



AUGUSTA BOAT HARBOUR: ENVIRONMENTAL COMPLIANCE ASSESSMENT REPORT (2018) - EPBC APPROVAL 2008/4506

Table 1 (attached) schedules the Environmental Protection and Biodiversity Conservation (EPBC) Act (1999) approval conditions and identifies those current for the 2018 reporting period and beyond. Only those approval conditions related to the Site Rehabilitation and Environmental Management Plan (SREMP), and its monitoring, reporting and record keeping, remain current. The EPBC approval expires on the 21 December 2021.

The 2018 environmental compliance assessment follows.

Condition 2

The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plan(s) required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.

Status: Compliant - Accurate records are maintained.

No requests were made by the Department during the compliance assessment reporting period for records substantiating activities associated with, or relevant to, the conditions of approval.

Condition 3

Within three months of every 12-month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published.

Status: No non-compliances were recorded against any of the conditions of EPBC Approval 2008/4506.

The attached report is the seventh annual compliance report to be prepared under EPBC Approval 2008/4506.

Condition 7

The person taking the action must develop a Site Rehabilitation and Environmental Management Plan (SREMP) to mitigate the impacts to Augusta Kennedia (Kennedia lateritia).

The Site Rehabilitation and Environmental Management Plan must include but not be limited to:

- *Overview of existing environment*
- *Objectives*
- *Clearing protocols*



Government of **Western Australia**
Department of **Transport**

- *Perimeter fencing/security of rehabilitation areas and existing locations of Augusta Kennedia*
- *Rehabilitation activities/program, including figures showing rehabilitation sites*
- *Maintenance of site including: vermin control, fire management, pest management and weed control*
- *Timing and implementation of the above measures*
- *Monitoring and reporting.*

The Site Rehabilitation and Environmental Management Plan must be submitted to and approved by the Minister prior to construction commencing.

Status: Compliant

DoT, in consultation with Onshore Environmental Consultants, developed a SREMP which addresses the criteria specified within the approval conditions. The original SREMP was submitted to the Department and approved on 20 September 2011, the most recent revision (Version 12), was approved by the Department on 17 October 2012.

The Augusta Boat Harbour: 2018 Annual Rehabilitation Assessment (attached) found that all of the planning, pre-clearing, pre-rehabilitation, establishment (0-15 months) and development (>15 months) targets were achieved for the assessable completion criteria for the 2012 and 2014 rehabilitation blocks (refer Table 2: Completion Criteria for rehabilitation at the Augusta Boat Harbour – compliance for 2012 and 2014 rehabilitation blocks October 2018).

The ongoing monitoring and reporting conditions were clarified via an exchange of letters between the Department and DoT in June and July 2016 (refer Appendix 5 of the *Augusta Boat Harbour: 2018 Annual Rehabilitation Assessment*).

The next rehabilitation assessment for the 2012 and 2014 blocks is planned for 2021 and if deemed compliant shall be the final monitoring assessment and report required under the EPBC approval.

**Table 1: Augusta Boat Harbour
Conditions Compliance Status for EPBC 2008/4506 Approval (December 2018)**

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
1	Within 30 days after commencement of the action, the person taking the action must advise the Department in writing of the actual date of commencement	<p>DoT is compliant with this condition.</p> <p>A letter from Oceanica on behalf of DoT dated 14 October 2011 was sent to the Department of Environment and Energy (Department)¹ advising that works to implement the Augusta Boat Harbour commenced on 27 September 2011 at which time temporary fencing was installed around the designated site access road area.</p> <p>Condition 1 is not applicable for ongoing operations.</p>	Complete
2	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plan(s) required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	<p>Accurate records have been maintained by DoT and activities have been substantiated including evidence provided in the 2012, 2013, 2014, 2015, 2016, 2017 & 2018 Compliance Assessment Reports to the Department. Furthermore annual reports were also provided to the WA Department of Water and Environment Regulation (formerly Department of Environmental Regulation) demonstrating compliance with clearing permit conditions up to the end of the clearing permit reporting period in August 2016.</p> <p>No requests were made by the Department during the construction phase for an independent auditor to verify compliance with the conditions of approval.</p> <p><u>Status</u></p> <p>Records are only required to address Condition 7 as at December, 2018. Records shall continue to be maintained until the expiry of the EPBC approval on 31 December 2021.</p>	Records to be maintained for the SREMP in accordance with the monitoring calendar in DoT's letter dated 21 June 2016 and approved by the DoEE 14 July 2016.
3	Within three months of every 12-month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of	<p>Compliance reports are required to be submitted annually by 27 December. Reports were published on DoT's website in:</p> <ul style="list-style-type: none"> • January 2013 • December 2013 • December 2014 • December 2015 • December 2016 	Reporting to be undertaken for the SREMP in accordance with the monitoring calendar in DoT's letter dated 21 June 2016 and approved by the DoEE 14 July 2016.

¹ Formerly the Departments of Sustainability, Environment, Water, Population & Communities (DSEWPaC) and the Department of Environment (DoE)

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
	this approval must be provided to the Department at the same time as the compliance report is published.	<ul style="list-style-type: none"> December 2017 <p><u>Status</u> Reporting shall continue until the expiry of the EPBC approval on 21 December 2021.</p>	
4	If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plan(s) as specified in the Conditions, the person taking the action must submit to the Department for the Minister's written approval a revised version of that management plan(s). The varied activity shall not commence until the Minister has approved the varied management plan(s) in writing. The Minister will not approve a varied management plan(s) unless the revised management plan(s) would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised plan(s), that management plan(s) must be implemented in place of the management plan(s) originally approved.	<p>DoT is compliant with this condition. A summary of amendments to management plans are below:</p> <ul style="list-style-type: none"> 2012 Annual Compliance Report - DoT submitted a revised version of SREMP, which included the extension to the quarry, to the Department for approval on 7 September 2012. DoT was issued a notification of approval for the extension to the quarry on 17 October 2012. The amendments required for the Marine Noise Management Plan (MNMP) were minor and therefore the plan did not require another revision. The SREMP has undergone two revisions since its original approval, including Version 11 which was approved by Department on 23 November 2011, and Version 12, approved on 17 October 2012. 2013 Annual Compliance Report – No activities other than those described in management plans were undertaken within this reporting period and no revisions were made to management plans. 2014 Annual Compliance Report – DoT provided the Department with an environmental impact assessment for a minor underwater blasting campaign within the harbour. The findings of the assessment and the Department's view were that the proposed blasting was unlikely to have a significant impact to matters of national environmental significance (MNES). <p>No new activities will be undertaken during operations. Condition 4 is not applicable for ongoing operations.</p>	Complete
5	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the Minister may request that the person taking the action make specified revisions to the management plan(s) specified in the Conditions and submit the revised management plan(s) for the Minister's written approval. The person taking the action must comply with any such request. The revised approved management plan(s) must be implemented. Unless the Minister has approved the revised management plan(s), then the person taking the action must continue to implement the management plan(s) originally	<p>DoT is compliant with this condition. No requests were received by DoT from the Department to revise any of the management plans during the construction phase of the project. No requests are perceived during operations as there are no significant threats to protected or listed threatened species. Condition 5 is not applicable for ongoing operations.</p>	Complete

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
	approved, as specified in the conditions.		
6	If, at any time after five years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister.	<p>DoT is compliant with this condition.</p> <p>The action was undertaken within the five year time frame. EPBC 2008/4506 approval was received on 22 August 2011 and the activity commenced on 27 September 2011 (refer to Condition 1). Condition 6 is not applicable for ongoing operations.</p>	Completed
7	<p>The person taking the action must develop a Site Rehabilitation and Environmental Management Plan (SREMP) to mitigate the impacts to Augusta Kennedia (<i>Kennedia lateritia</i>). The Site Rehabilitation and Environmental Management Plan must include but not be limited to:</p> <ul style="list-style-type: none"> • Overview of existing environment • Objectives • Clearing protocols • Perimeter fencing/security of rehabilitation areas and existing locations of Augusta Kennedia • Rehabilitation activities/program, including figures showing rehabilitation sites • Maintenance of site including: vermin control, fire management, pest management and weed control • Timing and implementation of the above measures • Monitoring and reporting. <p>The Site Rehabilitation and Environmental Management Plan must be submitted to and approved by the Minister prior to construction commencing.</p>	<p>DoT, in consultation with Onshore Environmental Consultants, developed the SREMP to address the criteria specified within the approval conditions. The original SREMP was submitted to the Department and approved prior to construction commencing on 20 September 2011. The most recent revision (Version 12), was approved by the Department on 17 October 2012. The first ground works commenced on 27 September 2011.</p> <p>Compliance with the requirements of the SREMP are addressed in the Annual Compliance Assessment Reports located on the DoT website: http://www.transport.wa.gov.au/imate/au Augusta-boat-harbour-facility.asp.</p> <p>The Threatened <i>Kennedia lateritia</i> was originally recorded as a series of disjunct sub-populations separated by highly disturbed and 'weedy' ground. All the sub-populations of <i>Kennedia lateritia</i> were retained with the boat harbour development re-designed to ensure that no plants were disturbed.</p> <p>The SREMP aimed to rehabilitate the larger area surrounding the sub-populations to form one consolidated population of <i>Kennedia lateritia</i>, significantly increasing the number of plants, area of occurrence, vegetation condition, and long-term resilience.</p> <p>At three years of age the 2012 rehabilitation block was an outstanding success meeting all targets for completion criteria associated with the planning, pre-clearing, pre-rehabilitation and establishment stages. The 2012 rehabilitation could not be distinguished from surrounding vegetation adjoining into the surrounding reserve.</p> <p>The 2014 rehabilitation block covers either side of the entry road and the construction office laydown area. At 52 months of age the 2014 rehabilitation block has achieved all performance targets for the revegetation establishment and development phases. Plant biodiversity parameters compared favourably with the adjacent analogue site.</p>	Monitoring and Reporting to be undertaken for the SREMP in accordance with the monitoring calendar in DoT's letter dated 21 June 2016 and approved by the DoEE 14 July 2016.

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
		<p>Note: The 2014 rehabilitation block does not contain any original sub-populations of <i>Kennedia lateritia</i>; however, rehabilitation has provided an important buffer to these sub-populations and has consolidated the larger population with established plants.</p> <p><u>Status</u></p> <p>The next rehabilitation assessment for the 2012 and 2014 blocks is planned for 2021 and if deemed compliant shall be the final monitoring assessment and report required under the EPBC approval. The EPBC approval expires on 21 December 2021.</p> <p>Current and future maintenance activities are restricted to low intensity spot spraying of woody weeds in season, selective spraying of remnant introduced grasses and rabbit control.</p>	
8	The person taking the action must ensure that no Peppermint Trees greater than 1.5 m in height are cleared from the site, apart from twelve Peppermint Trees located within the proposed access road at the southern area of the site as shown in Attachment A (of the Conditions).	<p>DoT is compliant with this condition.</p> <p>Clearing of vegetation occurred on 5 October 2011. DEC Clearing procedures were complied with. A letter report from Green Iguana confirms clearing of 12 peppermint trees (Report dated 26 October 2011).</p> <p>No further removal of trees is required during operations.</p> <p>Condition 8 is not applicable for ongoing operations.</p>	Complete
9	<p>The person taking the action must develop a Marine Noise Management Plan (MNMP) to mitigate impacts to Cetaceans during quarry blasting and marine drilling operations. The Marine Noise Management Plan must include but not be limited to:</p> <ul style="list-style-type: none"> • Exclusion zones and mitigation measures during the months of April - November during blasting activities • Blasting time restrictions • Exclusion zones and mitigation measures during drilling, if the breakwater has not been constructed prior to drilling commencing • Drilling methodology • Post blast/drill fauna inspection • Timing and implementation of the above 	<p>DoT is compliant with this condition.</p> <p>DoT, in consultation with Oceanica, developed a MNMP to address the criteria specified within the approval conditions. The MNMP was submitted to the Department and approved on 20 September 2011 prior to construction commencing on the 27 September 2011. The most recent revision was approved by the Department on 7 September 2012.</p> <p>No further drilling or blasting is required during Operations.</p> <p>Condition 9 is not applicable for ongoing operations.</p>	Complete

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
	<p>measures</p> <p>The Marine Noise Management Plan must be submitted to and approved by the Minister prior to construction commencing.</p>		
10	<p>Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each Management Plan must be published on the website within 1 month of being approved.</p>	<p>DoT is compliant with this condition.</p> <p>All management plans are available on the DoT website at: http://www.transport.wa.gov.au/imate/auugusta-boat-harbour-facility.asp.</p> <p>Each management plan was published within one month of being approved:</p> <ul style="list-style-type: none"> • the original SREMP was approved by the Minister on 20 September 2011 and published on the website in September 2011. • the recent version (v12) of the SREMP was approved by the Minister on 17 October 2012 and published on the website in October 2012. • the original MNMP was approved by the Minister on 20 September 2011 and published on the website in September 2011. 	Complete



Augusta Boat Harbour 2018 Annual Rehabilitation Assessment

Prepared for Department of Transport
11 December 2018



Document Status						
Rev No.	Authors	Reviewer/s	Date	Approved for Issue		
				Name	Distributed To	Date
1	J. Waters	D.Brearley	14/11/18	D.Brearley	S.Smith, J.Brooks	04/12/18
2	D.Brearley	S.Smith	11/12/18	D.Brearley	S.Smith, J.Brooks	11/12/18



Onshore Environmental Consultants Pty Ltd
ACN 095 837 120
PO Box 227
YALLINGUP WA 6282
Telephone / Fax (08) 9756 6206
E-mail: onshoreenv@westnet.com.au

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EXECUTIVE SUMMARY

An annual monitoring program designed to assess rehabilitation development success and the requirement for additional management strategies commenced in 2012 for two native rehabilitation blocks completed in 2012 and 2014 at the Augusta Boat Harbour. The 2012 rehabilitation block has been assessed annually on five occasions between 2012 and 2018, with the 2014 rehabilitation block assessed four times between 2015 and 2018.

The 2012 native rehabilitation areas at the Augusta Boat Harbour have developed to a stage where at 6.5 years of age, revegetation has integrated with surrounding native vegetation across the larger reserve. Revegetation structure and species diversity within the 2012 rehabilitation block is comparable with the neighbouring reserve vegetation. Re-establishment of the Threatened plant taxon *Kennedia lateritia* has been successful, with disjunct sub-populations now consolidated into one continuous and healthy population. At the 2018 assessment the 2012 revegetation block supported 32 native plant taxa averaging 2.35 plants m² and providing 108 percent ground cover. The ground coverage of introduced species (weeds) was very low, averaging 0.5 percent ground cover.

At October 2018 there were 29 native plant taxa averaging 2.85 plants m⁻² and providing 83 percent ground cover within the 2014 native rehabilitation block. Twelve introduced species provided an additional 15 percent ground cover and will require ongoing management during 2019. The Threatened Flora taxon *Kennedia lateritia* provided four percent ground cover within the 2014 rehabilitation block.

At October 2018, all the establishment stage completion targets were achieved for both the 2012 and 2014 rehabilitation blocks, and plant biodiversity parameters compared favourably with the adjacent analogue site.

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1. INTRODUCTION

1.1 Preamble

The proposed Augusta Boat Harbour is a community-driven project, arising from the need for safe navigation and mooring in the Southern Ocean off the Augusta coast. The proposed project area is located on Augusta Boat Harbour Reserve 51096, and occurs on the lower side of the Leeuwin-Naturaliste National Park. The project required the clearing of approximately 3.72 ha of native vegetation.

The concept plan for the boat harbour was redesigned in April 2011 as a result of the state environmental impact assessment process and negotiations regarding native vegetation clearing. Alterations were made to the quarry boundary and native vegetation clearing boundary in the northern area of the site at the request of the Department of Parks and Wildlife (now Department of Biodiversity, Conservation and Attractions [DBCA]). The new concept plan (F2R concept design) for the boat harbour further buffered the direct impact area from the Threatened Flora taxon, *Kennedia lateritia*, which was identified at the northern end of the project area, adjacent to the proposed quarry area, as well as the southern sector of the project area during the baseline flora and vegetation survey (Onshore Environmental 2007, 2008). The F2R concept design provided an increased buffer between the quarry site and the northern population of the Threatened Flora, as requested by DBCA. In addition to reducing and redesigning the clearing footprint to conserve populations of the Threatened Flora, the F2R concept design also identified areas where remedial rehabilitation could be undertaken to improve the *in situ* vegetation condition and incorporating revegetation of the Threatened Flora.

The first stage of native rehabilitation at the Augusta Boat Harbour was completed between the 25th and 29th June 2012 (2012 block), and included approximately 0.56 ha situated in the south-east corner of the project area. The second stage of native rehabilitation was completed between the 9th June and 24th July 2014 (2014 block) and included both sides of the access road adjacent to Leeuwin Road, as well as the office laydown area. A native seed mix collected from site prior to clearing and comprising a total of 54 plant taxa was hand broadcast at a rate of 4,310 grams per ha (Appendix 1 and 3). In addition, a total of 23 taxa were planted as nine-month-old seedlings at a rate of 6,455 seedlings per ha equivalent (Appendix 2 and 4). In 2018 both the 2012 and 2014 blocks were assessed in accordance with the agreed reporting requirements with the Department of Environment and Energy (Appendix 5).

1.2 Location

The Augusta Boat Harbour site is located within the Shire of Augusta Margaret River, midway between the Augusta town site and Cape Leeuwin Lighthouse on the eastern side of Leeuwin Road. The site is opposite the Skippy Rock Road turnoff and adjacent the Leeuwin Naturaliste National Park (Figure 1).

1.3 Climate

The boat harbour experiences a Mediterranean climate with hot, dry summers and mild, wet winters. Average rainfall of 962.7 mm is recorded at the nearest meteorological station of Cape Leeuwin (6 km south west), with approximately 90% of this total received between April and October. The maximum 100-year annual rainfall is 1,464.4 mm. Average maximum temperatures range from 23.3°C in February to 16.4°C in July and August. Average minimum temperatures range from 11.2°C in August to 17.2°C in February. Strong winds are predominantly from the west. Winter storms bring squally winds from the north-west to south-west. During summer, prevailing hot dry winds are from the east and south-east. The area experiences strong onshore winds and as a result the existing vegetation is stunted at elevated parts of the site.

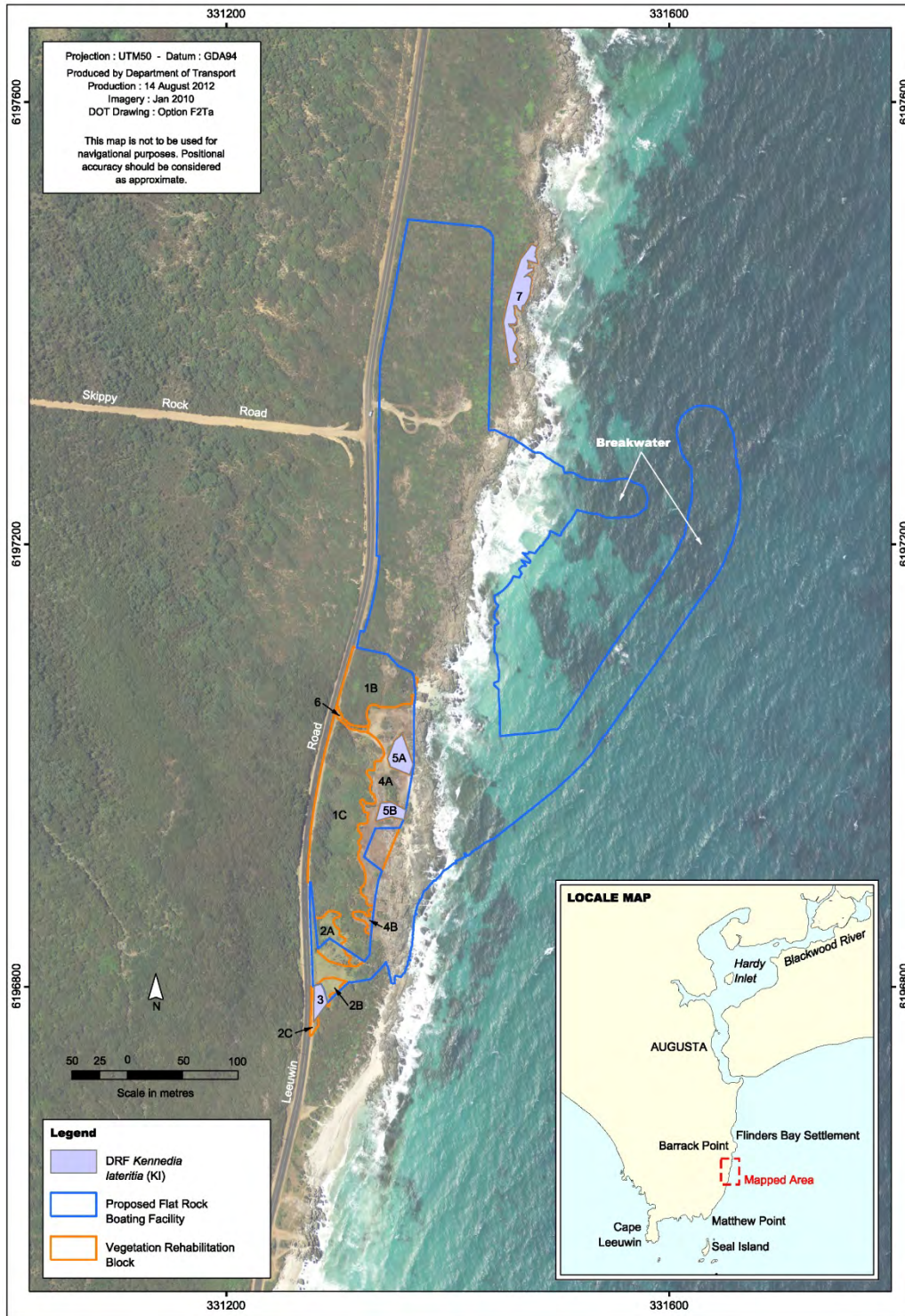


Figure 1 Location of the Augusta Boat Harbour, including rehabilitation blocks.

1.4 Current Condition of the Environment

The boat harbour is part of the Boranup vegetation system, situated in the Warren Botanical District of the South West Botanical Province (as described by Beard 1981). The Boranup vegetation system extends from Cape Naturaliste in the north to Irwin Inlet in the south, and covers the Leeuwin-Naturaliste Ridge and coastal dunes of the Scott River Plain. The Leeuwin-Naturaliste Ridge is a north-south trending horst of Precambrian granite and granulite forming hills rising to 200 m. Most of the outcrop is obscured by laterite and sand on the eastern side, and by dune sand and calcarenite on the western, seaward side. The seaward slopes are exposed to prevailing storm winds and sea spray. Vegetation is an intricate mosaic controlled by soil type and exposure (Beard 1981). The coast has a rugged retrograding shoreline with small sandy bays between promontories of granite and limestone. Soils are calcareous sands on the seaward slope and acidic grey earths on the inland side.

Five broad vegetation complexes were recorded during a two season Level 2 flora and vegetation survey of the Flat Rock survey area in February 2007 and October 2008 (Onshore Environmental Consultants 2007, 2008). Vegetation at the Flat Rock site is strongly associated with five distinct landforms:

1. Primary Sand Dune;
2. Humic Granitic/ Sandy Swale;
3. Granitic Coastal Hill Slope;
4. Granitic/ Sandy Foreshore; and
5. Humic Granitic Platforms.

In addition, there is bare sand (beach sand) and bare rock (exposed granite) landform features represented that are devoid of vegetation.

During the above survey, one flora species of conservation significance was recorded from the proposed Augusta Boat Harbour project area, *Kennedia lateritia*. *Kennedia lateritia* is listed as 'Endangered' under the *Environment Protection and Biodiversity Conservation Act 1999* (Federal) (EPBC Act), and as Threatened Flora under the *Wildlife Conservation Act 1950* (State)¹.

The project area does not show visual evidence of being significantly impacted by disease or pests, and surrounding vegetation generally remains in good health. Glevan Consulting (2011) conducted an assessment for the presence of the disease caused by *Phytophthora cinnamomi* within remnant vegetation of the boat harbour area in September 2011. The threat of *P. cinnamomi* was considered to be low, as site conditions were thought to be unfavourable for the pathogen. Grazing by rabbits and snails has been observed in areas of reduced vegetation condition. The boat harbour included previously disturbed sites that supported established populations of environmental weed species.

A total of 25 environmental weeds were recorded during the baseline flora and vegetation survey (Onshore Environmental Consultants 2007). None are listed as Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act). The majority of weeds were recorded at locations that have been subject to historical ground disturbance including road verges, the southern end of the 'Humic Granitic / Sandy Swale' vegetation association, and the granite platform along the eastern fringe of the project area supporting skeletal sandy soils with high exposure to prevailing winds. Few weeds were recorded from 'intact' vegetation types.

¹ *Bossiaea disticha* was previously reported as a Priority 4 conservation significant taxon, however this taxon is no longer listed as a Priority species by DBCA.

2. REHABILITATION OBJECTIVES

The following rehabilitation objectives are stated in the approved Site Rehabilitation and Environmental Management Plan Version 12 (SREMP) (Onshore Environmental 2012a):

- Propose a conceptual land-use plan for the project area;
- Minimise disturbance impacts wherever practicable;
- Integrate infrastructure development and rehabilitation schedules to maximise environmental outcomes;
- Provide a description of the development process and how it will be integrated with rehabilitation, reinforcing effective management of rehabilitation resources;
- Maximise the use of rehabilitation resources available on site;
- Address provenance issues such as seed and cutting / root propagule collection;
- Provide prescriptions for restoration of landforms and associated vegetation;
- Ensure that populations of any significant flora and vegetation communities are not compromised by the project;
- Adopt controlled approaches towards the management of existing threatening processes such as weed control, fire and feral animals;
- Assess a reference (analogue) site in tandem with developing rehabilitation to provide an accurate comparison on the success or otherwise; and
- Outline a program for monitoring landform reconstruction and revegetation, environmental impacts and compliance with the SREMP.

As stated in Section 5.1 of the SREMP, the 'annual monitoring program will be undertaken for three years following completion of rehabilitation, and at a three-year interval from then onwards'. Furthermore, there is a requirement under Condition 7 of the approval for monitoring and reporting associated with the SREMP to align with expiry of the EPBC Act approval, being 21 December 2021.

As confirmed by Department of the Environment (now Department of the Environment and Energy [DoEE]) (Appendix 3), annual monitoring of the 2012 rehabilitation block occurred annually between 2013 and 2015, and will subsequently be undertaken in 2018 and 2021. The 2014 rehabilitation block was previously assessed in 2015, 2016, and will be assessed in 2017, 2018 and 2021 (Appendix 3).

This report deals specifically with annual monitoring of the 2012 and 2014 rehabilitation blocks undertaken in October 2018.

3. METHODOLOGY

3.1 Preamble

An annual monitoring program designed to assess rehabilitation development success and the requirement for additional management strategies will be undertaken for three years following completion of rehabilitation (from 15 months of age), and at a three-year interval from then onwards. Monitoring will continue until it has been proven that revegetation is self-sustaining and can be integrated with the surrounding undisturbed vegetation, as determined by an appropriately qualified botanist appointed by the Department of Transport (DoT). Monitoring will be the responsibility of an appropriately qualified botanist appointed by the DoT, and will be conducted in accordance with the procedures outlined below. DoT will accept final responsibility for the rehabilitation works until such time as the completion criteria, as documented in the SREMP (Onshore Environmental 2012a) have been met.

In addition to the rehabilitation areas, a reference (analogue) site will be selected for annual monitoring. The analogue site will be selected on the basis of having similar soil-landform-vegetation associations to corresponding rehabilitation areas to allow for appropriate comparison of parameters. The analogue site chosen for assessment is situated north of the proposed Augusta Boat Harbour (along the same section of the ridge), in close proximity to Granny's Pool. It comprises coastal heath vegetation and provides a direct comparison to the vegetation cover being established in rehabilitation areas at the Augusta Boat Harbour.

Monitoring will use a series of plant biodiversity parameters such as species richness and diversity, plant density and percentage cover as indicators of ecosystem development and stability, which is endorsed by the Environmental Protection Authority (EPA) (EPA 2006). Qualitative assessment of the developing rehabilitation will be undertaken on a regular basis during the first growing season following establishment, and up to 15 months of age. Seed germination, plant establishment and survival, species diversity and weed establishment will be key parameters monitored during this period. Quantitative monitoring of rehabilitation will commence in the second spring (September/October) following rehabilitation (15 months), and will continue on an annual basis until the third assessment at which time the monitoring interval will be extended to a triennial basis (once every three years).

Rehabilitation blocks will be sampled with adequate replication to ensure the data is representative of the vegetation present. This will be demonstrated via graphing of 'species-area curves' for the understorey vegetation.

As an outcome from the dealings with the DoEE (Appendix 3) DoT prepares (through the appropriately qualified botanist) an annual report outlining results which are submitted by the 31st December following annual rehabilitation assessments. The report is provided to the DoE and made publicly available on DoT's website:

<http://www.transport.wa.gov.au/imate/augusta-boat-harbour-facility.asp#>.

Reporting to the Department of Water and Environmental Regulation (DWER) under the clearing permit conditions for the boat harbour finished on the 1 June 2016. No further reporting is required to the DWER.

3.2 Rehabilitation Implementation

The first stage of native rehabilitation was completed at the Augusta Boat Harbour between the 25th and 29th June 2012 (2012 block). This included approximately 0.56 ha contained within rehabilitation blocks 4a, 4b, 5a and 5b (see Figure 2). The native seed

mix was hand broadcast at a rate of 4,310 grams per ha (Appendix 1). It comprised a total of 54 plant taxa that had been collected from site prior to clearing, as well as neighbouring local Shire Reserves. A total of 23 plant taxa were planted at a rate of 6,455 seedlings per ha equivalent (Appendix 2). The majority of planting stock was nine-month-old seedlings contained in a combination of cell packs and forestry tubes. The two *Lepidosperma* sedges were planted as advanced stock; *Lepidosperma gladiatum* was planted from a combination of 255 mm and 140 mm pots, and *Lepidosperma pubisquameum* was planted from 70 mm by 100 mm pots.

A second stage of rehabilitation was completed between 9th June and 24th July 2014 (2014 block) and included rehabilitation blocks 2a (446 m²) and 2b (367 m²) situated on both sides of the access road adjacent to Leeuwin Road (Figure 2), along with the office laydown at the Augusta Boat Harbour (888 m², see Figure 2). Native seed comprising a total of 54 plant taxa was hand broadcast at a rate of 4,310 grams per ha (Appendix 1). A total of 26 plant taxa were planted at a rate of 2,454 seedlings per ha (Appendix 2).

3.3 Monitoring Protocol

The 2012 rehabilitation block has been monitored annually on five occasions between 2012 and 2018 (Appendix 6):

- 16th to 17th November 2012, aged five months;
- 15th to 16th November 2013, aged 17 months;
- 7th to 8th October 2014, aged 28 months;
- 22nd and 23rd October 2015, aged 40 months; and
- 11th October 2018, aged 76 months.

The 2014 rehabilitation block has been monitored annually on four occasions between 2015 and 2018 (Appendix 7):

- 22nd and 23rd October 2015, aged 16 months;
- 28th October 2016, aged 28 months
- 9th October 2017, aged 40 months; and
- 11th October 2018, aged 52 months.

In October 2018, two belt transects established at a neighbouring analogue site (Granny's Pool) was assessed to provide a comparison against plant biodiversity parameters within the two rehabilitation blocks (Appendix 8).

The monitoring procedure involved assessment of permanent belt transects of 20 contiguous one metre square quadrats, with four transects assessed within each of the 2012 and 2014 rehabilitation blocks, and an additional two transects assessed at the analogue site. A GPS location of the commencement point and orientation of each transect was recorded and photo-monitoring point established (Appendix 9). The twenty 1 m² quadrats along each transect line were assessed individually. For each species within a quadrat the number present, percentage ground cover, and maximum plant height was recorded. Summarised data provided mean density values (no. plants m⁻²), mean percentage ground cover, and mean maximum plant height.

An importance value index (IVI), (Mueller-Dombois and Ellenberg 1974) which considers frequency, density, and cover was calculated for each species recorded along a transect line. For all species recorded along each transect line the total IVI value is 300; the larger an individual IVI, the greater the dominance of that species. Species diversity was measured by the Shannon-Wiener Diversity Index (H), with higher values representing a greater level of diversity. The spread of individuals between the species recorded is defined by the Evenness (J) value. Evenness ranges between 0 and 1, with the maximum value indicating the same number of individuals being recorded for all species (Zar 1996, Magurran 1988). Lower J values reflect the dominance of one or a few species within the revegetation.

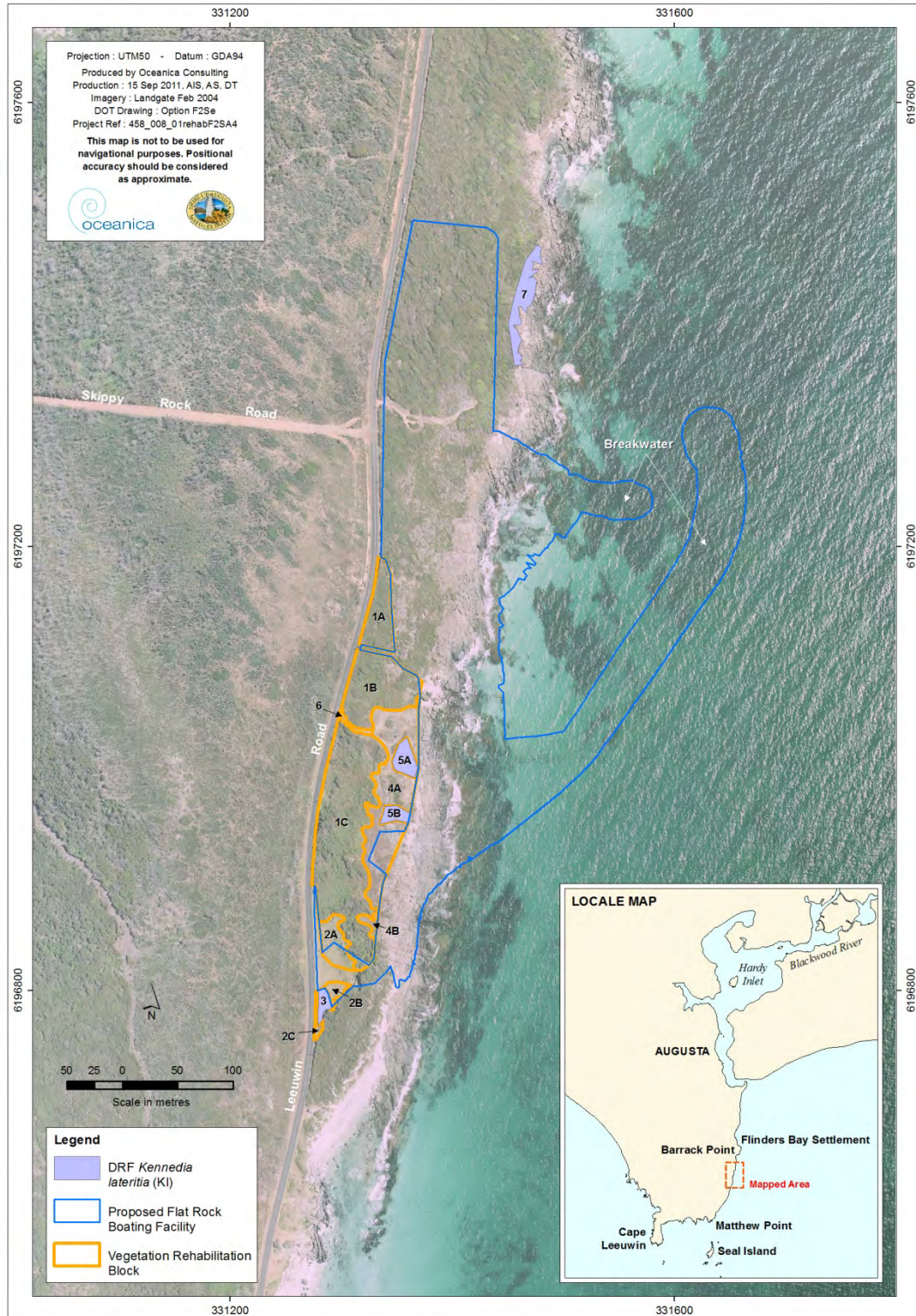


Figure 2 Rehabilitation blocks identified for management at the Augusta Boat Harbour (from SREMP).

3.4 Completion Criteria

To enable the assessment of rehabilitation progress towards rehabilitation objectives stated in Section 2, a number of completion criteria have been developed. For each criterion, performance indicators have been identified to enable progress to be measured and assessed. The targets are both qualitative (audit of design implementation during early stages to ensure maximum likelihood of a positive outcome), and quantitative (direct measure of performance outcomes).

The completion criteria will be assessed during the following five stages of the project:

- Planning;
- Pre-clearing;
- Pre-rehabilitation;
- Establishment (0 – 15 months); and
- Development (15 months onwards).

4. RESULTS

4.1 Rainfall

Since native rehabilitation commenced at the Augusta Boat Harbour in mid-2012, five of the six subsequent years have experienced annual rainfall totals less than the long-term average (Figure 3).

Annual rainfall for Augusta was well below the long-term average of 962 mm for 2012 (770 mm), 2014 (680 mm), 2015 (648 mm), 2016 (856 mm) and 2017 (866.2mm) (Figure 3). In contrast, the 2013 annual total of 983 mm was slightly above the long-term average.

Total rainfall from January to October 2018 totalled 701 mm, which was also below the long-term average for the same period (904 mm). With the exception of February, March and August, monthly rainfall totals during 2018 were below the long term monthly averages (Figure 4).

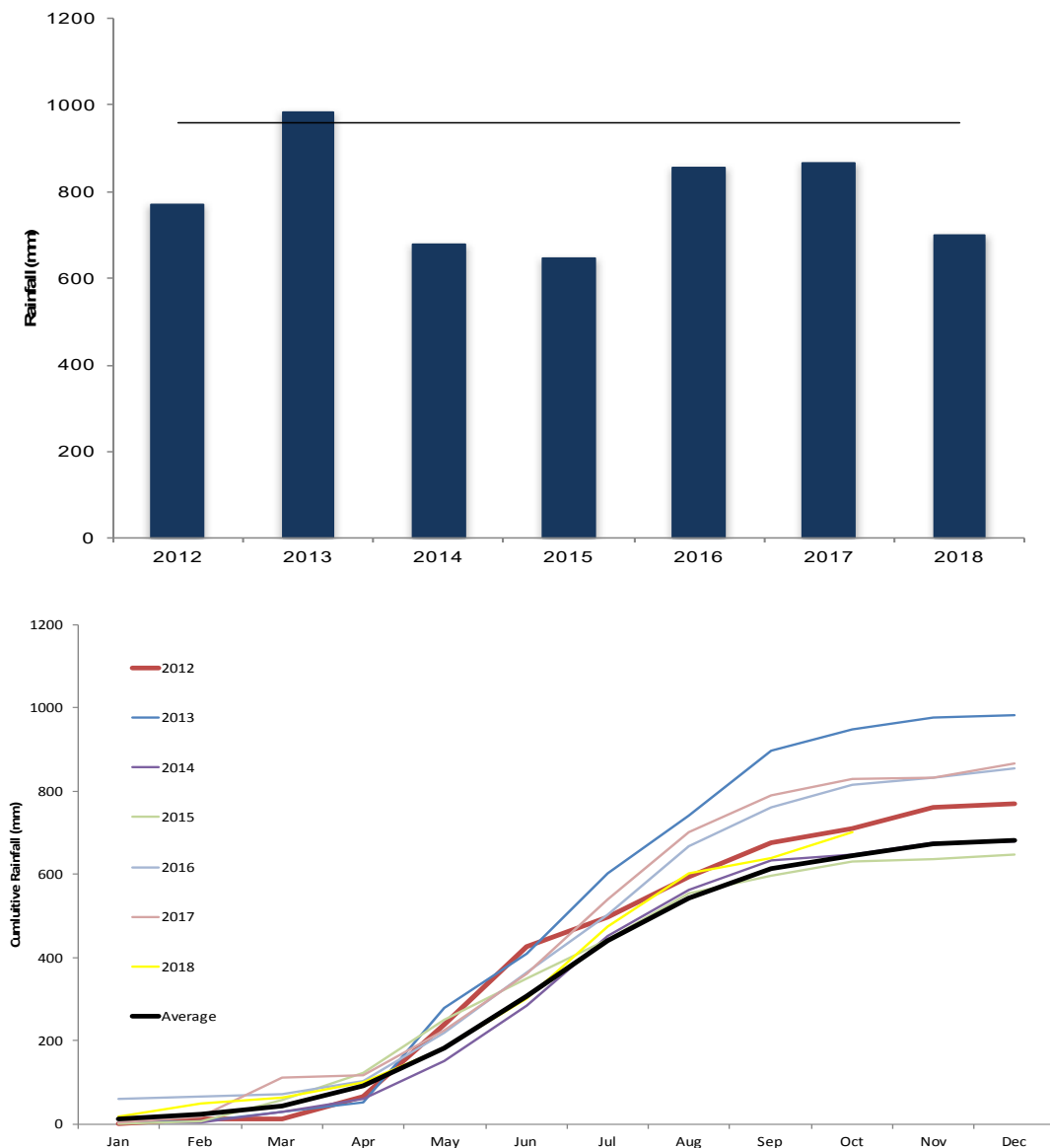


Figure 3 Cumulative monthly rainfall totals for Cape Leeuwin Weather Station (approximately 6 km south-west of the Augusta Boat Harbour) for 2012 to 2017 and January to October 2018.

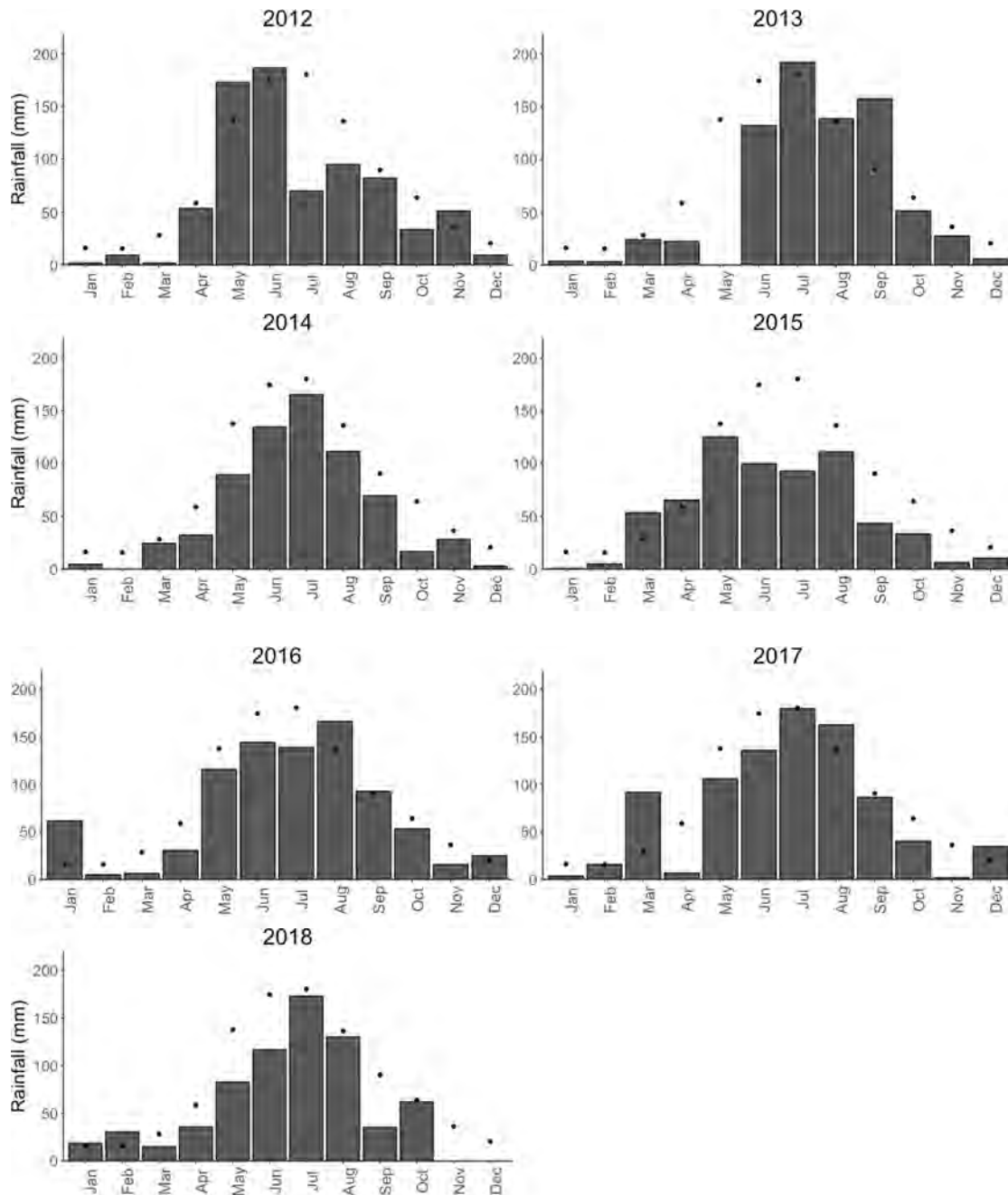


Figure 4 Monthly rainfall totals for Cape Leeuwin from 2012 to 2018, with long term monthly average represented for each year.

4.2 Species Richness

Native species richness for the 80 m² assessed within the 2012 rehabilitation block has ranged from 39 plant taxa at five months to 56 plant taxa at 17 months (41 and 40 plant taxa were recorded at 28 months and 40 months respectively). At the most recent assessment native species richness had decreased to 30 taxa, aged 76 months. This is the lowest species richness recorded across all assessments, however it is consistent with expectations for species richness to decline under increasing competition as vegetation matures.

Native species richness for the 80 m² assessed within the 2014 rehabilitation block has ranged from 31 plant taxa at 16 months (October 2015), 29 plant taxa at 28 months

(October 2016), to 38 plant taxa at 40 months (October 2017). At the most recent assessment native species richness has declined to 29 taxa.

In comparison, species richness across the 40 m² assessed at the analogue site was 28 native plant taxa (Table 1).

Table 1 Summary of plant biodiversity parameters recorded at the 2012 and 2014 rehabilitation block and neighbouring analogue site.

Block	Assessment	Age	Natives Species	Weed Species	Native Density (no. m ²)	Native Cover (%)	Weed Cover (%)
2012	November 2012	5 months	39	6	6.51	17.8	5.6
	November 2013	17 months	56	15	10.46	119.4	5.5
	October 2014	28 months	41	8	10.89	125.0	1.2
	October 2015	40 months	40	14	4.27	102.5	1.6
	October 2018	76 months	32	7	2.35	107.9	0.5
2014	October 2015	16 months	31	32	3.35	29.1	27.1
	October 2016	28 months	29	18	5.39	73.0	16.9
	October 2017	40 months	38	7	5.29	116.0	2.9
	October 2018	52 months	29	12	2.85	82.6	14.9
Analogue			28	1	2.25	91.5	0.08

4.3 Plant Density

As expected, native plant density within the 2012 rehabilitation block was elevated during the first three growing seasons, ranging between 6.51 plants m⁻² and 10.89 plants m⁻² (Table 1). Under increasing competition and with vegetation structure developing, plant density decreased during the fourth growing season to average 4.26 plants m⁻² aged 40 months. A further decline in plant density to 2.35 plants m⁻² was recorded at October 2018, aged 76 months.

Native plant density in the 2014 rehabilitation block averaged 3.35 plants m⁻² at October 2015 (16 months), 5.39 plants m⁻² in October 2016 (28 months), and 5.29 plants m⁻² in in October 2017 (40 months) (Table 1). At the most recent assessment native plant density decreased to average 2.85 plants m⁻², which reflects the same trend recorded for the 2012 rehabilitation block. The decrease in native plant density represents increasing competition as the vegetation structure develops, resulting in senescence of some colonising taxa.

Plant density at the analogue site, which supports similar vegetation composition and structure, averaged 2.25 plants m⁻² at October 2018. This is slightly lower, but comparable, to the two rehabilitation blocks.

4.4 Revegetation Cover

The mean native revegetation cover for the 2012 rehabilitation block increased from 18 percent at five months to 119 percent at 17 months, with greater than 100 percent ground coverage² maintained at 28 months and 40 months. At the most recent assessment in October 2018 native revegetation cover averaged 108 percent (Table 1). Introduced species cover has remained low over the 76 month monitoring period with highest weed cover recorded in the first two growing seasons (Table 1). Introduced

² Ground coverage greater than 100% is possible where plants within different vegetation strata overlap one another.

species ground cover was a minor component of the revegetation at October 2018, averaging 0.5 percent ground cover.

For the 2014 block native revegetation cover increased from 29 percent at 16 months (October 2015), 73 percent at 28 months (October 2016), to 116 percent at 40 months (October 2017). At October 2018, native revegetation cover had decreased to 82.6 percent. The ground cover provided by introduced weed species declined significantly from 27 percent at October 2015 to 2.9 percent at October 2017 (Table 1), before increasing slightly to 15 percent at October 2018. Weed coverage is impacted by native vegetation structure and timing of the maintenance weed spraying program.

4.5 Dominant Plant Taxa

The dominant plant taxa represented in the 2012 rehabilitation block at October 2018 (by IVI) were *Hakea oleifolia* (IVI 45), *Spyridium globulosum* (IVI 30), *Agonis flexuosa* (IVI 29), *Lepidosperma gladiatum* (IVI 26), *Eutaxia myrtifolia* (IVI 21) and *Dodonaea ceratocarpa* (IVI 19) and *Melaleuca incana* (IVI 18) (Appendix 3). There were 14 plant taxa providing greater than one percent individual ground cover in the 2012 rehabilitation block at October 2018. The highest individual ground coverage was provided by *Hakea oleifolia* (22 percent), *Agonis flexuosa* (12 percent), *Spyridium globulosum* (12 percent), *Scaevola crassifolia*, *Dodonaea ceratocarpa* (8 percent each), *Billardiera heterophylla*, *Melaleuca incana* and *Muehlenbeckia adpressa* (5 percent each).

The dominant plant taxa represented in the 2014 rehabilitation block at October 2018 (by IVI) were *Agonis flexuosa* (IVI 42), *Ficinia nodosa* (IVI 33), *Juncus kraussii* (IVI 27), *Hibbertia amplexicaulis* (IVI 18) and *Acacia littorea* (IVI 17). There were 14 plant taxa providing greater than one percent individual ground cover in the 2014 rehabilitation block at October 2018. The highest individual ground coverage was provided by *Agonis flexuosa* (16 percent), followed by **Cynodon dactylon* (12 percent), *Billardiera heterophylla* (9 percent), *Scaevola crassifolia*, *Acacia littorea* and *Ficinia nodosa* (6 percent each).

4.6 Rehabilitation Indices

The Shannon-Wiener diversity index (H) for transects in the 2012 rehabilitation block has shown a decreasing trend as revegetation structure develops under increasing competition. Mean values were 3.21 at November 2013, 2.98 at October 2014, 2.63 at October 2015 and 2.52 at October 2018. The Evenness value (J) for the 2012 rehabilitation block averaged 0.87 at November 2013 and October 2014, and decreased to 0.76 at October 2015. At the October 2018 assessment this value increased slightly to 0.81.

The Shannon-Wiener Diversity Index (H) for the four transects assessed in the 2014 rehabilitation block averaged 2.41 in October 2018, reflecting high species richness within the developing revegetation cover. The Evenness (J) value averaged 0.73 at October 2018 reflecting the relative even spread of individuals amongst the wide range of dominant plant taxa recorded.

4.7 Compliance to Criteria

At October 2018, all completion criteria targets associated with the planning, pre-clearing, pre-rehabilitation, establishment and development stages of the 2012 rehabilitation block (aged 76 months) have been achieved and are compliant (Table 2).

At October 2018, all completion criteria targets associated with the planning, pre-clearing, establishment and development stages of the 2014 rehabilitation block (aged 52 months) have been achieved and are compliant (Table 2). As noted in previous annual monitoring reports, two of the pre-rehabilitation targets (completion criteria numbers 20 and 21) were

not achieved across the entire 2014 rehabilitation block. The preferred subsoil depth of 150 mm was not consistently recorded, and surface scarification was not completed owing to inability of machines to operate efficiently under wet soil conditions. However, at October 2018 with rehabilitation aged 52 months all of the establishment and development stage completion targets were achieved.

Table 2 Completion Criteria for rehabilitation at the Augusta Boat Harbour - compliance for 2012 and 2014 rehabilitation blocks at October 2018.

Item	Completion Criterion	Performance Indicator	2012 Rehabilitation Compliance	2014 Rehabilitation Compliance
	1. PLANNING			
Access	1. Stakeholders have been consulted with proposed boat harbour access plans	Emails, letters, minutes of meetings	Yes	Yes
Fire	2. Fire management strategies are incorporated into the SREMP aimed at protecting developing rehabilitation	SREMP approved, Fire is excluded from developing rehabilitation for a minimum period of ten years following rehabilitation.	Yes ³	Yes ³
Land use	3. Area meets land use purpose as defined by land owner / manager	Shire of Augusta Margret River formally approves & adopts the end land use for the project area	Yes ⁴	Yes ⁴
Flora Vegetation and Fauna	4. Baseline flora & vegetation and fauna surveys have been completed	Management strategies for flora, vegetation and fauna of conservation significance are developed, as evidenced by correspondence.	Yes ⁵	Yes ⁵
	2. PRE-CLEARING			
Hydrology Landform and soils	5. Prior to commencement of clearing, surface drainage plan developed for areas earmarked for clearing	Surface drainage plan sighted by Project Manager	Yes	Yes
Clearing	6. Disturbance boundaries delineated with white sighter wire	Site inspection, photographs	Yes	Yes
Clearing	7. Machinery operators informed of clearing measures	Meeting minutes, correspondence	Yes	Yes

³ Fire management of adjacent National Park by DPaW; fire has been excluded from this area for a long period but DPaW are aware of rehabilitation at the boat harbour and presence of the Threatened Flora *Kennedia lateritia*

⁴ The 2012 rehabilitation area is within the newly proclaimed Augusta Boat Harbour Reserve 51096 (January 2012). All access into the rehabilitation is excluded and these areas now support a consolidated population of the Threatened Flora *Kennedia lateritia*.

⁵ Baseline flora and vegetation survey completed by Onshore Environmental (2007, 2008), fauna survey by Green Iguana (2010), and site rehabilitation and management plan by Onshore Environmental (2012a).

Item	Completion Criterion	Performance Indicator	2012 Rehabilitation Compliance	2014 Rehabilitation Compliance
Vegetation and flora	8. Search for DRF (and other conservation significant flora) completed prior to clearing	Flora & vegetation survey report, photographs of flagged DRF	Yes ⁶	Yes ⁶
Vegetation and flora	9. Seed and plant material required for propagation removed and appropriately stored	Site inspection, photographs, invoices/receipts from seed merchants & nurseries	Yes ⁷	Yes ⁷
Vegetation and flora	10. Infrastructure and stockpile areas approved for clearing surveyed and pegged	Site inspection, photographs, survey/site plans, approval documents	Yes ⁸	Yes ⁸
	3. PRE-REHABILITATION			
Landform and soils	11. Native vegetation topsoil stripped in two layers: 0 – 50 mm and 50 – 150 mm, with clear signage delineating the two resources to prevent later confusion	Site inspection, photographs	Yes ⁹	Yes ⁹
Landform and soils	12. Native vegetation topsoil stripped during dry conditions wherever practicable	Site inspection, photographs	Yes ⁹	Yes ⁹
Landform and soils	13. Upper topsoil stripped with a grader (or similar) and stockpiled into pre-determined locations	Site inspection, photographs	Yes ⁹	Yes ⁹
Landform and soils	14. Native vegetation topsoil stockpiled over cleared native vegetation areas to a maximum height of 1 m	Site inspection, photographs, site plan	Yes ⁹	Yes ⁹
Landform and soils	15. Landform design is integrated with existing landscape	Survey plan for proposal area (showing contours before and after development)	Yes ⁹	Yes ⁹
Vegetation and flora	16. Clear and stockpile understorey vegetation	Site inspection, photographs	Yes ⁹	Yes ⁹

⁶ All *Kennedia lateritia* populations and sub-populations had perimeters delineated by a combination of pegging and flagging.

⁷ Native seed collection completed by Formosaflores and seedlings propagated and supplied by Carramar Coastal Nursery.

⁸ Native Vegetation Clearing Permit approved and stockpiles surveyed, mapped and quantified.

⁹ Overseen by the Works Supervisor, Mr Peter Walker.

Item	Completion Criterion	Performance Indicator	2012 Rehabilitation Compliance	2014 Rehabilitation Compliance
Landform and soils	17. Topsoil spread over 100% of the rehabilitated areas	Site plan, schedule, site inspection, photographs	Yes ⁹	Yes ⁹
Landform and soils	18. Aim to direct return 100% of the upper (top 50 mm) topsoil resource over disturbed rehabilitation areas	Site plan, schedule, site inspection, photographs	Yes ⁹	Yes ⁹
Landform and soils	19. Post-disturbance surfaces re-contoured with a grader following survey	Survey report (including pre- and post-disturbance contours), site inspection, photographs	Yes ⁹	Yes ⁹
Landform and soils	20. Re-contoured surface deep ripped / scarified with appropriate machine (grader or small dozer)	Site inspection, photographs	Yes ⁹	No (too wet)
Landform and soils	21. 'Lower topsoil' material replaced at 150 mm depth	Monitoring (survey) results, site inspection, photographs	Yes ⁹	Not consistently
Landform and soils	22. 'Upper topsoil' material replaced at 50 mm	Monitoring (survey) results, site inspection, photographs	Yes ⁹	Yes ⁹
Landform and soils Hydrology	23. No uncontrolled surface runoff or soil erosion that is unstable and degrading, and/or compromises end land use objectives	Site inspection, photographs, monitoring results	Yes ⁹	Yes ⁹
Vegetation and flora	24. Perimeter of rehabilitation fenced	Invoice/ receipt from fencing contractor, site plan, site inspection, photographs	Yes ¹⁰	Yes
	4. ESTABLISHMENT (0-15 MONTHS)			
Vegetation and flora	25. Prepared rehabilitation areas direct seeded with a native species mix	Seed list outlining volume of seed utilised for each species, area direct-seeded, site inspection, photographs	Yes ¹¹	Yes

¹⁰ Fencing was removed in October 2014 after annual rehabilitation assessments confirmed revegetation had successfully established and would be tolerant of prevailing winds.

¹¹ A total of 54 plant taxa were sown at 4,310 grams per hectare.

Item	Completion Criterion	Performance Indicator	2012 Rehabilitation Compliance	2014 Rehabilitation Compliance
Vegetation and flora	26. Nursery propagated seedlings (from a mixture of seed, cuttings, root divisions, and tissue culture) replanted throughout the rehabilitation area at a density >1,000 seedlings ha ⁻¹	Species list showing seedling numbers for each species, area of rehabilitation, site inspection, photographs, monitoring results	Yes ¹²	Yes
Vegetation and flora	27. At 15 months total number of <i>Kennedia lateritia</i> plants at the site to be 150% of the number recorded prior to development	Site inspection, photographs, monitoring results	Yes ¹³	Yes
Vegetation and flora	28. At 15 months species richness to be at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	Monitoring results confirm species richness at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	Yes ¹⁴	Yes
Landform and soils	29. Surfaces stable with no evidence of surface erosion that is likely to limit establishment of a native vegetation cover	Monitoring results (erosion and vegetation) confirming that erosion is not limiting plant establishment in the rehabilitation	Yes	Yes
Vegetation and flora	30. No areas greater than 0.01 ha without understorey	Monitoring results, site inspection to confirm there are no areas greater than 0.01 ha without understorey	Yes	Yes
	5. DEVELOPMENT (>15 MONTHS)			
Vegetation and flora	31. Longer term species richness to be at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	Monitoring results confirm species richness at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	Yes	Yes
Vegetation and flora	32. For Peppermint trees (<i>Agonis flexuosa</i>) planted to consolidate the existing southernmost clump of taller trees at the project site, a minimum number of 15 trees have survived 5 years following commencement of rehabilitation.	Annual monitoring results confirm survival of at least 15 Peppermint trees (<i>Agonis flexuosa</i>) at 5 years.	Yes	Yes

¹² A total of 23 plant taxa were planted at 6,455 seedlings per hectare.

¹³ At 17 months *Kennedia lateritia* was recorded at 0.58 plants per m² (5,800 per hectare) and provided 18 percent ground cover within the rehabilitation area.

¹⁴ At 17 months native species richness within the 2012 rehabilitation area was 57 taxa, compared to 18 taxa at the analogue site.

Item	Completion Criterion	Performance Indicator	2012 Rehabilitation Compliance	2014 Rehabilitation Compliance
Vegetation and flora	33. No Declared Plants (weeds) as defined by DAFWA (2007) present within rehabilitation areas.	Monitoring results, site inspection confirm no Declared Plants present in the rehabilitation	Yes	Yes
Access	34. The agreed access plan has been implemented	Access plan, site inspection, correspondence from regulatory authorities	Yes	Yes
Land use	35. The site meets the agreed end land use	Site inspection, photographs, correspondence from regulatory agencies	Yes	Yes
Landform and soils	36. The rehabilitation surface is stable and vegetated, with no uncontrolled run-off	Monitoring results, site inspection, photographs	Yes	Yes

5. SUMMARY

At October 2018 and aged 76 months there were 32 native plant taxa recorded within the 2012 rehabilitation block averaging 2.35 plants m² and providing 108 percent ground cover. The introduced species (weed) loading has continued to progressively decline over time, from 6 percent ground cover at November 2012 to 0.5 percent ground cover at October 2018. A mature vegetation structure comprising native perennial plant species has successfully developed, and is effectively outcompeting introduced species that were effectively managed during the establishment phase.

Within the 2014 rehabilitation block, aged 52 months at October 2018, there were 29 native plant taxa averaging 2.85 plants m² and providing 83 percent ground cover. Introduced species coverage declined from 27 percent at October 2015 to a low of 3 percent in 2017. Weed cover has increased over the past 12 months to average 15 percent at October 2018. Additional targeted control of introduced species will be required over the next 12 months.

At October 2018, the Threatened Flora taxon *Kennedia lateritia* provided 1.5 percent ground cover in the 2012 block, and 4 percent ground cover within the 2014 rehabilitation block. Other dominant taxa included *Hakea oleifolia*, *Agonis flexuosa*, *Spyridium globulosum*, *Scaevola crassifolia*, *Dodonaea ceratocarpa* *Billardiera heterophylla*, *Melaleuca incana* and *Muehlenbeckia adpressa* within the 2012 rehabilitation, and *Agonis flexuosa*, **Cynodon dactylon*, *Billardiera heterophylla*, *Scaevola crassifolia*, *Acacia littorea* and *Ficinia nodosa* within the 2014 rehabilitation.

At October 2018, all completion criteria targets associated with the establishment and development stages of the 2012 and 2014 rehabilitation block have been achieved and are compliant.

Proposed management for the forward 12 month period will include selective weed control within the 2014 rehabilitation block, early summer treatment of rabbits through release of RHDV, and monitoring for any requirement to provide supplementary irrigation over the summer period.

6. REFERENCES

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APPENDIX 1

Native seed mix and individual sowing rates for the 2012 rehabilitation block

Species	Location	Batch #	Collection Season	2012 Seed Rate (g)
<i>Acacia alata</i>	Res39156	KMV400	2010/11	49
<i>Acacia alata</i>	Res39156	KMV-453	2011/12	
<i>Acacia littorea</i>	Res25141	KMV401	2010/11	100
<i>Acacia myrtifolia</i>	Res39156	KMV-454	2011/12	20
<i>Acacia pulchella</i> var <i>goadbyi</i>	Res 20761	KMV-456	2011/12	25
<i>Acacia pulchella</i> var <i>pulchella</i>	Res25141	KMV402	2010/11	25
<i>Acanthocarpus preissii</i>	Res25141	KMV403	2010/11	350
<i>Acrotriche cordata</i>	Res25141	KMV404	2010/11	100
<i>Agonis flexuosa</i>	Res25141	KMV405	2010/11	150
<i>Anthocercis littorea</i>	Res25141	KMV406	2010/11	5
<i>Baumea juncea</i>	Res25141	KMV407	2010/11	5
<i>Boronia alata</i>	Res25141	KMV-455	2011/12	30
<i>Boronia alata</i>	Res25141	KMV408	2010/11	
<i>Bossiaea distichea</i> *	Res25141	KMV-462	2011/12	150
<i>Bossiaea linophylla</i>	Res 20761	KMV-457	2011/12	150
<i>Carpobrotus virescens</i>	Res25141	KMV409	2010/11	90
<i>Carpobrotus virescens</i>	Res25141	KMV410	2010/11	
<i>Chorilaena quercifolia</i>	Res25141	KMV411	2010/11	0.5
<i>Chorizema diversifolium</i>	Res39156	KMV412	2010/11	0.4
<i>Clematis pubescens</i>	Res25141	KMV413	2010/11	120
<i>Comosperma confertum</i>	Res25141	KMV414	2010/11	0.1
<i>Daucus glochidiatus</i>	Res 27432	KMV-461	2011/12	3
<i>Dodonaea ceratocarpa</i>	Res25141	KMV415	2010/11	
<i>Eutaxia obovata</i>	Res25141	KMV416	2010/11	350
<i>Exocarpus sparteus</i>	Res25141	KMV417	2010/11	24
<i>Ficinia nodosa</i>	Res25141	KMV418	2010/11	30
<i>Hakea oleifolia</i>	Res25141	KMV-452	2011/12	
<i>Hardenbergia comptoniana</i>	Res25141	KMV419	2010/11	300
<i>Hovea elliptica</i>	Res20761	KMV420	2010/11	22
<i>Hovea elliptica</i>	Res39156	KMV421	2010/11	
<i>Kennedia carinata</i>	Res25141	KMV422	2010/11	1.3
<i>Kennedia coccinea</i>	Res39156	KMV423	2010/11	6
<i>Kennedia macrophylla</i> *#1	Res25141	KMV-447	2011/12	280
<i>Kennedia macrophylla</i> *#2	Res25141	KMV-448	2011/12	
<i>Kennedia macrophylla</i> *#3	Res25141	KMV-449	2011/12	
<i>Kennedia macrophylla</i> *#4	Res25141	KMV-450	2011/12	
<i>Kennedia prostrata</i>	Res25141	KMV424	2010/11	5
<i>Kennedia prostrata</i>	Res25141	KMV-458	2011/12	
<i>Leucophyta brownii</i>	Res25141	KMV425	2010/11	30
<i>Leucopogon parviflorus</i>	Res25141	KMV426	2010/11	300
<i>Linum marginale</i>	Res 27432	KMV-460	2011/12	1.3
<i>Lobelia anceps</i>	Res25141	KMV427	2010/11	3
<i>Logania vaginalis</i>	Res20761	KMV428	2010/11	10
<i>Melaleuca incana</i> ssp. <i>incana</i>	Res9658/2514 1	KMV-451	2011/12	50
<i>Patersonia occidentalis</i>	Res25141	KMV429	2010/11	15
<i>Patersonia umbrosa</i> var <i>xantha</i>	Res25141	KMV430	2010/11	7
<i>Philotheca spicata</i>	Res25141	KMV431	2010/11	0.1
<i>Phyllanthus calycinus</i>	Res25141	KMV432	2010/11	11
<i>Pimelia ferruginea</i>	Res25141	KMV433	2010/11	60

Species	Location	Batch #	Collection Season	2012 Seed Rate (g)
<i>Rhagodia baccata</i>	Res25141	KMV434	2010/11	250
<i>Scaevola crassifolia</i>	Res25141	KMV435	2010/11	16
<i>Sollya heterophylla</i>	Res25141	KMV436	2010/11	40
<i>Sphenotoma capitatum</i>	Res25141	KMV437	2010/11	1.6
<i>Sporobolus virginicus</i>	Res25141	KMV438	2010/11	3
<i>Spyridium globosum</i>	Res25141	KMV439	2010/11	200
<i>Stylidium adnatum</i>	Res 27432	KMV-459	2011/12	
<i>Stylidium adnatum</i> var <i>adnatum</i>	Res25141	KMV440	2010/11	0.05
<i>Templetonia retusa</i>	Res25141	KMV441	2010/11	0.7
<i>Threlkeldia diffusa</i>	Res25141	KMV442	2010/11	50
<i>Viminaria juncea</i>	Res20761	KMV443	2010/11	220
<i>Viminaria juncea</i>	Res25141	KMV444	2010/11	
<i>Xanthorrhoea preissii</i>	Res 27432	KMV445	2010/11	650
<i>Xanthosia candida</i>	Res25141	KMV446	2010/11	0.7
TOTAL				4310.75

APPENDIX 2

Native seedling mix and individual planting rates for the 2012 rehabilitation block

Species	Planting Rate (no. per ha)		
	2012 (upland)	2014 (upland)	2014 (wetland)
<i>Acacia littorera</i>	50	50	
<i>Agonis flexuosa</i>	100	40	
<i>Anthocercis littorea</i>	65	40	
<i>Banksia littoralis</i>	50		25
<i>Carpobrotus virescens</i>	250	50	
<i>Conostylis aculeata</i>	500	170	
<i>Diplolaena dampieri</i>		150	
<i>Dodonea ceratocarpa</i>	250	80	
<i>Ficinia nodosa</i>	250	260	
<i>Hakea oleifolia</i>	500		
<i>Hardenbergia comptoniana</i>	250		
<i>Juncus kraussii</i> subsp. <i>austaliensis</i>	200	210	
<i>Kennedia laterita</i>	775	140	24
<i>Lepidosperma gladiatum</i> 255mm	815		
<i>Lepidosperma squamatum</i> 140mm	300	170	
<i>Lepidosperma squamatum</i> 70 x 100mm	200		
<i>Leucophyta brownii</i>	250	50	
<i>Melaleuca incana</i> subsp. <i>incana</i>	250	50	
<i>Olearia axillaris</i>	250	85	
<i>Patersonia occidentalis</i>		170	
<i>Pimelia ferruginea</i>		170	
<i>Rhagodia baccata</i>	500	85	
<i>Scaevola crassifolia</i>	250	161	
<i>Scaevola nitida</i>		150	
<i>Sollya heterophylla</i>	100	40	
<i>Spyridium globulosum</i>	150	84	
<i>Templetonia retusa</i>	50		
<i>Viminaria juncea</i>	100	25	
TOTAL	6,455	2,405	49

APPENDIX 3

Native seed mix and individual sowing rates for the 2014 rehabilitation block

Species	Location	Batch #	Collection Season	2014 Seed Rate (g)
<i>Acacia alata</i>	Res39156	KMV400	2010/11	49
<i>Acacia alata</i>	Res39156	KMV-453	2011/12	
<i>Acacia littorea</i>	Res25141	KMV401	2010/11	100
<i>Acacia myrtifolia</i>	Res39156	KMV-454	2011/12	20
<i>Acacia pulchella</i> var <i>goadbyi</i>	Res 20761	KMV-456	2011/12	25
<i>Acacia pulchella</i> var <i>pulchella</i>	Res25141	KMV402	2010/11	25
<i>Acanthocarpus preissii</i>	Res25141	KMV403	2010/11	350
<i>Acrotriche cordata</i>	Res25141	KMV404	2010/11	100
<i>Agonis flexuosa</i>	Res25141	KMV405	2010/11	150
<i>Anthocercis littorea</i>	Res25141	KMV406	2010/11	5
<i>Baumea juncea</i>	Res25141	KMV407	2010/11	5
<i>Boronia alata</i>	Res25141	KMV-455	2011/12	30
<i>Boronia alata</i>	Res25141	KMV408	2010/11	
<i>Bossiaea distichea</i> *	Res25141	KMV-462	2011/12	150
<i>Bossiaea linophylla</i>	Res 20761	KMV-457	2011/12	150
<i>Carpobrotus virescens</i>	Res25141	KMV409	2010/11	90
<i>Carpobrotus virescens</i>	Res25141	KMV410	2010/11	
<i>Chorilaena quercifolia</i>	Res25141	KMV411	2010/11	0.5
<i>Chorizema diversifolium</i>	Res39156	KMV412	2010/11	0.4
<i>Clematis pubescens</i>	Res25141	KMV413	2010/11	120
<i>Comosperma confertum</i>	Res25141	KMV414	2010/11	0.1
<i>Daucus glochidiatus</i>	Res 27432	KMV-461	2011/12	3
<i>Dodonaea ceratocarpa</i>	Res25141	KMV415	2010/11	
<i>Eutaxia obovata</i>	Res25141	KMV416	2010/11	350
<i>Exocarpus sparteus</i>	Res25141	KMV417	2010/11	24
<i>Ficinia nodosa</i>	Res25141	KMV418	2010/11	30
<i>Hakea oleifolia</i>	Res25141	KMV-452	2011/12	
<i>Hardenbergia comptoniana</i>	Res25141	KMV419	2010/11	300
<i>Hovea elliptica</i>	Res20761	KMV420	2010/11	22
<i>Hovea elliptica</i>	Res39156	KMV421	2010/11	
<i>Kennedia carinata</i>	Res25141	KMV422	2010/11	1.3
<i>Kennedia coccinea</i>	Res39156	KMV423	2010/11	6
<i>Kennedia macrophylla</i> *#1	Res25141	KMV-447	2011/12	280
<i>Kennedia macrophylla</i> *#2	Res25141	KMV-448	2011/12	
<i>Kennedia macrophylla</i> *#3	Res25141	KMV-449	2011/12	
<i>Kennedia macrophylla</i> *#4	Res25141	KMV-450	2011/12	
<i>Kennedia prostrata</i>	Res25141	KMV424	2010/11	5
<i>Kennedia prostrata</i>	Res25141	KMV-458	2011/12	
<i>Leucophyta brownii</i>	Res25141	KMV425	2010/11	30
<i>Leucopogon parviflorus</i>	Res25141	KMV426	2010/11	300
<i>Linum marginale</i>	Res 27432	KMV-460	2011/12	1.3
<i>Lobelia anceps</i>	Res25141	KMV427	2010/11	3
<i>Logania vaginalis</i>	Res20761	KMV428	2010/11	10
<i>Melaleuca incana</i> ssp. <i>incana</i>	Res9658/25141	KMV-451	2011/12	50
<i>Patersonia occidentalis</i>	Res25141	KMV429	2010/11	15
<i>Patersonia umbrosa</i> var <i>xantha</i>	Res25141	KMV430	2010/11	7

Species	Location	Batch #	Collection Season	2014 Seed Rate (g)
<i>Philothea spicata</i>	Res25141	KMV431	2010/11	0.1
<i>Phyllanthus calycinus</i>	Res25141	KMV432	2010/11	11
<i>Pimelia ferruginea</i>	Res25141	KMV433	2010/11	60
<i>Rhagodia baccata</i>	Res25141	KMV434	2010/11	250
<i>Scaevola crassifolia</i>	Res25141	KMV435	2010/11	16
<i>Sollya heterophylla</i>	Res25141	KMV436	2010/11	40
<i>Sphenotoma capitatum</i>	Res25141	KMV437	2010/11	1.6
<i>Sporobolus virginicus</i>	Res25141	KMV438	2010/11	3
<i>Spyridium globosum</i>	Res25141	KMV439	2010/11	200
<i>Stylidium adnatum</i>	Res 27432	KMV-459	2011/12	
<i>Stylidium adnatum var adnatum</i>	Res25141	KMV440	2010/11	0.05
<i>Templetonia retusa</i>	Res25141	KMV441	2010/11	0.7
<i>Threlkeldia diffusa</i>	Res25141	KMV442	2010/11	50
<i>Viminaria juncea</i>	Res20761	KMV443	2010/11	220
<i>Viminaria juncea</i>	Res25141	KMV444	2010/11	
<i>Xanthorrhoea preissii</i>	Res 27432	KMV445	2010/11	650
<i>Xanthosia candida</i>	Res25141	KMV446	2010/11	0.7
TOTAL				4310.75

APPENDIX 4

Native seedling mix and individual planting rates for the 2014 rehabilitation block

Species	Seedling Planting Rate (no. per ha)	
	2014 (upland)	2014 (wetland)
<i>Acacia littorera</i>	50	
<i>Agonis flexuosa</i>	40	
<i>Anthocercis littorea</i>	40	
<i>Banksia littoralis</i>		25
<i>Carpobrotus virescens</i>	50	
<i>Conostylis aculeata</i>	170	
<i>Diplolaena dampieri</i>	150	
<i>Dodonea ceratocarpa</i>	80	
<i>Ficinia nodosa</i>	260	
<i>Juncus kraussii</i> subsp. <i>austaliensis</i>	210	
<i>Kennedia laterita</i>	140	24
<i>Lepidosperma squamatum</i>	170	
<i>Leucophyta brownii</i>	50	
<i>Melaleuca incana</i> subsp. <i>incana</i>	50	
<i>Olearia axillaris</i>	85	
<i>Patersonia occidentalis</i>	170	
<i>Pimelia ferruginea</i>	170	
<i>Rhagodia baccata</i>	85	
<i>Scaevola crassifolia</i>	161	
<i>Scaevola nitida</i>	150	
<i>Sollya heterophylla</i>	40	
<i>Spyridium globulosum</i>	84	
<i>Viminaria juncea</i>	25	
TOTAL	2,405	49

APPENDIX 5

Clarification of reporting requirements between Department of Transport and
Department of the Environment and Energy



Coastal Infrastructure

Mr Alex Taylor
Acting Director, Monitoring and Assurance Section
Department of the Environment
GPO Box 787
Canberra ACT 2601

22 June 2016

Dear Mr Taylor

AUGUSTA BOAT HARBOUR EPBC 2008/4506 – CLARIFICATION OF REPORTING REQUIREMENTS

I refer to the Department of Transport's (DoT) letter dated the 19 October 2015 advising fulfilment of conditions attached to EPBC approval 2008/4506, the Department of Environment (DoE) response dated the 18 May 2016, and the subsequent discussions held between DoT Project Manager, Mr Stephen Smith and DoE Assistant Director, Mr Vaughn Cox .

I note the advice received from DoE for ongoing monitoring and reporting required under the EPBC approval conditions. In the reading of the conditions, and the approved Site Rehabilitation and Environmental Management Plan – Version 12 (SREMP), there is some ambiguity that DoT seeks to clarify. This letter details DoT's understanding for which we seek DoE's agreement. Once agreement has been reached with DoE we can progress with certainty the necessary contracts for the required environmental services.

Table 1 attached provides a compliance status of the conditions. Only those conditions relating to the SREMP, and its monitoring and reporting, remain outstanding. The balance of conditions have been completed and require no future monitoring or reporting.

Table 2 attached provides a schedule of the SREMP completion criterion, the status of those criteria at June 2016, and the timeframes for monitoring of criteria not yet completed for the two rehabilitation blocks. Table 2 has been derived from Table 5 in the SREMP.

Points of clarification:

1. The SREMP, required under condition 7 of approval, is silent on the end date for monitoring and reporting. The approval has an expiry date of the 21 December 2021.

Comment

It is inferred that the end date for monitoring and reporting associated with the SREMP aligns to the expiry of the EPBC approval, being 21 December 2021. Would you please confirm this to be the case.



2. SREMP Clause 5.1 Monitoring – 1st sentence of 1st para.

An annual monitoring program designed to assess rehabilitation development success and the requirement for additional management strategies will be undertaken for three years following completion of rehabilitation, and at a three year interval from then onwards.

Completion of rehabilitation relates to the date when all ground works including topsoil spreading, mulching, fencing, planting, retic etc are completed. The Augusta Boat Harbour rehabilitation works were completed in two phases in 2012 and 2014, hereafter referred to as the 2012 block and the 2014 block. Refer Figure A attached.

Annual monitoring commenced for the 2012 block in December 2013 and was completed in December 2015 (three years following completion of rehabilitation). Three annual monitoring assessments were completed and reported. All completion criteria have been met for the planning, pre-clearing, pre-rehabilitation and establishment phases. Refer website link below for relevant reports.

<http://www.transport.wa.gov.au/imagery/augusta-boat-harbour-facility.asp#>.

Monitoring of the 2012 block will now be undertaken at three year intervals with the first due in December 2018 and the final due in December 2021.

Comment

Annual monitoring for the 2014 block commenced in December 2015 with the three year annual monitoring scheduled to be complete in December 2017 if all completion criteria are met. I seek your agreement that should the completion criteria be met at the 2016 annual monitoring assessment then the next monitoring date would be moved out to 2018 as per Table 1. This would have the added benefit of aligning the 2012 and 2014 blocks to the same 3 year monitoring calendar. DoT would consider this a reasonable approach given the 2014 block represents only 8% of the total rehabilitation area and our confidence in achieving similar outstanding success to that of the 2012 block after only two years of establishment. Any issues that may arise with this approach would be identified and addressed in the 2018 monitoring and reporting. I advise that there would be negligible risk in fulfilling the overall rehabilitation objectives in adopting this approach. All reporting shall occur in the same year as the monitoring.

Please note that DoT's Project Botanist undertakes biannual inspections of the 2012 and 2014 blocks. These inspections are in addition to the monitoring requirements for the EPBC approval and identify the need for onground actions. Any actions identified by the Project Botanist are scheduled for timely implementation.



Table 1: Proposed Monitoring Calendar

REHABILITATION BLOCK	MONITORING YEAR								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
2012	✓	✓	✓						
2014			✓		①				

- ① Not required if all completion criteria fulfilled in 2016
- ✓ Completed

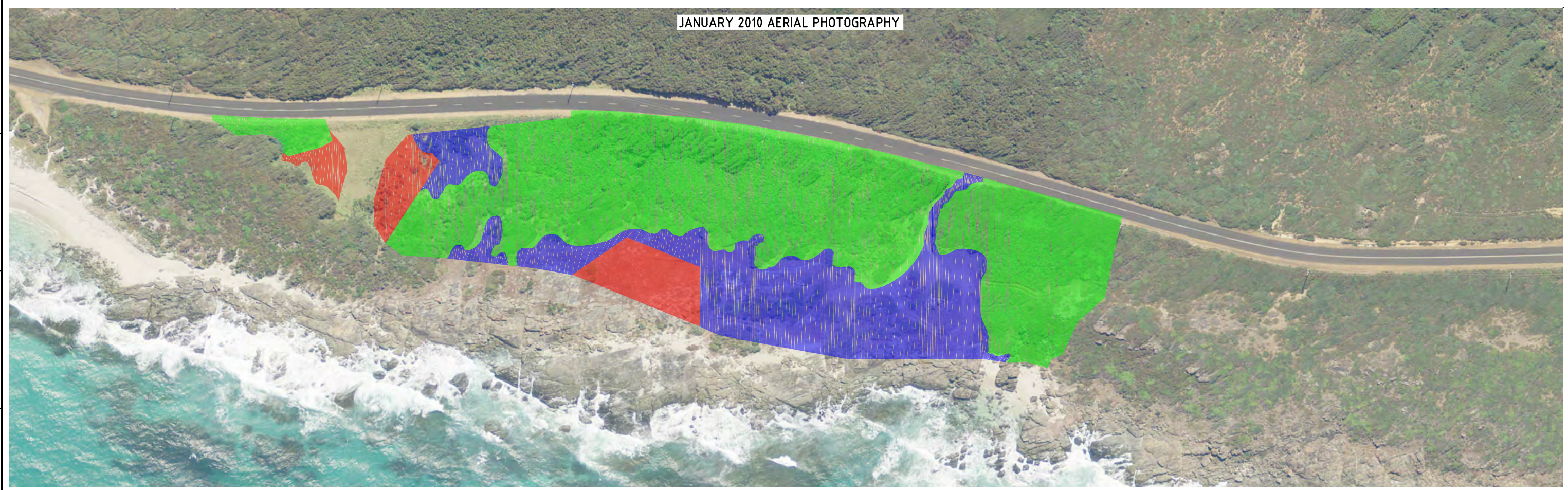
Yours sincerely



Steve Jenkins
 Coastal Infrastructure General Manager

Enclosed: Table 1 Conditions compliance status for EPBC 2008/4506 Approval
 Table 2 Completion criterion status for the 2012 & 2014 rehabilitation blocks (June 2016)
 Site Rehabilitation and Environmental Management Plan V12
 Figure A




JANUARY 2010 AERIAL PHOTOGRAPHY



DECEMBER 2014 AERIAL PHOTOGRAPHY



LEGEND

-  2012 WEED CONTROL MANAGEMENT (64%)
-  2012 REHABILITATION (28%)
-  2014 REHABILITATION (8%)

1:1500 @ A3 0 10 20 30 40



AUGUSTA BOAT HARBOUR
REHABILITATION PHASES 2012 & 2014

FIGURE A

**Table 1: Augusta Boat Harbour
Conditions Compliance Status for EPBC 2008/4506 Approval**

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
1	Within 30 days after commencement of the action, the person taking the action must advise the Department (DoE) in writing of the actual date of commencement	<p>DoT is compliant with this condition.</p> <p>A letter from Oceanica on behalf of DoT dated 14 October 2011 was sent to the Department advising that works to implement the Augusta Boat Harbour commenced on 27 September 2011 at which time temporary fencing was installed around the designated site access road area.</p> <p>Condition 1 is not applicable for ongoing operations.</p>	Complete
2	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plan(s) required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	<p>Accurate records have been maintained by DoT and activities have been substantiated including evidence provided in the 2012, 2013, 2014 & 2015 Compliance Assessment Reports to the Department and annual reports for the Department of Environment and Conservation (now DER) clearing permits.</p> <p>No requests were made by the Department during the construction phase for an independent auditor to verify compliance with the conditions of approval.</p> <p><u>Status</u></p> <p>Records only required for Condiiton7 as at January 1, 2016.</p> <p>Records shall continue to be maintained until the expiry of the EPBC approval on 31 December 2021.</p>	Records to be maintained for the SREMP in accordance with the monitoring calendar in DoT's letter dated 21 June 2016.
3	Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published.	<p>Compliance reports are required to be submitted annually by 27 December. A one month extension was granted by the Department (email from Sam Wagstaff from the Department dated 21 December 2012) advising the initial report could be submitted no later than 27 January 2013.</p> <p>Reports were available on the website in:</p> <ul style="list-style-type: none"> • January 2013 • December 2013 • December 2014 • December 2015 <p><u>Status</u></p> <p>Reporting only required for Condition 7 as at January 1, 2016.</p> <p>Reporting shall continue until the expiry of the EPBC approval on 31 December 2021.</p>	Reporting to be undertaken for the SREMP in accordance with the monitoring calendar in DoT's letter dated 21 June 2016.

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
4	<p>If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plan(s) as specified in the Conditions, the person taking the action must submit to the Department for the Minister's written approval a revised version of that management plan(s). The varied activity shall not commence until the Minister has approved the varied management plan(s) in writing. The Minister will not approve a varied management plan(s) unless the revised management plan(s) would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised plan(s), that management plan(s) must be implemented in place of the management plan(s) originally approved.</p>	<p>DoT is compliant with this condition.</p> <p>A summary of amendments to management plans are below:</p> <ul style="list-style-type: none"> • 2012 Annual Compliance Report - DoT submitted a revised version of SREMP, which included the extension to the quarry, to the Minister (DSEWPaC) for approval on 7 September 2012. DoT was issued a notification of approval for the extension to the quarry on 17 October 2012. The amendments required for the Marine Noise Management Plan (MNMP) were minor and therefore the plan did not require another revision. The SREMP has undergone two revisions since its original approval, including Version 11 which was approved by DSEWPaC on 23 November 2011, and Version 12, approved on 17 October 2012. • 2013 Annual Compliance Report – No activities other than those described in management plans were undertaken within this reporting period and no revisions were made to management plans. • 2014 Annual Compliance Report – DoT provided the Department with an environmental impact assessment for a minor underwater blasting campaign within the harbour. The findings of the assessment and the Department's view were that the proposed blasting was unlikely to have a significant impact to matters of national environmental significance (MNES). <p>No new activities will be undertaken during operations. Condition 4 is not applicable for ongoing operations.</p>	Complete
5	<p>If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the Minister may request that the person taking the action make specified revisions to the management plan(s) specified in the Conditions and submit the revised management plan(s) for the Minister's written approval. The person taking the action must comply with any such request. The revised approved management plan(s) must be implemented. Unless the Minister has approved the revised management plan(s), then the person taking the action must continue to implement the management plan(s) originally approved, as specified in the conditions.</p>	<p>DoT is compliant with this condition.</p> <p>No requests were received by DoT from the Minister to revise any of the management plans during the construction phase of the project.</p> <p>No requests are perceived during operations as there are no significant threats to protected or listed threatened species.</p> <p>Condition 5 is not applicable for ongoing operations.</p>	Complete
6	<p>If, at any time after five years from the date of this approval, the person taking the action has not substantially commenced the action, then the</p>	<p>DoT is compliant with this condition.</p> <p>The action was undertaken within the five year time frame. EPBC 2008/4506 approval was received on 22 August 2011 and the activity</p>	Completed

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
	<p>person taking the action must not substantially commence the action without the written agreement of the Minister.</p>	<p>commenced on 27 September 2011 (refer to Condition 1). Condition 6 is not applicable for ongoing operations.</p>	
7	<p>The person taking the action must develop a Site Rehabilitation and Environmental Management Plan (SREMP) to mitigate the impacts to Augusta Kennedia (<i>Kennedia lateritia</i>). The Site Rehabilitation and Environmental Management Plan must include but not be limited to:</p> <ul style="list-style-type: none"> • Overview of existing environment • Objectives • Clearing protocols • Perimeter fencing/security of rehabilitation areas and existing locations of Augusta Kennedia • Rehabilitation activities/program, including figures showing rehabilitation sites • Maintenance of site including: vermin control, fire management, pest management and weed control • Timing and implementation of the above measures • Monitoring and reporting. <p>The Site Rehabilitation and Environmental Management Plan must be submitted to and approved by the Minister prior to construction commencing.</p>	<p>DoT, in consultation with Onshore Environmental Consultants, developed the SREMP to address the criteria specified within the approval conditions. The original SREMP was submitted to DSEWPaC and approved on 20 September 2011, the most recent revision (Version 12), was approved by DSEWPaC on 17 October 2012.</p> <p>The SREMP was approved by the Minister prior to construction commencing. The original SREMP was approved by DSEWPaC on 20 September 2011 and the first ground works commenced on 27 September 2011.</p> <p>Compliance with the requirements of the SREMP were addressed in the Annual Compliance Assessment Reports located on the DoT website: http://www.transport.wa.gov.au/imarine/augusta-boat-harbour-facility.asp.</p> <p>The Threatened <i>Kennedia lateritia</i> was originally recorded as a series of disjunct sub-populations separated by highly disturbed and 'weedy' ground. All of the sub-populations of <i>Kennedia lateritia</i> were retained with the boat harbour development re-designed to ensure that no plants were disturbed.</p> <p>The SREMP aimed to rehabilitate the larger area surrounding the sub-populations to form one consolidated population of <i>Kennedia lateritia</i>, significantly increasing the number of plants, area of occurrence, vegetation condition, and long term resilience.</p> <p>At three years of age the 2012 rehabilitation block has been an outstanding success meeting all targets for completion criteria associated with the planning, pre-clearing, pre-rehabilitation and establishment stages. The 2012 rehabilitation cannot be distinguished from surrounding vegetation adjoining into the surrounding reserve. Current maintenance activities are restricted to low intensity spot spraying of woody weeds in season, and selective spraying of remnant introduced grasses.</p> <p>The 2014 rehabilitation block covers either side of the entry road along with the construction office laydown. At 15 months of age this area remains in the establishment phase and requires ongoing management in the short term. <u>Importantly the 2014 rehabilitation block does not contain any of</u></p>	<p>Monitoring and Reporting to be undertaken for the SREMP in accordance with the monitoring calendar in DoT's letter dated 21 June 2016.</p>

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
		<p><u>the original sub-populations of <i>Kennedia lateritia</i></u>; however, rehabilitation will provide an important buffer to these sub-populations and in time provide consolidate the larger population with established plants.</p> <p>Revegetation in the 2014 rehabilitation block was quantitatively assessed in October 2015 and the results reported to the WA DER by DoT in accordance with the requirements of the Clearing Permit. The Clearing Permit expires on 1 August 2016.</p> <p><u>Status</u> Monitoring and reporting shall continue until the expiry of the EPBC approval on 31 December 2021.</p>	
8	The person taking the action must ensure that no Peppermint Trees greater than 1.5 m in height are cleared from the site, apart from twelve Peppermint Trees located within the proposed access road at the southern area of the site as shown in Attachment A (of the Conditions).	<p>DoT is compliant with this condition.</p> <p>Clearing of vegetation occurred on 5 October 2011. DEC Clearing procedures were complied with. A letter report from Green Iguana confirms clearing of 12 peppermint trees (Report dated 26 October 2011).</p> <p>No further removal of trees is required during operations.</p> <p>Condition 8 is not applicable for ongoing operations.</p>	Complete
9	<p>The person taking the action must develop a Marine Noise Management Plan to mitigate impacts to Cetaceans during quarry blasting and marine drilling operations. The Marine Noise Management Plan must include but not be limited to:</p> <ul style="list-style-type: none"> • Exclusion zones and mitigation measures during the months of April - November during blasting activities • Blasting time restrictions • Exclusion zones and mitigation measures during drilling, if the breakwater has not been constructed prior to drilling commencing • Drilling methodology • Post blast/drill fauna inspection • Timing and implementation of the above measures <p>The Marine Noise Management Plan must be submitted to and approved by the Minister prior to construction commencing.</p>	<p>DoT is compliant with this condition.</p> <p>DoT, in consultation with Oceanica, developed a MNMP to address the criteria specified within the approval conditions. The MNMP was submitted to DSEWPaC and approved on 20 September 2011. The most recent revision was approved by the Department on 7 September 2012.</p> <p>The MNMP was approved by the Minister prior to construction commencing. The MNMP was approved by DSEWPaC on 20 September 2011 and the first ground works commenced on 27 September 2011.</p> <p>No further drilling or blasting is required during Operations.</p> <p>Condition 9 is not applicable for ongoing operations.</p>	Complete

CONDITION NUMBER	CONDITION	COMPLIANCE STATUS	COMMENT
10	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each Management Plan must be published on the website within 1 month of being approved.	<p>DoT is compliant with this condition.</p> <p>All management plans are available on the DoT website at: http://www.transport.wa.gov.au/imate/australia-boat-harbour-facility.asp.</p> <p>Each management plan was published within one month of being approved:</p> <ul style="list-style-type: none"> • the original SREMP was approved by the Minister on 20 September 2011 and published on the website in September 2011. • the recent version (v12) of the SREMP was approved by the Minister on 17 October 2012 and published on the website in October 2012. • the original MNMP was approved by the Minister on 20 September 2011 and published on the website in September 2011. 	Complete

**Table 2: Augusta Boat Harbour – 2012 & 2014 Rehabilitation Blocks
Completion Criterion Status as at June 2016**

ASPECT	COMPLETION CRITERION	PERFORMANCE INDICATOR	2012 BLOCK STATUS	2014 BLOCK STATUS
PLANNING				
Access	1. Stakeholders have been consulted with proposed boat harbour access plans	Emails, letters, minutes of meetings	Complete	Complete
Fire	2. Fire management strategies are incorporated into the SREMP aimed at protecting developing rehabilitation	SREMP approved, Fire is excluded from developing rehabilitation for a minimum period of ten years following rehabilitation.	Complete	Complete
Land Use	3. Area meets land use purpose as defined by land owner / manager	Shire of Augusta Margaret River formally approves & adopts the end land use for the project area	Complete	Complete
Flora Vegetation and Fauna	4. Baseline flora & vegetation and fauna surveys have been completed	Management strategies for flora, vegetation and fauna of conservation significance are developed, as evidenced by correspondence.	Complete	Complete
PRE-CLEARING				
Hydrology Landform and soils	5. Prior to commencement of clearing, surface drainage plan developed for areas earmarked for clearing	Surface drainage plan sighted by Project Manager	Complete	Complete
Clearing	6. Disturbance boundaries delineated with white sighter wire	Site inspection, photographs	Complete	Complete
Clearing	7. Machinery operators informed of clearing measures	Meeting minutes, correspondence	Complete	Complete
Vegetation and flora	8. Search for Threatened Flora (and other conservation significant flora) completed prior to clearing	Flora & vegetation survey report, photographs of flagged Threatened Flora	Complete	Complete
Vegetation and flora	9. Seed and plant material required for propagation removed and appropriately stored	Site inspection, photographs, invoices/receipts from seed merchants and nurseries	Complete	Complete
Vegetation and flora	10. Infrastructure and stockpile areas approved for clearing surveyed and pegged	Site inspection, photographs, survey/site plans, approval documents	Complete	Complete

ASPECT	COMPLETION CRITERION	PERFORMANCE INDICATOR	2012 BLOCK STATUS	2014 BLOCK STATUS
PRE-REHABILITATION				
Landform and soils	11. Native vegetation topsoil stripped in two layers: 0 - 50 mm and 50 - 150 mm, with clear signage delineating the two resources to prevent later confusion	Site inspection, photographs	Complete	Complete
Landform and soils	12. Native vegetation topsoil stripped during dry conditions wherever practicable	Site inspection, photographs	Complete	Complete
Landform and soils	13. Upper topsoil stripped with a grader (or similar) and stockpiled into pre-determined locations	Site inspection, photographs	Complete	Complete
Landform and soils	14. Native vegetation topsoil stockpiled over cleared native vegetation areas to a maximum height of 1 m	Site inspection, photographs, site plan	Complete	Complete
Landform and soils	15. Landform design is integrated with existing landscape	Survey plan for proposal area (showing contours before and after development)	Complete	Complete
Vegetation and flora	16. Clear and stockpile understorey vegetation	Site inspection, photographs	Complete	Complete
Landform and soils	17. Topsoil spread over 100% of the rehabilitated areas	Site plan, schedule, site inspection, photographs	Complete	Complete
Landform and soils	18. Aim to direct return 100% of the upper (top 50 mm) topsoil resource over disturbed rehabilitation areas	Site plan, schedule, site inspection, photographs	Complete	Complete
Landform and soils	19. Post-disturbance surfaces re-contoured with a Posi Track following survey	Survey report (including pre- and post-disturbance contours), site inspection, photographs	Complete	Complete
Landform and soils	20. Re-contoured surface deep ripped / scarified with appropriate machine (Posi Track)	Site inspection, photographs	Complete	Complete
Landform and soils	21. 'Lower topsoil' material replaced at 150 mm depth	Monitoring (survey) results, site inspection, photographs	Complete	Complete
Landform and soils	22. 'Upper topsoil' material replaced at 50 mm	Monitoring (survey) results, site inspection, photographs	Complete	Complete
Landform and soils Hydrology	23. No uncontrolled surface runoff or soil erosion that is unstable and degrading, and/or compromises end land use objectives	Site inspection, photographs, monitoring results	Complete	Complete

ASPECT	COMPLETION CRITERION	PERFORMANCE INDICATOR	2012 BLOCK STATUS	2014 BLOCK STATUS
Vegetation and flora	24. Fencing strategically erected to minimise impact of prevailing south-easterly winds on seedling development	Invoice/ receipt from fencing contractor, site plan, site inspection, photographs	Complete	Complete
ESTABLISHMENT (0 - 15 months)				
Vegetation and flora	25. Prepared rehabilitation areas direct seeded with a native species mix	Seed list outlining volume of seed utilised for each species, area direct-seeded, site inspection, photographs	Complete	Complete
Vegetation and flora	26. Nursery propagated seedlings (from a mixture of seed, cuttings, root divisions, and tissue culture) replanted throughout the rehabilitation area at a density >1,000 seedlings ha ⁻¹	Species list showing seedling numbers for each species, area of rehabilitation, site inspection, photographs, monitoring results	Complete	Complete
Vegetation and flora	27. At 15 months total number of <i>Kennedia lateritia</i> plants at the site to be 150% of the number recorded prior to development	Site inspection, photographs, monitoring results	Complete	2016 Monitoring
Vegetation and flora	28. At 15 months species richness to be at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	Monitoring results confirm species richness at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	Complete	2016 Monitoring
Landform and soils	29. Surfaces stable with no evidence of surface erosion that is likely to limit establishment of a native vegetation cover	Monitoring results (erosion and vegetation) confirming that erosion is not limiting plant establishment in the rehabilitation	Complete	2016 Monitoring
Vegetation and flora	30. No areas greater than 0.01 ha without understorey	Monitoring results, site inspection to confirm there are no areas greater than 0.01 ha without understorey	Complete	2016 Monitoring

ASPECT	COMPLETION CRITERION	PERFORMANCE INDICATOR	2012 BLOCK STATUS	2014 BLOCK STATUS
DEVELOPMENT (>15 months)				
Vegetation and flora	31. Longer term species richness to be at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	Monitoring results confirm species richness at least 80% of that recorded at the analogue site, with not more than 10 percent of the annual assessment plots failing to record this level of diversity	2018 & 2021 Monitoring	2017 ⁽¹⁾ , 2018, 2021 Monitoring
Vegetation and flora	32. For Peppermint trees (<i>Agonis flexuosa</i>) planted to consolidate the existing southernmost clump of taller trees at the project site, a minimum number of 15 trees have survived 5 years following commencement of rehabilitation.	Annual monitoring results confirm survival of at least 15 Peppermint trees (<i>Agonis flexuosa</i>) at 5 years.	2018 Monitoring	2021 Monitoring
Vegetation and flora	33. No Declared Plants (weeds) as defined by DAFWA (2007) present within rehabilitation areas.	Monitoring results, site inspection confirm no Declared Plants present in the rehabilitation	2018 & 2021 Monitoring	2017 ⁽¹⁾ , 2018, 2021 Monitoring
Access	34. The agreed access plan has been implemented	Access plan, site inspection, correspondence from regulatory authorities	Complete	Complete
Land use	35. The site meets the agreed end land use	Site inspection, photographs, correspondence from regulatory agencies	Complete	Complete
Landform and soils	36. The rehabilitation surface is stable and vegetated, with no uncontrolled run-off	Monitoring results, site inspection, photographs	2018 & 2021 Monitoring	2017 ⁽¹⁾ , 2018, 2021 Monitoring

(1) It is proposed that should the completion criteria be met at the 2016 annual monitoring then the next reporting year would be 2018. In this case the 2017 monitoring would not be required.



Mr Steve Jenkins
Coastal Infrastructure General Manager
WA Department of Transport
1 Essex Street
Freemantle WA 6160

Dear Mr Jenkins

Clarification of Reporting and Monitoring Requirements – EPBC 2008/4506

I write in reference to your letter of 22 June 2016, seeking clarification of reporting and monitoring requirements of *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval 2008/4506; Augusta Boat Harbour.

In your letter you seek to clarify:

- A. The end date for monitoring and reporting associated with the Site Rehabilitation and Environmental Management Plan (SREMP); and
- B. A proposed monitoring schedule for the 2012 and 2014 blocks.

In relation to the end date for monitoring and reporting associated with the SREMP, I confirm that this is required under expiry of the EPBC approval on 21 December 2021.

In relation to the proposed monitoring schedule for the 2012 and 2014 blocks, I can confirm that the Department of the Environment (the Department) agrees with the monitoring schedule as proposed in your letter.

Management plans associated with EPBC Act approvals may be revised by the approval holder and submitted to the Department for approval; in which case that revised management plan can be implemented in place of the one originally approved. Similarly, an approval holder can request a variation to the conditions attached to an approval; this process can be initiated by contacting the Department's Post Approval Section (postapproval@environment.gov.au).

You may revise management plans or seek a variation should you wish to articulate explicitly the requirements pertaining to monitoring or reporting, or to reflect changes to the project over time.

Should you have any further questions in relation to EPBC matters, please do not hesitate to contact me on 02 6274 2209 or alex.taylor@environment.gov.au.

Yours sincerely

Alex Taylor
Acting Director
Monitoring and Assurance Section
Department of the Environment

17 July 2016

APPENDIX 6

Plant biodiversity parameters recorded from four 20m by 1m transects within the 2012 rehabilitation block at November 2012, November 2013, October 2014, October 2015 and October 2018

SPECIES	2012				2013				2014				2015				2018			
	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT
* <i>Arctotheca calendula</i>													0.24		0.28					
* <i>Arctotheca populifolia</i>	3.76	0.13	0.03	0.1	0.05		0.06		0.33	0.01	0.13	0.4								
* <i>Asparagus asparagoides</i>																	0.01		0.01	
* <i>Avena barbata</i>					0.01		0.01						0.08		0.09					
* <i>Briza maxima</i>	4.09		1.01						0.01		0.01		0.02		0.02					
* <i>Briza minor</i>					0.03		0.03		0.07		0.09		0.03		0.03					
* <i>Bromus diandrus</i>					0.01		0.01						0.01		0.01					
* <i>Cenchrus clandestinus</i>													0.18		0.18		0.06		0.06	
* <i>Centaurium erythraea</i>					0.14		0.15													
* <i>Centaurium tenuiflorum</i>					0.14		0.15													
* <i>Cynodon dactylon</i>					0.02		0.02													
* <i>Ehrharta calycinus</i>					0.11		0.14		0.45		0.55		0.33		0.39					
* <i>Ehrharta longiflora</i>																	0.12		0.13	
* <i>Euphorbia peplus</i>	0.1		0.03		0.01		0.01		0.08		0.09		0.13		0.14		0.12		0.13	
* <i>Holcus lanatus</i>													0.21		0.23					
* <i>Hypochaeris glabra</i>					0.07		0.08		0.1		0.13									
* <i>Lolium rigidum</i>									0.13		0.18									
* <i>Lotus angustissimus</i>	0.11		0.04		1.23		1.47													
* <i>Lotus subbiflorus</i>													0.01		0.01					
* <i>Lysmachia arvensis</i>	15.54		4.5		2.91		3.15						0.07		0.08		0.05		0.06	
* <i>Ramulea rosea</i>													0.01		0.01		0.00		0.00	
* <i>Solanum nigrum</i>					0.01		0.01													
* <i>Sonchus asper</i>					0.18		0.22													
* <i>Sonchus oleraceus</i>	0.03		0.01		0.02		0.02						0.08		0.09		0.09		0.10	
* <i>Sporobolus indicus</i>													0.02		0.03					
<i>Acacia alata</i>					1.26	0.05	0.24	0.4	1.8	0.1	0.36	0.7	1.22	0.02	0.08					
<i>Acacia extensa</i>	3.34	0.04	0.32	0.5	3.18	0.13	0.61	0.5					1.99	0.04	0.5	1.3				
<i>Acacia littorea</i>	1.3	0.03	0.04	0.1	1.31	0.04	0.32	0.3	4.82	0.16	1.49	0.7	9.88	0.11	4.16	1	9.93	0.06	2.73	89.17
<i>Acacia myrtifolia</i>					0.77	0.01	0.48	0.9												
<i>Acacia pulchella</i>					8.91	0.31	2.82	0.4	5.06	0.19	1.7	0.5	3.61	0.09	0.63	0.8	2.59	0.01	0.83	35.00
<i>Acacia saligna</i>													0.03	0	0.03					
<i>Acacia sp. 'germinant'</i>	0.58	0.01		0																

SPECIES	2012				2013				2014				2015				2018			
	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT
<i>Acacia sp. 'seedling'</i>	2.44	0.05	0.06	0.1																
<i>Acacia sp. indet.</i>	0.73	0.03		0																
<i>Acrotriche cordata</i>					2.61	0.13	0.07	0.1												
<i>Agonis flexuosa</i>	6.74	0.16	0.32	0.2	15.49	0.75	2.82	0.3	14	0.76	2.26	0.6	28.01	0.51	5.07	1	29.36	0.21	12.08	119.88
<i>Anarthria prolifera</i>					0.07	0	0.08													
<i>Anthocercis littorea</i>	3.11	0.05	0.31	0.1	2.34	0.08	0.71	0.3												
<i>Austrodanthonia setacea</i>					0.04	0	0.04													
<i>Austrostipa flavescens</i>					0.35	0.01	0.13	0.9												
<i>Austrostipa mollis</i>									0.01	0	0.01		0.06		0.06					
<i>Baumea arthropphylla</i>													0.24		0.23					
<i>Baumea juncea</i>					0.31	0.01	0.04	0.1												
<i>Billardiera heterophylla</i>	1.79	0.04	0.04	0.1	5.89	0.31	0.63	0.2	8.97	0.34	2.15	0.6	10.43	0.11	4.41	0.7	7.84	0.04	5.51	48.75
<i>Bossiaea disticha</i>					14.26	0.78	2.18	0.2	11.5	0.59	2.98	0.5	10.69	0.21	1.39	0.7	6.58	0.05	2.00	57.50
<i>Bossiaea linophylla</i>					1.75	0.06	0.1	0.4	2.17	0.09	0.34	0.5	1.86	0.03	0.19	1				
<i>Bossiaea ornata</i>	4.44	0.16	0.02	0																
<i>Caesia micrantha</i>	2.95	0.08	0.04	0.1																
<i>Carpobrotus virescens</i>	3.54	0.1	0.08	0.1	0.34	0.01	0.01	0.1					1.82	0.04	0.19	0.4				
<i>Cassytha racemosa</i>													0.04	0	0.05					
<i>Centella asiatica</i>					0.37	0.01	0.09	0.2												
<i>Centrolepis aristatus</i>	10.48	0.33	0.18	0																
<i>Centrolepis sp. indet.</i>	2.99	0	0.62																	
<i>Charilaena quercifolia</i>	0.37	0.01	0	0	1.15	0.05	0.14	0.2	2.15	0.1	0.2	0.2	3.2	0.06	0.6	0.5	6.38	0.05	1.65	86.25
<i>Comesperma calymega</i>									0.26	0.01	0.01	0.6								
<i>Conostylis aculeata</i>	3.64	0.08	0.2	0.2					1.82	0.09	0.31	0.2								
<i>Conostylis serrulata</i>					0.37	0.01	0.05	0.4												
<i>Conostylis setigera</i>					1.56	0.06	0.33	0.3												
<i>Desmodcladus flexuosus</i>																	0.95	0.01	0.05	10.00
<i>Dodonaea ceratocarpa</i>	4.77	0.13	0.16	0.2	7.87	0.3	2.3	0.3	11.64	0.39	5.01	0.5	25.22	0.35	8.94	0.6	18.66	0.14	7.65	82.50
<i>Eriachne ? sp. indet.</i>	0.65	0.01	0.01	0																
<i>Eutaxia myrtifolia</i>					7.87	0.43	1.08	0.4	17.97	1.04	3.77	0.6	20.53	0.36	3.44	0.7	20.72	0.23	2.94	103.54
<i>Exocarpus sparteus</i>									0.61	0.03	0.11	0.9	1.4	0.01	0.94	1	1.21		1.31	
<i>Ficinia nodosa</i>	11.74	0.19	0.99	0.3	4.14	0.11	1.74	0.4	3.02	0.1	1.45	1	2.01	0.04	0.45		0.01		0.01	

SPECIES	2012				2013				2014				2015				2018			
	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT
<i>Geranium retrorsum</i>					1.21	0.05	0.09	0.1												
<i>Hakea amplexicaulis</i>																	0.11		0.13	
<i>Hakea oleifolia</i>	36.94	1.58	0.64	0.1	17.78	0.79	4.61	0.3	15.81	0.63	5.88	0.6	23.61	0.33	6.83	2.3	45.28	0.29	22.41	141.90
<i>Hardenbergia comptoniana</i>	5.97	0.14	0.27	0.1	1.45	0.05	0.26	0.5	0.5	0.01	0.31						0.21		0.23	
<i>Hibbertia amplexicaulis</i>	7.83	0.23	0.11	0.1	9.97	0.68	2.05	0.1	8.43	0.7	0.89	0.3	5.6	0.11	0.71	0.5				
<i>Hypolaena pubescens</i>	3.15	0.1	0.02	0	2.7	0.1	0.15	0.4	0.56	0.03	0.08	0.2	0.02	0	0.03					
<i>Juncus kraussii</i>					3.45	0.1	1.21	0.9	2.34	0.06	1.08	1.2					0.07		0.08	
<i>Kennedia lateritia</i>	13.36	0.26	0.87	0.1	27.56	0.58	18.09	0.3	21.49	0.66	11.98	0.7	5.94	0	6.13		2.30	0.01	1.51	25.00
<i>Kennedia prostrata</i>					0.34	0.01	0.01	0.1												
<i>Lepidosperma gladiatum</i>	63.31	0.83	7.65	0.7	22.99	0.56	12.95	1	21.4	0.61	11.13	1.2	28.67	0.46	6.07	1.2	26.37	0.31	3.09	128.35
<i>Lepidosperma pubisquamatum</i>	16.82	0.31	1.19	0.2	0.88	0.03	0.56	0.6	2.94	0.11	0.93	0.4	0.18	0	0.18		1.03	0.01	0.06	15.00
<i>Lepidosperma squamatum</i>					2.33	0.09	0.65	0.2												
<i>Leucophyta brownii</i>	6.99	0.18	0.19	0.1	6.41	0.28	0.55	0.2	4.93	0.2	0.88	0.6	0.62	0.01	0.04	1				
<i>Leucopogon australis</i>	3.36	0.08	0.22	0.1					3.81	0.16	1.29	0.2	3.14	0.05	0.23	0.7				
<i>Leucopogon parviflorus</i>					1.67	0.08	0.65	0.3									3.51	0.05	0.33	36.25
<i>Logania vaginalis</i>					1.3	0.05	0.13	0.4	1.7	0.08	0.29	0.6	0.65	0.01	0.09	1				
<i>Lyginia barbata</i>					0.07	0	0.08													
<i>Marianthus candidus</i>					3.74	0.14	0.45	0.4												
<i>Melaleuca incana subsp. incana</i>	5.35	0.11	0.22	0.3	15.71	0.74	3.25	0.5	12.25	0.51	5.06	0.7	11.46	0.15	3.81	1.1	18.10	0.15	5.13	129.38
<i>Melaleuca preissiana</i>									1.15	0.05	0.19	0.5								
<i>Muehlenbeckia adpressa</i>	7.82	0.03	1.89	0.3	15.92	0.41	10.19	0.3	11.65	0.31	6.46	0.8	7.61	0	7.84		6.24	0.03	4.83	13.75
<i>Neurachne alopecuroidea</i>					0.29	0.01	0.03	0.1												
<i>Olearia axillaris</i>					4.05	0.13	0.91	0.4	1.62	0.05	0.26	0.5	7.67	0.14	1.64	0.9	8.94	0.08	3.39	113.75
<i>Opercularia hispida</i>													0.03	0	0.04					
<i>Ornduffia parnassifolia</i>									0.6	0.03	0.14	0.5								
<i>Patersonia occidentalis</i>					0.79	0.03	0.11	0.3	0.93	0.04	0.23	0.3	0.9	0.01	0.06	0.4				
<i>Phyllanthus calycinus</i>	2.14	0.08	0.01	0	1.65	0.06	0.31	0.2	3.72	0.15	0.89	0.3	6.18	0.13	0.61	0.7	5.49	0.06	0.69	25.42
<i>Pimelea ferruginea</i>	1.73	0.04	0.01	0.1	11.69	0.56	1.29	0.3	10.17	0.33	3.83	0.7	17.1	0.25	5.34	4.4	12.61	0.11	2.04	87.08
<i>Pimelia rosea</i>																	4.78	0.04	2.11	24.17
<i>Poaceae sp. indet</i>																	0.02		0.03	
<i>Pteridium esculentum</i>																	0.12		0.13	
<i>Rhagodia baccata</i>	4.27	0.08	0.31	0.1	7.19	0.23	1.95	0.2	8.12	0.25	1.95	0.8	8.94	0.2	1.48	0.7	12.59	0.10	3.64	84.75

SPECIES	2012				2013				2014				2015				2018			
	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT	IVI	DENS	COV	HT
<i>Scaevola calliptera</i>	0.58	0.01	0	0																
<i>Scaevola crassifolia</i>	19.32	0.6	0.47	0.1	9.26	0.21	5.61	0.4	12.36	0.31	7.51	0.6	11.69	0.09	7.82	0.8	15.51	0.08	8.28	66.88
<i>Scaevola nitida</i>					2.47	0.13	0.15	0.2	1.33	0.03	1.05	0.6								
<i>Sphaerolobium sp.</i>	4.05	0.15	0.16	0.2																
<i>Spyridium globulosum</i>	2.76	0.06	0.11	0.1	4.75	0.23	0.65	0.2	18.05	0.59	8.21	0.6	15.07	0.26	2.86	0.7	29.61	0.23	11.50	124.43
<i>Stypandra glauca</i>					19.98	0.1	24.78	0.1	38.19	0.76	26.41	0.4	10.44	0	11.29		0.52		0.56	
<i>Templetonia retusa</i>					0.43	0.01	0.08	0.4												
<i>Tetraria capillaris</i>					2.29	0.11	0.47	0.3	2.12	0.1	0.29	0.5								
<i>Tetraria octandra</i>	1.28	0.04	0.05	0.1																
<i>Tetrarrhena laevis</i>					0.55	0.01	0.3	0.1					0.08	0	0.09					
<i>Trachymene pilosa</i>	0.54	0.01	0	0.1																
<i>Viminaria juncea</i>	3.25	0.09	0.03	0	11.77	0.21	9.73	1	6.88	0.14	5.66		10.75	0.06	7.99	1.6	1.89	0.01	1.06	42.50
<i>Xanthosia candida</i>					0.69	0.04	0.08	0.1												
TOTAL	300	6.58	23.4		300	10.43	124.82		300	10.88	126.16		300	4.26	104.04		300	2.35	108.42	
NATIVES		6.51	17.81			10.46	119.39			10.89	125.03			4.27	102.54			2.35	107.94	
WEEDS		0.13	5.62			0	5.53			0.01	1.18			0	1.59			0	0.48	

APPENDIX 7

Plant biodiversity parameters recorded from four 20m by 1m transects within the 2014 rehabilitation block at October 2015, October 2016, October 2017 and October 2018

Species	Oct-15				Oct-16				Oct-17				Oct-18			
	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)
<i>*Arctotheca calendula</i>	0.91		0.59													
<i>*Arctotheca populifolia</i>	0.13		0.08													
<i>*Avena barbata</i>	0.02		0.01													
<i>*Baeometra uniflora</i>	1.04		0.18													
<i>*Briza maxima</i>	0.01		0.01		0.73		0.61									
<i>*Briza minor</i>	0.17		0.1										0.02		0.01	
<i>*Bromus diandrus</i>					0.02		0.01									
<i>*Carduus tenuiflorus</i>	0.37		0.15													
<i>*Catapodium rigidum</i>	0.05		0.02													
<i>*Cenchrus clandestinus</i>	0.58		0.44										0.12		0.10	
<i>*Centaurium erythraea</i>	0.72		0.31		0.13		0.1									
<i>*Cirsium vulgare</i>									0.13		0.13					
<i>*Coryza bonariensis</i>	0.04		0.03													
<i>*Cynodon dactylon</i>	8.39		6.32		9.95		7.89						14.45		12.00	
<i>*Dittrichia graveolans</i>					0.53		0.13									
<i>*Ehrharta calycina</i>	0.07		0.04													
<i>*Euphorbia peplus</i>	0.7		0.44		0.71		0.79									
<i>*Helichrysum luteoalbum</i>	10.98		0.33		0.98		0.06									
<i>*Holcus lanatus</i>	0.18		0.12		0.05		0.06									
<i>*Hypochaeris glabra</i>	5.44		0.08		0.09		0.08		0.05		0.05		0.02		0.03	
<i>*Isolopis marginata</i>	0.06		0.03		0.74		0.53									
<i>*Juncus bufonius</i>													0.01		0.01	
<i>*Lotus subbiflorus</i>	13.36		7.56						1.76		1.88		1.63		1.40	
<i>*Lysimachia arvensis</i>	5.09		2.24						0.23		0.23		0.69		0.60	
<i>*Lythrum hyssopifolia</i>									0.15		0.15					
<i>*Malva parviflora</i>	0.03		0.01													

Species	Oct-15				Oct-16				Oct-17				Oct-18			
	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)
<i>*Melilotus indica</i>	2.27		0.92													
<i>*Pelargonium capitatum</i>	0.02		0.01													
<i>*Plantago lanceolata</i>					0.07		0.06									
<i>*Polypogon monspeliensis</i>	9.15		4.63		0.52		0.43									
<i>*Romulea rosea</i>	0.02		0.01										0.00		0.00	
<i>*Senecio elegans</i>	0.31		0.24													
<i>*Solanum nigrum</i>	2.52		0.76										0.07		0.06	
<i>*Sonchus aspera</i>	0.14		0.06										0.04		0.04	
<i>*Sonchus oleraceus</i>	2.78		1.24		0.18		0.16		0.05		0.05		0.03		0.03	
<i>*Symphyotrichum squamatum</i>					0.39		0.3		0.38		0.39		0.72		0.63	
<i>*Trifolium arvense</i>	0.02		0.01													
<i>*Trifolium glomeratum</i>	0.2		0.08		0.39		0.28									
<i>*Vellereophyton dealbatum</i>	0.08		0.03													
<i>Acacia alata</i>									0.56	0.01	0.13	138	0.03		0.04	
<i>Acacia littorea</i>	11.56	0.15	1.89	0.7	9.91	0.2	3.01	50	15.74	0.33	5.99	82	17.04	0.18	6.94	66.43
<i>Acacia pulchella</i>	8.28	0.14	0.31	0.2	8.77	0.15	1.94	19	6.02	0.13	1.26	42	7.57	0.09	1.14	44.79
<i>Agonis flexuosa</i>	30.09	0.73	1.66	0.5	27.88	0.66	9.48	65	32.18	0.69	14.78	111	42.29	0.46	15.91	121.94
<i>Austrostipa mollis</i>	0.01	0	0.01													
<i>Baumea arthropphylla</i>	8.22	0.06	0.97	1.1					4.41	0.09	0.79	90				
<i>Baumea rubiginosa</i>									2.73	0.03	0.56	143				
<i>Billardiera heterophylla</i>	6.06	0.13	0.86	0.1	16.03	0.3	4.7	34	14.37	0.23	7.34	69	11.79	0.04	8.48	5.00
<i>Bossiaea disticha</i>	7.48	0.15	1.03	0.2	0.83	0.03	0.18	43	0.48	0.01	0.14	45	1.82	0.04	0.08	6.25
<i>Carpobrotus virescens</i>	1.12	0.03	0.09	0.2	1.58	0.04	0.21	19								
<i>Centella asiatica</i>									0.06		0.06					
<i>Chorilaena quercifolia</i>	2.06	0.01	0.01	0												

Species	Oct-15				Oct-16				Oct-17				Oct-18			
	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)
<i>Conostylis aculeata</i>									0.52	0.01	0.06	25				
<i>Dampiera linearis</i>	0.65	0.01	0.01	0.1												
<i>Desmodcladus flexuosus</i>	1.25	0.04	0.04	0.1					3.19	0.1	0.29	16	0.24		0.24	
<i>Diplolaena dampieri</i>					0.83	0.01	0.56	105	0.73	0.01	0.44	105	0.19		0.19	
<i>Dodonaea ceratocarpa</i>					1.19	0.03	0.25	9	2.47	0.04	0.65	47	7.49	0.06	1.55	17.50
<i>Eutaxia myrtifolia</i>	28.63	0.54	1.49	0.3	14.38	0.43	2.39	33	9.74	0.25	1.96	52	14.19	0.20	1.76	44.43
<i>Ficinia nodosa</i>	36.69	0.43	1.59	1.3	29.08	0.44	6.51	81	29.2	0.38	11.96	94	32.66	0.30	6.89	93.74
<i>Herbs (unidentifiable)</i>	2.76	0	2.09													
<i>Hibbertia amplexicaulis</i>	16.24	0.24	1.28	0.2	23.74	0.56	3.3	18	20.02	0.5	3.56	27	17.58	0.26	1.50	23.96
<i>Hypolaena pubescens</i>					3.54	0.08	0.16	10								
<i>Isolepis marginata</i>									1.94		1.9		0.02	0.00	0.02	0.00
<i>Juncus holoschoenus</i>									1.35	0.03	0.11	20				
<i>Juncus kraussii subsp. australiensis</i>					7.66		2.76		4.45		1.78		26.58	0.28	4.23	66.56
<i>Kennedia coccinea</i>	0.5	0.01	0.01	0.1												
<i>Kennedia lateritia</i>	6.62	0.01	2.9	3.9	25.71	0.15	10.28	32	25.35	0.2	11.13	69	5.55	0.01	4.04	5.00
<i>Kunzea spathulata</i>									0.82	0.03	0.11	53				
<i>Lepidosperma gladiatum</i>	7.02	0.11	0.73	0.5	6.98	0.13	1.43	49	6.33	0.13	1.05	83	7.85	0.11	0.72	48.13
<i>Lepidosperma pubisquameum</i>	0.53	0.01	0.03	0.3	1.53	0.04	0.18	34	0.45	0.01	0.1	35	1.55	0.03	0.13	6.88
<i>Lepidosperma squamatum</i>									0.47	0.01	0.13	35				
<i>Leucopogon australis</i>	4.17	0.06	0.41	0.6					2.85	0.09	0.5	54	5.90	0.09	0.53	41.50
<i>Melaleuca incana subsp. incana</i>	6.45	0.09	0.51	0.5	6.91	0.13	1.73	54	6.62	0.1	2.83	98	8.74	0.09	2.61	71.67
<i>Melaleuca preissiana</i>									2.48	0.03	0.31	43				
<i>Muehlenbeckia adpressa</i>	2.77	0	1.61	0.3	4.16	0.08	2.01	18	11.11	0.16	3.13	68	5.56	0.03	2.43	5.00
<i>Olearia axillaris</i>	2.07	0.01	0.01	0.1	0.77	0.01	0.29	50	2.71	0.05	0.73	105	8.31	0.05	2.90	83.75
<i>Ornduffia parnassifolia</i>					0.13		0.13									

Species	Oct-15				Oct-16				Oct-17				Oct-18			
	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)	IVI	Density (no. / m ²)	% Cover	Height (m)
<i>Orthosanthus laxus</i>					0.73	0.03	0.06	15								
<i>Patersonia occidentalis</i>	0.71	0.01	0.04	0.1	1.25	0.03	0.09	15	0.89	0.03	0.06	25	0.71	0.01	0.03	7.50
<i>Phyllanthus calycinus</i>	3.58	0.05	0.29	0.2	7.11	0.15	1.38	18	4.77	0.1	1.75	31	8.31	0.11	1.16	25.25
<i>Pimelea ferruginea</i>	4.7	0.08	1.04	0.3	12.67	0.2	4.66	37	10.72	0.24	8.66	49	11.30	0.13	3.34	53.21
<i>Poaceae sp. indet</i>													0.08		0.09	
<i>Pseudognaphalium luteoalbum</i>									0.14		0.14		0.02		0.01	
<i>Rhagodia baccata</i>	17.31	0.1	4.65	0.5	13.6	0.24	2.6	36	7.2	0.13	1.16	74	7.07	0.06	0.75	30.00
<i>Scaevola crassifolia</i>	8.48	0.09	1.24	0.2	8.75	0.11	3.9	46	12.41	0.13	7.54	103	13.77	0.08	6.98	44.38
<i>Sporobolus virginicus</i>									10.42		11.08					
<i>Spyridium globulosum</i>	2.8	0.06	0.22	0.3	4.8	0.13	1.96	34	18.88	0.51	5.78	45	13.67	0.16	3.93	26.67
<i>Stypandra glauca</i>	3.31	0	2.13		32.73	1.05	6.69	16	18.88	0.51	5.78	45.23	4.32		4.03	
<i>Tetralaria sp. Jarrah Forest</i>					0.83	0.03	0.18	32								
<i>Viminaria juncea</i>	2.06	0.01	0.01	0												
TOTAL	300	3.56	56.16		300	5.39	89.88		300	5.29	118.91		300.00	2.85	97.52	
NATIVES		3.35	29.11	31	274.08	5.39	72.99			5.29	116.04			2.85	82.61	
WEEDS			27.06		25.92		16.89			0	2.87			0.00	14.91	






APPENDIX 8






Plant biodiversity parameters recorded from two 20m by 1m transects
situated at an analogue site adjacent to the Augusta Boat Harbour site -
October 2015






Species	IVI	DENS	COV	HT
<i>*Briza maxima</i>	0.10		0.08	0.00
<i>Acacia pulchella</i>	15.47	0.10	6.63	25.00
<i>Agonis flexuosa</i>	65.39	0.33	23.83	81.19
<i>Amanita arenaria</i>	1.21		1.05	
<i>Billardiera laxiflora</i>	0.73		0.78	
<i>Billardiera heterophylla</i>	0.78		0.60	
<i>Bossiaea disticha</i>	18.23	0.13	6.23	30.00
<i>Caesia micrantha</i>	0.02		0.03	
<i>Cassytha sp. indet</i>	1.02		0.91	
<i>Chorilaena quercifolia</i>	1.07		0.83	
<i>Cryptandra arbutiflora</i>	0.14		0.15	
<i>Desmocladius flexuosus</i>	3.07		3.25	
<i>Dodonaea ceratocarpa</i>	5.68		5.23	
<i>Eriochilus sp. indet</i>	3.79	0.03	0.00	5.00
<i>Hakea amplexicaulis</i>	0.03		0.03	
<i>Hakea oleifolia</i>	18.22	0.15	7.38	42.00
<i>Hibbertia amplexicaulis</i>	2.44	0.03	0.38	45.00
<i>Lepidosperma gladiatum</i>	6.13	0.05	0.25	105.00
<i>Lepidosperma squamatum</i>	43.63	0.83	1.73	27.08
<i>Leucopogon parviflorus</i>	45.17	0.35	3.56	63.96
<i>Muehlenbeckia adpressa</i>	4.17	0.03	0.30	5.00
<i>Olearia axillaris</i>	0.48		0.38	
<i>Patersonia umbrosa</i>	2.23	0.03	0.15	25.00
<i>Pimelia ferruginea</i>	2.56	0.03	0.50	15.00
<i>Scaevola crassifolia</i>	7.13	0.05	3.13	35.00
<i>Sporobolus virginicus</i>	7.51	0.00	7.93	0.00
<i>Spyridium globulosum</i>	43.10	0.15	15.80	38.33
<i>Thysanotus sp. indet</i>	0.00		0.00	
<i>Xanthosia candida</i>	0.50		0.53	
TOTAL	300.00	2.25	91.59	
INTRODUCED SPECIES RICHNESS	1.00	0.00	0.08	
NATIVE SPECIES RICHNESS	28.00	2.25	91.51	






APPENDIX 9





Photographic representation of rehabilitation development along permanent monitoring transects within the 2012 and 2014 Rehabilitation Areas (four transects each), and Analogues Sites (two transects) at the Augusta Boat Harbour





Transect 1 - 2012 Rehabilitation Block	
	
November 2012 - 5 months	November 2013 - 17 months
	
October 2014 - 28 months	October 2015 - 40 months
	
October 2018 - 76 months	





Transect 2 - 2012 Rehabilitation Block	
	
November 2012 - 5 months	November 2013 - 17 months
	
October 2014 - 28 months	October 2015 - 40 months
	
October 2018 - 76 months	

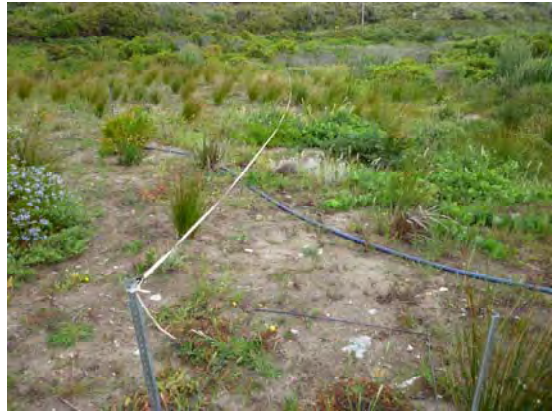



Transect 3 - 2012 Rehabilitation Block	
	
November 2012 - 5 months	November 2013 - 17 months
	
October 2014 - 28 months	October 2015 - 40 months
	
October 2018 - 76 months	





Transect 4 - 2012 Rehabilitation Block	
	
November 2012 - 5 months	November 2013 - 17 months
	
October 2014 - 28 months	October 2015 - 40 months
	
October 2018 - 76 months	

Transect 1 - 2014 Rehabilitation Block	
	
October 2015 – 16 months	October 2016 – 28 months
	
October 2017 – 40 months	October 2018 – 52 months

Transect 2 - 2014 Rehabilitation Block	
	
October 2015 – 16 months	October 2016 – 28 months
	
October 2017 – 40 months	October 2018 – 52 months

Transect 3 - 2014 Rehabilitation Block	
	
October 2015 – 16 months	October 2016 – 28 months
	
October 2017 – 40 months	October 2018 – 52 months

Transect 4 - 2014 Rehabilitation Block	
	
October 2015 – 16 months	October 2016 – 28 months
	
October 2017 – 40 months	October 2018 – 52 months

Analogue 1	
	
November 2013	October 2018
Analogue 2	
	
November 2013	October 2018