GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

EPA REFERRAL FORM PROPONENT

Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.

PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

CHECKLIST

Before you submit this form, please check that you have:

	Yes	No
Completed all the questions in Part A (essential).	✔	
Completed all applicable questions in Part B.	✔	
Included Attachment 1 – location maps.	✔	
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).	✔	
Included Attachment 3 – confidential information (if applicable).	N/A	
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.	✔	

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?		
☐ Yes	☒ **No**	☐ Not sure
If yes, what level of assessment?		
☐ Assessment on Proponent Information	☐ Public Environmental Review	

PROPONENT DECLARATION (to be completed by the proponent)

I Keith Woodward declare that I am authorised on behalf of The Shire of Exmouth to submit this form and further declare that the information contained in this form is true and not misleading.

Signature:	Name: Keith Woodward
Position: Executive Manager Engineering Services	Company: Shire of Exmouth
Date: 22 January 2015	

PART A - PROPONENT AND PROPOSAL INFORMATION

(All fields of Part A must be completed for this document to be treated as a referral)

1 PROPONENT AND PROPOSAL INFORMATION

1.1 Proponent

Name	The Shire of Exmouth
Joint Venture parties (if applicable)	Not Applicable
Australian Company Number (if applicable)	ABN 32 865 822 043
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	Address: PO Box 21, Lot 1136 Welch Street, Exmouth WA 6707
Key proponent contact for the proposal: • name • address • phone • email	Keith Woodward Executive Manager Engineering Services PO Box 21, Lot 1136 Welch Street, Exmouth WA 6707 Phone: (08) 9949 1699 emes@exmouth.wa.gov.au
Consultant for the proposal (if applicable): • name • address • phone • email	Ian Baxter Senior Principal Marine Environmental Scientist URS Australia Pty Ltd Level 4, 226 Adelaide Tce, Perth, WA 6000 Phone: 08 9326 0100 Ian.baxter@urs.com

1.2 Proposal

Title	Tantabiddi Boat Ramp Sand Bypassing
Description Tantabiddi Boat Ramp is located approximately 40 km from Exmouth on Tantabiddi beach and is maintained by the Shire of Exmouth (Shire of Exmouth 2014). Tantabiddi features one of the best boat ramps in Exmouth, providing direct access to the Ningaloo Reef and the start point for most boating tours, including whale shark tours. Tantabiddi Boat Ramp is very popular with the recreation boating fraternity, whale shark operators, government agencies who use the ramp for coastal compliance-related issues, research vessels and locals. The boat ramp is located within the Ningaloo Marine Park, Jurabi Coastal Park and the Ningaloo Coast World Heritage Area (**Attachment 1, Figure 1** and **Figure 2**). A severe rainfall event in 2014 caused Tantabiddi Creek (adjacent to the Tantabiddi Boat Ramp) to burst through the coastal sand dune, resulting in the undermining of the rock armour on the southern side of the ramp and the deposition of sand in front of, and adjacent to, the ramp. The boat ramp is currently acting as a barrier to the natural process of sand movement from south to north along the coastline. The Shire of Exmouth has already removed approximately 1,500 m^3 of sand (visual estimate only) using a long reach excavator in order to make the ramp useable. This sand has been	

stockpiled on the overflow parking area to the north of the boat ramp. A recent survey shows that approximately 3,500 m^3 of deposited sand remains within the ramp area, which reduces the depth available for safe navigation. Much of this remaining accumulation is beyond the reach of a long reach excavator.

In order to restore the navigable depths at the Tantabiddi Boat Ramp it is proposed to undertake mechanical sand bypassing whereby the accumulation of sand will be removed and used to renourish the beach immediately to the north of the boat ramp. The accumulation of 3,500 m^3 of sand will be removed from an area of approximately 1.4 ha by a small floating bucket wheel dredge vessel. The average depth of excavation will be less than 1 m. Mobilisation of the dredge vessel is proposed to be by low loader truck via the existing boat ramp. The positioning and movement of the dredge is by spuds and anchors, and the dredge vessel will be anchored within nearshore waters over the duration of this activity. Dredging is not a 24 hours operation and will be undertaken during daylight hours only. However, lighting will be required on the vessel for safety and navigational purposes, and will be limited to small red and green port and starboard markers, in addition to a white mast head marker.

The accumulated sediment (sand slurry) will be transferred to the adjacent beach location to the north of the ramp, via a small, submerged pipe. The allocated sediment transfer area is situated in the intertidal zone (**Attachment 1, Figure 2**). Sand transferred to the beach north of the ramp area will naturally dissipate with tidal movements. The predominant littoral drift is from south to north. The boat ramp is impeding the natural process of sand movement along the beach, causing an accumulation of sand on the southern side of the ramp. Placing the clean sand that has come from the Tantabiddi Creek to the north of the boat ramp will facilitate this natural process of littoral drift to the north. Seawater taken *in situ* will be used to create the sediment slurry. The proposed works will also include the relocation of rocks that have washed into the area by the storm event and have become a safety hazard. It is anticipated that a hole will be dredged alongside the rock and then the rock will be swept into the hole using the dredge ladder and cutter head.

All equipment will be stored in the adjacent car park and fuel will be stored in a locked, bunded container in the car park. The footprint of proposed works, including storage/laydown sites and sediment disposal area, is shown in **Attachment 1, Figure 2**. There will be two crew members on site at all times. The dredger does not contain accommodation facilities and crew members will seek accommodation at commercial facilities on land. There will be no sewage discharge to the marine environment and public amenities on Tantabiddi Beach will be used by vessel crew. As the dredger is not propelled, a second, small support vessel (possibly 22 foot) will be on site to transfer crew. The support vessel will also be used to transfer fuel from the storage area in the car park to the dredger. Therefore, the dredger will be bunkered at sea. A refuelling procedure will be in place and adhered to by trained staff.

Extent (area) of proposed ground disturbance.	It is proposed that approximately 3,500 m^3 of sand will be bypassed, covering an area of approximately 1.4 hectares (ha) (refer to **Attachment 1, Figure 2**). The average depth of excavation will be less than one metre.
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	As most of the proposed dredging entails shallow cuts, productivity will be at the lower end, with a maximum of 350 m^3 of material dredged per day. Due to this low productivity, the proposed works

	will take between eight to ten weeks to complete. This time frame includes mobilisation and demobilisation of the dredger. Start and finish dates have not yet been defined.
Details of any staging of the proposal.	No staging is required.
Is the proposal a strategic proposal?	No
Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the referred proposal was identified: • title of the strategic assessment; and • Ministerial Statement number.	No, the proponent is not seeking a derived proposal.
Please indicate whether, and in what way, the proposal is related to other proposals in the region.	The proposal is not related to other proposals in the region.
Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?	The Tantabiddi Boat Ramp is located in a Western Australian State miscellaneous reserve. The miscellaneous reserve is vested with the Shire of Exmouth and the (former) Western Australia Department of Conservation and Land Management, now the Department of Parks and Wildlife (Parks and Wildlife). The boat ramp is also partially located within the Jurabi Coastal Park. In addition, the Ningaloo Coast World Heritage Area extends over the entire project area and is managed by the Commonwealth Department of the Environment (DoE) (**Attachment 1, Figure 1**). The boat ramp is located within the Ningaloo Marine Park and within the Jurabi Coastal Park, both managed by Parks and Wildlife. Dredging works will be undertaken within the Ningaloo Marine Park and dredge material will be placed on the beach within the Jurabi Coastal Park (**Attachment 1**). The potential impacts and management measures for these activities in these areas have been addressed in **Section 2.6.2**. The Proponent has submitted a referral under the *Environment Protection and Biodiversity Act 1999* (EPBC Act) to the Commonwealth DoE. The proposal will also be managed in accordance with the Tantabiddi Boat Ramp Sand Bypassing Environmental Management Plan (EMP), which will be approved by Parks and Wildlife and the Marine Parks and Reserves

	Authority (MPRA) prior to commencement of the activity.

What is the current land use on the property, and the extent (area in hectares) of the property?

Land use

The Tantabiddi Boat Ramp is used for both recreational and commercial purposes. Some of the common users include: whale shark operators, fishing charters, dive and snorkel tours, government agencies that use the ramp for coastal compliance-related issues, research vessels and local fishermen. On average approximately 300 to 700 recreational boats are known to be in the vicinity of the project area (MPRA & CALM 2005).

The Tantabiddi Boat Ramp is a popular location and is where many of Exmouth's tour operators launch their vessels for swimming with whale sharks and manta rays, fishing charters, coral viewing from glass bottom boats, and for dive and snorkel tours (Parks and Wildlife 2013). Recreational fishing in the region is largely concentrated around major settlements in the surrounding areas of Coral Bay and Exmouth and relies heavily on the use of Tantabiddi Boat Ramp (Sumner et al. 2002).

The beach and boat ramp are adjacent to a recreation zone where recreational fishing is permitted. The Tantabiddi Sanctuary Zone does not permit fishing within the sanctuary, however viewing activities are allowed.

Whale shark interaction licences are issued to operators working from Coral Bay and Exmouth-based operators who operate out of Tantabiddi annually. The Exmouth operators have also incorporated a manta ray tourism opportunity (MPRA & CALM 2005). Little information exists to determine interaction pressures on the species. Therefore, until more monitoring and research information becomes available, the current number of licences available in any given year is set at 15 (Parks and Wildlife 2013).

Extent of property

The property consists of the boat ramp, hardstand areas and the car park.

The boat ramp is *approximately* 0.2 ha and the hard stand area/ car park are approximately 0.6 ha.

1.3 Location

Name of the Shire in which the proposal is located.	The Shire of Exmouth
For urban areas: • street address; • lot number; • suburb; and • nearest road intersection.	See below
For remote localities: • nearest town; and • distance and direction from that town to the proposal site.	Tantabiddi Boat Ramp is located approximately 40 km west of Exmouth on Tantabiddi Beach (Shire of Exmouth 2014a).
Electronic copy of spatial data - GIS or CAD, geo-referenced and conforming to the following parameters: • GIS: polygons representing all activities and named; • CAD: simple closed polygons representing all activities and named; • datum: GDA94; • projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA); • format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD.	Enclosed.

1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No
If yes, is confidential information attached as a separate document in hard copy?	Not Applicable

1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.	No
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.	Yes. The Proponent has submitted a referral under the EPBC Act to the DoE for the Tantabiddi Sand Bypassing project – EPBC (2015/7411) The proponent is currently preparing a Sand Bypassing EMP (**Attachment 1**) to manage the risks associated with, and the potential environmental impacts arising from, the sand

	bypassing and dredge material placement activities to be undertaken. The management plan has been prepared to meet the requirements of the Ningaloo Marine Park EMP (MPRA & CALM 2005), prepared by the MPRA and the former Department of Conservation and Land Management, now Parks and Wildlife. The plan will be prepared in accordance with the requirements of Parks and Wildlife, MPRA, and the DoE.

Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal
Department of the Environment (DoE)	Referral undertaken. Assumed not a controlled action.	Yes EPBC (2015/7411)	Tim Wyndham Phone: 02 6274 2363 Email: Tim.wyndham@environment.gov.au
Department of Parks and Wildlife, and Marine Parks and Reserves Authority	Review and approval of the Sand Bypassing EMP	Yes	Peter Barnes Marine Program Coordinator (Ningaloo Marine Park) WA Department of Parks and Wildlife – Exmouth District Phone: 08 9947 8024 Email: peter.barnes@dpaw.wa.gov.au Arvid Hogstrom District Manager Department of Parks and Wildlife Exmouth District Ph: 08 9947 8000 Email: arvid.hogstrom@dpaw.wa.gov.au Parks and Wildlife is liaising with the MPRA in regards to the proposed activity and the Sand Bypassing EMP.

PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

2.1 flora and vegetation;

2.2 fauna;

2.3 rivers, creeks, wetlands and estuaries;

2.4 significant areas and/ or land features;

2.5 coastal zone areas;

2.6 marine areas and biota;

2.7 water supply and drainage catchments;

2.8 pollution;

2.9 greenhouse gas emissions;

2.10 contamination; and

2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

(a) the source of the information; and

(b) the currency of the information.

2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

(please tick) ☐ Yes **If yes**, complete the rest of this section.

✔ **No** **If no**, go to the next section

Potential impact

The benthic habitat in the project area was smothered by sediment transported during the storm event. No flora or vegetation will be cleared. The proposal will only involve removing sand that had been deposited due to the storm and transferring it to the beach location to the north of the ramp, via a small, submerged pipe. The allocated sediment transfer area is situated in the intertidal zone (**Attachment 1, Figure 2**). The only benthic habitats at risk of additional impact from the action are those adjacent to the boundary of the project area. However, these short-term localised impacts would be offset by the return of the project area to productive macroalgal habitat. It is also noted that macroalgal habitats are widespread both locally and regionally. Benthic habitat mapping is provided in **Attachment 1, Figure 3** and **Figure 4**.

Proposed management

The project area boundary will be verified as correct prior to the commencement of dredging and will be added to the dredge's navigation system to minimise the potential for dredging or anchoring outside of the boundary.

2.1.2 How much vegetation are you proposing to clear (in hectares)?

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

☐ Yes ☐ No **If yes**, on what date and to which office was the application submitted of the DEC?

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

☐ Yes ☐ No **If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

☐ Yes ☐ No If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

☐ Yes ☐ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site?

☐ Yes ☐ No **If yes**, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

2.1.8 What is the condition of the vegetation at the site?

2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick) ✔ **Yes** **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.2.2 Describe the nature and extent of the expected impact.

A NatureMap search of the proposal area was undertaken (**Attachment 2.1**), with a 1 km buffer from the Tantabiddi Boat Ramp. Eight conservation listed species under the *Wildlife Conservation Act 1950* (listed species) were identified and are presented in **Table 1** below. The NatureMap search did not identify any listed reptiles in the vicinity of the ramp, however results from an EPBC Act Protected Matters database search identified six reptile species and these are also presented in Table 1. EPBC Act species that are not *Wildlife Conservation Act 1950* listed species are not presented in Table 1 but are discussed in the Sand Bypassing EMP.

Project-related activities may result in potential impacts to listed species that may include: light, noise, vessel collision, turbidity, and indirect impacts from dredging, such as a modification of benthic habitat. The extent of project-related impacts to listed species is likely to be limited to the area surrounding the proposed activity given the existing environment and the scale and short duration of the activity.

All potential impacts are considered and managed in the Sand Bypassing EMP, which will be approved by Parks and Wildlife and the MPRA prior to commencement of the activity. A summary of measures to manage potential impacts is presented below. Based on these management measures presented and adherence to the Sand Bypassing EMP, it is expected that the proposed action will not have a significant impact on any listed fauna species.

A summary of the existing environment, potential impacts and proposed management measures is provided in the following sections, and in the supporting documentation in **Attachment 2.2**.

Marine Mammals

Potential impacts

Direct impacts to listed species may be through routine underwater noise generated from vessels during dredging, or through vessel strike. This could possibly result in displacement of protected marine fauna, disruption to feeding and communication behaviour, or in mortality.

The project will be undertaken over a short period of time, minimising the duration of any noise-related impacts or disturbances.

Proposed management

Project briefing notes will be provided to personnel, outlining HSE considerations and details of the environment in which they will be working. These will highlight the potential for listed species to be present in the project

area. Standard vessel maintenance procedures will be implemented. Vessels and machinery will be maintained in accordance with the manufacturer's specifications to reduce underwater noise and chemical leakages to marine waters.

Vessels will be moving at slow speeds, limiting the potential for vessel strike. Interaction between vessels and cetaceans within the project area will be consistent with EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.04 – Interacting with cetaceans) which are as follows:

- Vessels will not travel at greater than 6 knots within 300 m of a cetacean (caution zone) and minimise noise.
- Vessels will not approach closer than 50 m for a dolphin and/or 100 m for a whale (with the exception of animals bow riding).
- Dredging will cease if dugongs or dolphins enter within 50 m of the dredge, or if dolphins with calves enter within 150 m of the dredge.

Marine reptiles

Potential impacts

The proposed action may potentially expose the listed turtle species to direct impacts (interaction with vessels, noise and light) and indirect impacts (short-term reduction in macroalgal productivity). Dredging activities will be undertaken over a short period of time and will only be undertaken during daylight hours (not a 24 hour operation), reducing the potential for light, noise and vessel strike impacts. This will reduce the potential for impacts to marine turtles that nest during the night.

Safety lighting will be used on the dredger when anchored in nearshore waters (the dredger will not be operational). Light impacts have the potential to cause disorientation, attract or repel marine fauna, or cause disruption to natural patterns and cycles.

As turtles can live in turbid environments, they are unlikely to be directly impacted by turbid plumes arising from the dredging. There may be a short-term reduction in the productivity of macroalgal communities around the project area, but similar communities are widespread in the region and will provide an alternative food source for those turtle species that feed upon them. The proposed action is likely to increase local macroalgal productivity in the long term as the removal of the sand will expose habitats for recolonisation by macroalgae.

The dunes adjacent to the Tantabiddi Boat Ramp may provide suitable nesting areas for turtles. Dredged sand will be deposited only onto the intertidal zone of the beach to the north of the boat ramp, and will avoid the dunes. Therefore, there is no risk of impact upon turtle nests (if present, these will be in the supratidal zone). While turtle nesting has been observed in the area, Tantabiddi Beach is not recognised as a preferred turtle nesting beach.

Proposed management

Potential impacts to listed marine turtles will be managed in accordance with the Sand Bypassing EMP. The plan requires that dredging will cease if turtles enter within 50 m of the dredge.

Dredge material will be deposited at as thin a layer as possible, to allow for any potential turtle hatchlings to traverse.

Lighting on board the dredger will be adequate to meet safety requirements, however it will be minimised where possible. Deck lights will be positioned to only light up the deck and will not be directed into the surface of the water.

Birds

The summer period and the autumn/winter period are the two peak periods of seabird activity within the North-west Marine Region. Seabirds could potentially be present in the waters of the project area, however as they are typically observed to feed, roost and breed on offshore islands or the mainland, it is considered highly unlikely that they could be significantly impacted by the project.

Given the types of vessels to be used, vessel strike and entanglement with infrastructure are considered not to pose credible risks to the listed bird species. The deposition of sand to the north of the boat ramp area is unlikely to impact on nesting areas as sand will only be transferred to the intertidal zones of the beach, and not to dune or vegetation areas suitable for bird nesting.

Fish

Potential impacts

Direct impacts to migratory fish species may be through routine underwater noise generated from vessels during dredging, or through vessel strike. This could possibly result in displacement of protected marine fauna, disruption to feeding, or in mortality.

The proposed action may potentially expose giant manta ray to direct impacts from interaction with vessels. However, the risk of impact is considered low as the operating dredge will be stationary most of the time and the supply vessel will travel at slow speeds over short distances in shallow water.

Proposed management

The project will be undertaken over a short period of time, minimising the duration of any noise related impacts or disturbances. Standard vessel maintenance procedures will be implemented. Vessels and machinery will be maintained in accordance with the manufacturer’s specifications to reduce underwater noise and chemical leakages to marine waters.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

☐ Yes ✔ **No**

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

Benthic habitat mapping was conducted for the project. Some benthic habitat may provide potential habitat for listed species (**Table 1**).

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

✔ **Yes** ☐ No (please tick)

A search of the Parks and Wildlife NatureMap database was undertaken for the proposal area. The search was undertaken with a 1 km buffer in January 2015 for State conservation significant fauna with the potential to occur within the proposal area. Species listed with a State conservation status recorded in the NatureMap search and species listed under the *Wildlife Conservation Act 1950* are included in the Sand Bypassing EMP and are presented in **Table 1**. This includes 22 species, comprising marine mammals, marine reptiles, fish and birds. These species and/or their habitat may occur within the proposal area. The results of the search are presented in **Attachment 2.1**.

Table 1 provides a summary of the species, State *Wildlife Conservation Act 1950* status, likelihood of occurrence and if the proposal impacts biologically important areas for these species. Other State listed species with the potential to occur within the proposal area that do not have a conservation status were also identified in the NatureMap search and are presented in **Attachment 2**. Potential impacts, management measures and more information about these conservation significant species are addressed in the Sand Bypassing EMP (**Attachment 1**) and in Section 2.2.2 above. EPBC Act listed species are presented and addressed in the Sand Bypassing EMP.

Table 1 – State listed fauna species recorded in the fauna NatureMap search and listed under the *Wildlife Conservation Act 1950*

Species	*Wildlife Conservation Act 1950* Status	Likelihood of Occurrence	Project in Biologically Important Area for species?
Marine Mammals			
Balaenoptera musculus Blue whale	Endangered	Species or species habitat unlikely to occur within project area	No
Eubalaena australis Southern right whale	Vulnerable		
Megaptera novaeangliae Humpback whale	Vulnerable	Species or species habitat known to occur in region, but unlikely to occur within project area	Yes
Dugong dugon Dugong	Other Protected Fauna	Breeding known to occur in region but not recorded within project area	
Sousa chinensis Indo-Pacific humpback dolphin	Priority 4	Species or species habitat may occur within project area	No
Terrestrial Mammals			
Petrogale lateralis lateralis Black-flanked rock-wallaby	Vulnerable	Species habitat not present within project area	N/A
Marine Reptiles			
Aipysurus apraefrontalis Short-nosed seasnake	Critically Endangered	Species or species habitat unlikely to occur within project area	N/A
Caretta caretta Loggerhead turtle	Endangered	Breeding known to occur in region and may occur within project area	Yes
Chelonia mydas Green turtle	Vulnerable		
Dermochelys coriacea Leatherback turtle	Vulnerable		No
Eretmochelys imbricata Hawksbill turtle	Vulnerable		Yes
Natator depressus Flatback turtle	Vulnerable		
Fish			
Milyeringa veritas Blind gudgeon	Vulnerable	Species habitat not present within project area	N/A
Sharks			
Carcharias taurus (west coast population) Grey nurse shark	Vulnerable	Species or species habitat known to occur within region and may occur within project area	No
Carcharodon carcharias Great white shark*			
Rhincodon typus Whale shark	Other Protected Fauna	Species or species habitat known to occur within region but unlikely to occur within project area	
Birds			
Actitis hypoleucos Common sandpiper	Protected under International Agreement	Species habitat not be present within project area, but species may overfly project area	N/A
Arenaria interpres Ruddy turnstone			
Pluvialis squatarola Grey plover			
Sterna dougallii roseate tern			No
Tringa brevipes Grey-tailed tattler			N/A
Ardeotis australis Australian bustard	Priority 4		

Table Notes:
EPBC Act species that are not *Wildlife Conservation Act1950* listed species are discussed in the Sand Bypassing EMP.
N/A = Species information was not available in the DoE Conservation Values Atlas.
Conservation Codes for Western Australia

- Threatened (T): Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice; Threatened Fauna (Fauna that is rare or is likely to become extinct).
- Protected under International Agreement (IA): Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice; Migratory birds protected under an international agreement.

- Other Protected Fauna (S): Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice; Other specially protected fauna.

State Rank:
- Critically Endangered (CR) = considered to be facing an extremely high risk of extinction in the wild.
- Endangered (EN) = considered to be facing a very high risk of extinction in the wild.
- Vulnerable (VU) = considered to be facing a high risk of extinction in the wild.

Priority Codes
- Priority Four (P4) = Rare, Near Threatened and other species in need of monitoring

*The great white shark is listed as 'Threatened' in the NatureMap database but 'Vulnerable' under the *Wildlife Conservation Act 1950*.

Are there any known occurrences of Specially Protected (threatened) fauna on the site?

✔ **Yes** ☐ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

Refer to Section 2.2.2 and Section 2.2.4 of this form.

2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick) ✔ **Yes** **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

The Tantabiddi Boat Ramp is adjacent to Tantabiddi Creek.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

☐ Yes ✔ **No** **If yes**, please describe the extent of the expected impact.

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

☐ Yes ✔ **No** **If yes**, please describe the extent of the expected impact.

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

☐ Yes ✔ **No** **If yes**, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

☐ Yes ✔ **No** **If yes**, please describe the extent of the expected impact.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	☐ Yes	✔ **No**	☐ Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	☐ Yes	✔ **No**	☐ Unsure
Perth's Bush Forever site	☐ Yes	✔ **No**	☐ Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	☐ Yes	✔ **No**	☐ Unsure
The management area as defined in s4(1) of the *Swan River Trust Act 1988*	☐ Yes	✔ **No**	☐ Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	☐ Yes	✔ **No**	☐ Unsure

2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

☐Yes ✔ **No** **If yes**, please provide details.

The Tantabiddi Boat Ramp is not located within or adjacent to an existing or proposed National Park or Nature Reserve. Cape Range National Park is located approximately 4 km south of Tantabiddi Boat Ramp.

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

☐ Yes ✔ No **If yes**, please provide details.

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

☐ Yes ✔ No **If yes**, please provide details.

2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300 metres of a coastal area?

(please tick) ✔ **Yes** **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?

The allocated sediment transfer area is situated in the intertidal zone and is not within dunes (**Attachment 1, Figure 2**). The accumulated dredge sediment (sand slurry) will be transferred to the adjacent beach location to the north of the ramp, via a small, submerged pipe. The sand would be used to renourish a stretch of the beach immediately north of the boat ramp and provide protection against potential dune erosion caused by storm events.

Sand transferred to the beach north of the ramp area will naturally dissipate with tidal movements. The predominant littoral drift is from south to north. The boat ramp is impeding the natural process of sand movement along the beach, causing an accumulation of sand on the southern side of the ramp. Placing the clean sand that has come from the Tantabiddi Creek to the north of the boat ramp will facilitate this natural process of littoral drift to the north.

Dredging will be at least 95 m from the primary dune. Placement of the dredged material in the intertidal zone will be at least 10 m from the primary dune.

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cuspate headland, coastal dunes or karst?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact.

The allocated sediment transfer area is situated in the intertidal zone and is not within dunes (**Attachment 1, Figure 2**). Please refer to Section 2.5.2 above.

2.5.4 Is the development likely to impact on mangroves?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact.

2.6 Marine areas and biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

✔ Yes ☐ No **If yes**, please describe the extent of the expected impact.

The proposed action will be undertaken in the shallow nearshore waters of the boat ramp, and the sand will be transferred to the adjacent beach location within the intertidal zone. Benthic habitat mapping (**Attachment 1, Figure 3** and **Figure 4**) indicates that seagrass beds suitable for dugong foraging are not present in the immediate vicinity of the project area. The benthic habitat around the project area is predominantly macroalgae on sand. This habitat is widely represented within the project area, and within the region, as shown in **Attachment 1, Figure 3** and **Figure 4**. Whilst dugong prefer seagrass as a food source, they are known to also graze on algae and macro-invertebrates.

Prior to the storm event the benthic habitat within the project area comprised predominantly areas of sparse macroalgae with limestone pavement and patches of sand. Macroalgal beds play an important role in primary production and provide important habitat for vertebrate and invertebrate fauna. Macroalgal meadows in the Ningaloo Marine Park reserves are generally found on the

shallow limestone lagoonal platforms and occupy about 2200 ha in the region. The benthic habitat within the project area was smothered by the sediment deposited during the storm event (**Attachment 1, Figure 4**).

Reduction in the quantity or quality of benthic habitats has the potential to impact marine fauna food sources, recreational fishing values, commercial fishing resources and the general diversity and health of the marine ecosystem. Disturbance to benthic habitat may occur as a result of anchoring within the project area, planned seabed disturbance as a result of dredging, and unplanned/accidental dredging outside of the planned disturbance area.

Smothering of benthic habitat may result in a decrease to productivity of photosynthesising marine species, loss of habitat for protected marine species and other fauna, and indirect impacts to protected marine fauna. However, the action will return the habitat to one that is similar to that which existed before the deposition of the sand; this may enable macroalgae to re-establish, thereby returning the value of the habitat to listed species.

Given the benthic habitat in the project area was smothered by sediment transported during the storm event, the only benthic habitats at risk of additional impact from the action are those adjacent to the boundary of the project area. However, these short-term localised impacts would be offset by the return of the project area to productive macroalgal habitat. It is also noted that macroalgal habitats are widespread both locally and regionally. The project area boundary will be verified as correct prior to the commencement of dredging and will be added to the dredge's navigation system to minimise the potential for dredging or anchoring outside of the boundary.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

✔ **Yes** ☐ No **If yes**, please describe the extent of the expected impact.

Ningaloo Reef is the largest fringing reef in Australia; it is recognised as an area of high biodiversity with over 200 coral species, 600 different molluscs and 500 tropical fish species inhabiting the 300 km long reef. Ningaloo is also an important feeding and breeding area for important marine species such as manta rays, sea turtles, dugongs, whale sharks, sea birds and several different cetaceans such as humpback and southern right whales. In order to preserve its extraordinary ecological and social values Ningaloo has been declared a Marine Park, protected under the Ningaloo Marine Park Management Plan (MPRA & CALM 2005).

The beach area and boat ramp are located in a miscellaneous reserve which is vested with the Shire of Exmouth and the (former) Western Australia Department of Conservation and Land Management (now Parks and Wildlife). The boat ramp is also partially located within the Jurabi Coastal Park. Dredging works will be undertaken within the Ningaloo Marine Park and dredge material will be placed on the beach within the Jurabi Coastal Park (**Attachment 1, Figure 1 and Figure 2**).

Potential impacts and mitigation measures are presented in **Attachment 2.2**. The extent of expected impacts are summarised below:

- Benthic habitats – habitat in the area to be dredged in the Ningaloo Marine Park is already smothered by the sand deposited during the storm event (Section 2.1.1). Management measures will be in place to minimise potential impacts from potential plumes that may occur during dredging. No mooring will be permitted outside the dredge footprint.
- Coastal processes – placement of the dredge material will be north of the boat ramp in the intertidal zone and will be dissipated with tidal movement following the natural process of littoral drift to the north (Section 2.5.2). No impact on coastal processes is expected.
- Marine fauna – trained marine fauna observers will be on duty and dredging will cease when listed marine fauna (turtles, dolphins, dugongs) enter within 50 m of the dredge.
- Marine environmental quality - no discharge of liquid effluent or solid wastes are permitted in the Ningaloo Marine Park (Section 2.8.5). Management measures will be in place to prevent accidental release of solid wastes and hydrocarbons to reduce impacts if releases of these materials occur.
- Management measures will be in place to obviate the risk of introduction of invasive marine species and the dredger will undergo a biofouling inspection by a suitably qualified inspector.
- Visual amenity – due to the short-term dredging programme, minimal impacts on visual amenity are expected. All equipment will be removed upon completion of the project.
- Heritage – no impact on Aboriginal heritage or Ningaloo Coast World Heritage Area is expected. The activity is being undertaken in an area that is adjacent to a recreation zone under the Ningaloo Marine Park Environmental Management Plan.
- Human health – between 300 and 700 vessels are estimated to visit the recreation zone of the Ningaloo Marine Park per year. If any public safety incidents occur, these will be recorded and reported to the Shire and to Parks and Wildlife. Community consultation will be undertaken and signage placed at the ramp during the operation of the project.
- Air quality – dredging will be a short-term programme and diesel engines will use low sulphur fuels that are regularly maintained under a maintenance programme.

The proposed activity will be undertaken in accordance with the Sand Bypassing EMP, which has been prepared to meet the requirements of Parks and Wildlife, the MPRA and the DoE. The plan has also been prepared to meet the requirements of the Ningaloo Marine Park Environmental Management Plan (MPRA & CALM 2005) and the Marine Bioregional Plan for the North-west Marine Region (DSEWPaC 2012), which were prepared by these departments.

It is concluded that the proposed action does not pose a significant risk of causing any of the Ningaloo Marine Park values to be lost, degraded or damaged, or to be notably altered, modified, obscured or diminished.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

✔ Yes ☐ No **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

The Tantabiddi Boat Ramp is a frequently used facility for accessing the western coast of the North West Cape, with approximately 700 vessels launched per year. The beach and boat ramp are adjacent to a recreation zone where recreational fishing is permitted. The Tantabiddi Sanctuary Zone does not permit fishing within the sanctuary, however viewing activities are allowed.

The Tantabiddi Boat Ramp is a popular location and is where many of Exmouth's tour operators launch their vessels for swimming with whale sharks and manta rays, fishing charters, coral viewing from glass bottom boats, and for dive and snorkel tours (Parks and Wildlife 2013). Recreational fishing in the region is largely concentrated around major settlements in the surrounding areas of Coral Bay and Exmouth and relies heavily on the use of Tantabiddi Boat Ramp (Sumner et al. 2002). Whale shark interaction licences are issued to operators working from Coral Bay and Exmouth-based operators who operate out of Tantabiddi annually.

Potential impacts

Dredging may temporarily reduce the quantity or quality of benthic habitats, which has the potential to impact marine fauna food sources, recreational fishing values, commercial fishing resources and the general diversity and health of the marine ecosystem. Turbidity from dredging may also temporarily reduce visual amenity in the areas of the Ningaloo Marine Park and the Ningaloo Coast World Heritage area (**Attachment 1, Figure 1 and Figure 2**) in the vicinity of the works.

Proposed management

Impacts are expected to be minor given the following management measures for the proposed activity:

- The activity will only be undertaken over a short timeframe.
- Dredging is not a 24 hour operation and will be undertaken during daylight hours only.
- Stakeholder notifications will be undertaken, including community notices and information posted on the Shire’s web site.
- Temporary buoys to assist with the redirection of vessels may be installed if required.
- The dredging activity will not be undertaken during the peak tourist season.
- Signage will be placed at the boat ramp advising stakeholders of the project.

The Sand Bypassing EMP provides further information regarding potential impacts and management measures, which will be assessed and approved by Parks and Wildlife and MPRA prior to commencement of the project.

2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☐ Yes ✔ **No** **If yes**, please describe what category of area.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☐ Yes ✔ **No** **If yes**, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

☐ Yes ✔ **No** **If yes**, please describe what category of area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

✔ **Yes** ☐ No (please tick)

2.7.5 Will the proposal require drainage of the land?

☐ Yes ✔ No **If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick) ✔ **Yes** **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

Seawater will be taken *in situ* to make sediment slurry for the easy transfer and deposition of slurry at the proposed beach location. There are no other water or chemical requirements to create the slurry, or for the proposal.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

Not applicable.

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

No surface water or ground water will be used for the proposal. Seawater taken *in situ* will be used to create the sediment slurry.

2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick) ✔ **Yes** **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

☐ Yes ✔ **No** **If yes**, please describe what category of prescribed premise.

2.8.3 Will the proposal result in gaseous emissions to air?

☐ Yes ✔ **No** **If yes**, please briefly describe.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

☐ Yes ✔ **No** **If yes**, please briefly describe.

2.8.5 Will the proposal result in liquid effluent discharge?

☐ Yes ✔ **No** **If yes**, please briefly describe the nature, concentrations and receiving environment.

The dredged sand and sediment will be deposited at the beach location as slurry, comprising seawater that shall be taken *in situ* from the proposal area.

There will be no discharge of putrescibles, waste water or bilge by the vessels, and standard shipboard waste procedures, including segregation and storage of non-hazardous solid waste and other forms of waste will be adhered to. There will be no sewage discharge to the marine environment and public amenities on Tantabiddi Beach will be used by vessel crew.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

☐ Yes ☐ No **If yes**, please describe.

Not Applicable – There will be no planned discharges to watercourses or the marine environment.

2.8.7 Will the proposal produce or result in solid wastes?

☐ Yes ✔ **No** **If yes**, please briefly describe the nature, concentrations and disposal location/ method.

There will be no discharge of putrescibles, and standard shipboard waste procedures, including segregation and storage of non-hazardous solid waste and other forms of waste will be adhered to. There are public amenities at Tantabiddi Beach that will be available to vessel crew.

2.8.8 Will the proposal result in significant off-site noise emissions?

☐ Yes ✔ **No** **If yes**, please briefly describe.

Underwater noise will be generated by vessels during dredging. Potential impacts (Section 2.2.2) will be managed in accordance with the Sand Bypassing EMP. The following management measures will be implemented to minimise and mitigate potential noise impacts:

- Dredging activities will be undertaken over a short period of time and will only be undertaken during daylight hours (not a 24 hour operation); minimising the duration of any noise related impacts or disturbances.
- Standard vessel maintenance procedures will be implemented. Vessels and machinery will be maintained in accordance with the manufacturer's specifications to minimise underwater noise.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

☐ Yes ✔ **No** **If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

☐ Yes ✔ **No** **If yes**, please describe and provide the distance to residences and other "sensitive premises".

2.8.11 If the proposal has a residential component or involves “sensitive premises”, is it located near a land use that may discharge a pollutant?

☐ Yes ☐ No ✔ **Not Applicable**

If yes, please describe and provide the distance to the potential pollution source

2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

☐ Yes ✔ **No** **If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

☐ Yes ✔ **No** ☐ Unsure **If yes**, please describe.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

☐ Yes ✔ **No** **If yes**, please describe.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

☐ Yes ✔ **No** **If yes**, please describe.

2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

✔ **Yes** ☐ No ☐ Unsure **If yes**, please describe.

The Ningaloo region has significant Indigenous heritage values associated with historical and current use by Indigenous people (MPRA & CALM 2005). The foreshore and hinterland of North West Cape contain numerous Aboriginal sites such as burial grounds, middens and fish traps that provide a historical account of the early habitation of the area and a tangible part of the culture of local Aboriginal

groups (MPRA & CALM 2005). Aboriginal habitation of the North West Cape and Exmouth is thought to have commenced at least 32,000 years ago and continues up to the present (Western Australian Planning Commission 2004). Although the majority of local Aboriginal people live in towns such as Carnarvon and Onslow, individuals and families retain strong ties to particular sites. The Jinigudira and the Baiyungu of the North West Cape are recognised as the traditional owners of these lands (MPRA & CALM 2005)

It is suggested that Indigenous hunting in the region is minimal, as the Baiyungu will generally only catch turtles for large family occasions and this may occur only once or twice a year (MPRA & CALM 2005). Due to the relatively short timeframe and temporary nature of potential impacts, it is unlikely that there will be any significant impact to the Indigenous heritage values of the area.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

✔ **Yes** ☐ No **If yes**, please describe.

The boat ramp is located within the Ningaloo Marine Park, Jurabi Coastal Park and the Ningaloo Coast World Heritage Area (**Attachment 1**). Please refer to Section 2.6.2 of this form for more information on potential impacts and management measures in these areas, and to Section 2.6.3 for more information regarding recreational/commercial activities in the project area.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

☐ Yes ✔ **No** **If yes**, please describe.

All equipment will be temporarily stored in the adjacent car park and fuel will be stored in a locked, bunded container in the car park (**Attachment 1**, **Figure 2**).

3. PROPOSED MANAGEMENT

3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

1. The precautionary principle.	✔ **Yes**	☐ No
2. The principle of intergenerational equity.	✔ **Yes**	☐ No
3. The principle of the conservation of biological diversity and ecological integrity.	✔ **Yes**	☐ No
4. Principles relating to improved valuation, pricing and incentive mechanisms.	✔ **Yes**	☐ No
5. The principle of waste minimisation.	✔ **Yes**	☐ No

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

✔ **Yes** ☐ No

EPA environmental factors and objectives, existing environment, potential impacts and management are presented in Attachment 2.2. A summary is also presented in Section 2.6.2.

3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

✔ **Yes** ☐ No **If yes**, please list those consulted and attach comments or summarise response on a separate sheet.

The proponent prepared Public Council minutes for 14 December 2013, 15 February 2014 and 15 March 2014. In addition to this, the proponent proposes to undertake the following stakeholder consultation in relation to the proposed activity:

- information posted on public notice boards
- a fact sheet will be available on the Shire of Exmouth website
- a Notice to Mariners will be issued prior to the activity commencing
- meeting appointments with the local Exmouth District Parks and Wildlife staff.

References

Department of Parks and Wildlife (Parks and Wildlife) 2013. *Tantabiddi Boat Ramp: Activities. Explore Parks WA. Government of Western Australia.* Available online at: http://parks.dpaw.wa.gov.au/site/tantabiddi-boat-ramp. Accessed 27 November 2014.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2012. *Marine bioregional plan for the North-west Marine Region, prepared under the Environment Protection and Biodiversity Conservation 1999.* Commonwealth of Australia, Canberra.

Marine Park and Reserves Authority and Department of Conservation and Land Management (MPRA & CALM) 2005. *Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005 – 2015*. Management Plan No. 52.

Shire of Exmouth 2014. *Boat Ramps. Exmouth Boat Harbour.* Available online from: http://www.exmouth.wa.gov.au/boat-ramps.aspx. Accessed on 1 December 2014.

Sumner, NR, Williamson, PC & Malseed, BE 2002. *A 12-Month Survey of Recreational Fishing in the Gascoyne Bioregion of Western Australia During 1998-1999*. Government of Western Australia. Fisheries Research Report No 139.

Western Australian Planning Commission 2004. *Ningaloo Coast Regional Strategy Carnarvon to Exmouth. August 2004.* Western Australian Planning Commission, Perth Western Australia.

Attachments

ATTACHMENT 1: FIGURES

- Figure 1: Regional Overview
- Figure 2: Project area for sand removal (dredging) and sand disposal (dredge material)
- Figure 3: Benthic habitat in the region of Tantabiddi Boat Ramp
- Figure 4: Benthic habitats in the vicinity of Tantabiddi Boat Ramp

ATTACHMENT 2: ADDITIONAL DOCUMENTS

- Attachment 2.1: Fauna database searches
- Attachment 2.2: Potential impacts and mitigation summary table.

ATTACHMENT 1: FIGURES

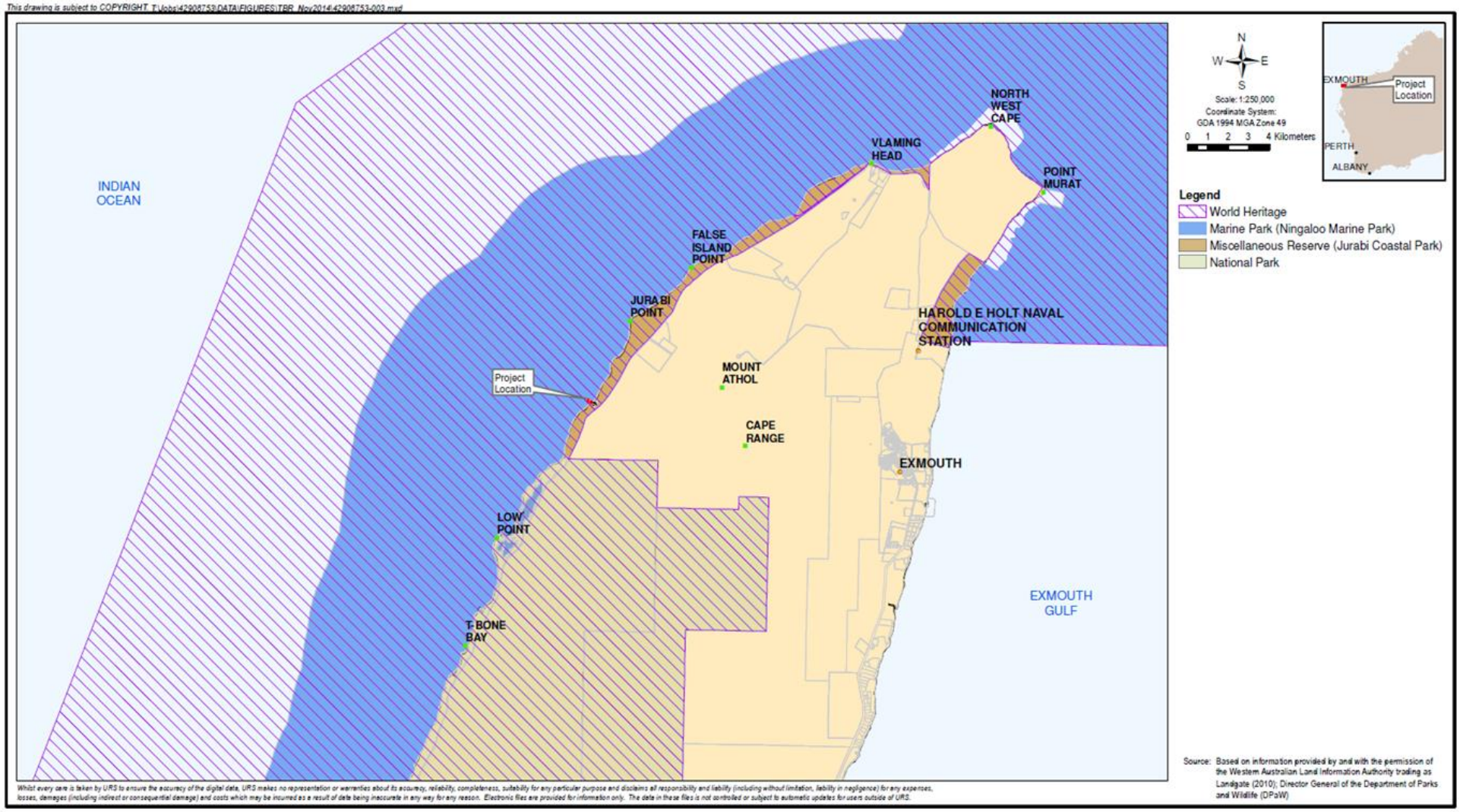


Figure 1: Regional Overview

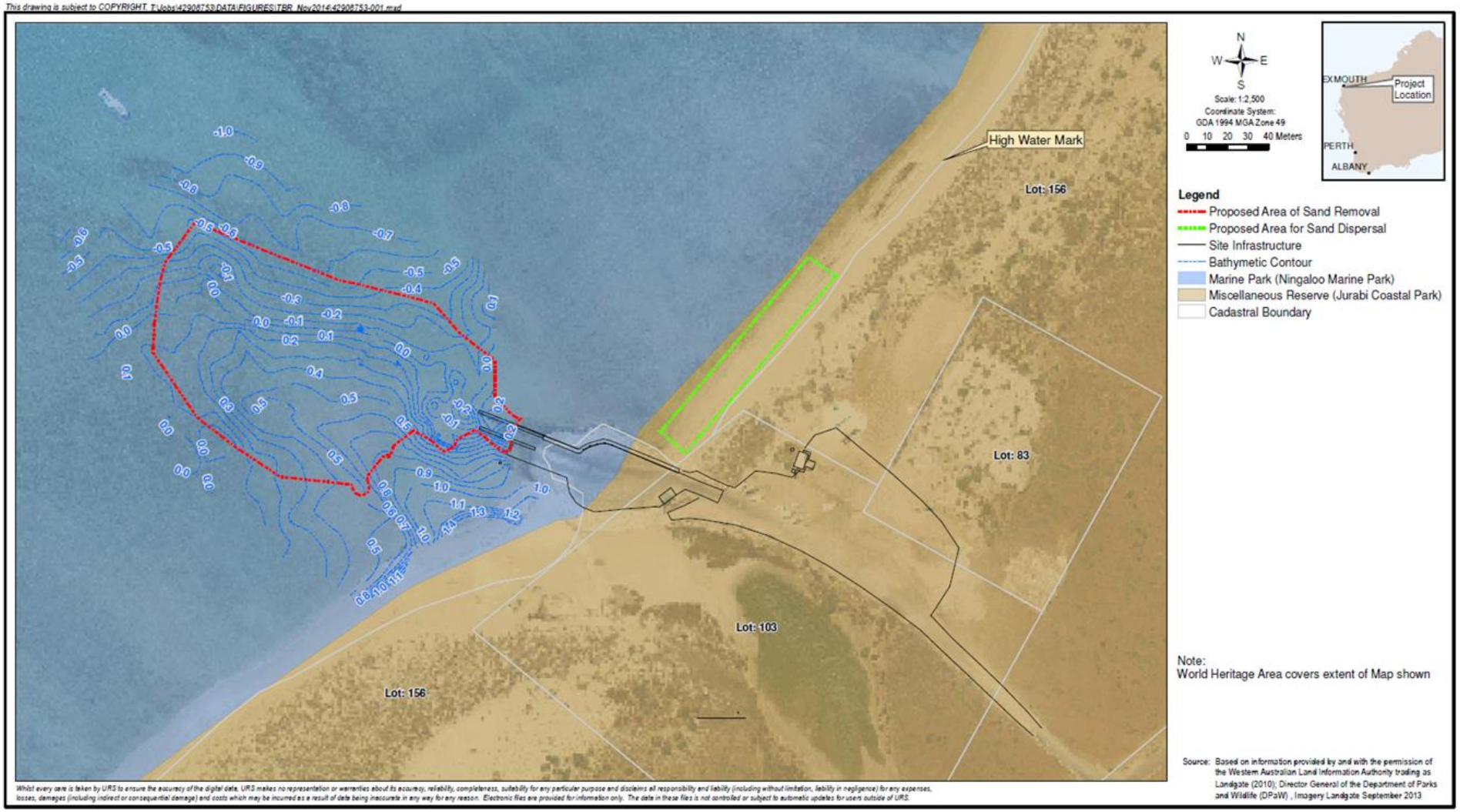


Figure 2: Project area for sand removal (dredging) and sand disposal (dredge material)

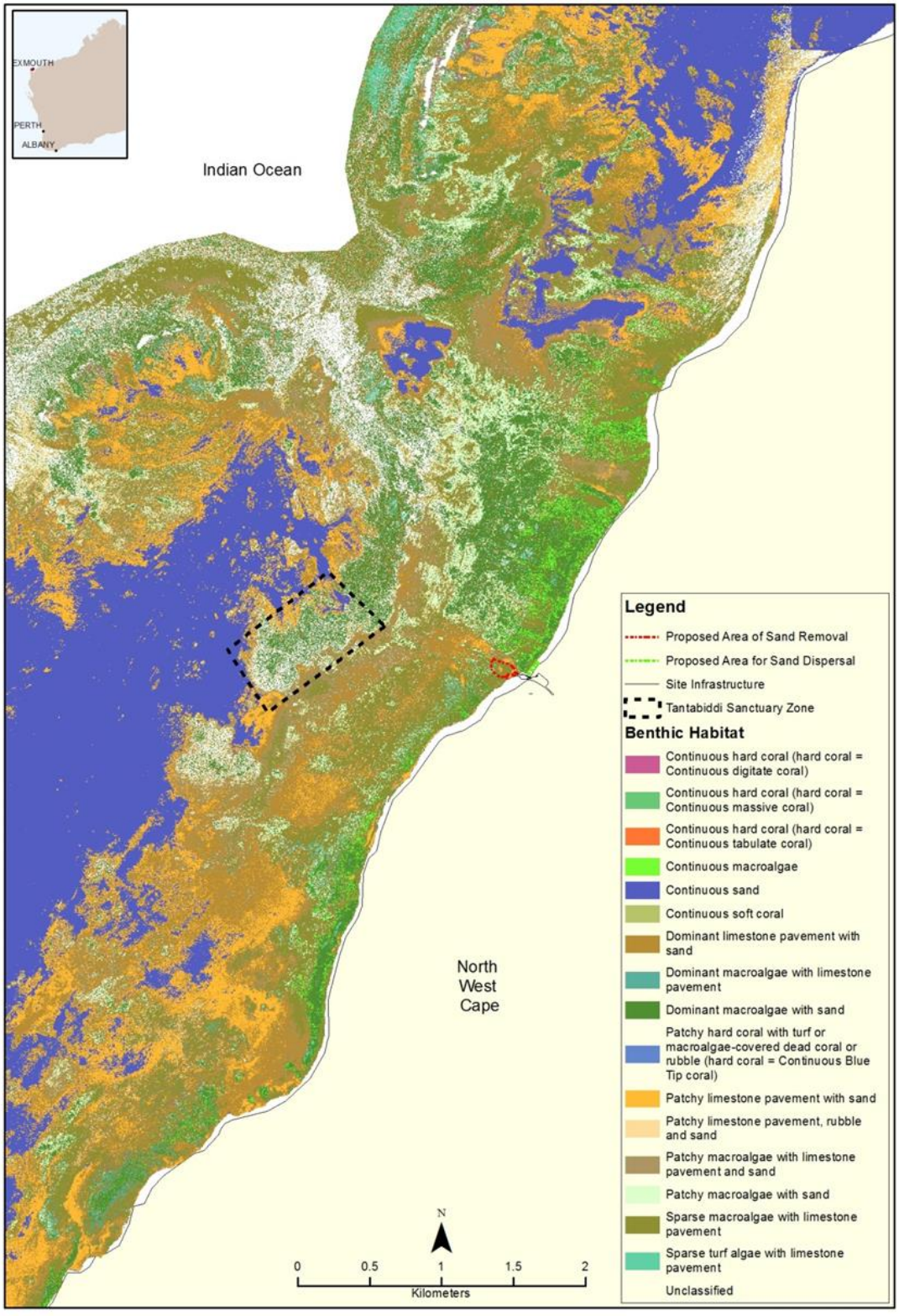


Figure 3: Benthic habitat in the region of Tantabiddi Boat Ramp

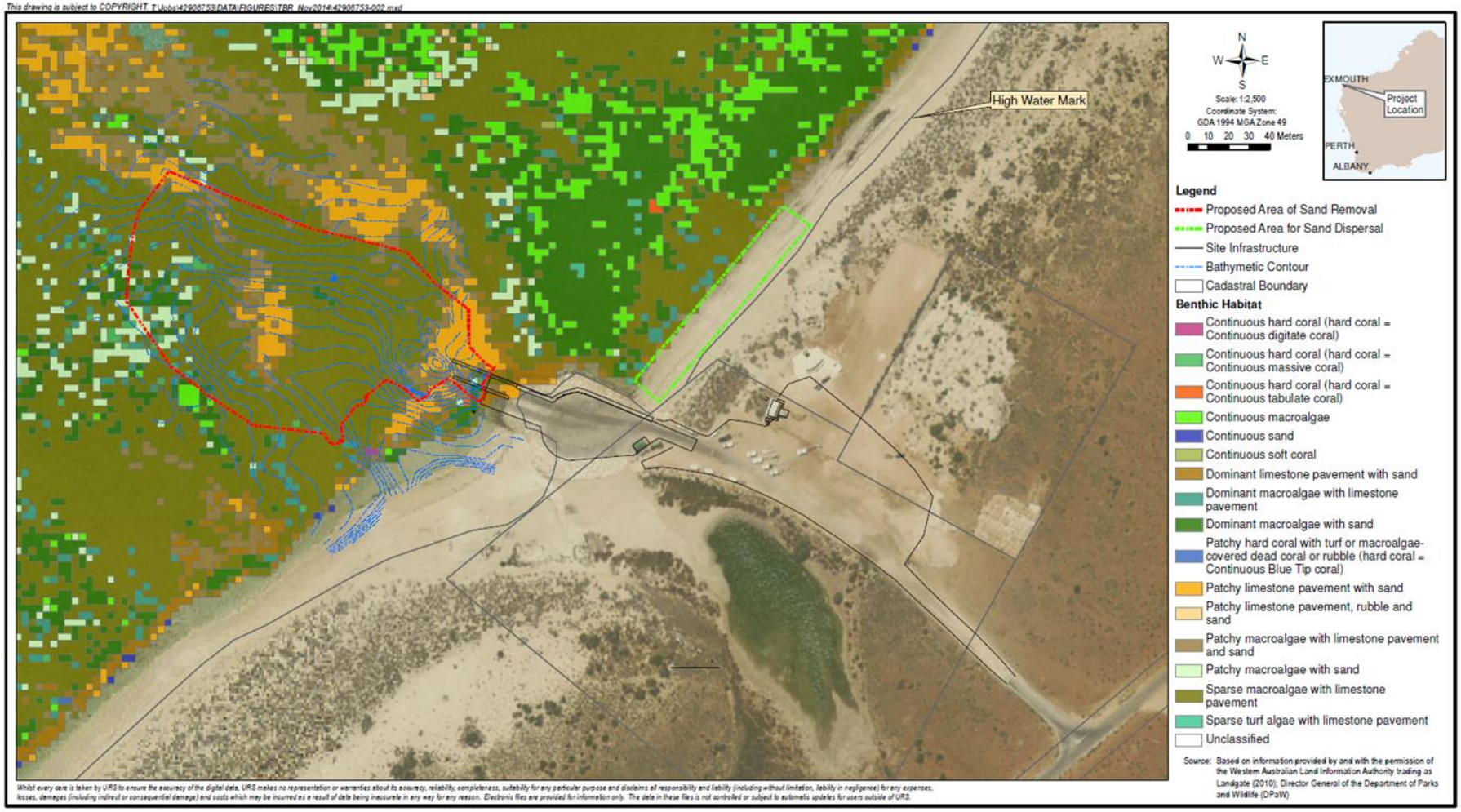


Figure 4: Benthic habitats in the vicinity of Tantabiddi Boat Ramp

ATTACHMENT 2: ADDITIONAL DOCUMENTATION

Attachment 2.1 Fauna database searches

Naturemap Species - Tantabiddi Boat Ramp

Item	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
1	41323	*Actitis hypoleucos* (Common Sandpiper)		IA	
2	24610	*Ardeotis australis* (Australian Bustard)		P4	
3	25736	*Arenaria interpres* (Ruddy Turnstone)		IA	
4	25716	*Cacatua sanguinea* (Little Corella)			
5	24269	*Calamanthus campestris* (Rufous Fieldwren)			
6	34031	*Carcharodon carcharias* (Great White Shark)		T	
7	24377	*Charadrius ruficapillus* (Red-capped Plover)			
8	24420	*Cracticus nigrogularis* (Pied Butcherbird)			
9	24470	*Dromaius novaehollandiae* (Emu)			
10	25622	*Falco cenchroides* (Australian Kestrel)			
11	25301	*Furina ornata* (Moon Snake)			
12	24487	*Haematopus longirostris* (Pied Oystercatcher)			
13	25541	*Haliastur indus* (Brahminy Kite)			
14	24491	*Hirundo neoxena* (Welcome Swallow)			
15	25652	*Malurus leucopterus* (White-winged Fairy-wren)			
16	24742	*Nymphicus hollandicus* (Cockatiel)			
17	24407	*Ocyphaps lophotes* (Crested Pigeon)			
18	24618	*Oreoica gutturalis* (Crested Bellbird)			
19	24648	*Pelecanus conspicillatus* (Australian Pelican)			
20	24667	*Phalacrocorax sulcirostris* (Little Black Cormorant)			
21	25699	*Phalacrocorax varius* (Pied Cormorant)			
22	5230	*Pimelea ammocharis*			
23	24383	*Pluvialis squatarola* (Grey Plover)		IA	
24	-15297	*Pomacentrus moluccensis*			
25	24237	*Pseudomys hermannsburgensis* (Sandy Inland Mouse)			
26	11240	*Rhagodia preissii* subsp. *obovata*			
27	24064	*Sousa chinensis* (Indo-Pacific Humpback Dolphin)		P4	
28	25640	*Sterna dougallii* (Roseate Tern)		IA	
29	30870	*Taeniopygia guttata* (Zebra Finch)			
30	24803	*Tringa brevipes* (Grey-tailed Tattler)		IA	
31	30954	*Tursiops aduncus* (Indo-Pacific Bottlenose Dolphin)			

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 13/01/2015

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 113°58' 39" E,21°54' 43" S
Buffer 1km

Area (ha)		314.12
Taxa:	Naturalised	0
	Native	31
Endemics:		0
Families:		25
Genera:		30
Conservation Status:	-	23
	IA	5
	T	1
	4	2
MS Status:	-	31
Rank:	-	30
	subsp.	1

Top Ten Families

		Species	Records
1.	Scolopacidae	3	3
2.	Delphinidae	2	6
3.	Psittacidae	2	2
4.	Phalacrocoracidae	2	2
5.	Charadriidae	2	2
6.	Casuariidae	1	2
7.	Falconidae	1	1
8.	Pachycephalidae	1	1
9.	Muridae	1	1
10.	Lamnidae	1	1

Top Ten Genera

		Species	Records
1.	*Phalacrocorax*	2	2
2.	*Cracticus*	1	2
3.	*Carcharodon*	1	1
4.	*Oreoica*	1	1
5.	*Charadrius*	1	1
6.	*Haematopus*	1	1
7.	*Furina*	1	1
8.	*Tursiops*	1	3
9.	*Taeniopygia*	1	1
10.	*Sousa*	1	3

[1] Endemic To Query Area

Name ID	Species	Conservation Status

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

Australian Government

Department of the Environment

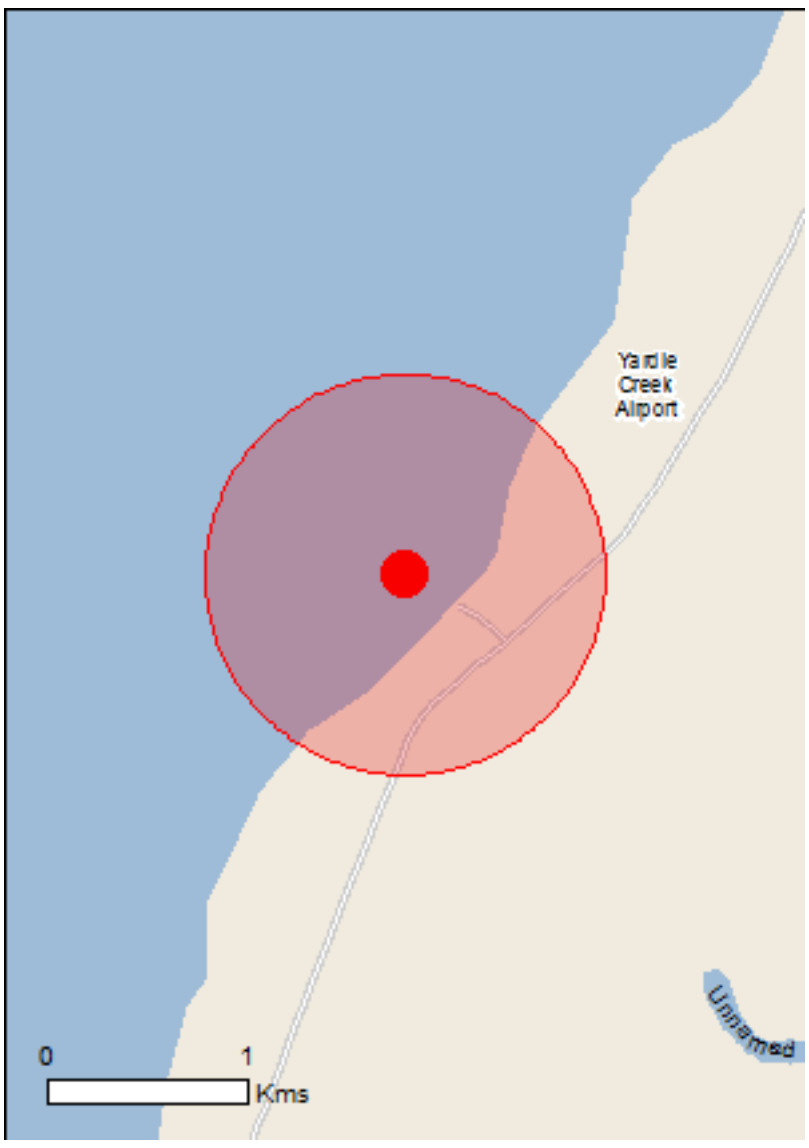
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

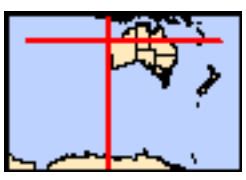
Report created: 26/11/14 19:29:03



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates

Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	15
Listed Migratory Species:	24

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	43
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	4
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	10
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

World Heritage Properties [Resource Information]

Name	State	Status
The Ningaloo Coast	WA	Declared property

National Heritage Properties [Resource Information]

Name	State	Status
Natural		
The Ningaloo Coast	WA	Listed place

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Macronectes giganteus		
Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Fish		
Milyeringa veritas		
Blind Gudgeon [66676]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Balaenoptera musculus		
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Eubalaena australis		
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Petrogale lateralis lateralis		
Black-flanked Rock-wallaby [66647]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Aipysurus apraefrontalis		
Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
[Caretta caretta](#)		
Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
[Chelonia mydas](#)		
Green Turtle [1765]	Vulnerable	Breeding known to occur within area
[Dermochelys coriacea](#)		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
[Eretmochelys imbricata](#)		
Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
[Natator depressus](#)		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Sharks		
[Carcharias taurus (west coast population)](#)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat known to occur within area
[Carcharodon carcharias](#)		
Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
[Rhincodon typus](#)		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
[Apus pacificus](#)		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
[Macronectes giganteus](#)		
Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Migratory Marine Species		
[Balaenoptera edeni](#)		
Bryde's Whale [35]		Species or species habitat may occur within area
[Balaenoptera musculus](#)		
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
[Carcharodon carcharias](#)		
Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
[Caretta caretta](#)		
Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
[Chelonia mydas](#)		
Green Turtle [1765]	Vulnerable	Breeding known to occur within area
[Dermochelys coriacea](#)		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
[Dugong dugon](#)		
Dugong [28]		Breeding known to occur within area
[Eretmochelys imbricata](#)		
Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
[Eubalaena australis](#)		
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur

Name	Threatened	Type of Presence
		within area
Manta birostris		
Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat known to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcinus orca		
Killer Whale, Orca [46]		Species or species habitat may occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis		
Indo-Pacific Humpback Dolphin [50]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundo rustica		
Barn Swallow [662]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum		
Oriental Pratincole [840]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
[Ardea ibis](#) Cattle Egret [59542]		Species or species habitat may occur within area
[Charadrius veredus](#) Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
[Glareola maldivarum](#) Oriental Pratincole [840]		Species or species habitat may occur within area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
[Hirundo rustica](#) Barn Swallow [662]		Species or species habitat may occur within area
[Macronectes giganteus](#) Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area
Fish		
[Bulbonaricus brauni](#) Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
[Choeroichthys brachysoma](#) Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
[Choeroichthys suillus](#) Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
[Doryrhamphus negrosensis](#) Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
[Festucalex scalaris](#) Ladder Pipefish [66216]		Species or species habitat may occur within area
[Filicampus tigris](#) Tiger Pipefish [66217]		Species or species habitat may occur within area
[Halicampus brocki](#) Brock's Pipefish [66219]		Species or species habitat may occur within area
[Halicampus spinirostris](#) Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
[Haliichthys taeniophorus](#) Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
[Hippocampus angustus](#) Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Solenostomus paegnius Rough-snout Ghost Pipefish [68425]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammals		
Dugong dugon Dugong [28]		Breeding known to occur within area
Reptiles		
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Ephalophis greyi		
North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrophis elegans		
Elegant Seasnake [1104]		Species or species habitat may occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Pelamis platurus		
Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata		
Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni		
Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Delphinus delphis		
Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis		
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Grampus griseus		
Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca		
Killer Whale, Orca [46]		Species or species habitat may occur within area
Sousa chinensis		
Indo-Pacific Humpback Dolphin [50]		Species or species habitat may occur within area
Stenella attenuata		
Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus		
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str.		
Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

Places on the RNE [Resource Information]

Note that not all Indigenous sites may be listed.

Name	State	Status
Natural		
Cape Range National Park and Surrounds	WA	Registered
Cape Range and Adjacent Coastal Plain	WA	Registered
Ningaloo Marine Park and Proposed Additions	WA	Registered
Ningaloo Reef Tract	WA	Registered

State and Territory Reserves [Resource Information]

Name	State
Jurabi Coastal Park	WA

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Mammals		
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris		
Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area

Coordinates

-21.91111 113.97611

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Geoscience Australia
-CSIRO
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Attachment 2.2: Potential impacts and mitigation summary table

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
Benthic Communities and Habitat	To maintain the structure, function, diversity, distribution and viability of benthic communities and habitats at local and regional scales.	Tantabiddi Boat Ramp is located in the nearshore waters of Ningaloo Marine Park (State Waters), Exmouth and is not within Commonwealth waters. The project is located within The Ningaloo Coast World Heritage Property and Jurabi Coastal Park (Attachment 1, Figure 1 and Figure 2). The benthic habitat within the project area previously comprised predominantly areas of sparse macroalgae with limestone pavement and patches of sand; however this is likely to have been smothered by the sediment deposited during the storm event (Attachment 1, Figure 4). The sediment and water quality is likely to be relatively pristine; however the area is used as a commercial and recreational boat ramp and may have some level of impact due to its regular use. The predominant littoral drift is from south to north. The boat ramp is impeding the natural process of sand movement along the beach, causing an accumulation of sand on the southern side of the ramp.	Reduction in the quantity or quality of benthic habitats has the potential to impact marine fauna food sources, recreational fishing values, commercial fishing resources and the general diversity and health of the marine ecosystem. Disturbance to benthic habitat may occur as a result of anchoring within the project area, planned seabed disturbance as a result of dredging, and unplanned/ accidental dredging outside of the planned disturbance area. Smothering of benthic habitat may result in a decrease to productivity of photosynthesising marine species, loss of habitat for protected marine species and other fauna, and indirect impacts to protected marine fauna. However, the action will return the habitat to one that is similar to that which existed before the deposition of the sand; this may enable macroalgae to re-establish, thereby returning the value to of the habitat to listed species. The existing habitats around the project area are comprised of patchy macroalgae, which is well represented within the region Attachment 1, Figure 3 and Figure 4). Given the benthic habitat in the project area was smothered by sediment transported during the storm event, the only benthic habitats at risk of additional impact from the action are those adjacent to the boundary of the project area. However, these short-term localised impacts would be offset by the return of the project area to productive macroalgal habitat. It is also noted that macroalgal habitats are widespread both locally and regionally. The project area boundary will be verified as correct prior to the commencement of dredging and will be added to the dredge's navigation system to minimising the potential for dredging or anchoring outside of the boundary. Placing the clean sand that has been deposited due to the storm event to the north of the boat ramp will facilitate the natural process of littoral drift to the north. However, some of the sand may be remobilised from the beach and deposited into areas of macroalgae, potentially causing temporary impacts. As macroalgae are abundant both locally and regionally (Attachment 1, Figure 3 and Figure 4), any localised impacts are highly unlikely to lead to significant ecosystem	Met Impacts can be managed by the Sand Bypassing EMP.

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
			impacts in the broader region. Dredging activities may temporarily result in increased turbidity and decreased water clarity within a small area surrounding the boat ramp. Given the coarse nature of the sediment, it will settle out of suspension reasonably swiftly. Additionally, the project is located within an open area, subject to wind and wave action, therefore the sediment will disperse naturally over time. Refer to the environmental factor Marine Environmental Quality section of this table for unplanned discharges to the marine environment.	
Coastal Processes	To maintain the morphology of the subtidal, intertidal and supratidal zones and the local geophysical processes that shape them.	The location of the Tantabiddi Boat Ramp prevents sand movement from following the natural littoral drift to the north, hence sand often accumulates at the southern end of the boat ramp.	The allocated sediment transfer area is situated in the intertidal zone and is not within dunes (Attachment 1, Figure 2). The accumulated dredge sediment (sand slurry) will be transferred to the adjacent beach location to north of the ramp, via a small, submerged pipe. The sand would be used to renourish a stretch of the beach immediately north of the boat ramp and provide protection against potential dune erosion caused by storm events. Sand transferred to the beach north of the ramp area will naturally dissipate with tidal movements. The predominant littoral drift is from south to north. The boat ramp is impeding the natural process of sand movement along the beach, causing an accumulation of sand on the southern side of the ramp. Placing the clean sand that has come from the Tantabiddi Creek to the north of the boat ramp will facilitate this natural process of littoral drift to the north. Dredged sand material will be deposited at as thin a layer as possible.	Met Risks can be managed through Sand Bypassing EMP
Marine Fauna	To maintain the diversity, geographic distribution and viability of fauna at the species and population levels.	***Wildlife Conservation Act 1950* Listed Fauna Species** A total of 22 species listed under the *Wildlife Conservation Act 1950* were identified as potentially occurring within the project area. Refer to the information below and Section 2.2.4 of the referral form for a full list of species.	Direct impacts to threatened species may be through routine underwater noise generated from vessels during dredging, or through vessel strike. This could possibly result in displacement of protected marine fauna, disruption to feeding and communication behaviour, or in mortality. The project will be undertaken over a short period of time; minimising the duration of any noise related impacts or	Met. Risk can be managed through fauna interaction guidelines, standard vessel

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
		Marine Mammals Refer to Sections 2.2.2 and 2.2.4 of the referral form full list and further details. Key species that may occur within the project area are described below. The common (*Delphinus delphis*) and Indo-Pacific humpback (*Sousa chinensis*) dolphins are regularly seen, with the latter often sighted around the Tantabiddi Lagoon, adjacent to the boat ramp. Indo-Pacific humpback dolphins inhabit shallow coastal, estuarine, and occasionally riverine habitats. The species usually occurs within 5 km of the coast. According to the DoE National Conservation Values Atlas there are no Biologically Important Areas for these species present within the project area. According to the DoE Conservation Values Atlas, the project area is considered to contain biologically important areas (breeding and calving) for humpback whales. However, it is unlikely that these whales would be found in the shallow nearshore waters surrounding the boat ramp. Dugong (*Dugong dugon*) may also be present within the project area. Benthic habitat mapping (refer to Attachment 1, Figure 3 and Figure 4) indicates that seagrass beds suitable for dugong foraging are not present in the immediate vicinity of the project area. The benthic habitat around the project area is predominantly macroalgae on sand. This habitat is widely represented within the project area, and within the region (refer to Attachment 1, Figure 3 and Figure 4). Whilst dugong prefer seagrass as a food source, they are known to also graze on algae and macro-invertebrates.	disturbances. Project briefing notes will be provided to personnel, outlining HSE considerations and details of the environment in which they will be working. These will highlight the potential for threatened species to be present in the project area. Standard vessel maintenance procedures will be implemented. Vessels and machinery will be maintained in accordance with the manufacturer's specifications to reduce underwater noise and chemical leakages to marine waters. Vessels will be moving at slow speeds, limiting the potential for vessel strike. Interaction between vessels and cetaceans within the project area will be consistent with EPBC Regulations 2000 – Part 8, which are as follows: • a vessel will not travel greater than 6 knots within 300 m of a cetacean and minimise noise • a vessel will not approach closer than 50 m for a dolphin and/or 100 m for a whale In addition, dredging will cease if dugongs or dolphins enter within 50 m of the dredge, or if dolphins with calves enter within 150 m of the dredge. Training of Vessel Masters in interaction procedures and specified crew as Marine Fauna Observers (MFOs). A trained MFO will be on duty, above deck with good visibility, during all dredging operations.	procedures, the Sand Bypassing EMP and vessel speeds.
		Marine Reptiles Refer to Section 2.2.2 and 2.2.4 of the referral form for full list and further details. Key species that may	The proposed action may potentially expose the Threatened turtle species to direct impacts (interaction with vessels, noise and light) and indirect impacts (short-term reduction in macroalgal productivity). Dredging activities will be undertaken	Met. This can be managed

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
		occur within the project area are described below. There are three main species of marine turtles that aggregate in the Ningaloo Marine Park and may occur in the project area; these are the green turtle (*Chelonia mydas*), loggerhead turtle (*Caretta caretta*) and hawksbill turtle (*Eretmochelys imbricata*). The flatback turtle (*Natator depressus*) is occasionally found in the Ningaloo region but is mainly found in the Pilbara region. Turtle nesting season in the Ningaloo region may occur between November and March. Nesting activities have been observed in the Tantabiddi Boat Ramp area, however is not recognised as a preferred nesting beach in the region for turtles. Patchy macroalgae, which may be important for some turtles, is present around the project area. *Aipysurus apraefrontalis (*short-nosed seasnake) prefers the reef flats or shallow waters along the outer reef edge in water depths to 10 m. The short-nosed seasnake occurs at Ashmore Reef National Nature Reserve, where it was relatively common in reef surveys conducted, but has not been recorded there since the late 1990s (DoE 2015). Based on the known distribution of the short-nosed sea snake, it is considered unlikely to occur within the project area.	over a short period of time and will only be undertaken during daylight hours (not a 24 hour operation), reducing the potential for light, noise and vessel strike impacts. This will reduce the potential for impacts to marine turtles that nest during the night. Safety lighting will be used on the dredger when anchored in nearshore waters (the dredger will not be operational). Light impacts have the potential to cause disorientation, attract or repel marine fauna, or cause disruption to natural patterns and cycles. Lighting on board the dredger will be adequate to meet safety requirements, however it will be minimised where possible. Deck lights will be positioned to only light up the deck and will not be directed into the surface of the water. As turtles can live in turbid environments, they are unlikely to be directly impacted by turbid plumes arising from the dredging. There may be a short-term reduction in the productivity of macroalgal communities around the project area, similar communities are widespread in the region and will provide an alternative food source for those turtle species that feed upon them. The proposed action is likely to increase local macroalgal productivity in the long term as the removal of the sand will expose habitats for recolonisation by macroalgae. The dunes adjacent to the Tantabiddi Boat Ramp may provide suitable nesting areas for turtles. Dredged sand will only be deposited onto the intertidal zone of the beach to the north of the boat ramp, and will avoid the dunes. Therefore, there is no risk of impact upon turtle nests (if present, these will be in the supratidal zone). While turtle nesting has been observed in the area, Tantabiddi Beach is not recognised as a preferred turtle nesting beach. Potential impacts to listed marine turtles will be managed in accordance with the Sand Bypassing EMP. The plan requires that dredging will cease if turtles enter within 50 m of the dredge.	through the Sand Bypassing EMP
		Birds Refer to Sections 2.2.2 and 2.2.4 of the referral form full list of bird species and further details. The summer period and the autumn/winter period	Given the types of vessels to be used, vessel strike and entanglement with infrastructure are considered not to pose credible risks to the listed bird species. The deposition of sand to the north of the boat ramp area is unlikely to impact on nesting areas as sand will only be	Met. Not likely – will be managed through slow

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
		are the two peak periods of seabird activity within the North-west Marine Region. Seabirds could potentially be present in the waters of the project area, however as they are typically observed to feed, roost and breed on offshore islands or the mainland it is considered highly unlikely that they could be significantly impacted by the project.	transferred to the intertidal zones of the beach, and not to dune or vegetation areas suitable for bird nesting.	vessel speeds, Sand Bypassing EMP and operational specifications
		Fish Blind gudgeon is listed as Vulnerable under the Western Australia *Wildlife Conservation Act 1950.* This species is known to occur on the Cape Range Peninsula in the arid North West of Western Australia and at Barrow Island (Humphreys 1999). This species is known only from the underground waters which lie beneath the narrow coastal plain of the Cape Range Peninsula in Western Australia, in waters ranging from fresh to seawater (DoE 2014i). The blind gudgeon has been sampled from caves at water depths up to 33 m, from wells and from bores in which the water table was up to 50 m below the ground surface (Humphreys 1999). The known habitat for the blind gudgeon does not exist in the project area. The grey nurse shark (*Carcharias taurus*) is listed as Vulnerable under the *Wildlife Conservation Act 1950*. Grey Nurse Sharks are often observed hovering motionless just above the seabed, in or near deep sandy-bottomed gutters or rocky caves, and in the vicinity of inshore rocky reefs and islands (Pollard et al. 1996). The great white shark (*Carcharodon carcharias*) is listed as Vulnerable under the *Wildlife Conservation Act 1950*. Great white sharks can be found from close inshore around rocky reefs, surf beaches and shallow coastal bays to outer continental shelf and slope areas (DEWHA 2009) Whale sharks, listed as 'Other Protected Fauna' aggregate at the Ningaloo Reef. They not	Direct impacts to fish species may be through routine underwater noise generated from vessels during dredging, or through vessel strike. This could possibly result in displacement of protected marine fauna, disruption to feeding, or in mortality. The proposed action may potentially expose fish species to direct impacts from interaction with vessels. However the risk of impact is considered low as the operating dredge will be stationary most of the time and the supply vessel will travel at slow speeds over short distances in shallow water. The project will be undertaken over a short period of time; minimising the duration of any noise related impacts or disturbances. Standard vessel maintenance procedures will be implemented. Vessels and machinery will be maintained in accordance with the manufacturer's specifications to reduce underwater noise and chemical leakages to marine waters.	Met. Risk can be managed through Sand Bypassing EMP vessel speeds and procedures.

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
		expected to occur close to the shoreline in the vicinity of the project area.		
Marine Environmental Quality	To maintain the diversity, geographic distribution and viability of fauna at the species and population levels.	The Protected Matters Search Tool, a search of the EPBC Act Protected Matters Database did not identify the presence of any **Threated Ecological Communities** within the project area. No Threatened Ecological Communities were identified on the Parks and Wildlife list of Threatened Ecological Communities endorsed by the Western Australian Minister for the Environment (DPaW 2014). Refer to Marine Fauna for an assessment of diversity, geographic distribution and viability of fauna at the species and population levels.	Refer to Marine Fauna section of this impacts and management table for an assessment of diversity, geographic distribution and viability of fauna at the species and population levels. Potential impacts to the marine environment and management measures for the accidental release of waste materials, accidental discharge of hydrocarbons and unplanned introduction of invasive marine species are presented below. Waste Very little hazardous and non-hazardous wastes will be generated during the project. The short-term nature of the project and a small crew of two people will result in minimal waste. The accidental release of wastes to the marine environment may have the potential to: • reduce water quality • damage benthic habitats through direct contact • have toxic effects to marine fauna (from the release of hazardous wastes such as oil and lube). Management measures will include: Standard shipboard waste procedures, including segregation and storage of non-hazardous solid waste from other waste types. • Raise awareness of risks and management through inductions and toolbox meetings. • Lube oils will be stored in bunded areas on the dredger. • Appropriate storage containers for waste will be provided on the vessel and dredger. • Spill kits for lube oil spills will be on board the dredger. Hydrocarbons Spillage of hydrocarbons to land may occur during transfer of fuel from the storage container in the car park to the support vessel. This may result in contamination of beach sand.	Met Risks can be managed through the Sand Bypassing EMP.

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
			Spillage of hydrocarbons to the marine environment may occur during the transfer of fuel from the support vessel to the dredger. This may result in localised pollution of marine water and toxic effect to marine fauna. Accidental spills to the marine environment from a vessel-vessel collision and vessel grounding were determined to not be a credible risk. Implementation of the vessel re-fuelling procedure, including but not limited to: • support vessel and dredger are stationary during refuelling • refuelling during daylight only • hoses checked for leaks • communications between vessels when refuelling the dredger • shipboard oil pollution emergency plan and spill kits available • two people will be assigned to the vessel to keep watch • refuelling by trained staff only • assessment of sea state (reduce chance of support vessel capsizing). <u>Invasive Marine Species</u> As the dredger will be transported from another region in Western Australia, any presence of invasive marine species (IMS) on external structure of vessel (e.g. biofouling) may result in the introduction of IMS to the project area. Standard vessel procedures will be in place to prevent the introduction of IMS. Standard vessel procedures adhere to Australian Biosecurity requirements and Department of Agriculture regulations. Records of antifouling management and hull-cleaning actions will be maintained. The dredger will be out of the water and dry for at least a week during mobilisation to site. The dredger will also be inspected by a suitably qualified biofouling inspector. Impacts are expected to be minor given the above management measures.	
Amenity	To ensure that impacts to	The Tantabiddi Boat Ramp is a frequently used	Turbidity from dredging may temporarily reduce visual amenity	Met

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
	amenity are reduced as low as reasonably practicable.	facility for accessing the western coast of the North West Cape, with approximately 300 to 700 vessels launched per year. The boat ramp is located in the Ningaloo Marine Park. The beach and boat ramp are adjacent to a recreation zone where recreational fishing is permitted. The Tantabiddi Sanctuary Zone (located approximately 800 m from the boat ramp) does not permit fishing within the sanctuary, however viewing activities are allowed. The Tantabiddi Boat Ramp is a popular location and is where many of Exmouth's tour operators launch their vessels for swimming with whale sharks and manta rays, fishing charters, coral viewing from glass bottom boats, and for dive and snorkel tours (Parks and Wildlife 2013). Recreational fishing in the region is largely concentrated around major settlements in the surrounding areas of Coral Bay and Exmouth and relies heavily on the use of Tantabiddi Boat Ramp (Sumner et al. 2002). Whale shark interaction licences are issued to operators working from Coral Bay and Exmouth-based operators who operate out of Tantabiddi annually. The accumulated sand at the boat ramp has reduced depth available for safe navigation and greatly increases risks for commercial and recreational activities. Obstructions on the beach such as natural rock outcrops, groynes or boat ramps such as that at Tantabiddi will act as barriers to littoral drift movements causing sand to accumulate on the up-drift side until the barrier is saturated after which time sand will naturally bypass the barrier and be deposited on the down-drift beaches. This accumulation has detrimental effects on navigable depths, and it is often necessary to undertake mechanical sand bypassing as happens in many locations such as Mandurah (Dawesville Channel and ocean entrance) and the Tweed River. Therefore the action is considered	in the areas of the Ningaloo Marine Park and the Ningaloo Coast World Heritage area in the vicinity of the works. Impacts are expected to be minor given the following management measures for the proposed activity: • The activity will only be undertaken over a short timeframe. • Dredging will be undertaken during daylight hours only, and is not a 24 hour operation. • Stakeholder notifications will be undertaken, including community notices and information posted on the Shire's web site. • Temporary buoys to assist with the redirection of vessels may be installed if required. • The dredging activity will not be undertaken during peak tourist season. • Signage will be placed at the boat ramp advising stakeholders of the project.	Can be managed through the Sand Bypassing EMP

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
		necessary to restore the navigable depths at the Tantabiddi Boat Ramp, and will also renourish the beach and provide protection against potential dune erosion caused by storm events.		
'Heritage	To ensure that historical and cultural associations are not adversely affected.	**Aboriginal Heritage** The Ningaloo region has significant Indigenous heritage values associated with historical and current use by Indigenous people (MPRA & CALM 2005). The foreshore and hinterland of North West Cape contain numerous Aboriginal sites such as burial grounds, middens and fish traps that provide a historical account of the early habitation of the area and a tangible part of the culture of local Aboriginal groups (MPRA & CALM 2005). Aboriginal habitation of the North West Cape and Exmouth is thought to have commenced at least 32,000 years ago and continues up to the present (Western Australian Planning Commission 2004). Although the majority of local Aboriginal people live in towns such as Carnarvon and Onslow, individuals and families retain strong ties to particular sites. The Jinigudira and the Baiyungu of the North West Cape and are recognised as the traditional owners of these lands (MPRA & CALM 2005)	It is suggested that Indigenous hunting in the region is minimal, as the Baiyungu will generally only catch turtles for large family occasions and this may occur only once or twice a year (MPRA & CALM 2005). Due to the relatively short timeframe and temporary nature of potential impacts, it is unlikely that there will be any significant impact to the Indigenous heritage values of the area.	
		The Ningaloo Coast World Heritage Area Tantabiddi Boat Ramp is located in the nearshore waters of Ningaloo Marine Park (State Waters), Exmouth and is not within Commonwealth waters. The project is located within The Ningaloo Coast World Heritage Property (Attachment 1, Figure 1 and Figure 2). The benthic habitat within the project area previously comprised predominantly areas of sparse macroalgae with limestone pavement and patches of sand; however this was smothered by the sediment deposited during the storm event	Refer to the environmental factor Benthic Communities and Habitat section of this table for potential impacts on benthic habitats. Given the benthic habitat in the project area was smothered by sediment transported during the storm event, the only benthic habitats at risk of additional impact from the action are those adjacent to the boundary of the project area. However, these short-term localised impacts would be offset by the return of the project area to productive macroalgal habitat. It is also noted that macroalgal habitats are widespread both locally and regionally. The project area boundary will be verified as correct prior to the commencement of dredging and will be added to the dredge's navigation system to minimising the potential for	Met Can be managed through the Sand Bypassing EMP

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
		(Attachment 1, Figure 2). The sediment and water quality is likely to be relatively pristine; however the area is used as a commercial and recreational boat ramp and may have some level of impact due to its regular use.	dredging or anchoring outside of the boundary. Placing the clean sand that has come from the Tantabiddi Creek to the north of the boat ramp will facilitate the natural process of littoral drift to the north. However, some of the sand may be remobilised from the beach and deposited into areas of macroalgae, potentially causing temporary impacts. As macroalgae are abundant both locally and regionally (Attachment 1, Figure 2), any localised impacts are highly unlikely to lead to significant ecosystem impacts in the broader region. Dredging activities may temporarily result in increased turbidity and decreased water clarity, potentially resulting in the temporary reduction of visual amenity of the Ningaloo Coast World Heritage Property, within a small area surrounding the boat ramp. Given the coarse nature of the sediment, it will settle out of suspension reasonably swiftly. Additionally, the project is located within an open area, subject to wind and wave action, therefore the sediment will disperse naturally over time. Unplanned discharges, such as the release of hydrocarbons during refuelling or from fuel storage, have the potential to impact marine fauna, water quality and sand quality. These water quality impacts could have a detrimental effect on marine habitats, though potential release volumes are small and impacts would likely be localised and minor. Fuel will be stored in a bunded and locked sea container in the adjacent car park. The sea container is fitted with an internal containment compartment designed to contain all internal spills. A spill kit will be available on site. Refuelling procedures to minimise the risk of spills to the marine environment during bunkering activities will be followed. It is concluded that the proposed action does not pose a significant risk of causing any of the Ningaloo Coast's World Heritage values to be lost, degraded or damaged, or to be notably altered, modified, obscured or diminished.	
Human Health	To ensure that human health is not adversely affected.	The Tantabiddi Boat Ramp is located adjacent to the Recreation Zone of the Ningaloo Marine Park. It is estimated that approximately 300 to 700 vessels visit the area per annum. The boat ramp	Management measures will be in place to reduce impacts on human health. Signage will be placed at the boat ramp advising stakeholders	Met Can be managed

Environmental Factor	Objective	Description of Existing Environment and Habitat	Potential Impacts and Mitigation	Objective Met
		provides direct access to the Ningaloo Reef and is the start point for most boating tours.	of the project. In the event of a public safety incident and/or complaint received as a result of dredging activities, they will be recorded and tracked. Details to be recorded include: • date, time and method of complaints/ public safety incident • description of complaint/ public safety incident • complainant/ public safety details • cause, action and proposed action, including allocation of a person to action the complaint/ public safety incident and an action date • follow-up and close-out. Corrective action in response to valid complaints/ public safety incidents is to occur within 48 hours following receipt of the complaint. Records will be made available to the Shire of Exmouth and authorities upon request, taking into account any privacy issues of the complainant/ public safety incident as appropriate.	through the Sand Bypassing EMP
Air Quality	To maintain air quality for the protection of the environment and human health and amenity.	Diesel engines on the vessels will release nitrogen oxides (NO_X) and sulphur oxides (SO_X) from vessel exhausts. The dredger will not be operational 24 hours per day and fuel combustion will occur during daylight hours only.	The release of NO_X and SO_X will represent a negligible contribution to regional greenhouse gas emissions. Potential impacts will be limited to a temporary localised decrease in air quality. Management measures will include: • Diesel engines on vessels will be regularly maintained to ensure efficient operation • The vessel contractor will have a maintenance procedure in place • Vessels will use low sulphur fuels • No incinerators will be used on board • The dredging activity is a short-term programme and dredging will occur during daylight hours only.	Met Can be managed through the Sand Bypassing EMP

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