Pelican Pavilion, Collaroy Beach Hotel
Rock Protection Maintenance Activities
Review of Environmental Factors

Hemmes Trading Pty Ltd

28 August 2017
Final
PA1691

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1 INTRODUCTION

1.1 Overview

This document comprises a Review of Environmental Factors (REF) for the proposed rock protection maintenance activities for Pelican Pavilion at the Collaroy Beach Hotel (refer **Figure 1**). It is a written statement that considers the impact of the proposed maintenance activities on the natural and built environments, and the proposed method of mitigating any adverse effects.

1.2 Background

Storms in early June 2016 associated with an East Coast Low resulted in beach erosion, displacement of rock protection, and loss of backfill material under the Pelican Pavilion structure. The rock and backfill material has been strewn at the back of the beach leaving voids under the structure (refer **Photo 1** and **Photo 2**). Maintenance of the rock protection in front of the structure is required.

Removal from the beach of foreign material in the form of timber, metal and the like is also to be included in the maintenance activities to improve the beach amenity and safety.

Photo 1

Photo 2

This REF has been undertaken in support of the proposed rock protection maintenance activities on behalf of Hemmes Trading Pty Ltd, under Part 5 of the *Environmental Planning & Assessment Act, 1979 (*EP&A Act*).*

In summary this REF details:

- Introduction and background to the project (**Section 1**);
- Review of the environmental planning framework (**Section 2**);
- Description of the project proposal and consideration of alternative options (**Section 3**);
- Assessment of environmental effects and indicative control measures (**Section 4**);
- Consideration of factors in Clause 228 of the EP&A Regulation (**Section 5**);

- Details on the site specific construction environmental management plan (CEMP) and summary of control measures (Section 6); and
- Conclusion (Section 7).

Figure 1 Location Plan

2 PLANNING CONTEXT AND OTHER APPROVALS

2.1 Landownership

The proposed rock protection maintenance works would be located on land classified RE1 Public Recreation under the Warringah Local Environment Plan 2011 (LEP 2011). The land is leased from the Collaroy Beach (R58622 and R79606) Reserve Trust. The works fall on land known as Lot 7351 DP1166942.

2.2 NSW Planning and Approvals Process

The NSW environmental planning legislative framework provides for the classification of developments, and the assessment of impacts from developments and activities. This framework comprises:

- Environmental Planning and Assessment Act (EP&A Act) 1979;
- Environmental Planning and Assessment Regulation (EP&A Regulation) 2000;
- Environmental Planning Instruments (EPIs) made under the *EP&A Act* (i.e. State Environmental Planning Policies (SEPPs), Regional Environmental Plans (REPs), and Local Environmental Plans (LEPs); and
- other planning codes, policies, guidelines and strategies that relate to any proposed development of a particular site including Development Control Plans (DCPs) and Council codes and policies.

2.2.1 Determining Authority

In accordance with Section 110 under Part 5 of the EP&A Act, the determining authority is defined as:

- *a Minister or public authority and, in relation to any activity, means the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out.*

Council is therefore a determining authority as the activity (rock protection maintenance activity) is to be carried out on behalf of Council.

2.3 State Environmental Planning Policy (Infrastructure) 2007

State Environment Planning Policies (SEPPs) are drafted by the NSW State Government and apply to issues and developments of state significance. The SEPP relevant to the project is SEPP (Infrastructure) 2007. SEPP (Infrastructure) 2007 aims to facilitate the effective delivery of infrastructure within NSW by public authorities. It does this by prescribing the infrastructure related works that may be undertaken without development consent, although the public authority may still be required to obtain an approval, licence or permit under another Act.

Division 25, Clause 25 of SEPP (Infrastructure) 2007 - *Waterway or foreshore management activities* states that "development for the purpose of waterway or foreshore management activities may be carried out by or on behalf of a public authority without consent on any land".

The reference to "development for the purpose of waterway or foreshore management activities" includes a reference to development for any of the following purposes if the development is in connection with waterway or foreshore management activities:

(a) Construction works,
(b) Routine maintenance works,
(c) Emergency works, including works required as a result of flooding, storms or coastal erosion,
(d) Environmental management works.

The rock protection maintenance activities can be considered as maintenance works under SEPP (Infrastructure) 2007. Therefore development consent is not required and the works are classified as an activity under Part 5 of the EP&A Act.

SEPP (Infrastructure) 2007 overrides other environmental planning instruments such as LEPs and REPs.

As the works are considered to have a greater than minimal but not significant impact, a Review of Environmental Factors (REF) is required to ensure compliance with Part 5 of the EP&A Act. The assessment must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment.

2.4 Other Legislation Requirements

2.4.1 State Legislation

Relevant additional State Legislation that applies to the activity includes the following:

- *Protection of the Environment Operations Act 1997* (POEO Act) - activities should be carried out in a manner which does not result in the pollution of waters.
- *Threatened Species Conservation Act* 1995 (TSC Act) - the potential impact of the proposal on threatened species has been assessed. The works would not have a significant impact on any species or community listed under the TSC Act and, therefore, a Species Impact Statement is not required.
- *Fisheries Management Act 1994* (FM Act) - permits under Part 7 of the Act for dredging and reclamation, temporarily or permanently obstructing fish passage, and harming marine vegetation. The works do not involve any of these activities therefore a permit is not required.
- *Coastal Protection Act* (CP Act) - as the works are located above MHW, concurrence from the Minister is not required.

2.4.2 Commonwealth Legislation

The *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) requires that proposals for development or "actions" that have, will have, or are likely to have a significant impact on any matter of national environmental significance are to be referred to the Commonwealth Environment Minister for consideration and approval.

The EPBC Act identifies the following matters of national environmental significance:

- world heritage;
- national heritage;
- wetlands of international importance;
- listed threatened species and communities;
- listed migratory species;
- protection of the environment from nuclear actions; and
- marine environment.

The proposed rock protection maintenance activities would not have a significant impact on any of the above. Therefore, referral to the Minister for approval is not required.

3 DESCRIPTION OF PROPOSAL

3.1 General

Pelican Pavilion is located adjacent to the north-eastern corner of the Collaroy Beach Hotel. Storms in early June 2016 associated with an East Coast Low resulted in beach erosion, displacement of rock protection, and loss of backfill material. The rock and backfill material has been strewn at the back of the beach leaving voids under the structure. The voids are most prevalent under the central and northern parts of the structure.

3.2 Justification of Proposed Works

Royal HaskoningDHV undertook an inspection of the site on Tuesday 5 July 2016 following the storms in early June 2016. This inspection identified that the footings for the structure were founded at a high level (3m above Australian Height Datum) and well above the design level that would be adopted in normal practice for a permanent structure at this location on the beach. Notwithstanding the high toe level of the footings and displacement of rock protection and backfill material, the footings appeared to be intact. A separate structural engineering inspection and report prepared at the time by Ashby Doble Pty Ltd noted that the superstructure had not been impacted by the storm event. The footings were not considered to be at immediate risk of damage in the absence of further wave action that reaches the footings.

It was recommended by Royal HaskoningDHV that rocks that had become dislodged from immediately in front of the structure and were lying 'free' on the sandy beach should be repositioned and/or removed. Foreign materials in the form of timber, metal and the like should be removed from the beach. Repositioning and/or removal of the strewn rocks will improve beach amenity and safety, as would the removal of the foreign materials.

3.3 Proposed Works

As described above, the existing larger rocks that have become dislodged from immediately in front of the structure should be repositioned back into the face of the rock protection and interlocked. Preference should be given to the larger rocks being placed in the area of the footings. Smaller rocks such as cobble sized and nominally 300mm should be placed behind the repositioned larger rocks in such a way that they are not free to move seaward, or should be removed from the beach where quantities are too great to be accommodated in this way. Foreign materials in the form of timber, metal and the like should be removed from the beach.

The following construction activities will be required. All works are to be supervised by a suitably qualified coastal engineer approved by Council:

1. **Site Establishment (Mobilisation and Set up):**
    - Site establishment (fencing etc.)
    - Mobilisation of excavator

- Construction of temporary access ramp to beach at southern corner of carpark adjacent to the Pavilion
- Preparation of sorting and stockpile area to north of site (refer **Figure 2**)

2. **Protection of the Works from Coastal Hazards:**
   - Construction of temporary sand bund to protect the works area against wave action (refer **Figure 2**).

3. **Excavation:**
   - Excavation in front of and adjacent to Pavilion down to the water table/cemented sand layer located at approximately 0 mAHD to uncover rocks and foreign materials
   - Use of a screening bucket on excavator to isolate rock and foreign material

4. **Stockpiling:**
   - Sorting and stockpiling of rock and foreign material in the back beach area to the north of the Pavilion (refer **Figure 2**)

5. **Repositioning of Rock:**
   - Large rock to be repositioned back into the face of the rock protection and interlocked
   - Preference for large rocks to be placed in the area of the footings
   - Smaller rocks (cobble sized and nominally 300mm) to be placed behind the repositioned larger rocks in such a way that they are not free to move seaward

6. **Removal of foreign material:**
   - Removal offsite of stockpiled foreign material and disposal to an appropriate licensed waste facility

7. **Site Disestablishment (Clean Up and Demobilisation):**
   - Sifting of sand excavated as part of the works using an excavator with screening bucket and finer mesh
   - Placement of sifted sand in front of and adjacent to the Pavilion to cover the rock and grooming of the beach to a natural profile
   - Final clean-up of the site to its preconstruction state and demobilise all plant and equipment for handover of site to Council

3.4 Plant and Equipment

The proposed rock protection maintenance activities for Pelican Pavilion would be undertaken by a combination of machinery and manual labour including:

- one or more excavators (20T or similar sized) for formation of an access ramp, creation of temporary sand bund for protection of works, excavation, sorting and stockpiling of rock and foreign materials
- manual labour for repositioning of smaller rocks back into the rock protection

3.5 Works Schedule/Duration

It is estimated that the works would take approximately 1 week to complete (weather permitting) and would be undertaken this year (2017).

3.6 Working Hours

The following working hours are proposed:

- Monday to Friday 7am to 5pm
- No work on Saturday, Sunday or Public Holidays

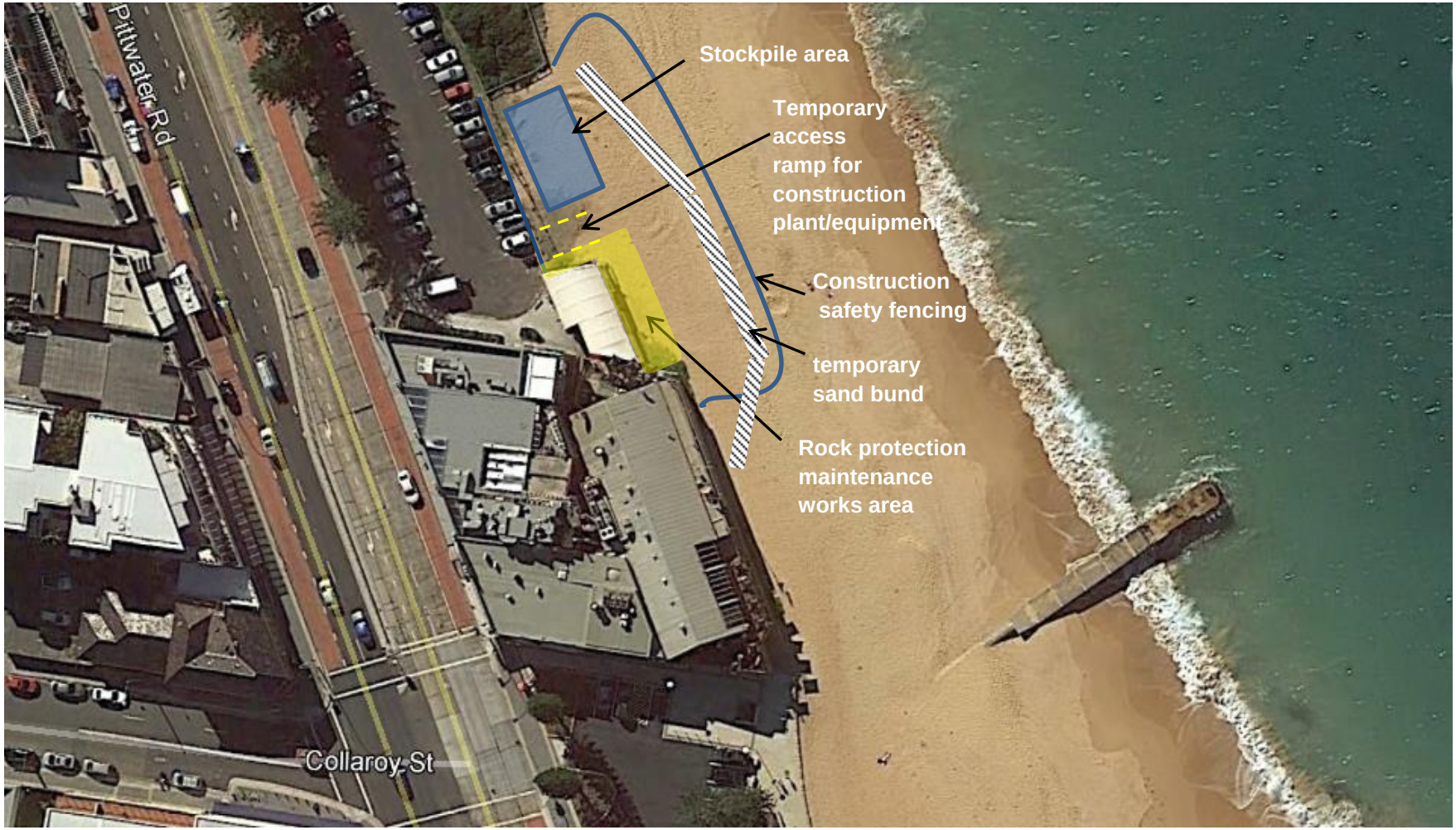

Figure 2 Site Plan

4 ASSESSMENT OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

4.1 Geology

4.1.1 Site Conditions

Natural sands overly a cemented sand layer located at approximately (0 mAHD). The site is not known to be contaminated and does not have a history indicative of potential contamination.

4.1.2 Potential Impacts

The sand that will be disturbed during the works is uncontaminated natural material. In accordance with the principals of waste minimisation, all sand and suitable rock recovered during the works would be reused on site.

As the works will occur in beach sand and no works are proposed that will affect the water table, no effects due to soil contamination or acid sulfate soils are considered likely.

4.1.3 Recommended Control Measures

- Rock recovered during the works should be repositioned into the rock protection unless considered unsuitable in the opinion of the coastal engineer;
- Sand should be placed to cover the rock protection work.

4.2 Coastal Processes

4.2.1 Site Conditions

Water Levels

Nearshore water levels along open coast beaches are influenced by a variety of astronomical and meteorological/oceanographical factors, the most readily apparent being tides. At times, these factors interact in a complex way to elevate water levels significantly above normal astronomical tide level. Storms, which develop low atmospheric pressure, strong onshore winds and large waves, are the most common cause of elevated water levels.

In recent years the implications of climate change, in particular the Greenhouse Effect, has also become a significant consideration in the planning and design of coastal structures. This factor is discussed separately below.

Astronomical Tides

Along the NSW coast tides are semi-diurnal, ie. two high tides and two low tides each day, with significant diurnal inequality (inequality in range between successive high or low tides).

Tidal variation at Collaroy Beach would be generally represented by tidal data for Fort Denison in Sydney Harbour. Established tidal planes for Fort Denison, relative to AHD, are summarised in **Table 4.1**. The mean spring tidal range is about 1.3m and mean neap range about 0.8m.

A tidal level of Mean High Water Springs (MHWS, ie. 0.625m AHD, is exceeded about 5 to 10% of the time).

Table 4.1 Tidal Planes for Fort Denison, Sydney Harbour

Tidal Plane		Level in Metres Relative to AHD
Highest Astronomical Tide	HAT	1.075
Mean High Water Springs	MHWS	0.625
Mean High Water Neaps	MHWN	0.385
Mean Sea Level	MSL	- 0.035
Mean Low Water Neaps	MLWN	- 0.435
Mean Low Water Springs	MLWS	- 0.685
Indian Spring Low Water	ISLW	- 0.925

Source: Maritime Services Board of NSW

Elevated Nearshore Water Levels at Times of Storms

The elevation of the nearshore water level associated with a storm depends primarily on the following factors:

- the intensity, scale, and direction and speed of movement of the storm;
- the bathymetry of the coastal area, including the presence or otherwise of offshore reefs and islands;
- the shape of the coastline, including the topography of the nearshore areas which may be inundated; and
- the prevailing astronomical tide.

A storm increases nearshore water levels above the normal astronomical tide level as a result of “setup” due to barometric, wind and wave effects, and as a result of wave “runup”.

Typical values for barometric setup, wind setup, wave setup and wave runup along the NSW open coast are summarised from the NSW Government’s Coastline Management Manual in Table 4.2. The four components are all additive and their sum represents the superelevation of the water level above prevailing astronomical tide level at times of storms.

Table 4.2 Elevated Water Level Components due to Storms

Component	Typical range (m)
Barometric setup	0.2 – 0.4
Wind setup	0.1 – 0.2
Wave setup	0.7 – 1.5
Wave runup	3.0 – 6.0
Total setup plus runup	4.0 – 8.0

Source: NSW Government (1990)

Wave Conditions

Wave conditions near the shoreline would be depth limited, ie. the wave height would be governed by the available water depth at the proposed structure. This water depth in turn is a function of the water level, ie. astronomical tide plus the various setup components

referred to above, and the beach level prevailing at the time (taking into account effects of scour – ie. the lowering of the beach level as a result of erosion at the time of storms).

Beach Erosion and Shoreline Recession Hazards

The hazard of beach erosion relates to the limit of erosion that could be expected due to a severe storm or from the effects of a series of closely spaced storms.

The erosion can be measured in terms of the volume of sand lost from the beach (termed the 'storm demand') or in terms of the landward movement of a significant beach feature. The volume of sand is usually expressed in terms of cubic metres per metre run of beach (m^3/m), as measured above Australian Height Datum (AHD)[1]. The significant beach feature is usually taken to be the back beach (dune) erosion escarpment. It is clear at Collaroy Beach that in severe storms beach erosion can extend to the Pelican Pavilion and adjacent structures.

The hazard of shoreline recession is the progressive landward shift in the average long term position of the coastline. The two causes of shoreline recession are natural sediment loss and an increase in sea level. Natural sediment loss is negligible at Collaroy Beach but future recession due to sea level rise can be expected.

Climate Change

The most significant climate change is due to the "Greenhouse Effect". This is the term used to refer to the buildup in the atmosphere of certain gases that prevent the radiation of heat from the earth and, consequently, result in global warming.

It is accepted within the scientific community that there has been an increase in the atmosphere of the greenhouse gases and that this is continuing. Climate modelling suggests that trends of global warming will result in a rise in sea level, as well as altering wind and wave climates. It is generally expected that recession of sandy beaches along the open coast will occur under conditions of accelerated sea level rise.

Another potential outcome of the Greenhouse Effect is an increase in the frequency and intensity of storm events.

Cyclone intensities may be expected to increase with temperature, however climate models give no consistent indication of whether tropical storms will increase or decrease in frequency or intensity with increasing temperature.

Mid latitude storms, unlike tropical cyclones, may actually decrease in intensity and frequency with global warming due to a reduction in equator to pole temperature gradients, however as with tropical cyclones, climate modelling at present lacks the resolution to accurately predict changes associated with global warming.

[1] *The reason that the storm demand is measured above 0m AHD (or Mean Sea Level) reflects the way in which the data to describe the storm demand has been obtained, being typically from survey or photogrammetric analysis of historical vertical aerial photography where only that portion of the beach above 0m AHD is either considered or is visible.*

Given the above uncertainty, no specific account can be taken of any potential changes to storm frequency and intensity or changes in wave directions. However, this uncertainty should be taken into consideration when assessing the risk and consequences of recession occurring in the future. The potential for a climate change related recession needs to be continually reviewed as more information comes to hand from the scientific community.

4.2.2 Potential Impacts

The proposed maintenance of the rock protection would be located at the back of the beach above the limit of tidal and wave action under normal conditions. Accordingly, the proposed works would not impact on beach behaviour in any significant way except should storms occur during construction.

The Contractor may elect to construct a temporary sand bund on the seaward side of the works using sand excavated from the beach, to provide some protection to the works area against storms. The existence of the sand bund would 'feed' the storm demand and thus have a positive benefit on any beach erosion encroaching towards the work area.

The beach erosion and beach recovery observed at Collaroy Beach in the past would be expected to continue in a similar manner following completion of the maintenance works.

As the proposed works involve only the repositioning of existing rock which was damaged during the East Coast Low in June 2016, some damage to the rock protection can be expected to re-occur in storms of similar severity that result in erosion reaching the back of the beach. There would be no additional impact of the proposed works on adjacent areas, eg. such as 'end effects', than existed prior to the June 2016 storm.

4.2.3 Recommended Control Measures

- Use of temporary sand bund on the seaward side of the works using sand excavated from the beach, to provide some protection to the works area against storms during construction.
- works should be undertaken under the supervision of a Coastal Engineer approved by Council to maximise the ability of the existing rocks, when repositioned, to provide protection to the footings of the Pelican Pavilion.

4.3 Existing Users and Access

4.3.1 Site Conditions

Collaroy Beach is a very popular recreational area for swimming, sunbathing and surfing. Various access points are located along the beach including an informal pathway from the Council carpark immediately north of Pelican Pavilion.

4.3.2 Potential Impacts

During Construction
There would be some temporary requirement for use of the Council carpark on the day the excavator is mobilised and demobilised from site. This is unavoidable if the works are to be undertaken in an efficient manner. This impact is not expected to be significant due to its short duration (less than a few hours on each occasion). The mobilisation and demobilisation would also be timed to avoid peak commuter use of the carpark. Access to the car park and hotel delivery bay would be maintained for the duration of the works.

Use of the carpark would also be required during removal of foreign material by truck. This would be expected to comprise only a limited number of truck movements, eg. one to two truck loads. If necessary one or two car spaces could be temporarily barricaded off to allow trucks to be loaded.

Pedestrian access to the beach from the car park further north of the site would be maintained at all times.

Pedestrian access along the sandy portion of the beach seaward of the proposed works would be maintained at all times during the works.

In summary, while there may be some very minor temporary inconvenience to beach and car park users during the construction period, such inconvenience is considered acceptable to attain the longer term benefits of the rock protection maintenance activities and associated beach amenity and safety improvements.

Following Construction
Following completion of the rock protection maintenance activities there would be no ongoing adverse impacts on beach use, in fact there would be a significant positive benefit due to the improved amenity and safety following removal of strewn rock and foreign material.

4.3.3 Recommended Control Measures

- Use of construction barrier fencing (star pickets with orange paraweb or similar) along the sandy portion of the beach seaward of the proposed works and use of signage.

4.4 Safety and Amenity

4.4.1 Potential Impacts

During Construction
Appropriate safety precautions would be taken during the works, such as incorporation of construction barrier fencing, and signage, to ensure public and worker safety. It would be a requirement of the construction contract that the Contractor employ persons to control vehicular and pedestrian movements on adjacent roads, within the car park and on the beach, as required to ensure safety.

The beach area would be transformed during the works. There would be an excavator, as well as fencing, open excavations and stockpiles of sand, rock and foreign material. While these factors would detract from the appearance of the beach, the construction activity would only be short term.

Following Construction
Following construction, the proposed works would lead to an improvement in beach safety and amenity due to the removal of strewn rock and foreign material.

4.4.2 Recommended Control Measures

- incorporation of construction barrier fencing, to ensure public and worker safety
- control of vehicular and pedestrian movements on adjacent roads, within the car park area, and on the beach
- signage

4.5 Ecology

4.5.1 Site Conditions

A desktop study was undertaken of available information and included searches of several online databases:

- NSW Atlas of NSW Wildlife database (http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas.jsp);
- *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool (http://www.environment.gov.au/erin/ert/epbc/index.html); and
- Office of Environment and Heritage (OEH) Threatened Species Database (http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/browse_geo.aspx).

A site inspection was undertaken initially in July 2016 and on a number of occasions since that time including recently in August 2017. The site inspection involved a walkover visual inspection.

A search of the NSW Wildlife Atlas, which reports recordings of threatened plant and animal species, indicated no species recorded at the site.

A search of the site in the *EPBC Act* protected matters database indicated that there are 23 threatened and/or migratory fauna species, or habitat for those species likely to occur in the vicinity of the site and 29 threatened and/or migratory fauna species known to occur in the vicinity of the site. The search results for species likely to occur in the vicinity of the site included:

- nine birds;
- five mammals;
- one frog;

- two fish;
- one shark; and
- five plants.

The search results for species known to occur in the vicinity of the site included:

- thirteen birds;
- two sharks;
- five turtles;
- one frog; and
- one mammal (whale).

These threatened species were also identified via a search of the OEH Threatened Species Database for the Sydney Metro (Pittwater B) Catchment Authority sub-region.

4.5.2 Potential Impacts

Habitats for the above fauna and flora species are not known at the site and would not be impacted by the project.

4.6 Traffic and Parking

4.6.1 Site Conditions

A Council carpark is located to the north of Pelican Pavilion. Access to the carpark and Collaroy Beach Hotel is off Pittwater Road. A park and foreshore promenade is located to the south of Collaroy Beach Hotel.

4.6.2 Potential Impacts

During Construction
As noted previously, there would be some minor temporary use of the carpark immediately north of the site during mobilisation and demobilisation of the excavator to site and removal of foreign material from the site.

Following Construction
Following construction, the completed maintenance works would have no influence on traffic and parking.

4.6.3 Recommended Control Measures

- management of trucks (excavator site mobilisation and demobilisation, and removal of foreign material) using the beach car park.

4.7 Noise

4.7.1 Site Conditions

The nearest buildings to the site are the Collaroy Beach Hotel and retail/commercial/ residential premises along Pittwater Road. The acoustic environment of the site is influenced by:

- recreational users;
- the surf; and
- road traffic on Pittwater Road.

4.7.2 Potential Impacts

During Construction

Construction activity on site would be undertaken during the following working hours, in accordance with the Interim Construction Noise Guideline (DECC, 2009):

- Monday to Friday 7am to 6pm
- No work on Saturdays, Sundays or Public Holidays

Any variation to the above hours would require the approval of Council, which would only be considered having regard to any potential for noise impacts on the surrounding residential amenity.

The proposed maintenance activities would involve excavation and rock placement. Excavation would be in sand. There would be no excavation into bedrock involving use of rock hammers for example. Other activities would be consistent with those commonly encountered on residential and commercial building sites.

Having regard to the above, and given the background noise at the site from the surf and road traffic on Pittwater Road, no significant noise impacts would be expected.

4.7.3 Recommended Control Measures

In order to minimise any potential for noise impacts on beach users and the surrounding community, the following control measures should be taken:

- Beach users and surrounding businesses should be notified of the proposed works and hours of operation; and
- A Council contact should be provided for the works in the event of any complaints.

4.8 Water Quality

4.8.1 Site Conditions

More than ninety per cent of swimming sites on the northern beaches were graded as "Very Good" or "Good" in the most recent State of the Beaches 2015-2016 report with Collaroy Beach gaining a “Good” rating.

4.8.2 Potential Impacts

During Construction
It would be a requirement of the construction contract that the Contractor maintain onsite environmental safeguards such as an emergency spill kit and procedures to contain and collect potential leakage and spillage of fuels, oils and greases from plant and equipment.

Following Construction
Following construction, the completed rock protection maintenance works would not be expected to have any impact on water quality. The works would be buried the majority of the time and when exposed comprise inert materials.

4.8.3 Recommended Control Measures

- The Contractor should maintain onsite environmental safeguards such as an emergency spill kit and procedures to contain and collect potential leakage and spillage of fuels, oils and greases from plant and equipment.

4.9 Waste Management

4.9.1 Site Conditions

Waste is typically generated at the site by recreational users of the beach and commercial premises. Garbage bins are emptied as part of Council's waste collection and by commercial Contractors.

4.9.2 Potential Impacts

The proposed works may generate the following waste during construction:

- excavated foreign material and some rock unsuitable for reuse; and
- general construction waste.

The completed rock protection maintenance works would not generate spoil or waste at the site.

4.9.3 Recommended Control Measures

- All foreign material and waste, and any unsuitable rock, generated during the construction activities should be stockpiled and contained appropriately before removal and disposal off-site to prevent it from entering the marine environment.

4.10 Services

4.10.1 Site Conditions

Site inspections indicated that there are no active services within the proposed area of the maintenance works on the beach.

4.10.2 Potential Impacts

No impacts to services have been identified as there are no active services known within the proposed area of the works on the beach.

4.10.3 Recommended Control Measures

No control measures are considered to be necessary with regard to services with the exception of a Dial Before You Dig search and inquiry to relevant Council officers prior to commencement of the site activities.

5 ENVIRONMENTAL FACTORS CONSIDERED

5.1 Consideration of Factors in Clause 228 of the EP&A Regulation

Clause 228 of the *EP&A Regulation 2000* provides a list of factors that must be considered in determining the likely impacts of an activity on the natural and built environment and therefore the necessity for an Environmental Impact Statement (EIS).

Following review of the Clause 228 factors outlined below, the proposed works are not considered to result in significant detrimental environmental impacts. Therefore it is concluded that an EIS is not required and this REF is considered an appropriate environmental assessment.

Clause 228 Factor		Significant impact
a.	**Any environmental impact on a community?**	no
b.	**Any transformation of a locality?**	no
c.	**Any environmental impact on the ecosystems of the locality?**	no
d.	**Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?**	no
e.	**Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?**	no
f.	**Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)?**	no
g.	**Any endangering of any species of animal, plant or other form of life whether living on land, in water or in the air?**	no
h.	**Any long term effects on the environment?**	no
i.	**Any degradation of the quality of the environment?**	no
j.	**Any risk to the safety of the environment?**	no
k.	**Any reduction in the range of beneficial uses of the environment?**	no
l.	**Any pollution of the environment?**	no
m.	**Any environmental problems associated with the disposal of waste?**	no
n.	**Any increased demands on resources (natural or otherwise) that are or are likely to become in short supply?**	no
o.	**Any cumulative environmental effect with other existing or likely future activities?**	no
p.	**Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?**	no

5.2 Consideration of Matters of National Environmental Significance

Matters of National Environmental Significance must be considered under the environmental assessment provisions of the EPBC Act. No matters of National Environmental Significance would be impacted by the proposed works, as set out below.

a.	**Any environmental impact on a world heritage property?**	no
b.	**Any Environmental Impact on a National Heritage place?**	no
c.	**Any Environmental Impact on Ramsar Wetlands of international importance?**	no
d.	**Any environmental impact on Commonwealth listed threatened species and ecological communities?**	no
e.	**Any environmental impact on Commonwealth listed migratory species?**	no
f.	**Does any part of the project involve a nuclear action?**	no
g.	**Any environmental impact on the Commonwealth marine environment?**	no
h.	**Any impact on Commonwealth land?**	no

6 ENVIRONMENTAL MANAGEMENT AND CONTROL MEASURES

6.1 Environmental Management Plan

A site-specific construction environmental management plan (CEMP) should be prepared and approved by Council prior to commencement of construction. The Contractor would implement the CEMP during the works and would be responsible for selecting appropriate control measures for the potential impacts identified in this REF.

The CEMP would ensure that:

- appropriate control measures for the potential impacts are implemented on the site;
- activities are carried out with due diligence; and
- all activities comply with relevant environmental legislation including conditions of approval, Acts and Regulations, and Standards and Best Management Practices.

With the implementation of the CEMP environmental controls there would not be expected to be significant environmental impacts during construction.

6.2 Summary of Environmental Control Measures

A summary of the recommended environmental control measures for the rock protection maintenance activities is provided below.

Geology

- Repositioning of rock recovered during the works into the rock protection unless considered unsuitable in the opinion of the coastal engineer;
- Placement of sifted sand to cover the rock protection work.

Coastal Processes

- Use of temporary sand bund on the seaward side of the works using sand excavated from the beach, to provide some protection to the works area against storms during construction
- works should be undertaken under the supervision of a Coastal Engineer approved by Council

Existing Users and Access

- Use of construction barrier fencing along the sandy portion of the beach seaward of the proposed works and use of signage

Safety and Amenity

- Incorporation of construction barrier fencing, to ensure public and worker safety
- Control of vehicular and pedestrian movements on adjacent roads, within the car park and on the beach
- Signage

Traffic and Parking

- Management of trucks using the beach car park.

Noise

- Beach users and surrounding businesses notification of the proposed works and hours of operation
- Provision of a Council contact for the works in the event of any complaints

Water Quality

- Maintenance by the Contractor of onsite environmental safeguards such as an emergency spill kit and procedures to contain and collect potential leakage and spillage of fuels, oils and greases from plant and equipment

Waste Management

- Containment and stockpiling of all foreign material and waste, and any unsuitable rock, generated during the construction activities before removal and disposal off-site to prevent it from entering the marine environment

7 CONCLUSION

Rock protection maintenance works are proposed for Pelican Pavilion at Collaroy Beach Hotel.

The proposed rock protection maintenance works are to be undertaken under Part 5 of the EP&A Act. In accordance with Section 110 under Part 5 of the EP&A Act, Northern Beaches Council is the determining authority for these works.

In general, given the localised and temporary nature of the construction works, it is expected that the project would have negligible adverse impacts on the surrounding environment at Collaroy Beach. Where potential environmental impacts have been identified, control measures are recommended.

The removal of strewn rock and foreign material from the beach would lead to an improvement in beach amenity and safety.