1. PROPOSED ACTIVITY

1.1 Description

The proposed activity is the one-off mechanical dredging and associated vegetation removal of a watercourse that provides drainage within Malibu Drive Reserve, Bawley Point (Lot 223 DP 236006, east of the Malibu Drive culvert (Figure 1 p.4)

A 12 tonne excavator (or smaller) would be used to mechanically clear (dredge and vegetation removal) the watercourse. The excavator would start from the beach side of the channel and work predominantly within the channel towards Malibu Drive.

The excavator would access the watercourse via the pedestrian access-way near the intersection of Malibu and Sunseeker Drive (Photo 1 below).

The proposed activity would involve:

- dredging of the watercourse (and associated vegetation removal) to the invert of the Malibu Drive culvert to the inland extent of the primary frontal dune – approximately to the area shown in Photo 2 below or at chainage 95.0 (Appendix A)

- the placement of the dredged material and vegetation to an area or areas within the Malibu Drive Reserve close by to the watercourse

- removal of the footbridge (Photo 3 below) and replacement with potential alterations to increase span over the watercourse.

The proposed works would affect approximately 100 metres of the watercourse and affect approximately 800 square metres of vegetation in and around the watercourse.

The proposed works also include a number of environmental safeguards and impact mitigation measures listed in Section 1.5 of this report.
Photo 1: Proposed access for the excavator

Photo 2: Eastern extent of the proposed activity
1.2 Background

A build-up of sediment and sand in the watercourse downstream of Malibu Drive (up to 900 mm above the invert of Malibu Drive culvert) results in frequent localised flooding of residential areas upstream of Malibu Drive in heavy rainfall events. The sediment and sand build-up and vegetation also restricts water-flow and ponding of the watercourse for extensive periods after rainfall events and this has resulted in concerns by residents over stagnant waters and mosquito breeding locations. In respect of this matter Council resolved to (23 April 2013, MIN13.436) “investigate the remediation of stormwater flow restriction issues east of the culvert at 37 Malibu Road …”.

The investigation determined that the proposed one-off mechanical clearance of the watercourse downstream of Malibu Drive was the preferred option as it offered the lowest cost and facilitated natural processes to control outflows from the watercourse (refer to Report of General Manager, Policy and Resources Committee, 23 July 2013, Trim document D13/184546). Council made the following resolution on Tuesday 30 July 2013:

a) The natural channel through the dunes and beach from the outlet of the pipe under Malibu Drive, not be disturbed after an initial mechanical clearing and natural processes be observed for 12 months and a report received.
The work would be in accordance with this resolution and the previous aforementioned resolution.

Shoalhaven City Council (SCC) is the proponent and the determining authority under Part 5 of the EP&A Act. The environmental assessment of the proposed activity and associated environmental impacts has been undertaken in the context of Clause 228 of the Environmental Planning and Assessment Regulation 2000. In doing so, this Review of Environmental Factors (REF) helps to fulfil the requirements of Section 111 of the Act that SCC examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

1.3 Location

The proposed activity would be undertaken at the unnamed watercourse within the Malibu Drive Reserve east of the culvert under Malibu Drive, Bawley Point (Figure 1 below).

Malibu Drive Reserve is Council Reserve (SBP870) with a classification of “community land – natural area – bushland”.

Figure 1   Approximate location of proposed activity
1.4 Purpose

The purpose of the works is to reduce the frequency and duration of inundation of residential areas and ponding by removing blockages caused by sediment and sand build-up and vegetation.

1.5 Environmental safeguards and measures to minimise impacts

- Work shall occur during low or no flow periods.
- Prior to works, the Assets and Works Environmental Operations Officer (EOO) shall, in consultation with the site supervisor, demarcate the extent of allowable vegetation clearance and ground disturbance.
- Wherever feasible trees and large shrubs overhanging the watercourse and in the way of the excavator shall be pruned rather than entirely removed to allow works to occur.
- Vegetation beyond the designated clearance zones shall be retained and protected as ‘no-go’ areas during construction, through the use of hazard bunting.
- The ‘no-go’ areas shall not be utilised for the parking of vehicles and machinery and for the placing of the dredged material.
- Any disturbed areas of the dunes shall be immediately stabilised and ground cover restored.
- Prior to works, the environmental weed Spiny Rush *Juncus acutus* infestation shall be treated with a herbicide registered for this use or physically removed.
- All fencing damaged to allow access shall be rectified after works have been completed.
- Dredged material shall be disposed within the reserve at locations that are relatively bare of vegetation and outside the no-go areas.
2. EXISTING ENVIRONMENT

The watercourse drains water from a wetland within private land on the west side of the creek. The watercourse is a natural feature, however, anecdotal evidence (refer to resident submissions) suggests that the watercourse may have been altered through actions relating to residential development, road construction and dune disturbance and stabilisation works. The watercourse’s location, orientation, depth, ecology and biodiversity would be dynamic being influenced by storm events, tides, extended dry periods, continued dune disturbance and stabilisation, and increases in vegetation density.

Regardless of anthropogenic influences, the drainage watercourse is essentially a natural feature (watercourse from the wetland catchment to the ocean) and has not been constructed by Shoalhaven City Council for the specific purpose of stormwater management. Council has undertaken works upstream of Malibu Drive, however, this work was in response to water ponding issues (and mosquito breeding habitat) caused by depressions in the base of the watercourse below the invert of the culvert under the road.

The watercourse traverses an area that has been determined by Hunt and Associates (2010) as being Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions (Bangalay Sand Forest), an endangered ecological community (ECC) listed on the schedules of the NSW Threatened Species Conservation Act 1995 (Figure 2). On-site examinations confirm that the area is indeed Bangalay Sand Forest ECC, with many of the indicative species for this community potentially impacted by the proposed works, including: *Acacia longifolia*, *Casuarina glauca*, *Isolepis nodosa*, *Banksia integrifolia*, *leptospermum laevigatum*, *Pittosporum undulatum*, *Pittosporum revolutum*, and *Banksia serrata*. There are however no flora and fauna species listed on the schedules of the NSW Threatened Species Conservation Act 1997 and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 known for the site.

The watercourse was dry at the time of the investigations undertaken as part of this REF. Under heavy rainfall the watercourse can however swell and encroach into, and inundate residential properties (Photos 4 and 5 below). In such rainfall events the force of the water may breach the incipient frontal dune and exit out onto Gannet Beach (Photo 6). As a result of sediment and marine and aeolian sand build-up in the creek above the invert of the Malibu Drive culvert invert, water is retained in the creek for extended periods of time until evaporation or seepage to groundwater eventuates. This has caused the development of localised wetland communities (such as phragmites swathes and
swamp oak forest) but has also caused concern in the local community relating to mosquito breeding habitat.

Up to 900 mm at the highest point (chainage 65.0 Appendix A), the sand and sediment build-up is considerable. The dredging work will commence at around chainage 95.0 where it is at the invert level of the culvert (Appendix A). Although from that point towards the ocean, the levels gradually increase due to the presence of incipient dunes, it is expected or hoped that with the increase flow velocity of the creek caused by the dredging, stormwater would breach the primary frontal dune and incipient dune and exit out to the ocean without further intervention.

For the purposes of this assessment, the site:

- is not identified as a heritage item in the Shoalhaven Local Environmental Plan 1985
- is mapped as having a low potential for acid sulfate soil between one and three metres below ground level
- is not mapped as being potentially contaminated
- is above the 1:100 year floodline
- is not mapped as an area to which State Environmental Planning Policy No.14 Coastal Wetlands applies
- is not mapped as having coastal hazards.

A number of Aboriginal sites have been recorded for the Gannet Beach Reserve area including an Aboriginal Midden on Juwin Head (SCC 1996) and an open camp site on the southern headland (Aboriginal Heritage Information Management System, accessed on 1 November 2013). These sites would not be impacted by the proposed activity (refer to Section 6.1).
Figure 2  Approximate extent of the Bangalay Sand Forest EEC
Photo 4: The subject watercourse upstream of the Malibu Drive culvert after heavy rains causing localised flooding of adjacent properties (photo courtesy of Robert Sutherland)
Photo 5: The subject watercourse upstream of Malibu Drive culvert after heavy rains causing localised flooding of adjacent properties (photo courtesy of Robert Sutherland)
Photo 6: Watercourse breaching the incipient frontal dune to exit out from the beach (photo courtesy of Robert Sutherland)
3. PERMISSIBILTY

Section 76 (Development that does not need consent) of the EP&A Act states that:

“If an environmental planning instrument provides that specified development may be carried out without the need for development consent, a person may carry the development out, in accordance with the instrument, on land to which the provision applies.”

In this regard, clause 111 of the Infrastructure SEPP states “development for the purpose of stormwater management systems” may be carried out by or on behalf of a public authority without consent on any land and this to include “routine maintenance works, including dredging to remove sediment build-up in a stormwater canal or at exit points into natural waterways that affects the efficient of the stormwater management system”.

As the proposal does not require development consent, and as it constitutes an ‘activity’ for the purposes of Section 110 of the EP&A Act, being carried out by (or on behalf of) a public authority, environmental assessment under Part 5 of the EP&A Act is required. This REF provides this assessment.

The proposed activity is permissible under relevant environmental legislation (Table 1 below).

Table 1 Summary of legislation and permissibility

<table>
<thead>
<tr>
<th>NSW State Legislation</th>
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<tbody>
<tr>
<td><strong>Environmental Planning and Assessment Act 1979 (EP&amp;A Act)</strong></td>
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<td>Permissible: √ Not permissible: □</td>
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<tr>
<td>Justification: The Infrastructure SEPP provides for this work to be undertaken without development consent. In circumstances where development consent is not required, the environmental assessment provisions outlined in Part 5 of the Act are required to be complied with. This REF fulfils this requirement.</td>
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<table>
<thead>
<tr>
<th>State Environmental Planning Policy No.14 – Coastal Wetlands</th>
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<td>Permissible: √ Not permissible: □</td>
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<tr>
<td>Justification: The area is not mapped as an area covered by this policy.</td>
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1 “Stormwater management systems” means “works for the collection, detention or discharge of stormwater (such as channels, aqueducts, pipes, drainage works, embankments, detention basins and pumping stations)” (cl.110(a) of Infrastructure SEPP).
### Shoalhaven Local Environmental Plan 1995 (SLEP)

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**Justification:**
Under the SLEP the proposed activity may have required development consent. The provisions of SEPP Infrastructure, however, prevail over the SLEP where there is an inconsistency by virtue of Section 36 of the EP&A Act. Consequently, development consent is not required.

### State Environmental Planning Policy No.71 - Coastal Protection

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**Justification:**
The SEPP only applies to the preparation of draft Local Environmental Plans (LEPs) and the determination of development applications prepared under Part 4 of the EP&A Act, and therefore does not apply in this circumstance.

### State Environmental Planning Policy No.44 - Koala Habitat Protection

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**Justification:**
The site of the proposed works do not contain trees identified in Schedule 2 of the SEPP and, therefore, does not constitute core koala habitat.

### State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

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**Justification:**
All works would be conducted outside the designated Sydney drinking water catchment. As such, this instrument does not apply.

### Wilderness Act 1987

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**Justification:**
The proposed activity is not located within a wilderness area declared under this Act.
### Fisheries Management Act 1994

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**Justification:**

The proposed activity does not involve dredging in 'key fish habitat' as defined and mapped by the consent authority (Part 7, Division 3). With regard to the other provisions of the Act, the proposed activity:

- would not affect declared aquatic reserves (Part 7, Division 2 of the Act)
- would not impact mangroves and marine vegetation (Part 7, Division 4)
- would not involve disturbance to gravel beds where salmon or trout spawn (s.208 of the Act)
- does not involve the release of live fish (Part 7, Division 7)
- does not involve the construction of permanent dams and weirs (s.218)
- would not impact declared threatened species of endangered ecological communities declared under the Act (Part 7A)
- does not constitute a declared key threatening process (Part 7A)
- would not use explosives in a watercourse (Clauses 70 and 71 of the Fisheries Management (General) Regulation 2010).

As such, a Fisheries Permit is not required.

### Heritage Act 1977

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**Justification:**

- The proposed activity would not disturb an item of state heritage significance.
- The Act also provides statutory protection to relics, archaeological deposits, artefacts or deposits. Section 139 to 146 of the Act require that excavation that is likely to contain, or is believed may contain, archaeological relics is undertaken in accordance with an excavation permit issued by the Heritage Council. The Act defines an archaeological relic as “any deposit, artefact, object or material evidence that:
  
  a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement; or
  
  b) is of state and local heritage significance”

As the site has little to no archaeological potential, a permit is not required.
Local Government Act 1993

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**Justification:**

The activity would occur on Community Land, categorised as ‘Natural Areas – Bushland’ for the purposes of the NSW *Local Government Act 1993*. Under Section 35 of the Act, Community Land must be used and managed in accordance with the Plan of Management applying to the land. The plan of management that applies to the land is the *Generic Community Land Plan of Management no.7 – Natural Areas Version 4 (SCC 2001)*.

It could be argued that the proposed intervention works are not consistent with the plan of management and many of the core objectives of Natural Areas and community land categorised as ‘Bushland’ as specified in Sections 36E and 36J of the Local Government Act 1993. The intention implied in the objectives and management plan are to conserve ecosystem function, features, habitats, and riparian areas.

Although the proposed activity if examined in isolation would not appear to be consistent with the Act’s and Management Plan’s objectives, Council is and will continue to manage the reserve, as a whole, for bushland purposes including supporting bush care groups, providing for vegetation and restoration, and the provision and promotion of appropriate access and community use of the land.

The one-off intervention was chosen over a range of options including regular clearing and construction of a drainage structure from the pipe outlet at Malibu to the beach (refer to Trim document D13/184546). The proposed activity offered the lowest cost and most sustainable option which allowed natural processes to control outflows from the watercourse. This is consistent with the Plan of Management relating to stormwater runoff issues, i.e.

> “Low impact solutions to the problems of stormwater runoff and erosion and maintenance of water quality will be given precedence over high impact engineering solutions for their aesthetic, economic and environmental rationale.”

The proposed activity is therefore consistent with the Act.


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**Justification:**

The proposed activity does not constitute scheduled development work or scheduled activities as listed in Schedule 1 of the Act. The proposed activity therefore does not require an environmental protection licence.
### National Parks and Wildlife Act 1974 (NP&W Act)

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**Justification:**

- The Act provides the basis for the legal protection and management of Aboriginal sites in NSW. Under Sections 86 and 90 of the Act it is an offence to disturb an Aboriginal object or knowingly destroy or damage, or cause the destruction or damage to, an Aboriginal object or place, except in accordance with a permit of consent under section 87 and 90 of the Act.

- The *National Parks and Wildlife Act 1974* provides that a person who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later unknowingly harm an object without an Aboriginal Heritage Impact Permit (AHIP).

- The Due Diligence Code of Practice was followed for the proposed activity (refer to Section 6.2). The results indicate that the proposed activity can proceed with caution without applying for an AHIP as the proposed activity is unlikely to disturb an Aboriginal object or place.

- Part 8A of the Act lists offences relating to harming or picking threatened species or damaging their habitat. However it is a defence to a prosecution for an offence under this Part if the work was essential for the carrying out of an activity by a determining authority within the meaning of Part 5 of the NSW *Environmental Planning and Assessment Act 1979* if the determining authority has complied with that part (refer to Section 118A(3)(b)(ii)). The activity is considered permissible as this REF has been prepared and determined in accordance with Part 5 of the EP&A Act.

### Native Vegetation Act 2003

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**Justification:**

The Act does not apply to “any clearing that is, or is part of, an activity carried out by a determining authority within the meaning of Part 5 of the EPA Act if the determining authority has complied with that Part”. As the SCC will comply with Part 5 (Environmental Assessment) of the EP&A Act, the proposed activity is legislatively excluded from the provisions of the *Native Vegetation Act 2003*. 
### Threatened Species Conservation Act 1995 (TSC Act)

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**Justification:**
The proposed activity is unlikely to have a significant impact on species and communities listed in the schedules of the Act (refer to Section 7.2). A licence to harm, pick, etc, is not required.

### Water Management Act 2000

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**Justification:**
- Local councils are exempt from s.91E(1) of the Act in relation to all controlled activities that they carry out in, on or under waterfront land (by virtue of clause 38 of the Water Management (General) Regulation 2011).
- The proposal would not interfere with the aquifer and therefore an interference licence is not required (s.91F)

### Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

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**Justification:**
The proposed activity would not be undertaken on Commonwealth land and no matters of National Environmental Significance are likely to be significantly impacted by the proposed activity. The proposed activity is therefore not a controlled action and does not require commonwealth referral.
4. CONSULTATION WITH OTHER GOVERNMENT AGENCIES

Consultation requirements specified in Part 2 Division 1 of the Infrastructure SEPP do not apply as the proposed activity:

- does not impact local heritage items
- would not be undertaken adjacent to a marine park declared under the *Marine Parks Act 1997*
- would not be undertaken adjacent to land reserved under the *National Parks and Wildlife Act 1974*
- would not be undertaken adjacent to an aquatic reserve declared under the *Fisheries Management Act 1994*
- would not be undertaken in the foreshore area within the meaning of the *Sydney Harbour Foreshore Authority Act 1998*
- does not comprise a fixed or floating structure in or over navigable waters

Consultation with government agencies is therefore not required.
5. COMMUNITY ENGAGEMENT

Drainage through this watercourse has a long history of community complaints, consultation, and engagement. With regard to the proposed activity, the community has been engaged, consulted, and notified through the following processes:

- On-site meeting between Council environmental and engineering staff (Geoff Young and Neal Smith) and members of the Bawley Point and Kioloa Community Association (BPKCA) and the local bushcare group (held on 15 October 2013)
- On-site public meeting held among Councillors, BPKCA, non-affiliated residents, and SCC group and section managers (held on 19 September 2013)
- Invitations to attend the public meeting through local paper and mail-outs (TRIM D13/216192)

As requested by members of the community, the area of impact was physically demarcated with ‘hazard tape’ to facilitate visualisation of the extent of probable impact. The community, through BPKCA, was notified via email and through the Association’s website (http://www.bawleykioloa.org.au/stormwater.html).

The community has also been informed of the proposal through the Bawley Point and Kioloa Community Association’s website including open invitations to provide comment on the proposal.

Feedback from the community engagement indicates that the drain, as well as the proposed clearing works, is a divisive issue with many for and against the proposal (refer to http://www.bawleykioloa.org.au/stormwater.html). Council acknowledge that the proposed clearing is not supported by a significant portion of the Bawley Point community.
6. HERITAGE ISSUES

6.1 Indigenous

Under Section 86 of the NSW National Parks and Wildlife Act 1974 (NPW Act) it is an offence to disturb, damage, destroy any Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP). The Act, however, provides that if a person who exercises ‘due diligence’ in determining that their actions will not harm Aboriginal objects has a defence against prosecution if they later unknowingly harm and object without an AHIP (Section 87(2) of the Act). To effect this, the NSW Department of Environment, Climate Change and Water have prepared the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (hereafter referred to as the ‘Due Diligence Guidelines’) to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for an AHIP.

In accordance with the Due Diligence Guidelines (DECCW 2010), a search on the Aboriginal Heritage Information Management System (AHIMS) indicated that one Aboriginal heritage site was known for the vicinity of the site. The Plan of Management for Gannet Beach Reserve (SCC 1996) also mentions the existence of an Aboriginal midden on Juwin Head. The Juwin Head is a considerable distance from the watercourse and therefore the midden is unlikely to get impacted. The Aboriginal site listed on AHIMS is located on the southern headland (Figure 3 below). It is also a considerable distance from the proposed works and as such would not be impacted by the proposed works.

Step 2 of the Due Diligence Guidelines requires consideration of whether Aboriginal objects are likely to be in the area of the proposed activity having regard to certain landscape features. The proposed activity would be conducted on a number landscape features which are more likely to contain Aboriginal artefacts, i.e., “within 200 metres of waters” and “located within a dune system”. The Due Diligence Guidelines require further analysis if a proposal is on these lands and these lands are not regarded as ‘disturbed’. Disturbed land or land that has been disturbed by previous activity is defined by the Due Diligence Guidelines as:

“Land is disturbed if it has been the subject of a human activity that has changed the land’s surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines,
Channel dredging
Malibu Drive Reserve, Bawley Point
D13/273901

stormwater drainage and other similar infrastructure) and construction of earthworks."

Anecdotal evidence (Appendix B) suggests that the site of the proposed activity is considered “disturbed land” as it been subject to human activity through:

- the construction of roads
- clearing of vegetation and dune stabilisation works
- informal use as stormwater drainage channel

As the activity would disturb only deposited sediment and sand the presence of Aboriginal artefacts being present is unlikely.

As there are no recorded sites and as the site is on ‘disturbed land’, the Due Diligence Guidelines requires no further assessment as it is reasonable to conclude that there is a low probability of objects occurring in the area of the proposed activity. As a result, an AHIP is not required and the works can proceed with caution.
Figure 3  Approximate location of registered Aboriginal Heritage site

6.2 Non-Indigenous

There are no items in the vicinity of the work site on the State Heritage Register, the Shoalhaven Local Environmental Plan, or the Illawarra Regional Environmental Plan.
7. ASSESSMENT OF LIKELY ENVIRONMENTAL IMPACTS

In circumstances where development consent is not required, the environmental assessment provisions outlined in Part 5 (Environmental Assessment) of the EP&A Act are required to be complied with. Part 5 requires Council to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity. As a minimum, the matters listed in Section 111 and Section 5A of the Act and clause 228(2) of the Regulations must be addressed.

7.1 Section 111 matters of consideration

Table 2: Section 111 (EP&A Act) matters of consideration

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<thead>
<tr>
<th>Matter to be considered</th>
<th>Comments</th>
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<tr>
<td>Any conservation agreement entered into under the National Parks and Wildlife Act 1974 and applying to the whole or part of the land to which the activity relates, and any plan of management adopted under that Act for the conservation area to which the agreement relates.</td>
<td>The SCC GIS Enquiry has been examined and there are no conservation agreements applying to the lands affected by the proposed activity.</td>
</tr>
<tr>
<td>Any joint management agreement entered into under the Threatened Species Conservation Act 1995.</td>
<td>The SCC GIS Enquiry has been examined and there are no joint management agreements applying to the lands affected by the proposed activity.</td>
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<tr>
<td>Any biobanking agreement entered into under the Threatened Species Conservation Act 1995 that applies to the whole or part of the land to which the activity relates.</td>
<td>The SCC GIS Enquiry has been examined and there are no biobanking agreements applying to the lands affected by the proposed activity.</td>
</tr>
<tr>
<td>Any wilderness area (within the meaning of the Wilderness Act 1987) in the locality in which the activity is intended to be carried on.</td>
<td>There are no declared wilderness areas in the vicinity of the proposed activity.</td>
</tr>
<tr>
<td>Critical habitat.</td>
<td>The OEH website was searched for critical habitat in the Register of Critical Habitat kept by the Director General of the Department of</td>
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### Matter to be considered

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| Environment and Climate Change. As of September 2013, critical habitat has been declared for:  
- Gould’s Petrel  
- Little penguin population in Sydney’s North Harbour  
- Mitchell’s Rainforest Snail in Stotts Island Nature Reserve  
- Wollemi Pine  
As these areas do not lie within the area affected by the proposed activity, the proposed activity would not have an adverse effect on critical habitat. |

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| In the case of threatened species, populations and ecological communities, and their habitats, whether there is likely to be a significant effect on those species, populations or ecological communities, or those habitats.  
The 7-part test of significance (see Section 7.2 below) concludes that a significant effect is considered unlikely for any threatened species or ecological communities.  
A significant effect is not considered likely for any threatened populations due to the absence of such items in the area affected by the proposed activity. |

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</table>
| Any other protected fauna or protected native plants within the meaning of the National Parks and Wildlife Act 1974.  
All native fauna is NSW is protected. The potential impact on fauna habitat is, however, considered to be insignificant as the activity is unlikely to endanger, displace or disturb fauna or create a barrier to their movement.  
There are no protected native plants, as listed in Schedule 13 of the Act, in the area affected by the proposed activity. Regardless, the aim of the schedule is to protect these plants from commercial exploitation, which otherwise might result in them becoming threatened in the wild. The proposed activity does not involve commercial exploitation and nor will result in |
7.2 “7-part test” - Section 5A of the EP&A Act 1979

Section 5A of the EP&A Act identifies a number of factors that must be taken into account to determine whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats. These factors, commonly called “7-part test”, must be taken into account when addressing Section 111 (EP&A Act) factors listed above.

The Section 5A 7-part test for the proposed activity is provided below.

**Part 1 In the case of a threatened species, where the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is to be placed at risk of extinction.**

No threatened flora and fauna species listed under the schedules of the NSW Fisheries Management Act 1994 and the NSW Threatened Species Conservation Act 1995 are known expected to occur at the site of the proposed works.

**Part 2 In the case of an endangered population, whether the action 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 only endangered populations listed on Part 2 of Schedules 1 of the NSW Threatened Species Conservation Act 1995 and Part 2 of Schedule 4 of the Fisheries Management Act 1994 that occur with the Shoalhaven Local Government Area is the Eucalyptus langleyi population north of the Shoalhaven River in the Shoalhaven local government area. This population is believed to occur in the Narang Road, North Nowra area. It is outside the area affected by the proposed activity. The proposed activity, therefore, would not have an adverse effect on the life cycle of a species that constitutes an endangered population.

**Part 3 In the case of an 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.

The path would go through an area that comprises the endangered ecological community *Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions* (Figure 2 p.8). The NSW Scientific Committee (2005) describes the community as follows:

“*Bangalay Sand Forest is the name given to the ecological community associated with coastal sand plains of marine or Aeolian origin. It occurs on deep, freely draining to damp sandy soils on flat to moderate slopes within a few kilometres of the sea and at altitudes below 100 metres. Bangalay Sand Forest is characterised by the assemblage of species listed in paragraph 2 and typically comprises a relatively dense or open tree canopy, an understorey of mesophyllous or sclerophyllous small trees and shrubs, and a variable groundcover dominated by sedges, grasses or ferns.*”

Although the watercourse does not technically fall within the description of Bangalay Sand Forest, areas either side of the watercourse certainly do (Section 2). These areas may be impacted through operation of the excavator and the placement of dredged material onto the banks.

The proposed activity however is not likely to place the local occurrence of this community at risk of extinction for the following reasons:

- The works would predominantly be within the watercourse that does not technically comprise the EEC as described by the Scientific Committee (2005).
- The proposed activity would remove predominantly macrophytes (e.g. phragmites) in a three to five metre wide strip, leaving large areas of the local occurrence of this community intact(approximately 8,600 m²).
- The proposed activity is unlikely to impact on the threatened flora and fauna that typically occur in these communities.
- The proposed activity is a ‘one-off’ event and any minor damage caused by the proposed activity is likely to regenerate.

As a result of the above assessment, a species impact statement for this Part for this community is not required.
Part 4 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

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

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.

For the Bangalay Sand Forest, the potential habitat affected by the proposed activity is:

- insignificant in area in comparison to the extent of habitat available in the immediate vicinity
- not important to the long-term survival of the community as the affected area does not contain species indicative of the community
- unlikely to significantly fragment the community.

As a result of the above assessment, a species impact statement for this Part for these species is not required.

Part 5 Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).

No critical habitat has been declared in the City of Shoalhaven. As a result, the proposed activity would have no effect on critical habitat. A species impact statement is therefore not required for this part.

Part 6 Whether the action proposed is consistent with the objectives of a recovery plan or threat abatement plan.

There has been no recovery plans prepared for Bangalay Sand Forest

The only Threat Abatement Plans that have been finalised are: Bitou Bush and Boneseed, Predation by Red Fox, and Predation by Gambusia holbrooki. These are unrelated to the proposed activity.

A species impact statement is therefore not required for this part.
Part 7 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.

The only key threatening processes listed under the NSW Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994 considered relevant to the proposed activity is Clearing of Native Vegetation and Degradation of Riparian Vegetation along New South Wales Water Courses. The impact of the proposal, however, is not considered to be significant as it is unlikely to lead to:

- the destruction of habitat resulting in the loss of local populations of individual species
- fragmentation
- expansion of dryland salinity
- riparian zone degradation
- increased greenhouse emissions
- significant loss of leaf litter layer
- loss or disruption of ecological function
- changes to soil biota
- impact on threatened fish
- intentional introduction of exotic species.

The watercourse is also not mapped as key fish habitat by the NSW Department of Fisheries.

As a consequence, the proposal is considered not likely to result in the operation of, or significantly increase the impact of this particular key threatening process and a species impact statement is not required for this part.
7.3 Clause 228 matters of consideration

Clause 228(2) of the *Environmental Planning and Assessment Regulation 2000* lists the factors to be taken into account when consideration is being given to the likely impact of an activity on the environment under Part 5 of the EP&A Act. The following assessment deals with each of the factors in relation to the proposed activity.

<table>
<thead>
<tr>
<th>Class</th>
<th>Clause 228 (EP&amp;A Regulation) matters</th>
</tr>
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</table>

### a) Have any environmental impact on a community?

**ASSESSMENT**

- Part positive, part low adverse

**REASON**

For residents up-stream of the Malibu Drive culvert the proposed works may have a positive impact through reduced inundation events and stagnant water close to houses. There is however uncertainty as to how long these benefits would last and Council will be monitoring the effect over the next 12 months.

As indicated in Section 5, there are substantial members of the community that are against the proposal. This effect has been assessed as low as their contentions relate to environmental impacts and waste on Council resources. The proposal is unlikely to impact these members personally and Council will be managing expenditure on this proposal closely.

Although the proposal may cause conflict between members of the community, this is anticipated to be short-term until the impacted areas revegetate.

The proposed activity would not have any impact on other community services and infrastructure such as power, water, waste management, educational, medical or social services.
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<tr>
<th>DOES THE PROPOSAL:</th>
<th>ASSESSMENT</th>
<th>REASON</th>
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<tr>
<td>b) <strong>Cause any transformation of a locality?</strong></td>
<td>Low adverse</td>
<td>The locality affected by the proposed activity is a watercourse from a wetland to Gannet Beach. The locality would remain the same albeit with reduced levels and vegetation both within and immediately adjacent to the watercourse.</td>
</tr>
<tr>
<td>c) <strong>Have any environmental impact on the ecosystem of the locality?</strong></td>
<td>Low adverse</td>
<td>The seven-part test of significance provided in Section 7.2 concluded that the proposed activity would not have a significant impact upon endangered ecological communities or threatened fauna or flora. The activity would affect only a small area of bushland in comparison to the bushland in surrounding areas.</td>
</tr>
<tr>
<td>d) <strong>Cause a diminution of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</strong></td>
<td>Low adverse</td>
<td>The site of the proposed activity has very little recreational or scientific value. It has no access to any viewing nodes. The proposed activity would therefore not cause significant diminution of these values. Access across the bridge and through the access way may be restricted whilst works are being carried out, however, this would be temporary and multiple access points to and from Gannet Beach are located nearby. The works will impact on the aesthetics of the wetland within the watercourse particularly immediately after the work. However this impact is expected to be temporary in nature as it is likely to</td>
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 DOES THE PROPOSAL:  | ASSESSMENT | REASON |
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<td>revegetate with macrophytes. As the works would be at a lower level than the surrounding bushland, the impact to aesthetics from Malibu Drive and adjacent residences is expected to be minimal.</td>
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<tr>
<td>e) Have 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?</td>
<td>Negligible</td>
<td>The site of the proposed activity has no significant aesthetic, architectural, cultural, historical, scientific or social values. As such, the proposed activity would have no impact on these items.</td>
</tr>
<tr>
<td>f) Have any impact on the habitat of protected fauna (within the meaning of the National Parks &amp; Wildlife Act 1974)?</td>
<td>Low adverse</td>
<td>The seven-part test of significance, provided in Section 7.2 above, concludes that the proposed activity would not have a significant impact upon threatened fauna. Faunal habitat values within the watercourse are negligible and therefore the potential impact is considered to be insignificant.</td>
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<tr>
<td></td>
<td></td>
<td>No hollow-bearing trees or food resources critical to a particular species</td>
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<td>DOES THE PROPOSAL:</td>
<td>ASSESSMENT</td>
<td>REASON</td>
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<tr>
<td>g) Cause any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</td>
<td>Negligible</td>
<td>There are no species likely to rely on the site of the proposed works to the extent that modification would put them further in danger.</td>
</tr>
<tr>
<td>h) Have any long term effects on the environment?</td>
<td>Negligible</td>
<td>The works would be relatively short term and the noise generated will occur during normal working hours. In the long-term, the impacted area will stabilise and revegetate and long term effects are considered unlikely. The proposed activity would not use hazardous substances or use or generate chemicals which may build up residues in the environment.</td>
</tr>
<tr>
<td>i) Cause any degradation of the quality of the environment?</td>
<td>Low adverse</td>
<td>The environmental safeguards (Section 1.5) to be undertaken would minimise impacts and risks to the quality of the environment. The proposal would not intentionally introduce noxious weeds, vermin, or feral animals into the area or contaminate the soil.</td>
</tr>
<tr>
<td>j) Cause any risk to the safety of the environment?</td>
<td>Negligible</td>
<td>The proposed activity would not involve hazardous wastes and would not lead to increased bushfire or landslip risks. The activity is not going to adversely affect flood of tidal regimes, or exacerbate flooding risks.</td>
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### DOES THE PROPOSAL:

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<th>ASSESSMENT</th>
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<td><strong>k) Cause any reduction in the range of beneficial uses of the environment?</strong></td>
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<td>Positive</td>
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<td>The proposed activity may improve drainage and reduce the frequency and severity of inundation in residential areas and standing water.</td>
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<td><strong>l) Cause any pollution of the environment?</strong></td>
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<td></td>
<td>Low adverse</td>
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<td>The proposal would involve a temporary and local increase in noise during construction due to the use of machinery. However there are no</td>
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<td>sensitive receivers such as schools, nursing homes, hospitals in the vicinity of the proposed works.</td>
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<td>Although the site is mapped as potentially having acid sulphate soils, the proposed activity would not be excavating down into the natural</td>
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<tr>
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<td>surface (only sediment and marine sand buildup). The activity is therefore not expected to result in the oxidation of acid sulphate soils and</td>
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<td>subsequent leaching back into the waterways.</td>
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<td></td>
<td></td>
<td>The proposal does not involve the use, storage or transportation of hazardous substances or the use or generation of chemicals which may build up residues in the environment.</td>
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<td><strong>m) Have any environmental problems associated with the disposal of waste?</strong></td>
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<td>Negligible</td>
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<td>The activity would not result in any trackable waste, hazardous waste, liquid waste, or restricted solid waste as described in the NSW</td>
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<td></td>
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<td><strong>n) Cause any increased demands on resources</strong></td>
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<td></td>
<td></td>
<td>Negligible</td>
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<tr>
<td></td>
<td></td>
<td>The amount of resources that would be used are not considered significant and would not increase demands on current resources.</td>
</tr>
</tbody>
</table>
## Review of Environmental Factors
### Part 5 Assessment EP&A Act 1979

<table>
<thead>
<tr>
<th>DOES THE PROPOSAL: (natural or otherwise) which are, or are likely to become, in short supply?</th>
<th>ASSESSMENT</th>
<th>REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>resources such that they would become in short supply.</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>o) Have any cumulative environmental effect with other existing or likely future activities?</th>
<th></th>
<th>The assessed low adverse or negligible impacts of the proposal are not likely to interact.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Works to other watercourses in the vicinity of the site are not expected to occur.</td>
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<td></td>
<td>Other vegetation clearing works in the Malibu Drive Reserve are not proposed</td>
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<tr>
<td></td>
<td>This activity would not have any cumulative effect with other existing or likely future activities.</td>
<td></td>
</tr>
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<tr>
<th>p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions</th>
<th>Low adverse</th>
<th>The proposed activity is intervening in natural coastal processes. This intervention is however minor, once only, and is unlikely to increase hazards associated with coastal processes.</th>
</tr>
</thead>
</table>
8. SIGNIFICANCE EVALUATION

The proposed activity, which includes the implementation of the environmental safeguards specified in Section 1.5, is unlikely to have a significant impact on the environment for the following reasons:

- An assessment of the statutory matters of consideration reveals no potential medium or high adverse impacts.
- All identified potential negligible or low adverse impacts are considered acceptable considering the need for the activity.
- The Section 5A assessment of significance ('7-part test') indicates that the proposed activity is unlikely to have a significance effect on threatened species, populations or ecological communities.

The evaluation of ‘not significant’ determines that an environmental impact statement and/or species impact statement is not required.
9. DETERMINATION

This Review of Environmental Factors has assessed the likely environmental impacts, in the context of Part 5 of the *Environmental Planning and Assessment Act 1979*, of a proposal by Shoalhaven City Council for the one-off mechanical dredging and associated vegetation removal of a watercourse within Malibu Drive Reserve, Bawley Point.

Shoalhaven City Council has considered the potential environmental effects of the proposal and the effectiveness and feasibility of measures for reducing or preventing detrimental effects. It is determined that:

1. the proposed safeguards identified in the report shall be adopted and implemented
2. it is unlikely that there will be any significant environmental impact as a result of the proposed work and an Environmental Impact Statement is not required for the proposed works
3. The proposed activity is not likely to significantly affect threatened species, populations or ecological communities, or their habitats and a Species Impact Statement is not required.
4. No additional NSW statutory approvals, licences, permits and external consultations are required.

Ben Stewart
Director Assets and Works
Shoalhaven City Council

The REF has been prepared by: Geoff Young
Position: Environmental Operations Officer
Date: 6th November 2013
10. REFERENCES

DECCW (Department of Environment, Climate Change and Water, NSW) 2010 *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*. ISBN 978 1 74232 941 3


NSW Scientific Committee 2005 *Final determination: Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions*

SCC (Shoalhaven City Council) 1996 *Plan of Management: Gannet Beach Reserve, Bawley Point.*

SCC (Shoalhaven City Council) 2001 *Generic Community Land Plan of Management – Natural Areas File 20861e Version 4 (February 2013)*
APPENDIX A: SURVEY OF THE EXISTING WATERCOURSE