



# **Cattle Bay Marina**

## Construction Environmental Management Plan

Eden Cattle Bay Marina Pty Ltd

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## **1 INTRODUCTION**

### **1.1 General**

Royal HaskoningDHV (RHDHV) has been engaged by Eden Cattle Bay Marina Pty Ltd to prepare a preliminary Construction Environmental Management Plan (CEMP) for the proposed construction works associated with the Cattle Bay Marina development. The CEMP would be further refined based on the conditions of consent and prior to issue of a construction approval.

The CEMP describes the potential environmental issues associated with relocation of existing swing moorings, installation of the floating marina and wave attenuator structure, and refurbishment of the existing jetty and the associated mitigation measures.

### **1.2 Site Location**

The site of the proposed Cattle Bay Marina is located approximately 1 kilometre west of the Eden town centre on the NSW south coast, in the Bega Valley Shire local government area. The site adjoins Cattle Bay Road to the east and encompasses part of Cattle Bay to the south.

The site proposed to be occupied by the marina comprises the part of Cattle Bay within Twofold Bay surrounding and encompassing the existing jetty and the landside area where the jetty joins the land as shown in Figure 1.

The land component comprises Lot 2 and part of Lot 4 in DP 1138056. Lot 2 is owned by Eden Resort Hotel Pty Ltd (ERH) and has an area of 1.67 hectares. It contains the majority of the remains of the former Heinz cannery. Lot 4 comprises a strip of foreshore land commencing northwards from the seawall to where it adjoins Lot 2. It is owned by Bega Valley Shire Council.

The overwater area proposed to be occupied by the marina (pontoons, berths and access ways) is approximately 7.5 hectares and is located on Crown Land.



Figure 1: Site location plan (Source: Google Maps)

### 1.3 Proposed Development

A plan of the proposed marina development is shown on Figure 2. The development proposal comprises the following main elements:

- A total of approximately 154 berths in three floating pontoon arms restrained by piles;
- Relocation of 25 swing moorings to locations to be confirmed with NSW Roads and Maritime Services (RMS) and the Eden Port Authority;
- A fixed wave attenuator that follows a 'cranked' alignment;
- Refurbishment of the existing jetty;
- A mix of berth sizes from 12m to 28m to cater for a range of watercraft from small local recreational craft to larger international super yachts;
- Provision of power, lighting, water, fire fighting equipment, mobile 'muck truck' (for sewage pump out) and security access controls to the pontoons and berths;
- Connection to existing potable water, sewer and power supplies to serve the temporary building and fire fighting;
- Refurbishment and temporary use of the existing stormwater drainage system (until redevelopment as part of mixed use development) incorporating provision of new



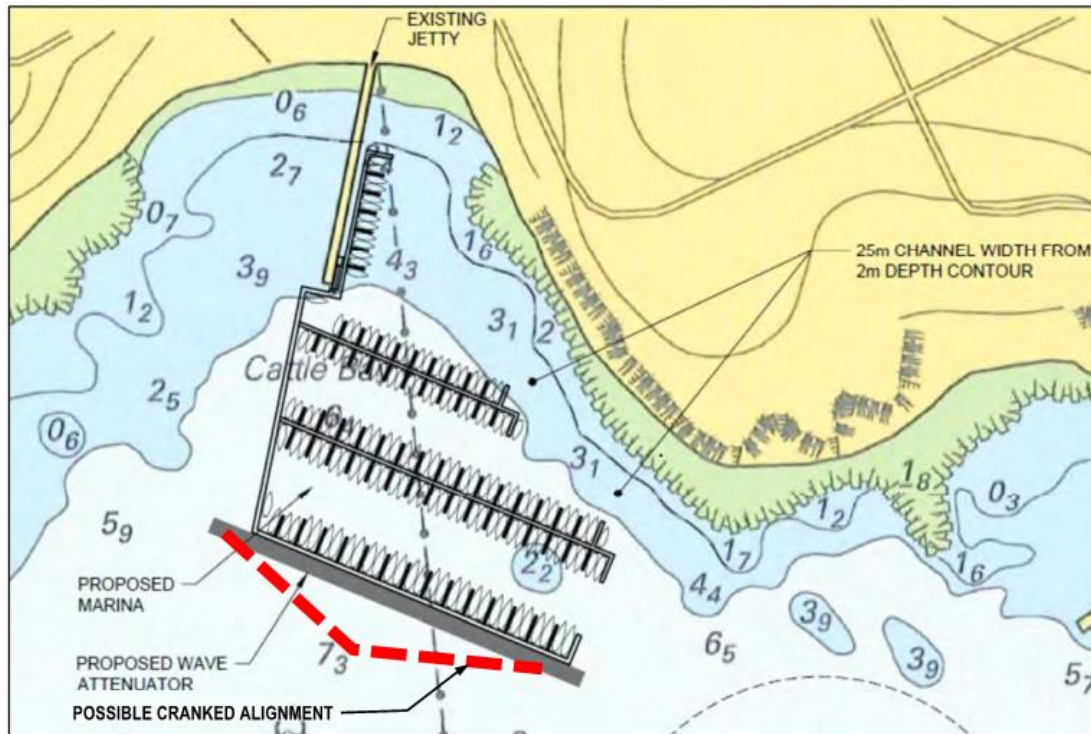
Gross Pollutant Trap where existing drainage pipe exits Lot 2 (before passing through Lot 4);

- Temporary car park comprising 97 spaces plus 3 loading/unloading spaces. The car parking spaces will be located on, and use, the existing concrete apron and stormwater drainage that remain following the demolition of the cannery buildings. This will involve minor rectification of the apron to make it suitable for use as a car park until the land side of the development is undertaken in accordance with the Concept Plan approval (when the car parking and servicing for the marina will be incorporated into the development of the site);
- The car park will utilise the existing site access gate off Cattle Bay Road; and,
- Temporary (portable) building to house marina administration and toilets. Access will meet disability standards.

No dredging or reclamation activities are proposed as part of the marina development.

No fuelling or repair and maintenance facilities are proposed as these are provided elsewhere in Twofold Bay.

Furthermore, no demolition of any existing structures within the site is proposed. The proposed works to the vegetation are limited to weed removal on the concrete slabs. The existing vegetation to the west and north within the site is not impacted by the proposed development.



**Figure 2: Proposed development**

## 1.4 Construction Works

The construction works would comprise the following main activities:

- **Site Set Up and Establishment of Environmental Controls.**
- **Refurbishment of Existing Jetty** – The extent of work required to refurbish the jetty is subject to a detailed condition assessment and may involve rehabilitation of existing timber piles, headstocks, girders and decking in a controlled manner. The type of plant involved in the works would include barge mounted cranes, transport barges, work boats and hand held power tools.
- **Relocation of Swing Moorings** – The removal and relocation of swing moorings would be undertaken by a commercial mooring contractor licensed by RMS.
- **Lowering of Rock Pinnacle** – Lowering of the rock pinnacle to -4 m CD would be undertaken in the first instance with a barge-mounted excavator fitted with a hydraulic hammer. Should the rock prove too hard for this method, it is proposed to use a non-explosive rock splitting expansive agent to pre-split the pinnacle prior to removal by excavator. Disposal of the broken rock would either be to land or onto the surrounding seabed (below -4 m CD) for habitat creation, subject to consultation with relevant authorities.
- **Pile Installation** – Piles for the marina would be delivered to site by barge (from the port area within Snug Cove) and installed from the water using a piling barge.
- **Installation of Pontoon Units** – Pontoon units would be manufactured off site and launched into the water by crane from the port area within Snug Cove and towed across to Cattle Bay into their correct locations, guided by GPS, for interconnection.
- **Installation of Services and Access Ramp** – Access ramps would be delivered to the site as one unit by barge and installed by barge-mounted crane. Installation of services pedestals, fire fighting equipment and power and water, including service cables and pipework, would be undertaken on site by licensed contractor.
- **Construction of Wave Attenuator** – The construction of the wave attenuator would require a series of vertical and raked piles to be driven by a piling barge. The precast concrete panels that comprise the vertical wave baffle would be manufactured off site and delivered to the site by barge (from the port area within Snug Cove) for lifting into place by a barge-mounted crane. Alternatively, the concrete panels may be cast on site.
- **Temporary Building Installation** – The temporary (portable) building would be delivered to the site by road and connected to existing potable water, sewerage and power services.
- **Weed Removal** – Weeds would be removed from in between the existing concrete slabs covering the land portion of the site.

A preliminary construction program has been prepared that envisages an overall construction period of approximately 16 weeks, including 8 weeks of piling activity.

## 2 OBJECTIVES

The purpose of the CEMP is to provide guidance on environmental control measures for the construction of the proposed marina development. It provides a manual for use by management, the construction team and an advisory document for agencies and stakeholders.

The aims and objectives of the CEMP are to:

- describe the nature and scope of anticipated environmental impacts, address relevant legislation and approval conditions, and outline actions to be taken to ensure compliance and to mitigate the environmental impacts identified before and through the execution of the construction contract;
- establish the environmental management process involving cooperation between all parties involved in the construction process to ensure understanding of the key environmental issues for this project so that objectives and targets are met. Standard and site specific procedures and equipment for mitigation of environmental damage will be implemented;
- satisfactorily manage water quality any sediment disturbance during the construction phase of the marina;
- realise optimum performance in the areas of demolition, piling (noise, disturbance of seabed, water quality etc.) and waste minimisation and to complete the project with no environmental incidents. To achieve these objectives all site workers will be instructed in their responsibilities of care and reporting, and familiarised with environmental safeguards;
- identify statutory and non-statutory responsibilities; and,
- document the environmental management process.

The CEMP ensures the aims and objectives are met through the following:

- documenting of all measures to be taken to manage identified impacts;
- providing a clear indication of the respective environmental responsibilities;
- setting standards and/or performance measures for the relevant environmental issues associated with the construction work;
- describing what actions and measures will be implemented to mitigate the potential impacts of these construction works, and ensure that these works will comply with the relevant standards and/or performance measures; and,
- describing what procedures will be implemented to register, report, and respond to any complaints or non-compliances during the construction works.



### 3 STATUTORY AND LICENCE REQUIREMENTS

The marina development is local development and subject to assessment and determination under Part 4 of the EP&A Act. The proposed development is also 'Designated Development' under Schedule 3 of the EP&A Regulation and 'Integrated Development' as, in addition to development consent, it requires permits or approvals under the *Protection of the Environment Operations Act 1997*, *Fisheries Management Act 1994* and *Water Management Act 2000*. The operation of the development as a marina is also a 'scheduled activity' within the meaning of Schedule 1 of the *Protection of the Environment Operations Act*.

Prior to commencement of construction works, a Part 7 permit for 'dredging and reclamation' (in relation to piling activities) and to 'harm marine vegetation' under the *Fisheries Management Act 1994* is required from Fisheries NSW.

Prior to commencement of waterside construction works, Harbour Master approval for the proposal is required to be obtained under clause 67 of the *Management of Waters and Waterside Lands Regulations – N.S.W.* in relation to the proposed disturbance of the bed of a 'special port'.

The Proponent (Eden Cattle Bay Marina Pty Ltd) shall be responsible for ensuring that all necessary approvals and licences are obtained prior to commencement of any works. Contractors and sub-contractors must comply with the terms and conditions of all approvals and licences obtained. This includes, but is not be limited to, the conditions of Development Approval.

During construction of the works all personnel shall also comply with the applicable environmental regulatory requirements.

## **4 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

### **4.1 General**

The following sections outline the environmental aspects and potential impacts associated with the construction activities for development of Cattle Bay Marina and the adopted mitigation measures, including specific undertakings arising from the environmental impact assessment and specialist studies.

### **4.2 Soil and Water Management**

Due to the water-based nature of the construction works it is not envisaged that the construction period would involve any significant disturbance of the land portion of the site. The existing concrete slabs would be utilised as a hardstand area for establishment of site offices and amenities, storage of construction equipment and materials, car parking, delivery of supplies and land-based access to the site by construction personnel. However, it is noted that the eastern part of the site may be subjected to flooding due to insufficient culvert capacity beneath Cattle Bay Road leading to overtopping of the road.

To mitigate potential impacts on water management from temporary occupation of the land portion of the site by the Contractor, the following measures shall be adopted:

- a Flooding Emergency Response Plan should be prepared to establish protocols for monitoring of flood levels, evacuation of construction personnel from the site compound (e.g. to the existing jetty or elevated land) and securing of construction equipment and materials;
- all demolition and waste products generated during construction period should be contained and removed from the site and disposed of appropriately to prevent them from being washed on to the beach or into the waterway;
- diversion of stormwater from hard surfaces through a coarse filter (gross pollutant trap) should occur to prevent any construction rubbish or debris from being washed on to the beach or into the waterway;
- bunding of chemical storage areas on site to prevent any leakages from being carried away by site runoff; and,
- all land-based equipment used during construction should be well maintained and serviced to reduce the likelihood of oil / fuel leaks and spills.

### **4.3 Sediment Quality**

Sediment sampling and analysis for a range of organic and inorganic substances was undertaken as part of EIS investigations. This concluded that the concentrations of substances were below the ANZECC sediment quality guidelines (Interim Sediment Quality Guideline – Low [ISQG Low]). As such, any minor disturbance of sediments that may occur during construction activities, such as pile driving, would not release contaminants into the water column that would adversely impact on the environment.

Sediments in the area of the proposed marina generally comprise fine to medium grained sand with less than 10% to 15% by weight mud (silts and clays). This fines fraction could exhibit acid sulfate soil potential, however the proposed construction works do not require the physical removal of any sediment or exposure of sediments above water to allow oxidisation to occur.

As such, the management of sediment quality is limited to issues associated with the potential for generation of turbidity from minor disturbance of bed sediments (refer Section 4.4).

#### **4.4 Water Quality**

The potential impacts of the construction works on water quality include turbidity caused by disturbance of the seabed and release of contaminants into the water as a result of fuel and oil spills, and leakages and release of sewage and bilge water, from floating plant. These potential adverse effects on water quality may impact on the surrounding aquatic ecology (refer Section 4.5) and the existing aquaculture industry.

To mitigate potential impacts on water quality from disturbance of bed sediments, the following measures shall be adopted:

- Contractors shall minimise propeller wash in shallow water (i.e. during refurbishment of the jetty) by avoiding weather and tide conditions that could heighten the risk of bed disturbance, this could be achieved by planning shallow water work for calmer early morning periods, high or rising tide conditions and avoiding shallow water work during periods of swell exposure;
- towing or pushing of vessels shall not involve the use of excessive engine power in shallow water areas and in the vicinity of seagrass beds and patches;
- undertaking works that may cause seabed disturbance during periods of calm weather where possible so that the potential for any suspended sediments to settle on inshore seagrass beds is minimised;
- turbidity control barriers (i.e. silt curtains) shall be used to enclose the areas of construction activities that have the potential to disturb the seabed (i.e. piling, jetty refurbishment);
- the use of sinking lines to secure or anchor floating plant shall be limited where possible;
- a Water Quality Management Plan (Ocean Environmental, 2015) shall be implemented by the Proponent, which includes a Water Quality Monitoring Program comprising the following elements:
  - baseline monitoring of physico-chemical parameters (i.e. temperature, salinity, pH, electrical conductivity, dissolved oxygen) and turbidity at two 'impact' sites within Cattle Bay and two 'control' sites on either side of Cocora Point;
  - collection of water samples and laboratory analysis of Total Suspended Solids (TSS) and turbidity to derive a relationship between TSS and turbidity for the site;

- monitoring of turbidity during construction at 'impact' and 'control' sites;
- the water quality trigger limit during construction shall be the exceedance of the background TSS (defined by measurement at 'control' sites) by more than 50 mg/L;
- NTU and corresponding TSS values shall be reported in a logbook that would be made available on request;
- 'stop work' procedures shall be put in place when turbidity values exceed the above trigger limit and be maintained until the turbidity levels return to less than 50 mg/L above background levels; and,
- post-construction monitoring and comparison with baseline monitoring results and relevant ANZECC water quality guidelines to assess any impacts.

To mitigate potential impacts on water quality from release of contaminants from operation of floating plant, the following measures shall be adopted:

- all floating plant and equipment used during construction should be well maintained and serviced to reduce the likelihood of oil / fuel leaks and spills;
- spill response kits suitable for the containment of fuel and oil spills shall be kept on construction vessels;
- any metal hardware which would leave marks on pontoon decks are to be kept in containers, any unnecessary cleaning of pontoon decks shall be avoided;
- work barges shall be kept clean and clear of unnecessary waste materials, operational oil and fuel cans shall be stored appropriately and securely fastened, and all pile barges equipped with oil absorbent pads and bunding as appropriate;
- work vessels shall be refuelled off site and bilge water or sewage shall not be discharged into the water at the construction site;

Mitigation measures associated with potential impacts to the aquaculture industry are outlined in the following:

- the Proponent shall notify the aquaculture permit holder(s) at least one week prior to commencement of any construction work (e.g. piling) that may result in the disturbance of any sediment.
- if any construction works cause water quality impacts that result in aquaculture lease area being closed to harvest by the NSW Food Authority, the Contractor must cease such works immediately and not recommence until the risk of adverse water quality impacts has been eliminated.
- if shellfish harvesting closure occurs as a result of water quality deterioration caused by construction works, the Proponent in cooperation with aquaculture permit holder(s) is to undertake testing, at the Proponent's cost, of the farmed shellfish to determine when shellfish is suitable for human consumption and the closure to harvest can be lifted; and,
- Fisheries NSW (1800 043 536) shall be immediately notified of any fish kills in the vicinity of the construction works. In such cases, all works other than emergency

response procedures are to cease until the issue is rectified and written approval to proceed is provided by Fisheries NSW.

## 4.5 Aquatic Ecology

The potential impacts of the construction works on aquatic ecology include:

- disturbance of bed sediments during jetty refurbishment, piling, propulsion (propeller wash) of floating plant and anchoring of vessels has the potential to cause turbidity;
- impact or high frequency pulse noise from use of piling, hammering, cutting and drilling tools may cause disruptive behavioural responses (e.g. animals moving away from the construction area) for marine mammals;
- shading or damage of seagrass by mooring of floating plant;
- anchors and cables used to secure floating plant may damage seagrass;
- the use of anchor cables that stretch and slacken in the water column presents a risk of cable strike or entanglement for marine mammals; and,
- introduced marine species (IMS) that may be supported on existing swing moorings could be transported to other locations within Twofold Bay during removal and relocation activities.

The potential impacts on aquatic ecology from disturbance of bed sediments shall be mitigated by implementing the water quality management measures outlined in Section 4.4.

To mitigate potential impacts on aquatic ecology from generation of construction noise, the following measures shall be adopted:

- avoid undertaking marine-based construction activities during October and November, which are the highest risk months for the presence of mother/calf whale pods in the region
- minimise construction activity in the remaining period of the core whale visitation season from mid-September to end September; and,
- undertaking works in the shoulder periods of the whale visitation season (i.e. August to September, and December) within the framework of a Marine Mammal Protection Plan, which incorporates:
  - establishment of safety zones around the construction area for 'observation' and 'shut-down' of construction activities subject to the proximity of marine mammals to the work area;
  - engagement of a suitability qualified marine mammal observer by the Contractor;
  - training of crew members in standard operational procedures for management of marine mammal monitoring and sightings; and,
  - preparation of piling activity reports, including records of marine mammal sightings and actions taken.



To mitigate potential impacts on aquatic ecology from mooring and the use of anchors and cables to secure floating plant, the following measures shall be adopted:

- floating plant shall not be moored directly over seagrass beds if there is a risk of there being less than 600 mm underkeel clearance at any time allowing for tide and wave action;
- floating plant shall not be moored over seagrass beds for longer than one complete 24 hour diurnal tidal cycle, in order to minimise shading impacts;
- avoid undertaking construction activities during the peak marine mammal visitation period and undertaking works in the shoulder periods within the framework of a Marine Mammal Protection Plan (as outlined above);
- placing floating plant on swing moorings overnight rather than a fixed mooring configuration to minimise cable oscillation;
- providing the Contractor with a geo-referenced map of seabed habitat limits with instructions that they cannot place anchors or other mooring apparatus into these habitats or allow cables to trail on the seabed ('cable scalping') and they are to target areas of bare sandy habitat for mooring and anchoring; and,
- the impacts of cable scalping shall be mitigated by the use of floating lines or buoying of sinking lines off the seabed.

To mitigate potential impacts on aquatic ecology from the potential spread or re-introduction of IMS within Twofold Bay, the following measures shall be adopted:

- preparation of an IMS Management Plan;
- fouling organisms from swing moorings to be relocated shall be removed, collected and disposed of to an appropriate landfill facility, or an alternative measure would be to undertake IMS surveys of the moorings prior to relocation with any priority IMS removed, collected and disposed of appropriately by the IMS survey team; and,
- preparation of a Marine Debris Clearance Plan for removal, collection and disposal of accumulated hard substratum rubbish under the existing jetty to a suitable landfill facility to prevent re-introduction of attached IMS to Twofold Bay.

## **4.6 Terrestrial Ecology**

The land portion of the site is highly disturbed due to its former use as the Heinz cannery. As a result of disuse, the site has been subjected to regrowth with weed vegetation. Construction works undertaken on this area of the site will include the removal of weeds from in between the existing concrete slabs.

To prevent the spreading of weed species to surrounding vegetated areas and to minimise site disturbance, removal of weeds shall be carried out in a controlled manner by hand, with vegetation contained and disposed of at a landfill facility. Weeds may be eradicated by environmentally acceptable methods using a non-residual glyphosate herbicide in any of its registered formulae.

#### 4.7 Air Quality

The proposed construction works are not expected to have any significant impacts on air quality.

Notwithstanding, the following mitigation measures shall be adopted as best practice:

- all plant and equipment should be registered to ensure it does not emit unacceptable levels of smoke/fumes; and,
- uncovered or stockpiled materials that may lead to the generation of dust should be covered or watered down.

#### 4.8 Noise

The construction works are expected to generate noise, with the main source of noise being from piling activities and use of a hydraulic hammer in lowering the rock pinnacle. The generation of noise by the predominantly water-based construction activities could have a potential impact on nearby residential dwellings and on marine mammals (refer Section 4.5).

A Construction Noise Management Plan (West and Associates, 2015) shall be implemented by the Contractor, which comprises the following measures:

- general construction activities shall be restricted to the following hours:
  - Monday to Friday 7.30 am to 5.00 pm;
  - Saturday 7.30 am to 1.00 pm; and,
  - No work on Sundays and Public Holidays.
- piling activities shall be restricted to Monday to Friday 8.00 am to 12.00 midday and 2.00 pm to 5.00 pm;
- to reduce noise during impact piling, acoustically treated driving heads shall be used and pile driving noise shall be limited to a Sound Power Level  $L_{A10,t=15 \text{ min}}$  of 105 dB(A);
- noise from site radios shall not exceed 50 dB(A) at the construction site boundaries;
- distribution of an introductory letter, construction program and sketches of the project works to all residences within a 50 metre radius of the construction site boundary;
- maintenance of a Noise Register by the Site Superintendent, which would record:
  - field noise measurements, including noise from radios at the site boundary and for required vehicles; and,
  - details of noise complaints received and rectification measures implemented.
- induction of all Contractor staff in noise management measures and procedures, including:

- construction hours for the site shall be displayed on the site shed;
- communication by construction staff to be done in close proximity or using two-way radios;
- shouting, use of horns, loud speakers etc. shall not be used to communicate over a distance;
- vehicle horns shall only be used as an emergency warning device;
- minimise slamming of vehicle doors;
- checking of noise levels from radios by the Site Superintendent and disallowed use of radios for repeat offenders;
- immediate reporting of noise complaints to the Site Superintendent; and,
- maintenance of equipment shall not be allowed on site except for the bobcat and front end loader and then only carried out during construction hours.

The following general measures shall also be implemented to reduce noise impacts:

- provision of signage at the perimeter of the site including Council information / feedback contact details for the works;
- prior approval of any variation of the above working hours by Council;
- provision of notification to residents and business regarding any variation of the above working hours and the duration of any change;
- use of equipment in good repair and condition;
- regular maintenance of all plant and equipment;
- fitting of appropriate silencers and mufflers on all plant and equipment when directed by Council;
- construction time on site shall be minimised through measures such as completing subassembly of the marina elements off site;
- multiple use of items of equipment shall be limited to avoid aggregation of noise levels;
- the Contractor would be required to meet all Occupational Health and Safety Regulations associated with workplace noise. This may include but is not limited to monitoring and appropriate control measures; and,
- all noise complaints received by the Site Superintendent / Council would be assessed and directed to the Contractor for immediate action and recording in the Noise Register.

## **4.9 Navigation and Waterway Usage**

The constructions works will impact on navigation and waterway usage as a result of the relocation of a number of existing swing moorings and occupation of the footprint of the

proposed marina throughout the construction period. Construction vessels delivering plant, equipment and materials from the port area within Snug Cove to the site within Cattle Bay will also interact with existing shipping operations and will be required to navigate through existing swing moorings.

Mitigation measures to minimise navigation and waterway usage impacts during construction include:

- preparation and implementation of a Swing Mooring Relocation Strategy in coordination with RMS;
- in coordination with the Harbour Master and other relevant authorities, a 'Notice to Mariners' shall be issued to advise the boating community of the extent, nature and duration of the construction activities;
- provision of special marker buoys, lighting of marker buoys and moored construction vessels for night-time navigation and appropriate signage to delineate construction areas in accordance with the requirements of the Harbour Master and other relevant authorities;
- construction vessels navigating from Snug Cove to Cattle Bay shall:
  - follow all Harbour Master directions;
  - adhere to the guidance provided in the 'Safety on the Water' sections of the RMS Boating Handbook;
  - comply with the International Regulations for Preventing Collisions at Sea which are adopted in NSW through the *Marine Safety (General) Regulation 2009*;
  - when navigating near, in or through a mooring area:
    - drive slowly and keep wash to a minimum;
    - keep a lookout for people in the water, small dinghies, and trailing ropes; and,
    - when travelling at 10 knots or more stay at least 30 m from any moored vessel.

#### **4.10 Aboriginal Heritage**

Following the identification of an Aboriginal heritage site outside the subject site for the proposed construction works, further investigations have identified a moderate to high potential for Aboriginal heritage evidence to occur in the form of shallow sub-surface deposits of stone artefacts across those portions of the site not entirely affected by recent land use (i.e. former cannery). However, the proposed construction works will involve minimal disturbance of the land portion of the site as land-based activities will be limited to installation of a temporary (portable) building, connections to existing potable water, sewerage and power services, and weed removal from the concrete slabs.

The following measures shall be implemented to mitigate the risk of the recovery of Aboriginal heritage artefacts on the site:

- if any item of indigenous significance is found during construction, work shall cease in the immediate area and the matter referred to Council, OEH and the Local Aboriginal Land Council, in accordance with the *Heritage Act 1977*; and,
- all construction personnel shall be briefed on the known and potential location(s) of Aboriginal heritage artefacts and the associated control and management measures during site induction.

#### **4.11 Waste Management**

Minimal waste will be generated on site due to the significant prefabrication of the marina components off site. Where waste generation is unavoidable it shall be appropriately separated so that all recyclable materials are recycled. All non-recyclable materials shall be disposed to an appropriate licensed waste facility.

Bins will be provided on-shore for recyclables and mixed waste and emptied regularly. All waste from construction works shall be placed in bins appropriate to the material. Any waste generated at the existing jetty (loading/unloading sites) or brought to the site by floating plant and equipment will also be placed in appropriate recycling bins to limit the use of landfill.

All Contractors and sub-contractors shall be instructed to keep tools and materials, and to maintain a tidy work space, to ensure that items such as nuts, bolts and wrappings do not fall into the water. Items that fall into the water shall be immediately removed.

#### **4.12 Public Access and Safety**

Existing public access to the beach at the site is provided by informal pedestrian access tracks from Cattle Bay Road to the east, Bay Street to the west and the foreshore. The jetty is also used by the public informally as it can be accessed from the beach and from Cattle Bay Road. The surrounding waterway is occupied by swing moorings and can be accessed by boat users and for passive recreation (e.g. kayaks and canoes).

During construction it is anticipated that public access would be temporarily restricted in the following areas:

- area of the land portion of the site occupied by the work compound and vehicle access for deliveries;
- the jetty;
- waterway area beneath and around the jetty;
- the area of the beach immediately adjacent to the jetty; and,
- the waterway area in the footprint and around the perimeter of the proposed marina and wave attenuator and swing mooring relocation areas.

Protection of public safety would be achieved by public notification, signage and physical demarcation of work areas. Mitigation measures to minimise public access and safety impacts during construction include:



- notification of the construction schedule to local business owners, residents, waterway user groups and swing mooring licence holders;
- barricading / fencing off of the proposed construction site including the site compound;
- provision of adequate signage around the construction site;
- provision of safe access to pedestrians around the site including appropriate signage and barricades, with construction personnel stationed at site entry/exit points to direct pedestrians;
- continuity of beach access shall be facilitated where possible by designated construction personnel ensuring safe passage of pedestrians, subject to the nature and proximity of construction activities being undertaken; and,
- implementation of the navigation safety measures outlined in Section 4.9.

#### **4.13 Traffic and Parking**

During construction it is not anticipated that construction traffic would have a significant impact on local traffic flow around Cattle Bay. Use of local roads would be episodic and related to short duration activities such as site establishment, plant and equipment mobilisation, delivery of materials to the site, waste disposal, delivery of the temporary (portable) building, parking of vehicles by construction personnel and site disestablishment. The hardstand area provided by the existing concrete slabs is more than adequate to accommodate parking and manoeuvring requirements of construction personnel and deliveries to site.

The existing wharf facilities in the port area within Snug Cove would be used for delivery of piles, pontoon units and precast concrete panels. This area has established wharf areas for these activities and can accommodate traffic associated with the delivery of equipment and materials required for the proposed works.

## **5 MANAGEMENT AND REPORTING**

### **5.1 Management Responsibilities**

The Project Manager for construction of the Cattle Bay Marina (to be appointed by the Proponent) shall be responsible for the following:

- ensuring all appropriate licences and consents are obtained for the construction works;
- ensuring all contractors comply with statutory and licence requirements;
- overseeing construction works and overall implementation of the CEMP; and,
- undertaking monitoring and inspections of the site, as required.

The Contractor (to be appointed) shall be responsible for the following:

- ensuring that all Work, Health and Safety regulatory requirements are met including preparation, maintenance, implementation and administration of a Work, Health and Safety Plan;
- ensuring implementation of the CEMP at site level;
- ensuring compliance with any relevant conditions of the DA consent and regulatory requirements;
- ensuring all records are completed as required in the CEMP;
- ensuring that all environmental protection measures are in place and functioning correctly;
- ensuring daily site inspections (Work, Health and Safety and environmental) are undertaken and recorded and reported appropriately;
- undertaking continuous visual monitoring of surface water within the silt curtains;
- ensuring incident reports and complaint reports are completed and followed up as required;
- ensuring adequate training of all employees and contractors;
- ensuring monitoring is conducted as required in the CEMP;
- ensuring non-conformance and corrective actions reports are reported to the Project Manager;
- ensuring corrective actions are undertaken in response to the requests made by the Project Manager regarding specific environmental or safety issues; and,
- ensuring all sub-contractors comply with statutory and licence requirement and conditions of the CEMP.

## 5.2 Reporting

The following reporting shall be undertaken:

- weekly reporting on piling operations, including any complaints, incidents, marine mammal sightings or evidence of non-compliance;
- weekly reporting covering outcomes of pollution and turbidity control and waste management;
- environmental incident reports (refer Appendix A), to be completed on site and promptly notified to the Project Manager. All complaints shall be noted and reported to the Proponent and relevant authority if appropriate. Where appropriate, the incident shall also be investigated and action taken to minimise any adverse environmental effects wherever possible;
- site walkover check, to be completed by the Project Manager during regular site inspections to check compliance and record corrective measures required; and,
- site personnel register, to be completed at induction.

## **6 REFERENCES**

Ocean Environmental (2015), *Cattle Bay Marina – Water Quality Management Plan*, draft report prepared for Eden Cattle Bay Marina Pty Ltd, March 2015.

West and Associates (2015), *Cattle Bay Marina Development Application Acoustic Report*, prepared for Eden Cattle Bay Marine Pty Ltd, April 2015.

# **APPENDIX A ENVIRONMENTAL INCIDENT / COMPLAINT REPORT**



## ENVIRONMENTAL INCIDENT/COMPLAINT REPORT

Any accident or incident which may impact on the environment **MUST** be reported.  
Any complaint **MUST** be recorded and reported.

Accident/Incident      Date: \_\_\_\_\_ Time: \_\_\_\_\_

Time, Date, Location and Duration of Incident:

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Person Reporting: \_\_\_\_\_

Nature / Details of Incident / Quantity of Pollutants etc:

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Actual or Suspected Cause:

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Action Taken or Proposed Action – Management & Prevention:

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Contractor: \_\_\_\_\_

Reported to: \_\_\_\_\_

Signature: \_\_\_\_\_

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