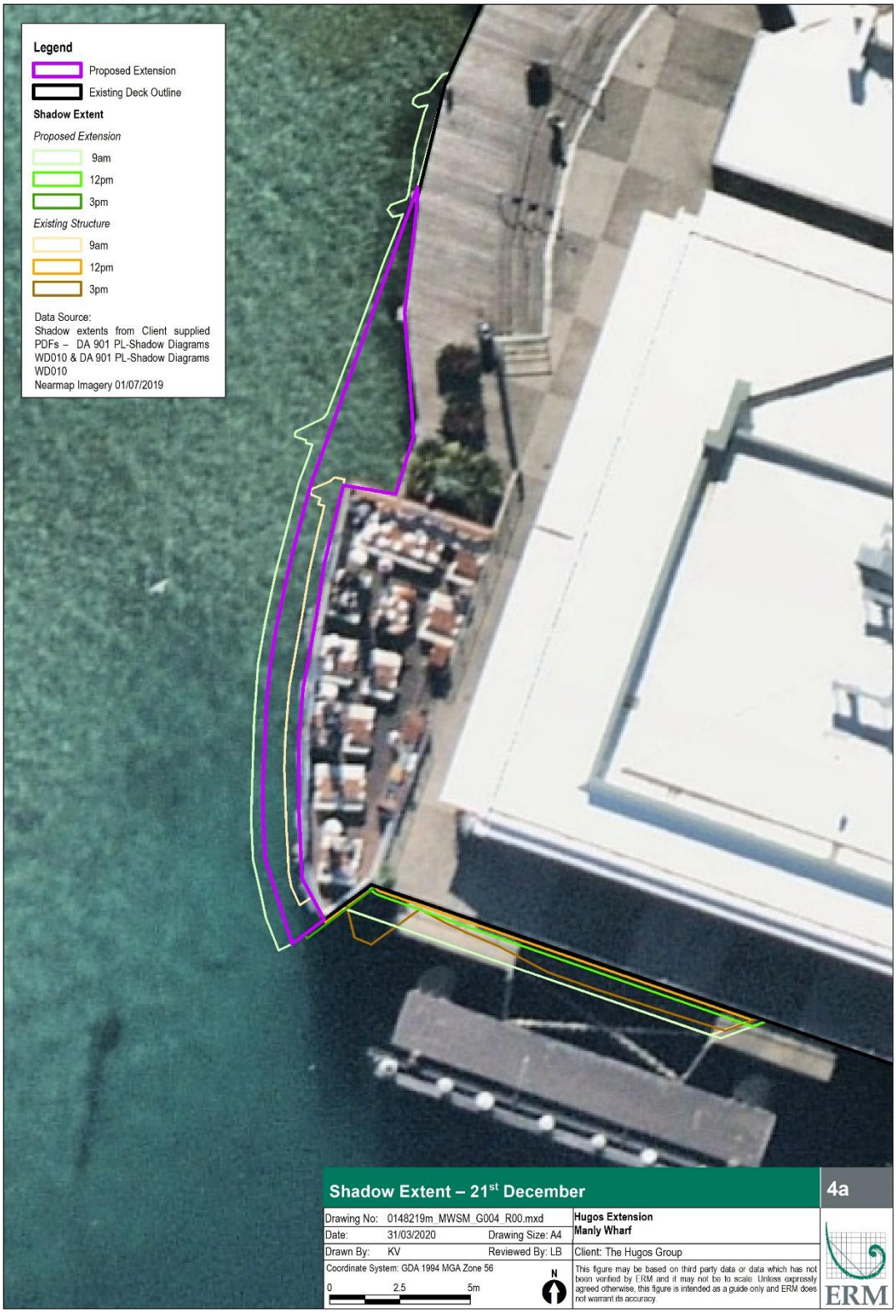

Figure A: Overshadow Diagram for Proposed Development at December 21st

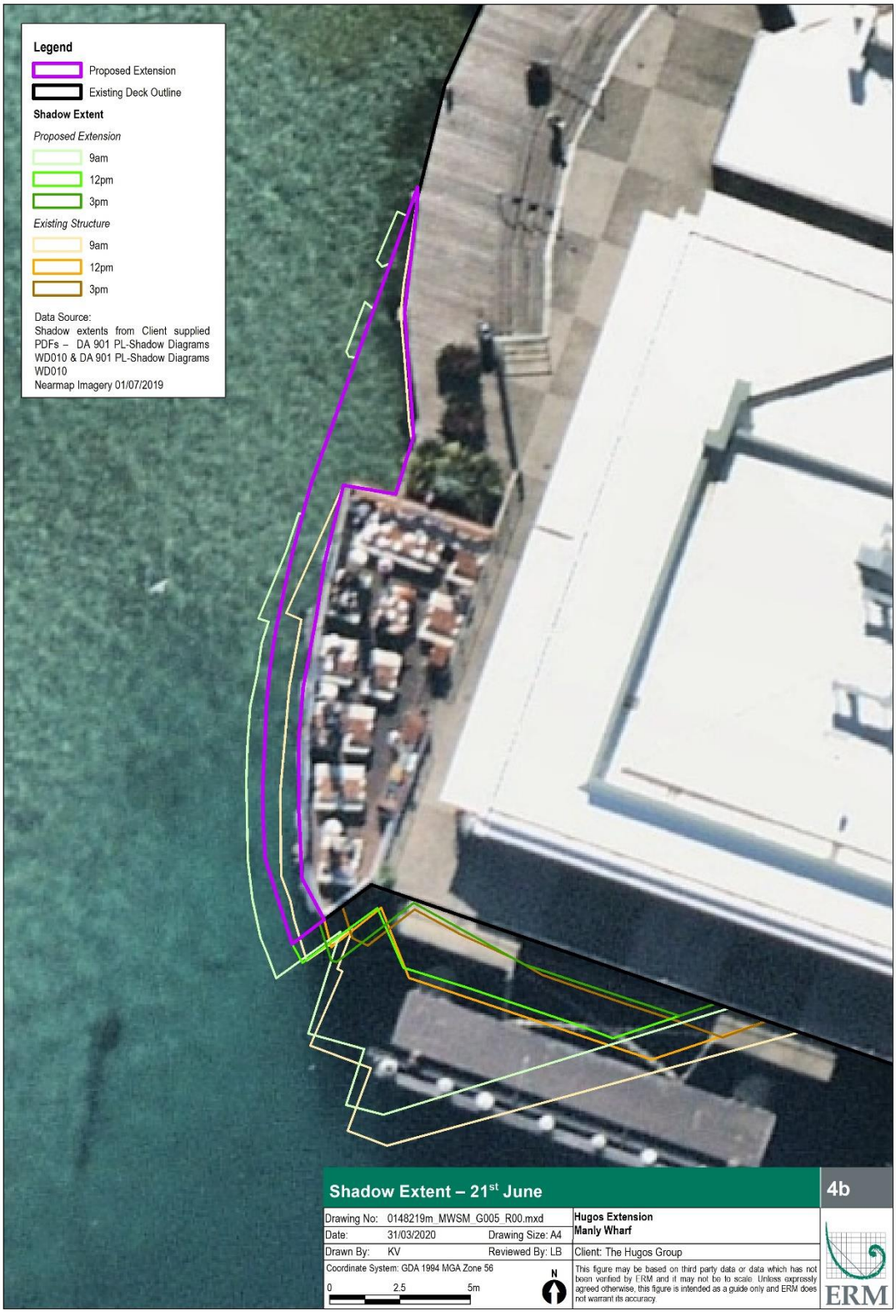

Figure B: Overshadow Diagram for Proposed Development at June 21st

APPENDIX C ASSESSMENT OF SIGNIFICANCE – SEAGRASS

Assessment of Significance under the FM Act

Posidonia australis in Port Hacking, Botany Bay, Sydney Harbour, Pittwater, Brisbane Waters and Lake Macquarie (NSW) is listed as ENDANGERED POPULATION in Part 2 Schedule 4 of the FM Act. If a planned development or activity is likely to have any impact on a threatened species or population listed under the *Fisheries Management Act 1994* (FM Act), a preliminary assessment of the potential impacts must be made (the 'Assessment of Significance' or '7 part test'). If the impacts are likely to be significant, or if critical habitat is affected, a species impact statement must be prepared. An 'Assessment of Significance' under the FM act is provided below and concludes that the proposed development will result in negligible impact on the *Posidonia australis* seagrass meadows in the surrounding Manly Cove.

***Posidonia australis* Endangered Population**
(a) in the case of a threatened species, whether the proposed development or activity 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
Posidonia australis is not listed as a threatened species under the BC Act or FM Act.
(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
The area surrounding the Manly Wharf contains a mixture of seagrass species, with the current distribution of *P. australis* within this area unknown. The proposed development will result in the overshadowing up to a maximum of 73m^2 of water immediately adjacent to the wharf during the worst case scenario (winter mornings). Using GIS imagery (**Figure 2.1**), ERM found that seagrass beds do not currently exist near these parts of the wharf. The risk of extinction of an endangered population generally increases if any factor operates to reduce the population size. However, there will be no area of seagrass that will be overshadowed. Therefore, the proposed action is unlikely to have a significant or adverse effects on the life cycle of the ecological community, or the population of *P. australis* such that the viable local population of the species is unlikely to be placed at risk of extinction.
(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 (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
Not listed as an endangered ecological community or critically endangered ecological community under either the BC Act or the FM Act
(d) in relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

Seagrass beds close to Manly Wharf (on the eastern and western side) have been disturbed by moorings, vessels and wash from the Manly Ferry. This physical disturbance is considered a significant threat that is currently occurring within the Manly Cove area however is unrelated to the proposed development.

Mapping of the seagrass distribution was sourced from the Department of Primary Industries NSW (2013). Aerial photography from May 2019 was also used to determine seagrass distribution around the wharf by ERM. The seagrass closest to Manly Wharf is mapped as comprising of *Posidonia australis, Zostera spp.,* and *Halophila spp.*.

GIS has been used to estimate the approximate area of overshadowing as a result of the proposed action. The precautionary principle has been applied so that all seagrass beds nearby the Manly Wharf are assumed to be part of the ecological community.

There will be no increase in the overshadowing of seagrass as a result of the proposed development. The worst case scenario for overshadowing is during June mornings (9am) when approximately 73m^2 of water would be subject to a reduction in sunlight as a result of the proposed action. This worst case scenario does not result in the overshadowing of any seagrass.

The increase in overshadowing extent over the water is considered to be a negligible impact to the ecological community. There will be no permanent overshadowing of seagrasses as a result of the development proposal.

(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

Aerial imagery shows the seagrass adjacent to the Manly Wharf as patchy in their pattern and extent. This is likely a result of the overshadowing of the existing development and also due to disturbance by moorings on the eastern side of Manly Cove, vessels, and wash from the Manly Ferry (which are unrelated to the proposed redevelopment).

It is unlikely that the proposed development will contribute to further fragmentation or isolation of seagrass habitat due to its already fragmented nature and the existing development which currently bisects the eastern and western sides of Manly Cove.

(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

Sexual reproduction in P. australis is by the production of monoecious flowers that are pollinated underwater. There is evidence that cross- pollination is not uniform and can occur across relatively large areas (Waycott & Sampson 1997 in Fisheries Scientific Committee 2010), although probably not between estuaries. Fruits float and are distributed by currents. However, it is estimated that seedlings take decades (or longer) to develop into mature plants (Kirkman 1998, Meehan & West 2004 in Fisheries Scientific Committee 2010). The slow development of individual plants, the low level of dispersal of fruit and seeds and the slow expansion rate of meadows mean that existing areas of *Posidonia australis* within estuaries and embayments of NSW can effectively be considered as isolated populations in respect to their long-term survival (Fisheries Scientific Committee 2010). However, the seagrass mapping and overshadow diagrams indicate that no seagrass habitat is to be removed or modified as a result of the proposed development at Manly.

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

Currently there is no recognised critical habitat for *P.australis.*

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

Currently there is no published or draft recovery plan or threat abatement plan for *P.australis.*

(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 processes are threatening processes that, in the opinion of the Fisheries Scientific Committee, adversely affect threatened species populations or ecological communities, or could cause species, populations or ecological communities that are not threatened to become threatened. One currently listed threatened process is applicable to seagrass populations; *Human-caused climate change.*

Human caused climate change is the result of increasing levels of CO^2 enhancing the greenhouse effect, trapping more solar radiation near the earth surface, which causes an increase in global temperatures (Duarte et al., 2018). It is estimated that 80% of excessive heat is absorbed by the ocean. Consequently, average global ocean temperatures have increased by 0.9°C in the upper 700 m during the twentieth century, and rank among the highest levels recorded during the past 1.4 million years (Duarte et al., 2018).

Climate change is anticipated to significantly impact the *P.australis* seagrass community over time as it is particularly sensitive to a wide range of environmental changes resulting from climate change, including changes in temperature, salinity, water clarity and nutrient loads and ocean acidification, sea level rise, as well as the frequency or severity of cyclones (DOE 2015). Water temperature is generally the most important range limiting factor for seagrass populations, with ocean warming being considered a severe threat (Duarte et al., 2018).

The operational phase of the project will not result in factors increasing human-caused climate change. The minor increase of accumulative CO^2 emissions will occur during the construction phase due to equipment and materials required, along with temporary reduction in water clarity due to substrate disturbance, however this is unlikely to increase the impact of this key threatening process.

Assessment of Significance under the EPBC Act

The *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion was listed in May 2015 as endangered under the EPBC Act. The Seagrass Meadows are reported by DEE (2018) as:

- an important driver of fisheries productivity and estuarine biodiversity
- protect water quality by filtering the water, removing and recycling nutrients; stabilise sediment on the seabed; and are an important blue carbon store
- support a diverse range of fauna—providing habitat, shelter and food resources. Included in this fauna are the protected Weedy Seadragon (*Phyllopteryx taeniolatus*), Manly's population of endangered Little Penguin (*Eudyptula minor*) and various migratory shorebirds. They also provide nursery habitat and feeding grounds for commercially and recreationally important fish species such as various bream, sea mullet and leatherjacket fish species
- are limited to the Hawkesbury and Manning Shelf bioregions and are known to occur in Wallis Lake, Port Stephens, Lake Macquarie, Brisbane Water, Hawkesbury River, Pittwater, Port Jackson (Sydney Harbour), Botany Bay, Port Hacking and around Broughton Island
- may correspond to country and have cultural significance to a number of Indigenous groups, including the Worimi, Awabakal, Darkinjung, Guringai (Kuring-gai) Eora, and Dharawal (Tharawal/Dariwal)
- include six populations of *Posidonia australis* listed as endangered under NSW fisheries management legislation; and
- contribute to the health and wellbeing of local residents. For example, by supporting snorkelling, diving, fishing and other recreational activities, including seeing local wildlife.

Note that the exact distribution and coverage of *P. australis* within the seagrass communities immediately surrounding Manly Wharf is not known and, in the absence of detailed field survey and mapping, we have assumed that any areas of seagrass surrounding the proposed development could contain *P. australis*. This precautionary approach provides the best level of protection for *P. australis* should it occur within the potentially impacted areas.

Posidonia australis Seagrass Meadows of the Manning-Hawkesbury Ecoregion

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

a) reduce the extent of an ecological community

The area immediately surrounding the Manly Wharf contains a mixture of seagrass species, with the current distribution of *P.australis* within this area unknown. Part of the ecological community is identified to be in areas adjacent to the proposed development within Manly Cove.

The proposed development will result in the overshadowing up to a maximum of approximately 73m^2 of water immediately adjacent to the wharf during winter mornings. Winter mornings are the worst case overshadowing scenario. Aerial imagery indicates that seagrass beds exist near these parts of the wharf, with overshadow diagrams indicating that they are already shaded by the existing wharf structure during summer and winter. No seagrass immediately adjacent to the existing structure will be permanently shaded during the winter months as a result of the proposed works.

Based on current seagrass vegetation mapping and overshadow diagrams, there is no risk of a reduction in the extent of the ecological community due to the proposed development. If a reduction in the extent of the ecological community was to occur, it would be of a comparatively small area.

(b) fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines

Visual assessment of aerial imagery of the areas surrounding the Manly Wharf shows that seagrass communities are currently fragmented. This is likely due to the overshadowing from the existing development and to disturbance by boat moorings, vessels, and wash from the Manly Ferry (which are unrelated to the proposed redevelopment).

Based aerial imagery from 2019, DPI 2013 seagrass mapping and overshadow diagrams, fragmentation of the ecological community will not occur due to the Proposed Development. If any area of seagrass adjacent to the wharf was to be adversely affected by overshadowing, it is unlikely that this will contribute to further fragmentation or isolation of habitat.

(c) *adversely affect habitat critical to the survival of an ecological community*

No critical habitat defined within the area

(d) *modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns*

Seagrasses such as *P.australis* are adapted to variable light conditions and have evolved strategies to cope with reduction in Photosynthetically Active Radiation (PAR), within natural limits. However, anthropogenic pressures, such as shading, sedimentation and dredging, magnify variations in light availability to the ecological community (DOE 2015).

During the construction phase of the proposed development there will be disturbance to the substrate for the installation of piles with the disturbed surface area being approximately 0.3m2 per pile. Due to this disturbance sediment particles will be suspended in the water column, temporarily reducing light levels. Reduction in light results in the reduction of photosynthesis ability by seagrass. This reduction in water quality is temporary and is unlikely to have a significant impact on *P.australis*.

Aerial imagery from 2019, DPI 2013 seagrass mapping and overshadow diagrams, indicate that the ecological community will not be overshadowed by the proposed development during the operational phase. There is potential for overshadowing to occur during the construction phase due to machinery used (floating crane barge, cranes, pile driving equipment), however this is temporary, occurring over 3-4 week period, and will have a negligible impact on the ecological community.

(e) *cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting*

The seagrasses within the Manly Wharf area includes *Posidonia australis, Zostera spp.* and *Halophila spp.. P. australis* is a large, slow growing species that is known to re-establish after disturbance at a slower rate when compared to *Zostera spp.* and *Halophila spp*. (Evans et al., 2018). If *P. australis* was disturbed during the construction phase, re-establishment would be slow, and composition may be altered. 2013 DPI mapping shows areas nearest the proposed development are made up of *Zostera spp*..

Overshadow diagrams show that during the worst case scenario (June 9am), the water would be shadowed a maximum 72m^2, with this area containing no seagrass habitat. It is unlikely that the composition of the ecological community will be impacted due to the development.

(f) *cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:*

-- assisting invasive species, that are harmful to the listed ecological community, to become established, or

-- causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or

Mapping of the invasive pest alga *Caulerpa taxifolia* indicates that there are populations established adjacent to the Manly Wharf at Forty Baskets Beach, and within Little Manly Cove, however there are no established populations within Manly Cove (DPI 2011). There is no evidence that *C. taxifolia* is driving the loss of native seagrasses including *Posidonia australis* and does not appear to be preventing the recovery of the native species (DOE 2015). Rather, it is likely that parts of the ecological community that are already under stress from other anthropogenic disturbances might become more susceptible to impacts from *C. taxifolia* (DOE 2015).

The overshadow diagrams, aerial imagery from 2019 and 2013 DPI seagrass mapping indicate that there will be no impact on the current seagrass population due to the proposed development. As C.taxifolia is not established in the area, it is unlikely that the proposed development will be assisting the establishment of this invasive species.

The proposed development will not result in the regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community.

(g) *Interfere with the recovery of an ecological community.*

There are currently no recovery or threat abatement plans in place for the ecological community.

DPI (2008) state that seagrass friendly mooring were installed east of the wharf to reduce disturbance and encourage recovery of the seagrass meadows. It is known that seagrass meadows are affected by boating activity and moorings, with revegetation and recovery being extremely slow; particularly for the large, slow growing *P.australis* (Evans et al., 2018).

The proposed development will not interfere with this effort to reduce seagrass disturbance and promote recovery.

APPENDIX D ASSESSMENT OF SIGNIFICANCE – LITTLE PENGUINS

Introduction

The following updated assessment is based on the Test of Significance under Section 7.3 of the *Biodiversity Conservation Act 2016* (BC Act), this was previously the 7-part test under Section 5a of the NSW *Environmental Planning and Assessment Act 1979*. The factors addressed under this test allow a determination of whether there is likely to be a significant effect on threatened species, populations or ecological communities or their habitats as listed under the BC Act.

Background Information

This test is focused on the Endangered Population of the Little Penguin (*Eudyptula minor*) at Manly Point area listed under the NSW BC act. The Little Penguin species is also listed as Least Concern under the International Union for the Conservation of Nature (IUCN) Red List.

The Little Penguin population at Manly Point area occupy breeding sites consisting of burrows built under rocks on the foreshore, rock falls under seaside houses, garages, under stairs, in wood piles and under overhanging vegetation. Male Little Penguins return to nesting sites between June and August to reconstruct or dig new burrows and to attract females. During this pre-breeding period, birds spend increasing amounts of time at their colonies, sometimes spending all day in their burrows. The Little Penguins at Manly generally breed from July through February each year, with moulting occurring towards the end of the season.

Manly wharf is not registered as an Area of Outstanding Biodiversity Value (AOBV) under the BC Act for the Little Penguin population, however the Wharf is located 575 m from the nearest AOBV at Manly Point. The current Monitoring program for the species focuses on AOBV, however the previous two years the surveys have included the Manly wharf area, with the 2018-2019 Monitoring Report identifying one breeding pair and the 2019-2020 Monitoring Report identifying no breeding pairs at Manly Wharf.

Endangered Population of the Little Penguin (*Eudyptula minor*) at Manly Point area

a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

The breeding season for the Little Penguins at Manly is recognised to occur yearly between July and February, including the moulting season which occurs between December and February. During this season Little Penguins forage during the day and return to their nesting sites nightly. The Manly Wharf immediate area is used as a breeding site, with the previous Little Penguin Monitoring Reports identifying one (1) breeding pair in 2018-2019 and zero (0) breeding pairs in 2019-2020 situated at Manly Wharf (DOE 2019). However, it was noted that the species had been found prospecting and swimming in the immediate area.

Due to the presence of breeding pairs at Manly Wharf, the proposed development is to be constructed outside of the breeding and moulting season. This mitigation measure heavily reduces the adverse effect that would otherwise impact on the Little Penguin's life cycle.

During construction there will be light, noise, and vibration emissions. Noise attenuation devices and barriers will be used for any works outside of the normal hours of operation or for any work that is considered to involve excessive noise emissions. Light and vibration mitigation measures will be in place to ensure minimal impact on the Little Penguin population.

b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

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

Not Applicable

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.

Not Applicable

c) in relation to the habitat of a threatened species or ecological community:

i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

The Manly wharf is located 575 m from the recognised Area of Outstanding Biodiversity Value (AOBV) for the Little Penguin population at Manly. This AOBV will not be directly or indirectly impacted by the proposed development.

Despite the Manly Wharf area not being listed as an AOBV, the area immediately surrounding the wharf is utilised by the Little Penguin population for swimming, foraging, and nesting.

Seagrass meadows in the area are likely to be utilised as foraging habitat for the Little Penguin as they support important prey species. The meadows closer to nest sites may become more critical during the raising of chicks when foraging takes place closer to nesting areas (NPSW 2002).

Based on overshadow diagrams, the proposed development will increase overshadowing of the water by 73m^2 in the worst case scenario (June 9am). Overshadowing reduces the light availability for seagrass species, which can have long term impacts on their survival. No field surveys have been conducted, however based on 2013 DPI seagrass mapping in addition to 2020 imagery there appears to be no seagrass within the overshadow area of influence. This mapping also indicates that there will be no seagrass impacted by the installation of additional piles. Therefore, there will be no removal or modification of seagrass habitat for the proposed development.

The proposed development will have mitigation measures in place to ensure the on shore habitat of the little penguin used for breeding remains undisturbed.

ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

Seagrass meadows are likely to be utilised as foraging habitat of the Little Penguin (NPWS 2002). Visual assessment of aerial imagery of the areas surrounding the Manly Wharf shows that seagrass communities are currently fragmented. This is likely due to the overshadowing from the existing development and disturbance by boat moorings within Manly Cove, vessels and wash from the Manly Ferry (which are unrelated to the proposed redevelopment).

Based on DPI 2013 seagrass mapping and overshadow diagrams, further fragmentation of the seagrass community is unlikely to occur due to the Proposed Development, therefore not impacting this habitat used by the Little Penguin.

Areas under the Wharf may be restricted during construction works, however mitigations measures will be in place to ensure un-restricted access for penguins to current and potential nesting areas.

d) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The existing wharf will be modified, increasing coverage over the water by 37m^2 and installing three additional piles. This physical modification is unlikely to negatively impact the long term survival of the species, as access to nesting areas under and surrounding the wharf will remain unrestricted and potential breeding sites in the area will not be removed, modified or fragmented.

Seagrass meadows are likely to be utilised as foraging habitat by the Little Penguin and the meadows closer to nest sites may become more critical during the raising of chicks when foraging takes place closer to nesting areas (NPSW 2002). Based on DPI 2013 seagrass mapping and overshadow diagrams, removal, modification, fragmentation or isolation of the seagrass community is unlikely to occur due to the Proposed Development, therefore not resulting in short or long term impacts on the Little Penguin population survival.

e) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

At the time of writing, Manly Wharf and the area immediately surrounding the site was not listed as an area of outstanding biodiversity value for the Manly Point Little Penguin endangered population under the NSW BC Act. Therefore, the proposed works will not have an adverse effect on any declared areas of biodiversity value for the Little Penguin population.

f) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A threat may be listed as a key threatening process under the *NSW Biodiversity Conservation Act 2016* if it adversely affects threatened species or ecological communities and/or could cause species or ecological communities to become threatened. One recognised key threatening process that could be associated with the proposed development is '*Human-caused Climate Change'.*

Human-caused climate change is the result of increasing levels of CO^2 enhancing the greenhouse effect, trapping more solar radiation near the earth surface, which causes an increase in global temperatures (Duarte et al., 2018).

The operational phase of the project will not result in direct or indirect factors increasing human-caused climate change. The minor increase of accumulative CO^2 emissions will occur during construction phase due to equipment and materials required, however this is unlikely to significantly increase the impact of this key threatening process.

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ERM's Sydney Office
Level 15
309 Kent Street
Sydney NSW
Australia 2000

T: +61 2 8584 8888
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