

From: s22
To: s22 ; s22
Cc: [FOI Contact Officer](#); s22
Subject: RE: FOI 151012 - correspondence from applicant seeking information re: HMAS Adelaide scuttling – 2008/1062 [SEC=UNCLASSIFIED]
Date: Monday, 8 February 2016 10:23:56 AM
Attachments: [image001.gif](#)

Hi s22,

These appear to be allegations of non-compliance with permit conditions – this is one for the compliance monitoring team. We'll action this and touch base with the complainant.

Cheers

s22

From: s22
Sent: Monday, 8 February 2016 10:07 AM
To: s22 ; s22
Cc: FOI Contact Officer
Subject: FW: FOI 151012 - correspondence from applicant seeking information re: HMAS Adelaide scuttling – 2008/1062 [SEC=UNCLASSIFIED]

Hi s22

Please see below.

Is this post FOI request one for you guys, as they have questions with regard to monitoring? Note that the third question goes toward asking why certain elements didn't make it into the monitoring regime under the conditions of approval.

If you can let me know your thoughts on this and whether it is yours, I'd be grateful.

Ta

s22

Director
Post Approvals Section
Compliance and Enforcement Branch
Environment Standards Division
Department of the Environment
GPO Box 787, Canberra City, ACT 2601
☎ (02) s22
☎ s22
8 <mailto:s22@environment.gov.au>
W: <http://www.environment.gov.au/epbc/index.html>

Department of the Environment

From: FOI Contact Officer
Sent: Monday, 8 February 2016 10:03 AM
To: s22
Cc: FOI Contact Officer
Subject: FOI 151012 - correspondence from applicant seeking information re: HMAS Adelaide

scuttling – 2008/1062 [SEC=UNCLASSIFIED]

Hi s22

s11C(1) sent the email below regarding ‘issues with the monitoring program for Sea Dumping Permit attached to HMAS Adelaide’ (HMAS Adelaide scuttling – 2008/1062). The email contains questions following the Department’s recent response to her FOI request 151012 (Shane Gaddes was the delegate and s22 was the line area contact).

Is your team the appropriate area to handle this email correspondence? If not, please advise who I should contact.

If your area is the appropriate area for the email correspondence please let me know. I can advise Michelle that her request has been transferred to the appropriate line area and that area will respond directly with her in response to her email correspondence.

Thanks

s22

FOI and Legislation Contact Officer | Climate Change, Science and Corporate Legal Section

| General Counsel Branch

Department of the Environment

a: GPO Box 787 CANBERRA ACT 2600

t: (02) s22

e: foi@environment.gov.au

s22, duplicated in FOI180717 Document 5

From: s22
To: s22
Subject: FW: re HMAS Adelaide lead and PCB testing [SEC=UNCLASSIFIED]
Date: Thursday, 7 April 2016 8:42:42 AM
Attachments: [image005.png](#)
[image006.png](#)
[image007.png](#)

s22

From: Gaddes, Shane
Sent: Wednesday, 6 April 2016 6:04 PM
To: s22
Cc: Media; s22
Subject: RE: re HMAS Adelaide lead and PCB testing [SEC=UNCLASSIFIED]

Hi s22

This is now getting a more detailed than I would normally like. However, given the nature of the questions, the cleared response is below:

- Polychlorinated Biphenyls (PCBs) are not referred to in the permit conditions but are discussed in the Statement of Reasons for the permit decision.
- The Statement of Reasons noted that there was no evidence that any identified sources of PCBs on the vessel posed a risk to human health or the environment. This was based on both expert opinion and laboratory testing.
- The Statement of Reasons noted that the presence of any unidentified PCBs would be unlikely and, based on expert opinion, presented a negligible risk.
- Even though any risks attributable to PCBs were considered low, the Ministerial delegate noted monitoring for this substance would be appropriate to include in the Long Term Monitoring and Management Plan (LTMMP).
- Subsequent to delegate's decision, the Administrative Appeals Tribunal required that the ship be cleaned of all items associated with PCBs. On the basis of this ruling, monitoring for PCBs was no longer necessary under the LTMMP as PCBs were removed and not likely to present any further risk.
- The purpose of the bio-accumulation study is to monitor for Zinc-Chromate. Lead testing was conducted in the first bio-accumulation study, although it was not required under the LTMMP or the permit. Under the LTMMP and AAT decision, lead monitoring is only required in relation to sediment quality.

regards

Shane Gaddes | Assistant Secretary | Compliance & Enforcement Branch | Ph (02)
s22 |

From: s47F | [\[mailto:s47F\]](mailto:s47F)]

Sent: Tuesday, 5 April 2016 12:43 PM
To: Media
Subject: Re: re HMAS Adelaide lead and PCB testing [SEC=UNCLASSIFIED]

Hello there.

I just wanted to check on something. I have a copy of the sea dumping permit decision which refers to PCBs.

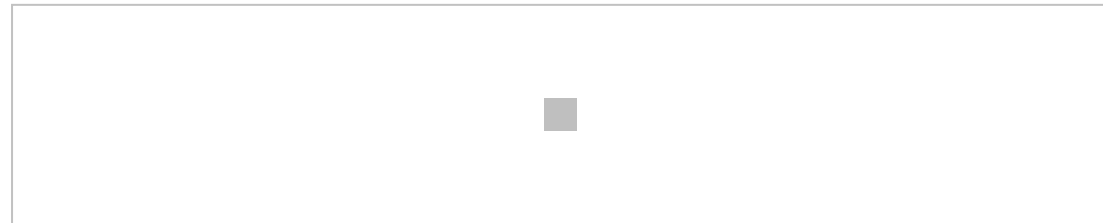
While it noted that PCBs were to be removed, it went on to say "I found that monitoring for PCBs as part of the LTMP would be appropriate to verify these conclusions".

That indicates PCB monitoring. Has that occurred and if not, why not?

Also, on the issue of lead. There is lead testing in the first bioaccumulation study but lead disappears after that. You have referred to lead in the sediment studies, but the point would appear to be the possible bioaccumulation of lead as the issue. Why was lead tested in the first round of tests and not after that? Where does that distinction appear in either the tribunal decision, the long term plan or the permit?

Thanks. s47F

s47F



On 5 April 2016 at 12:26, Media <Media@environment.gov.au> wrote:
Hi s47F

Below is our response to your questions:

- The Administrative Appeals Tribunal decision required that any remaining materials potentially containing Polychlorinated Biphenyl (PCB) be removed before HMAS Adelaide was scuttled.
- The Tribunal did not require ongoing monitoring of PCB and this is not a requirement of the management plan.
- The Tribunal's decision did require that lead testing take place at an additional two sites.

- Sediment sampling reports have been published on the HMAS Adelaide website at <http://www.hmasadelaide.com/science>. These outline the lead monitoring results.
- The Department has previously written to the NSW Government about the publication requirements of the permit. Where materials were found to be missing from the website these were subsequently published by the NSW Government.

Regards

Media Team

Department of the Environment
GPO Box 787 CANBERRA, ACT 2601

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E: media@environment.gov.au

Note to media: Unless otherwise agreed, the information contained in this email is for background only and is not for attribution.

From: s47F [s47F]
Sent: Sunday, 3 April 2016 4:44 PM
To: Media
Subject: re HMAS Adelaide lead and PCB testing

My name is s47F and I am a journalist with the Newcastle Herald newspaper.

I am preparing an article about the scuttling of HMAS Adelaide and monitoring required under the Federal Sea Dumping Permit, as well as the Administrative Appeals Tribunal of Australia decision in September 2010.

I will also be putting questions to the relevant NSW Government department responsible for doing the monitoring and making the findings available on the HMAS Adelaide website.

I have checked the website and I can see no reference to lead and PCB test results.

I note that the Administrative Appeals Tribunal decision called for "additional monitoring" of lead, and "Clearly the most useful course would be for data to be recorded and made available publicly".

Can the department please advise if it has received that testing.

Can the department also confirm it has twice raised the issue of the NSW Government department's failure to comply with the federal permit, and warned the failure to comply is a criminal offence?

Thank you. s47F.

s47F



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From: s22
To: s22
Subject: DPI - Lands response to Department of the Environment query - SD2008/1062 - Ex-HMAS Adelaide Reserve
Date: Friday, 10 June 2016 4:06:47 PM
Attachments: [Attachment B - Final Report McLennan's Diving Services.pdf](#)
[Attachment C - Final Report Shearforce Maritime Services.pdf](#)
[Response to east-coast low weather event in April-May 2015 - SD2008_1062 - Ex-HMAS Adelaide Reserve.pdf](#)

Dear s22,

I refer to your recent telephone query (5 May 2016) on behalf of the Commonwealth Department of the Environment in regards to DPI - Lands' response to an east coast low weather event in April/May 2015; under conditions of Sea Dumping Permit SD2008/1062.

Please see attached a response from DPI - Lands. Also attached are *Attachment B* and *Attachment C* as referred to in the response.

Please advise should you require any further information.

Regards,

s22 | Senior Property Management Officer
Department of Primary Industries - Lands
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PO Box 2215 | Dangar NSW 2309
Direct: T: (02) s22 | E: s22@crownland.nsw.gov.au
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Our reference: DOC16/102848

s22

Senior Compliance Officer
Department of the Environment
GPO Box 787
Canberra ACT 2601

Dear Mr s22

Response to east-coast low weather event in April-May 2015: SD2008/1062 - Ex-HMAS Adelaide Reserve

I refer to your recent telephone query (5 May 2016) on behalf of the Commonwealth Department of the Environment, regarding action taken by Department of Primary Industries (DPI) – Lands to meet the requirements of Sea Dumping Permit SD2008/1062. The query was specifically related to the DPI – Lands response to an east coast low weather event for the ex-HMAS Adelaide Reserve that occurred in April/May 2015.

In response to your query, I provide the following information completed by DPI – Lands and the reports prepared in relation to the matter.

Attachment A – Response to East Coast Low Weather Event April/May 2015

Attachment B – Final Report McLennan's Diving Service June 2015

Attachment C - Final Report Shearforce Maritime Services June 2015

Should you require any further information please contact s22 Senior Property Management Officer on s22 .

Yours Sincerely,

s22 10/6/2016

Area Manager Hunter

Attachment A: Response to East Coast Low Weather Event 2015

Structural Condition Monitoring

- Structural condition monitoring of the Ex-HMAS Adelaide is carried out in accordance with the Long Term Monitoring and Management Plan (LTMMMP), as a requirement of the Sea Dumping Permit held by DPI – Lands.
- Structural condition monitoring involves two stages; divers inspect and photograph the condition of the ship and document in a report, and then the report is assessed by a naval architect.
- Since 2011, structural inspections have been completed by McLennan's Diving Service and interpretation of the results by Shearforce Maritime Services (naval architect/engineer).
- Monitoring constraints are swell conditions favorable for safe diving; adequate visibility; and the availability of the specialist commercial divers experienced in the assessment of ships.
- A series of east coast lows and associated storms occurred from the 18th April to early May 2015.
- Following the storms, DPI-Lands was advised on 11 May 2015 by a commercial dive operator of the loss of the starboard side of the Helicopter Hangar after completion of a visit to the Reserve.
- DPI-Lands immediately contacted the booking agent, Central Coast Tourism (CCT) who posted a warning on the booking site.
- An initial assessment of the hazard presented to divers by the lost hangar wall was made after discussions with McLennan's Diving Service and the commercial dive companies with 'exclusive licenses' operating on the Reserve. As a result, dive companies were alerted of the hazard by Departmental staff by phone through CCT and on the CCT booking page. The commercial dive companies were advised to inform divers of the hazard as part of the 'tub talk'/induction prior to diving.
- DPI-Lands requested McLennan's Diving Service to expedite as a priority the planned annual structural condition inspection which had been delayed due to rough conditions. The inspection took place on 18 May 2015.
- An initial diver inspection report was provided on the day of inspection, confirming the loss of the starboard side of the helicopter hangar. This left an open area approximately 2m high and 6m long.
- Final report was received from McLennan's Diving Service on 10 June 2015 and forwarded to Shearforce Maritime Services for assessment
- Shearforce Maritime Services assessment report was received 23 June 2015.
- There have been no subsequent incidences involving the hangar area and it has been monitored over time with no management actions required
- All divers attending the Reserve are obligated under their dive permit to report any identified hazard

- Posting of the structural inspection reports on the Ex-HMAS Adelaide website was arranged but a programming error meant that they were not linked to the content. This issue will be resolved as a matter of priority. Please find enclosed the final reports from McLennan's Diving Service (Attachment B) and Shearforce Maritime Services (Attachment C).

Beach Debris

- No beach debris was reported to DPI – Lands following the April-May 2015 east coast low weather event
- Structural condition monitoring in response to the April-May 2015 east coast low confirmed that the starboard side hangar had separated from the vessel. Its resting location is unknown.
- Historically, reports of beach debris have been actively managed by DPI Lands. There have been two previous incidences the first being in May 2011 approximately one month after scuttling when debris was located on Forrester's Beach and Avoca Beach. The second incidence was in February 2013 when debris was located on Avoca Beach (Figure 1). On both occasions DPI Lands arranged for a Departmental Officer to attend the site and for the removal of the debris from the beach.
- In response to a query from Department of Environment (5 May 2016) regarding possible debris found at Forrester's Beach, DPI Lands completed a field inspection of Forrester's Beach on 18 May 2016. No Ex-HMAS Adelaide beach debris was visible on the beach. No field photos were taken at the time due to there being no visible debris.



Figure 1 – beach debris removed from Avoca Beach in February 2013

Attachment B – Final Report McLennan’s Diving Service June 2015



Final Report
McLennans Diving Ser

Attachment C – Final Report Shearforce Maritime Services June 2015



final report
Shearforce Maritime S

Headfor P/L ABN 84073495557 T/As

McLennans Diving Service



- Marine Contractors

Unit 15, 75 Corish Circle, PAGEWOOD Australia 2035 PO Box 6209 Malabar NSW 2036

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Email: email@mclennan.com.au Web: www.mclennan.com.au

To s22
Department of Lands

Ex-HMAS Adelaide Starboard Hangar Wall Report

Our dive team visited the Adelaide wreck on May 18th, 2015 shortly after two significant east Coast Lows passed through. We found that the starboard hangar wall was missing for a length of 10.5m horizontally and its full height vertically.

There are four vertical frames missing which have sheared off at their weld points to the deck. At the top of the wall the frames have sheared off the corresponding roof frames, taking the knee braces with them.

There is a loose section of wall at the forward end of the gap, which is cracked horizontally for 700mm near the top and bottom. This section was not moving in the swell, but will presumably break off in the next big swell.

The missing wall has relieved pressure on the remaining hangar as the water flow can now pass through the hangar more easily. However this effect is offset by the fact that one side of the roof is now completely unsupported. There appears to be no continuous structural beam running along the edge of the roof. I expect that the roof will tear apart without much resistance when the next significant swell hits. Hopefully it will lift off and be deposited on the seabed. If it collapses downwards it will be a significant obstruction.

I have compared the missing section to the almost identical hangar on HMAS Melbourne. The following photos show the comparisons.

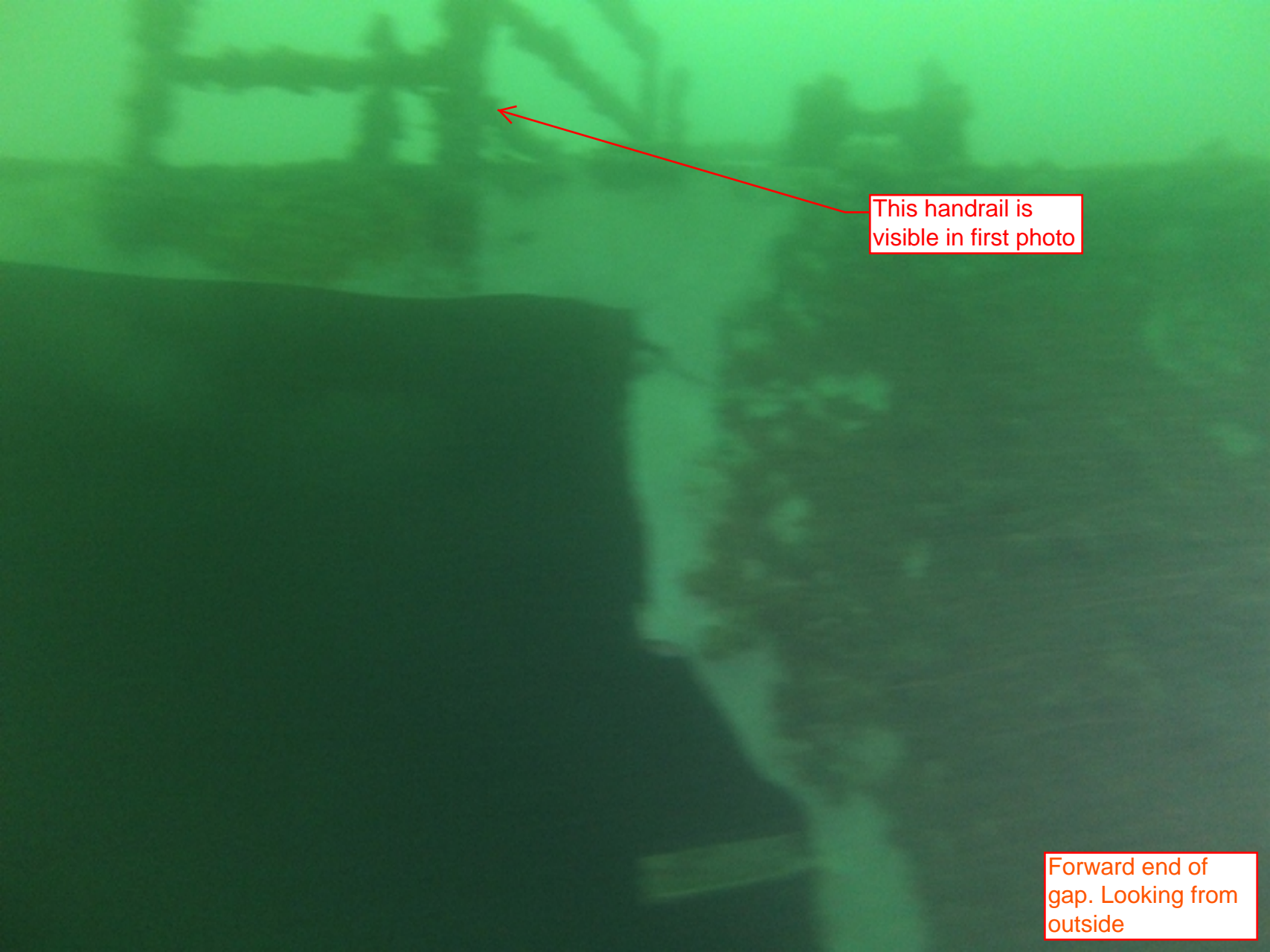
Thank you for asking us to inspect this interesting vessel,

s47F Diving Supervisor.
10 June 2015

Starboard Side of HMAS Melbourne. Click on Green squares for detailed photo

This section of Starboard Hangar is missing





This handrail is visible in first photo

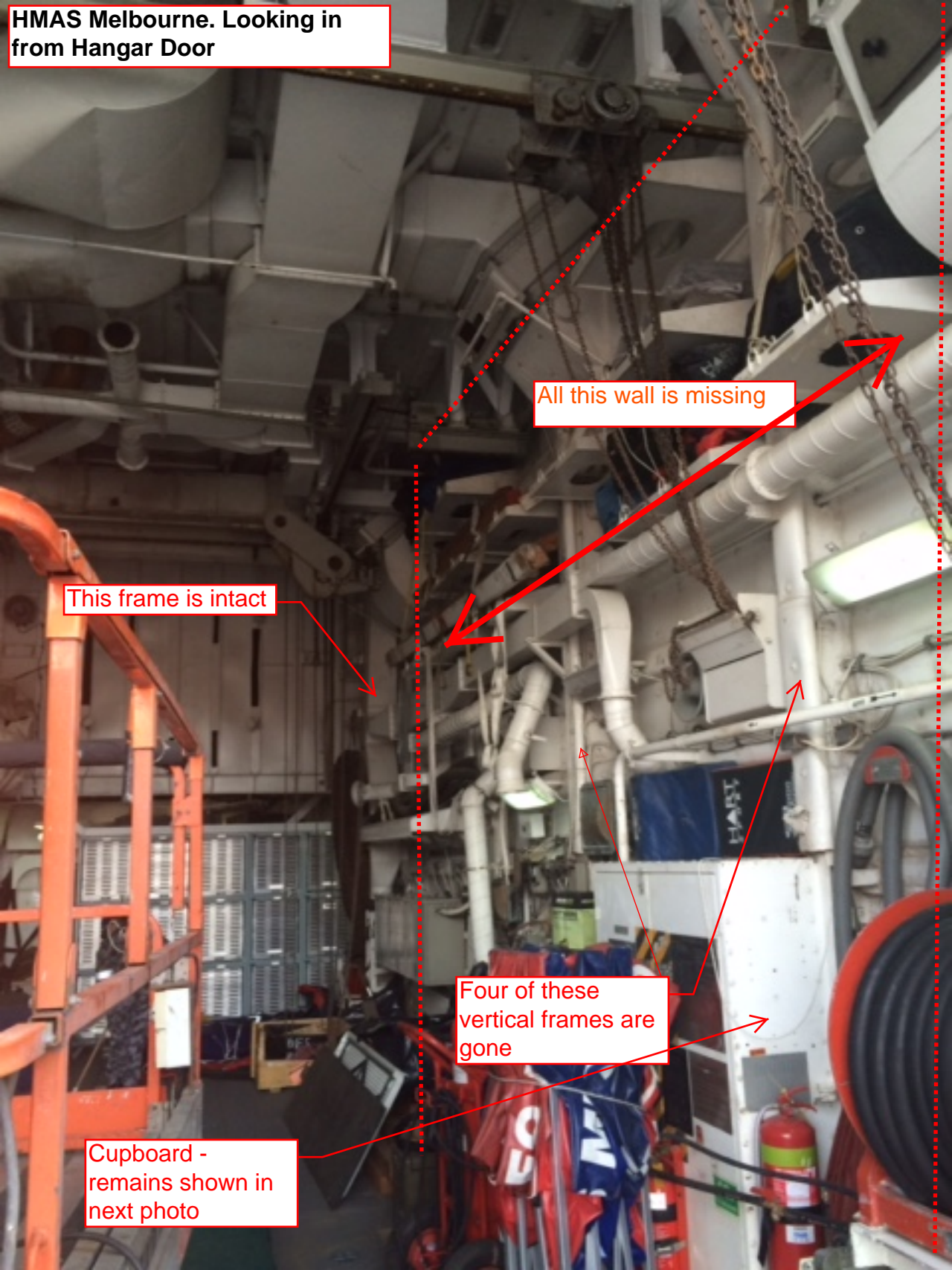
Forward end of gap. Looking from outside

Adelaide Stbd Hangar Wall

Remains of AC
intake

Aft end of gap.
Looking from inside

HMAS Melbourne. Looking in from Hangar Door



All this wall is missing

This frame is intact

Four of these vertical frames are gone

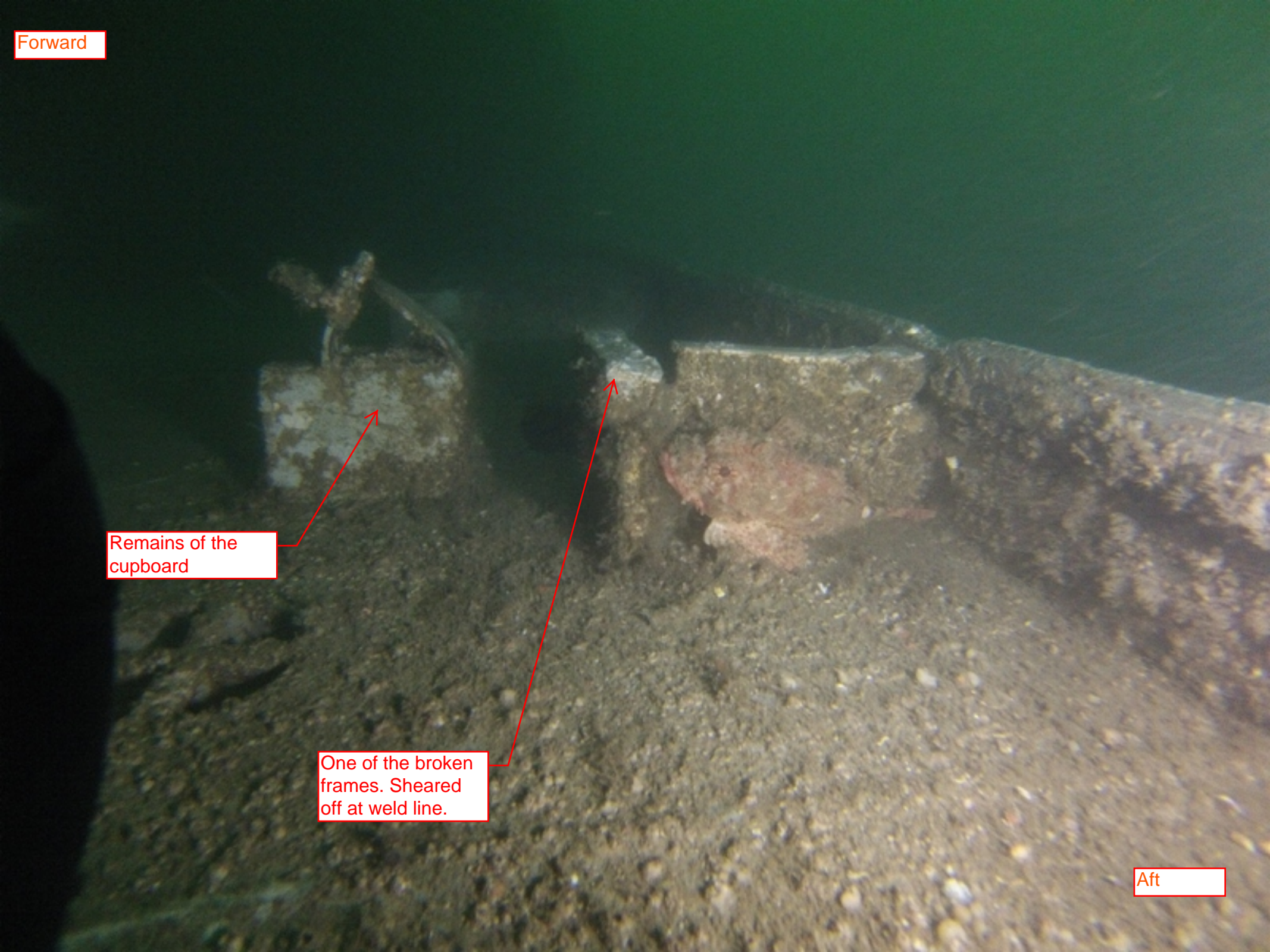
Cupboard - remains shown in next photo

Forward

Remains of the
cupboard

One of the broken
frames. Sheared
off at weld line.

Aft



Looking Forward
from the inside.

Forward

This is the first
intact frame forward
of the missing wall.
Note weld line
which is the weak
point that all the
frames failed at.

Crack at base of
wall. View from the
other side shown
on page 11



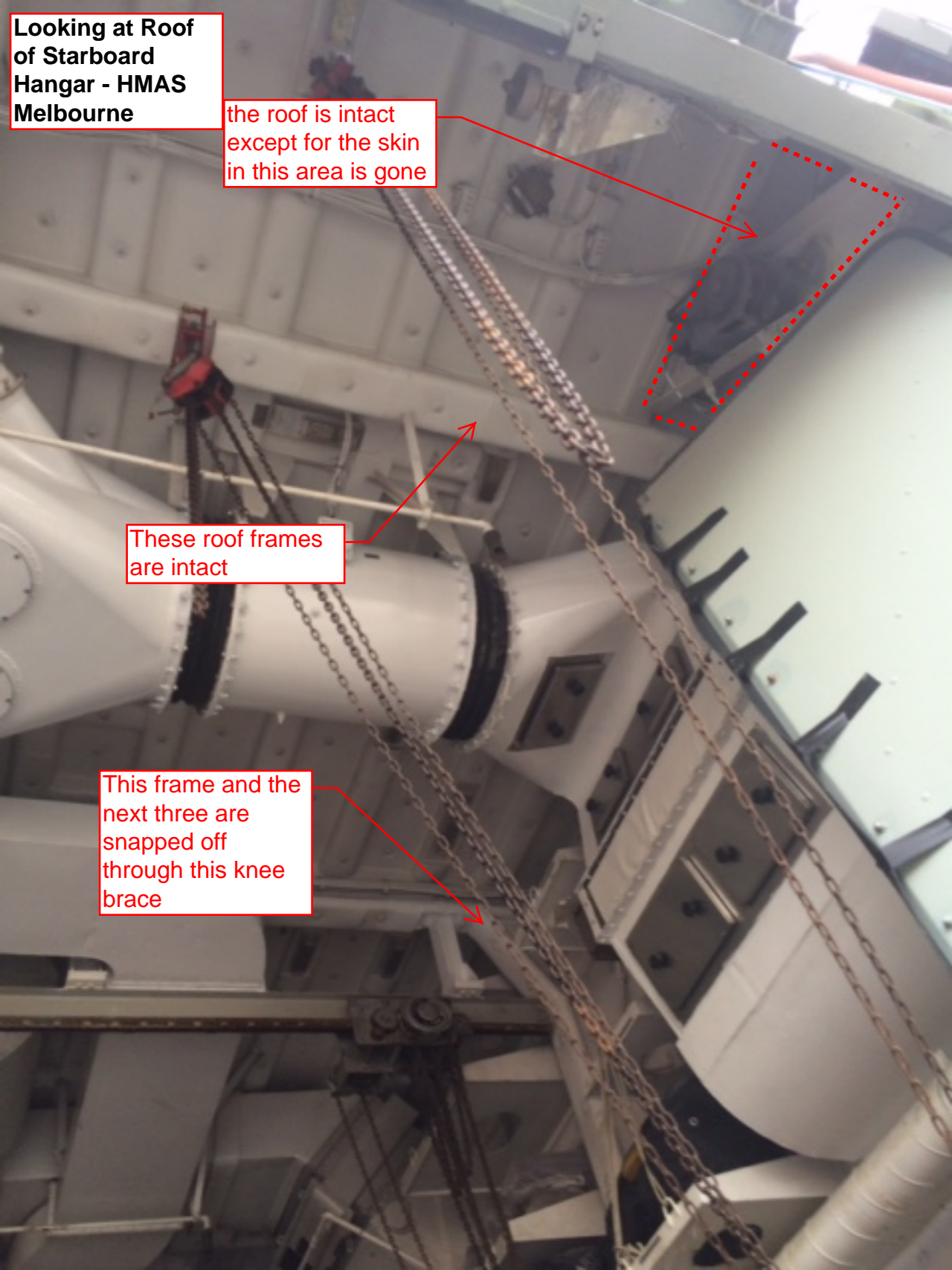
**Looking at Roof
of Starboard
Hangar - HMAS
Melbourne**

the roof is intact
except for the skin
in this area is gone



These roof frames
are intact

This frame and the
next three are
snapped off
through this knee
brace



Adelaide Stbd Hangar Wall

This shows the surviving knee brace at the roof on the fwd side of the break

Adelaide Stbd Hangar Wall




This is the edge of the upper deck above the break. There is no longitudinal beam to prevent further tearing of the roof,

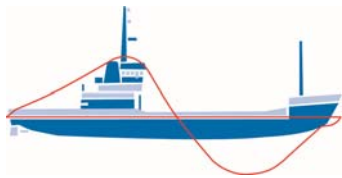
Aluminium hangar
wall

Steel hull

This is the forward
end of the gap. This
is the crack at the
base of the
remaining wall.
There is a
corresponding gap
above it shown in
the next photo

A photograph showing a close-up of a wall with a significant tear. The wall is composed of several layers, including a dark outer layer and a lighter, textured inner layer. A red arrow points from a text box on the left to a specific tear in the wall. The background is a solid green color.

This is the tear on the wall at the forward end of the gap. It matches the tear at the bottom. This section of wall will go soon



Shearforce Maritime Services Pty Ltd

A.B.N. 63 108 496 751

Technical Report

Report No. SYD/2015/22

At the request of NSW Trade & Investment – Crown Lands, the undersigned prepared this report from information gained from a review of a report prepared on the 10th June 2015 by McLennan's Diving Service following their underwater inspection on 18th May 2015, of the vessel Ex - HMAS Adelaide were she rests following its scuttling.

The vessel's details are:

| | |
|------------------------------|-------------------|
| Ship name: | Ex -HMAS Adelaide |
| Displacement Tonnage: | 2954.90 |
| LBP: | 407ft |
| Breadth Moulded: | 47ft |

1. Introduction

Ex-HMAS Adelaide is a former guided missile frigate de-commissioned from the Royal Australian Navy. The vessel was scuttled at a position off Avoca, New South Wales on 13 April 2011 to create an artificial reef for scuba diving.

An underwater inspection of the wreck is carried out annually. The latest inspection was carried out as mentioned above, in April and May 2015, by McLennan's Diving Service.

2. Report

The underwater inspection of the vessel found that the starboard helicopter hanger side structure was damaged. The details of the inspection can be found in the diver's report "Ex-HMAS Adelaide Starboard Hanger Wall Report". The inspection report stated that there was damage to the helicopter hanger in way of the starboard side structure and that the damage had caused part of the side shell and its supporting structure to separate from the main hanger structure.

The area of structure reported to have parted from the main structure is approximately seven metres in length and at the full height of the hanger. This structure was reported to have split at the following locations;

- At the bottom between the aluminium hanger structure and steel hull, structure joint at the main deck level.
- Approximately two metre aft from the forward transverse hanger bulkhead.
- At the top the connection between the hanger side structure and the top hanger structure.

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Web: www.shearforce.com.au



- Aft approximately one metre forward from the aft hanger entrance.

Photo 1 in Annex A is a typical hanger side structure of a vessel of similar class. The red dotted line in the photo illustrates the position of the structure on Ex-HMAS Adelaide which has come away from the vessel. Photo 2 shows the area where the structure has parted on the actual vessel.

The remaining starboard hanger side plating up to the forward transverse hanger bulkhead was found to have buckled. Photo 3 shows the area of buckled plating.

With the separation of the side structure, the starboard hanger top structure is unsupported on the outboard side although there is some remaining support at each end.

No damage to the port hanger or to the side structure on the starboard side forward of the mentioned buckled plating was reported by the divers.

3. Conclusion

It is my opinion that, the structure forward of the helicopter hanger transverse bulkhead is structurally sound. However, the starboard hanger top structure may deteriorate over time due to lack of support on the outboard side, therefore this area should be monitored over time.

It is also my opinion any diving activities around the starboard hanger should be suspended and all the visiting divers warned to stay clear of that area due to the risks associated with jagged metal from the failed areas.

4. Disclaimer

The under signed shall not be liable in any way to any person or company in respect to any claim for any kind, including claims for negligence, for loss occasioned to any person or company in consequence of any person or company acting or refraining from action as a result of material in this report.

Signed,

A large, bold, black signature 'S47F' is displayed on a grey rectangular background.

for Shearforce Maritime Services Pty. Ltd.
23rd June 2015.

Attachments:

Annex A – Photos of damaged area

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ANNEX A



Photo 1: This photo of a similar vessel to the Ex-HMAS Adelaide demonstrates the location of the section of the starboard hanger structure that has separated from the vessel. It is marked in red.



Photo 2: This photo of the EX-HMAS Adelaide is looking aft from inside the starboard hanger, it shows the area of the hanger side whereby the side has parted from the main structure

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Photo 3: This photo shows the buckled starboard hanger side plating forward to the parted structure.

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Web: www.shearforce.com.au

From: s22
To: s22
Cc: s22
Subject: Ex-HMAS Adelaide Reserve: Compliance under Sea Dumping Permit (SD2008/1062) in response to east coast low weather event - June 2016
Date: Tuesday, 28 June 2016 3:24:44 PM
Attachments: [Final Structural Condition Assessment Report Ex-HMAS Adelaide June 2016.pdf](#)
[McLennans Diving Service - Post East Coast Low Divers Inspection Report - June 2016.pdf](#)

Hello s22,

As we discussed this afternoon, the Ex-HMAS Adelaide Reserve experienced a significant east coast low weather event between 4-6 June 2016.

Under Sea Dumping Permit SD2008/1062 and the conditions described in the Long Term Monitoring and Management Plan, DPI - Lands closed the Reserve to divers and completed the required structural condition survey as soon as conditions allowed.

The LTMMP states that any risk to diver safety or the environment identified by the structural condition assessment must be reported to the Commonwealth Department of the Environment within 24 hours of identification.

The Structural Condition Assessment Report was received by DPI - Lands on the afternoon of 27 June 2016. The report did not identify any significant risks to diver safety or the environment as a result of the recent east coast low weather event.

In accordance with the LTMMP, I would like to advise that one minor hazard to divers (described in section 2.4 of the Assessment Report) was identified in the report, described as new sharp edges where a one metre section of the starboard hangar has broken free. This is not considered to be a trap hazard to divers. Please see further details included in the Structural Condition Assessment Report (attached).

To manage this hazard it is proposed to advise all dive operators of the new risk associated with sharp edges and request that the hazard be included in the dive tub talk. The area will continue to be monitored in accordance with the recommendations of the Structural Condition Assessment Report.

In accordance with reporting requirements described in the LTMMP, DPI - Lands intend to write to the Commonwealth Department of the Environment within one month of the date of the Structural Condition Assessment to advise of our compliance in response to the east coast low of June 2016 and provide copies of the Diver's Report and the Structural Condition Assessment Report.

I have attached the reports to this email for your reference in the interim.

Please let me know should you require any further information or action.

Regards,

s22 | Senior Property Management Officer
Department of Primary Industries - Lands
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Headfor P/L ABN 84073495557 T/As

McLennans Diving Service



- Marine Contractors

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Email: email@mcLennan.com.au Web: www.mclennan.com.au

To s22
Crown Lands, NSW

From s47F
Project Manager

20th June 2016

Post ECL Inspection of ex-HMAS Adelaide Report

On Friday 17th June I supervised MDS Divers s47F and s47F while they investigated damage to the wreck following the strong East Coast Low event that occurred on the 5th and 6th of June. This was a particularly strong ECL which caused wide spread damage along the coastline.

We carried out two dives on the wreck which allowed us to inspect all areas commonly dived by recreational divers. As a result of the inspection we were able to confirm that:

- the list and pitch of the vessel is unchanged
- all major fittings on the vessel such as the masts are unchanged
- no passage ways or exits have been blocked
- there are no major hull or superstructure panels missing.

The damage we did find was:

- a one metre section of the starboard hangar wall (which was mostly lost in May 2015) has broken free and is moving backwards and forwards slightly. It does not appear to be a trap hazard for divers but it does have sharp edges. This is true of the entire starboard hangar wall.
- A ventilator on top of 02 deck amidships has broken off leaving some jagged aluminium poking out of the deck. This is a small structure about 1000mm by 500mm footprint. The remains of it would not be a danger to divers.
- Handrails - numerous handrails have been broken off and now lie strewn about the decks. We did not see any which created an entanglement or exit hazard for divers.

In conclusion, I can report that the vessel is little changed from its condition at the time of our last inspection of the 3rd June 2016, and the intervening East Coast Low has created no new dangers for recreational divers.

Regards,

s47F

Project Manager

The green line showing the newly loose panel - 17/6/2016

This section of Starboard Hangar is missing since May 2015



The top of the loose panel on
stbd hangar




Looking up from
main deck at loose
panel on aft end of
stbd hangar



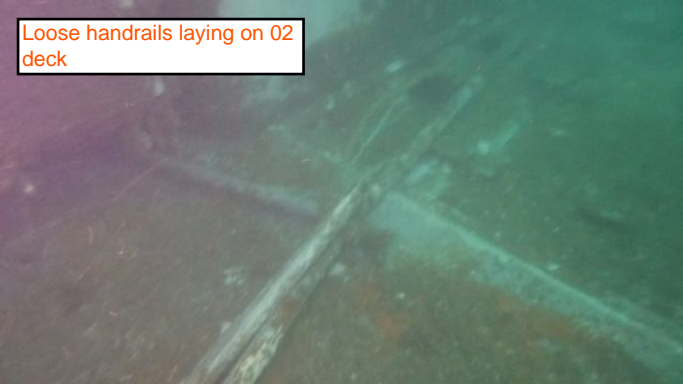


The loose panel on stbd hangar. Its is on aft end of the hangar



Broken handrails
laying against the
Bridge windows

Loose handrails laying on 02 deck

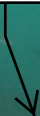




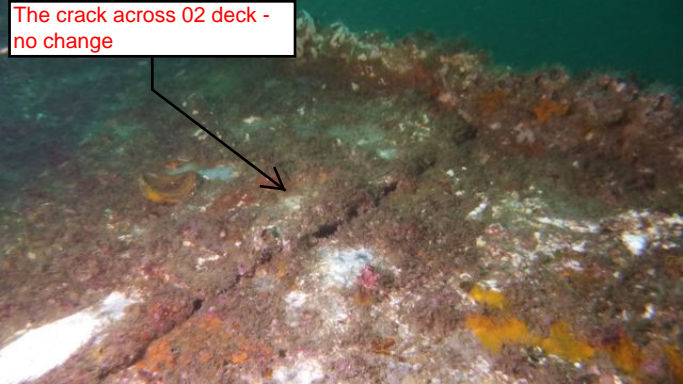
This ventilator has broken here

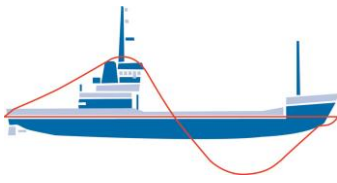


Remains of the ventilator



The crack across 02 deck -
no change





Shearforce Maritime Services Pty Ltd

A.B.N. 63 108 496 751

Technical Report

Report No. SYD/2016/24

At the request of NSW Trade & Investment – Crown Lands, the undersigned prepared this report from information gained after a review of reports prepared on the 6th and 20th June 2016 by McLennan's Diving Service following their underwater inspections on 4th and 17th June 2016, of the vessel Ex - HMAS Adelaide where the vessel rests following its scuttling. The second inspection and subsequent report was conducted because of a strong East Coast Low pressure event.

The vessel's details prior to scuttling were:

| | |
|------------------------------|-------------------|
| Ship name: | Ex -HMAS Adelaide |
| Displacement Tonnage: | 2954.90 |
| LBP: | 407ft |
| Breadth Moulded: | 47ft |

1. Introduction

Ex-HMAS Adelaide is a former guided missile frigate de-commissioned from the Royal Australian Navy. The vessel was scuttled at a position off Avoca, New South Wales on 13 April 2011 to create an artificial reef for scuba diving.

An underwater inspection of the wreck is carried out annually in line with Ex-HMAS ADELAIDE, Artificial Dive Reef, Long Term Monitoring and Management Plan (LTMMP), 301017-00077. This plan also calls for an inspection after any significant weather event. The latest inspections were carried out as mentioned above, in June 2016, by McLennan's Diving Service.

The review documented in this report, was required to assess the structural integrity of the wreck in accordance with the LTMMP. This requirement is noted in Parra 2.1.2 of the LTMMP: Structural Integrity.

2. Report

The underwater inspection of the vessel carried out on 4th June 2016 as noted by the divers found:

- 2.1 The steel hull remains free of cracking, deformation or significant corrosion. The hull is well supported by the sand up to approximately its original waterline. At the time of the inspection, there was sand coverage to the end of the bow. On previous occasions, this has been exposed back to the sonar dome.

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Web: www.shearforce.com.au



- 2.2 The aluminium accommodation structure developed a large crack across the top of 02 deck soon after sinking. It passed from the top of one exterior door on the boat deck to the elevator shaft opening, and then across to the top of a watertight door on the port side. This crack has not changed in the last three years. The Divers did not detect any signs of additional cracking in this structure apart from the missing “hangar wall” noted in last year’s report. That report stated that the side structure of the starboard helicopter hanger was damaged. The details of the inspection can be found in the diver’s report “Ex-HMAS Adelaide Starboard Hanger Wall Report” dated 18th May 2015. The inspection report stated that there was damage to the helicopter hanger in way of the starboard side structure and that the damage had caused part of the side shell and its supporting structure to separate from the main hanger structure.

On the 4th June 2016, the divers noted that no further deterioration of the hanger area had occurred. This area of the vessel appears to be stable despite the missing panels, because the major support column at the hangar entrance is intact. The missing panels have allowed water to flow through the hangar, which has relieved pressure on the remaining structure.

- 2.3 The vessel developed a 4-degree list to port in 2012. It has remained stable at that attitude since then. Measurements taken by the divers during this survey confirm that there has been no change in the list from last year.

The underwater inspection of the vessel carried out by the divers on 17th June 2016 after the strong East Coast Low pressure event found the following damage:

- 2.4 A one metre section of the starboard hangar side plating (which was mostly lost in May 2015) had broken free and was moving backwards and forwards slightly. It did not appear to the divers to be a trap hazard for recreational divers but it does have sharp edges.
- 2.5 A ventilator on top of 02 deck amidships has broken off leaving some jagged aluminium poking out of the deck. This is a small structure with about a 1000mm by 500mm footprint. The remains of it in the opinion of the diving company would not be a danger to recreational divers.
- 2.6 A number of handrails have been broken off and now lie strewn about the decks. The divers stated in their report that they did not see any which in their opinion created an entanglement or exit hazard for recreational divers.

3. Conclusion

As with my previous report from last year, it is my opinion that, the aluminium structure forward of the helicopter hanger transverse bulkhead is structurally sound. However, the starboard hanger top structure may deteriorate over time due to lack of support on the outboard side. Therefore, this area should continue to be monitored annually with close attention to the structural components during any underwater inspections.

The steel structure of the vessel is considered to be structurally sound. However, it is recommended that at the next annual inspection, systematic ultrasonic thickness measurements be taken of structurally significant areas of the vessel to monitor any deterioration due to corrosion.

4. Disclaimer

The under signed shall not be liable in any way to any person or company in respect to any claim for any kind, including claims for negligence, for loss occasioned to any person or company in consequence of any person or company acting or refraining from action as a result of material in this report.

Signed,



S47F

for Shearforce Maritime Services Pty. Ltd.
27rd June 2016.

From: s22
To: s11C(1) "
Subject: Re: SD2008/1062 - HMAS Adelaide - Allegation [SEC=UNCLASSIFIED]
Date: Friday, 15 July 2016 11:27:31 AM
Attachments: [image003.jpg](#)
[image002.png](#)
s22

Dear s11C(1) ,

Thank you for your enquiry regarding sea dumping permit SD2008/1062 (the Permit) for the HMAS Adelaide. I apologise for the delay in our response; as you have raised similar concerns previously, the Department wished to ensure that the matter was thoroughly and comprehensively reviewed.

In relation to your specific concerns:

1. As previously advised by the Department in 2014 (e-mail attached for reference); monitoring for PCBs is not required under the Permit or subsidiary plans. The AAT decision in September 2010 required the removal of remaining components containing PCBs (therefore as all PCBs were removed prior to scuttling, no monitoring for these substances is necessary);
2. The Department has been advised by NSW Crown Lands that they completed an inspection of Forresters Beach in May 2016 which found no evidence of wreckage of the nature you have described. NSW Crown Lands further advised that there were no beach debris reported to them following the April 2015 storms; they also noted that materials of a nature you described were found on Forresters Beach immediately following the scuttling in 2011.

Should you have any further information concerning this matter I encourage you to provide it to the Department. Any information could then be assessed against the requirements of the Permit.

3. Under the Plan, the purpose of the Bio-accumulation Monitoring Survey is to observe the concentration of zinc-chromate. The Sediment Quality Survey contains the requirement to monitor for lead; as per the AAT Decision (reports available to public on website at: <http://www.hmasadelaide.com/science>). As previously advised (attached), the extract provided below from the Statement of Reasons pre-dates the AAT decision to remove the PCBs.

N.B. A review of the data from the first and last Sediment Quality reports indicates a decline over time in the concentration of lead at the collection points. The most recent data indicates a mean concentration at 1/25th of the lowest threshold of the interim sediment quality guideline trigger values under the *Australian and New Zealand Fresh and Marine Water Quality Guidelines (2000)*.

I trust that this covers off on your concerns. I would like to assure you that the Department is continuing to monitor this Permit and Plan for compliance in accordance with the Act.

Regards,

s22

s22

From: EPBC Monitoring
Sent: Tuesday, 9 February 2016 3:09 PM
To: s11C(1)
Cc: FOI Contact Officer; s22
Subject: FW: FOI 151012 - correspondence from applicant seeking information re: HMAS Adelaide scuttling – 2008/1062 [SEC=UNCLASSIFIED]

Dear Ms s11C(1),

Your allegations have been forwarded on to the Compliance Monitoring Team for investigation. The Department takes allegations of non-compliance seriously and will be in contact with you in due course.

Should you wish to get in contact with the Compliance Monitoring Team, our e-mail address is: EPBCMonitoring@environment.gov.au.

Regards,

s22

s22

From: s11C(1)
Sent: Sunday, 7 February 2016 10:43 AM
To: FOI Contact Officer; s22
Subject: Re: FOI 151012 - documents [SEC=UNCLASSIFIED]

s22

Thank you for the documents.

Please advise who the appropriate person to contact in the Dept is to contact regarding issues with the monitoring program for Sea Dumping Permit attached to HMAS Adelaide?

Issues of concern:

1. No monitoring for polychlorinated biphenyls has occurred at all in either sediment or bioaccumulation monitoring despite it being in the Long Term Monitoring Plan (Table 2.1) and Statement of Reasons for approving SDP and proven presence of PCBs on ship and likely in the paint.
2. Structural failure of ship - part of helicopter hanger has detached from vessel and is beside wreck. Piece of wreck 3m long with junction box and honeycomb panelling washed up on Forresters Beach 3 kms north after April storms 2015. Photos can be provided on request.
3. Why are lead and PCBs not being included in bio accumulation monitoring when lead is on the vessel in the paint and initial bioaccumulation tests showed increased levels.

I note also in the attached Statement of Reasons provided by the Minister's delegate, Vicki Middleton on 7/4/2010 that the decision to approve the Sea Dumping Permit was based on there being PCB monitoring of the vessel - see page 7, par 20:

*"in the unlikely event that there unidentified sources of solid PCBs still present, DEHWA's technical expert advised that any such PCBs would post negligible risk of contamination to the environment. **I found that monitoring for PCBs as part of the LTMMP would be appropriate to verify these conclusions.**"*

Please forward this to the relevant person and would appreciate a response advising these concerns are being addressed in future monitoring plans so it won't be necessary to address this in media and through legal action.

It is also concerning the State Govt's proposal to change the monitoring plan comparisons with past data will no longer be possible as outlined in the Cardno report on the wreck website.

Please confirm that any monitoring plans going forwards will provide for comparative data since scuttling and will test for PCBs and lead.

Thank you

s11C(1)

s22

s22

From: s11C(1)
To: s11C(1)
Subject: Debris Forresters Beach
Date: Friday, 15 July 2016 4:28:56 PM
Attachments: [IMG_0979.JPG](#)
[ATT00001.txt](#)
[IMG_0981.JPG](#)
[ATT00002.txt](#)
[IMG_0982.JPG](#)
[ATT00003.txt](#)
[IMG_0984.JPG](#)
[ATT00004.txt](#)
[IMG_1002.JPG](#)
[ATT00005.txt](#)

Dear s11C(1)

Please find attached photos of debris on Forresters Beach from July 2015. It had been on beach since large storm event several months earlier in April 2015. It was removed from beach about August 2015. It was approx 3 metres long and 2 metres wide.

The debris has junction box bases and aluminium honeycomb panels similar to other Adelaide debris washed up on local beaches.

Regards
s11C(1)











From: s22
To: s22 ; s22
Cc: s22 ; s22
Subject: FW: Revision of Ex-HMAS Adelaide Long Term Monitoring and Management Plan [SEC=UNCLASSIFIED]
Date: Monday, 29 January 2018 7:26:46 AM
Attachments: [Revised Ex-HMAS Adelaide LTMP January 2018.pdf](#)
[image001.png](#)

Thanks s22 ,

Hi s22 , over to you as this relates to a SD permit. Any queries pls call me.

Cheers

s22

From: Post Approval
Sent: Thursday, 25 January 2018 11:24 AM
To: s22 @environment.gov.au>
Cc: s22 @environment.gov.au>; s22 @environment.gov.au>
Subject: FW: Revision of Ex-HMAS Adelaide Long Term Monitoring and Management Plan [SEC=UNCLASSIFIED]

Hi s22

Please see email below

Thanks

s22

From: s22
Sent: Wednesday, 24 January 2018 4:58 PM
To: Post Approval <PostApproval@environment.gov.au>
Cc: s22 @crownland.nsw.gov.au' s22 @crownland.nsw.gov.au>
Subject: FW: Revision of Ex-HMAS Adelaide Long Term Monitoring and Management Plan [SEC=UNCLASSIFIED]

Hi Guys,

Please find a revised management plan for your review attached.

Cheers,

s22

s22

From: s22 @crownland.nsw.gov.au]
Sent: Wednesday, 24 January 2018 4:24 PM
To: s22 @environment.gov.au>

Subject: Fwd: Revision of Ex-HMAS Adelaide Long Term Monitoring and Management Plan

Hi s22,

I rang yesterday to advise that the Department of Industry - Crown Lands and Water has completed its revision of the Long Term Monitoring and Management Plan for the Ex-HMAS Adelaide (see attached) as required by condition 26 of the Sea Dumping Permit.

Are you able to take receipt of the plan and forward the plan to the relevant delegate for consideration / approval or is there another contact I should send the plan to?

I await your advice.

Regards,
s22

s22 | Natural Resource Management Project Officer

Department of Industry - Lands & Water | Hunter Office

516 High Street | Maitland | NSW 2320

PO Box 2215 | Dangar | NSW 2309

T: 02 s22 | Mob: s22 | F: 02 s22 | E: s22 @crownland.nsw.gov.au

T: 1300 886 235 | E: maitland.crownlands@crownland.nsw.gov.au | W: www.crownland.nsw.gov.au

----- Forwarded message -----

From: s22 @crownland.nsw.gov.au>

Date: 22 September 2017 at 12:22

Subject: Revision of Ex-HMAS Adelaide Long Term Monitoring and Management Plan

To: s22 @environment.gov.au

Cc: s22 @crownland.nsw.gov.au>, s22

@crownland.nsw.gov.au>

Dear s22,

The Department of Industry - Crown Lands and Water (the department) has recently engaged Advisian (part of the WorleyParsons Group) to undertake the revision of the Long Term Monitoring and Management Plan for the Ex-HMAS Adelaide.

In accordance with the Sea Dumping Permit (SD2008/1062), monitoring requirements within the revised plan will focus on identifying potential environmental and structural safety risks.

Although we do not anticipate significant changes to structural monitoring requirements, we do anticipate a scaled back environmental monitoring schedule. The rationale for proposed environmental monitoring will be under-pinned by recommendations contained within Cardno's 2016 report "*Ex-HMAS Adelaide Artificial Reef Review of Ecological Monitoring Five Years Post-Scuttling*". Monitoring will primarily focus on identifying potential environmental risk through sediment quality and bio-accumulation studies.

It is anticipated that by early November 2017 a draft revised plan will be submitted by Advisian to the department for internal review.

Could you please advise if the Commonwealth Government (Department of the Environment and Energy) would like to provide any initial comment into the the revision of Long Term

Monitoring and Management Plan for the Ex-HMAS Adelaide.

Once the revised plan has been finalised it will be submitted to the Commonwealth for consideration / approval as per condition 26 of the Sea Dumping Permit.

Regards,
s22

s22 | Natural Resource Management Project Officer

Department of Industry - Lands | Hunter Office

516 High Street | Maitland | NSW 2320

PO Box 2215 | Dangar | NSW 2309

T: 02 s22 | Mob: s22 | F: 02 s22 | E: s22@[crowland.nsw.gov.au](mailto:s22@crowland.nsw.gov.au)

T: 1300 886 235 | E: maitland.crownlands@crowland.nsw.gov.au | W: www.crowland.nsw.gov.au

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Ex-HMAS Adelaide Artificial Dive Reef

Revised Long Term Monitoring and Management Plan -
2017-2026

10 January 2018

8-14 Telford St
Newcastle East
NSW 2300

301015-03845 – Final V2

www.advisian.com



Advisian

WorleyParsons Group



Disclaimer

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**Project No: 301015-03845 – Ex-HMAS Adelaide Artificial Dive Reef :
Revised Long Term Monitoring and Management Plan - 2017-2026**

| Rev | Description | Author | Review | Advisian Approval | Date |
|------------|----------------------------------|---------------|--------------------------|--------------------------|-----------------|
| A | Issued for internal review | K Newton | H Houridis | H Houridis | 3 Nov 2017 |
| B | Draft 1 issued for client review | K Newton | Crown Lands | H Houridis | 10 January 2018 |
| C | Draft 2 issued for client review | K Newton | H Houridis / Crown Lands | H Houridis | 18 Dec 2017 |
| O | Final issued to client | K Newton | | H Houridis | 10 January 2018 |



Table of Contents

Executive Summary..... vii

1 Introduction 1

 1.1 Background 1

 1.2 Purpose..... 4

 1.3 Responsible Parties..... 5

 1.4 Goals and Objectives 5

2 LTMMP Scope 7

 2.1 Monitoring of Structural Integrity, Stability and Position 7

 2.1.1 Structural Integrity.....7

 2.1.2 Vessel Stability.....7

 2.1.3 Vessel Position and Settlement 10

 2.2 Environmental Monitoring.....10

 2.2.1 Reef Communities..... 11

 2.2.2 Sediment Movement 11

 2.2.3 Sediment Quality..... 12

 2.2.4 Bioaccumulation Study 14

 2.3 Management Criteria and Mitigation Measures.....14

 2.3.1 Structural Integrity, Stability, Position and Sediment Movement... 14

 2.3.2 Environmental Monitoring..... 16

 2.4 Reporting17

 2.5 Personnel.....17

3 Results and Recommendations from the First Five Years of Monitoring18

 3.1 Monitoring of Structural Integrity, Stability and Position18

 3.1.1 Results of First Five Years Monitoring..... 18



- 3.1.2 Recommendations for Future Monitoring..... 18
- 3.2 Environmental Monitoring – Reef Communities 19
 - 3.2.1 Results of First Five Years Monitoring..... 19
 - 3.2.2 Recommendations for Future Monitoring..... 20
- 3.3 Environmental Monitoring – Sediment Quality 21
 - 3.3.1 Results of First Five Years Monitoring..... 22
 - 3.3.2 Recommendations for Future Monitoring..... 22
- 3.4 Environmental Monitoring – Bioaccumulation Study 23
 - 3.4.1 Results of First Five Years Monitoring..... 23
 - 3.4.2 Recommendations for Future Monitoring..... 23
- 4 Revised LTMMMP and Monitoring Schedule 2017-2026..... 25
 - 4.1 Key Changes to LTMMMP Requirements..... 25
 - 4.1.1 Monitoring of Structural Integrity Structural Integrity, Stability,
Position and Sediment Movement..... 25
 - 4.1.2 Environmental Monitoring..... 25
 - 4.2 Revised Monitoring Schedule..... 26
- 5 Marker Buoys, Mooring Buoys and Navigation Aids 29
 - 5.1 Dive Moorings and Special Markers 30
 - 5.1.1 Dive Moorings..... 30
 - 5.1.2 Special Marker Buoys 32
 - 5.1.3 Terrigal Haven Mooring Buoy 32
 - 5.2 Maintenance 33
 - 5.2.1 Special Marker Buoy Maintenance 33
 - 5.2.2 Dive Mooring Buoy Maintenance 33
 - 5.2.3 Terrigal Haven Mooring Buoy Maintenance..... 33
- 6 References 35



Table List

| | |
|--|----|
| Table 1-1 Co-ordinates of the scuttling location for the Ex-HMAS Adelaide..... | 3 |
| Table 2-1 Diver safety management actions..... | 15 |
| Table 2-2 Sediment quality guidelines (ANZECC/ARMCANZ 2000)..... | 16 |
| Table 4-1 Revised LTMMP monitoring schedule – years 6 - 15. (2017-2026)..... | 27 |
| Table 5-1 GPS locations of the special marker buoys (as installed location)..... | 32 |

Figure List

| | |
|---|----|
| Figure 1-1 Location of the Ex-HMAS Adelaide dive reef..... | 2 |
| Figure 1-2 Bathymetry in the vicinity of the scuttling site..... | 3 |
| Figure 1-3 Approximate depth to the Ex-HMAS Adelaide dive reef..... | 4 |
| Figure 2-1 Location of sediment and bioaccumulation monitoring sites. | 13 |
| Figure 2-2 Sediment and bioaccumulation control sites. | 13 |
| Figure 5-1 Location of all originally installed moorings and special markers around the Ex-HMAS Adelaide dive wreck. Note that the special marker buoys are now ~ 100 m off the bow and stern rather than the 35 m indicated here. | 29 |
| Figure 5-2 Mooring buoy numbering and locations on the Ex-HMAS Adelaide dive wreck. | 30 |
| Figure 5-3 Design specifications for the mooring buoys on the Ex-HMAS Adelaide. | 31 |
| Figure 5-4 Location of the mooring buoy in Terrigal Haven..... | 32 |

Appendix List

| | |
|------------|---------------------------------------|
| Appendix A | Sea Dumping Permit |
| Appendix B | Register of Barred Off Items |
| Appendix C | Register of Rapid Deterioration Items |



Advisian

WorleyParsons Group

Department of Industry Crown Lands and Water
Ex-HMAS Adelaide Artificial Dive Reef
Revised Long Term Monitoring and Management
Plan - 2017-2026



**Department
of Industry**

- Appendix D Ship Drawings – CD ROM
- Appendix E Summary of Findings From the First Five Years of Monitoring
- Appendix F RMS Commercial Mooring Licence Standard Conditions



Executive Summary

In 2009, the New South Wales (NSW) Government entered into a Deed of Gift arrangement with the Commonwealth of Australia for the Ex-HMAS Adelaide to be prepared and scuttled as an artificial reef and recreational dive site in Bulbararing Bay, offshore from Avoca Beach, NSW.

On 13th April 2011, the Ex-HMAS Adelaide was scuttled in front of an estimated 18,000 people. The final location of the vessel is approximately 1.4 km from Terrigal Headland and 1.9 km from Avoca Beach.

In accordance with the Sea Dumping Permit No. SD2008/1062, the Department of Industry (DoI) Crown Lands and Water was required to implement a Long Term Management and Monitoring Plan (LTMMMP) for the artificial reef. The Plan was required to include structural and environmental monitoring components.

The Ex-HMAS Adelaide Long Term Monitoring and Management Plan (LTMMMP) was developed in 2011 by WorleyParsons and all aspects of the plan have been implemented for the first five years post-scuttling. The results of studies and monitoring undertaken during the first five years post-scuttling have been reviewed and are summarised.

The Revised LTMMMP (2017) takes into account the results of all monitoring undertaken to date and the recommendations made following first five years of post-scuttling monitoring. The LTMMMP has been revised where appropriate to meet the requirements of Condition 26 of Sea Dumping Permit SD2008/1062. The Revised LTMMMP covers monitoring requirements for the next 10 years (i.e. the period from six to 15 years post-scuttling; 2017-2026).

Key changes to the LTMMMP for future monitoring along with a revised monitoring schedule for implementation over the next ten years are provided.



1 Introduction

1.1 Background

In 2009, the New South Wales (NSW) Government entered into a Deed of Gift arrangement with the Commonwealth of Australia for the Ex-HMAS Adelaide to be prepared and scuttled as an artificial reef and recreational dive site in Bulbararing Bay, approximately 1.87 km offshore from Avoca Beach, NSW.

The HMAS Adelaide was a long-range escort frigate with roles including air defence, anti-submarine warfare, surveillance, reconnaissance and interdiction. Built in the United States, HMAS Adelaide was commissioned in November 1980 and was the first of six Adelaide class guided missile frigates to be delivered to the Royal Australian Navy. The vessel's hull is constructed of steel and the superstructure is aluminium alloy. Antifouling was last applied to the hull of the vessel in 2003 and the product used did not contain tributyltin (TBT).

The vessel was prepared for scuttling by McMahon Services Australia in Sydney. Preparation included the removal (as far as practicable) of the following items and/or items containing the following substances:

- Polychlorinated biphenyls (PCB's)
- Chlorofluorocarbons (CFC's) (and other refrigerant chemicals)
- Hydrocarbons
- Plastics
- High pressure cylinders (removed or degassed)
- Loose items and fittings
- Items not expected to survive the scuttling event or that would degrade rapidly
- General rubbish
- Heavy metals such as lead, mercury, copper and zinc

The vessel was also prepared for use as a recreational dive site with dozens of additional access holes cut into the hull on the horizontal and vertical surfaces. Most fixtures along with non-structural bulkheads were removed to allow more room for divers to pass through the vessel safely. Some areas of the vessel were made inaccessible to divers (e.g. tanks and small void spaces), also for safety reasons. These areas either had their hatches removed or steel bars welded across their openings (to prevent diver entry) or the hatch was welded shut and the opening mechanism purposely damaged to prevent reopening.

Following an application by the No Ship Action Group (a community group against the proposed scuttling of the Ex-HMAS Adelaide) in 2010, the Administrative Appeals Tribunal reviewed the Decision of the Department of Environment and Energy (DoEE) (then the Department of Water, Heritage and the Arts; DEWHA) to issue Sea Dumping Permit No. SD2008/1062 under the *Environment Protection (Sea Dumping) Act 1981*. A copy of Sea Dumping Permit No. SD2008/1062



is provided in **Appendix A**. The Tribunal delivered its decision on 15th September 2010 adding extra permit conditions requiring the ship to be cleaned of *“all remaining wiring, including junction boxes, which might be associated with PCB’s”,* cleaned of *“all canvas and insulation”* and cleaned of *“all exfoliating and/or exfoliated red lead paint”*. The additional preparation work to comply with these conditions was undertaken between October 2010 and March 2011.

In accordance with the Sea Dumping Permit No. SD2008/1062, the Department of Industry (DoI) Crown Lands and Water was also required to implement a Long Term Management and Monitoring Plan (LTMMP) for the artificial reef. The Plan was required to include structural and environmental monitoring components, as outlined in Section 1.2 and 2.

The original LTMMP was developed by WorleyParsons in 2011 and has been updated in the Revised LTMMP (2017) (current Plan) as per Condition 26 of the Sea Dumping Permit: *“A review of the LTMMP must be undertaken within five years of scuttling with the revised version submitted to the minister for approval. A revised LTMMP must not be implemented until it is approved by the Minister. If the Minister approves a revised LTMMP pursuant to this condition, the LPMA must implement that LTMMP instead of the LTMMP as originally approved”*.

On 13th April 2011, the Ex-HMAS Adelaide was scuttled in front of an estimated 18,000 people. The final location of the vessel is approximately 1.4 km from Terrigal Headland and 1.9 km from Avoca Beach (Figure 1-1). Table 1-1 provides the scuttling co-ordinates for the ship.

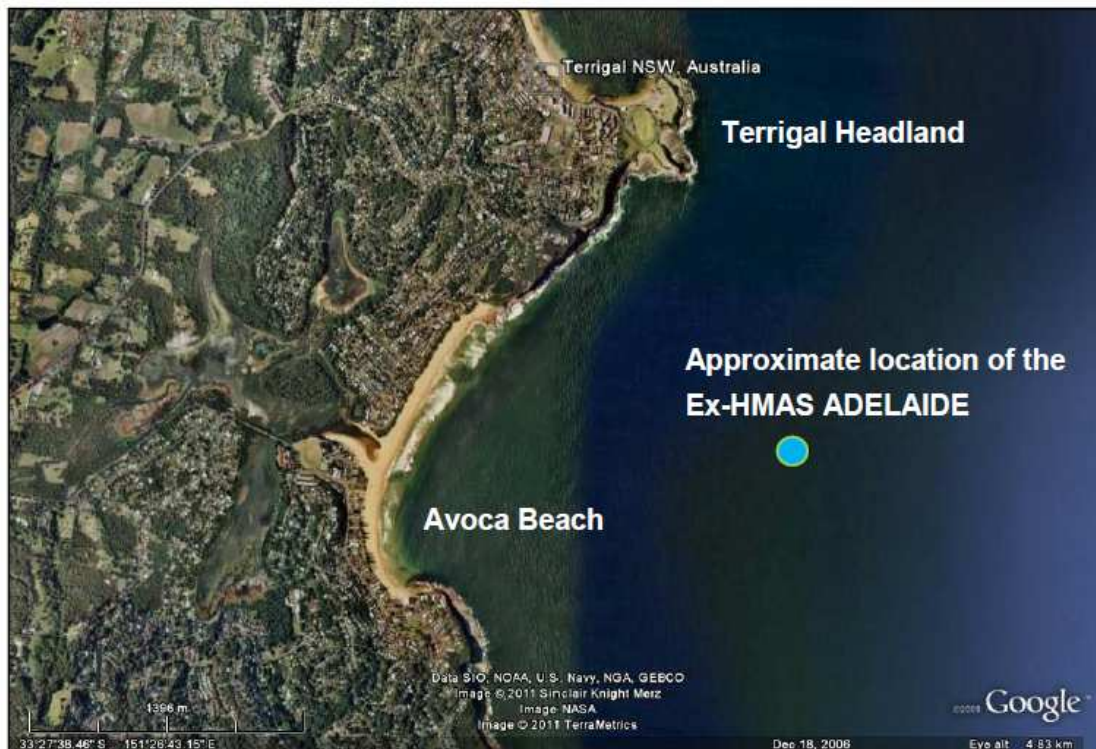


Figure 1-1 Location of the Ex-HMAS Adelaide dive reef.

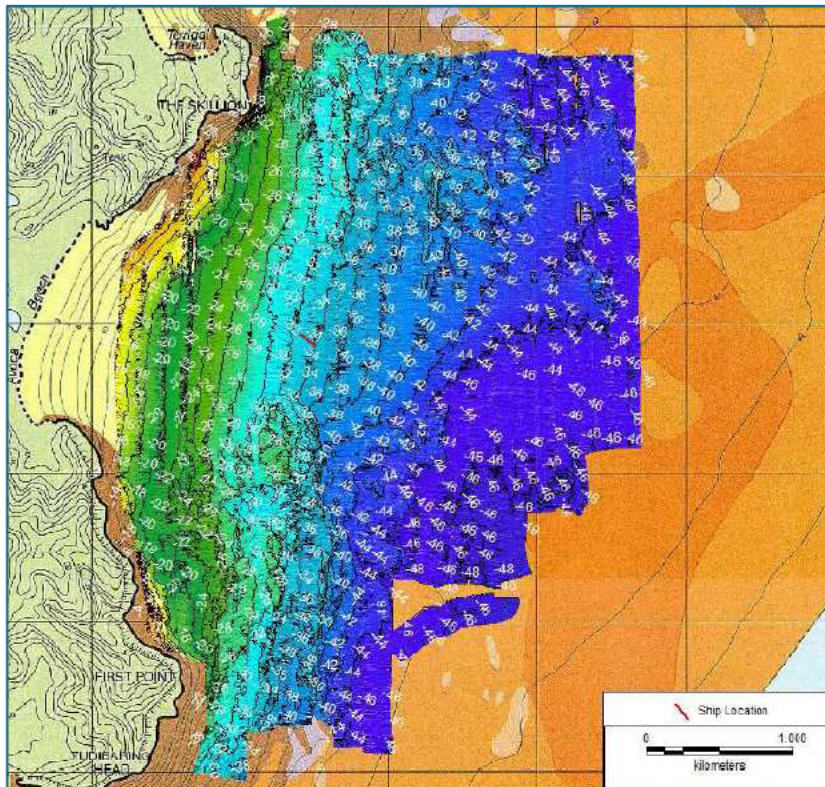


Table 1-1 Co-ordinates of the scuttling location for the Ex-HMAS Adelaide.

| Latitude / Longitude | Northing / Easting (MGA 94) |
|------------------------------|----------------------------------|
| Latitude (south): 33°27.91' | Northing (MGA 94): 6,296,076.969 |
| Longitude (east): 151°27.38' | Easting (MGA 94): 356,551.686 |

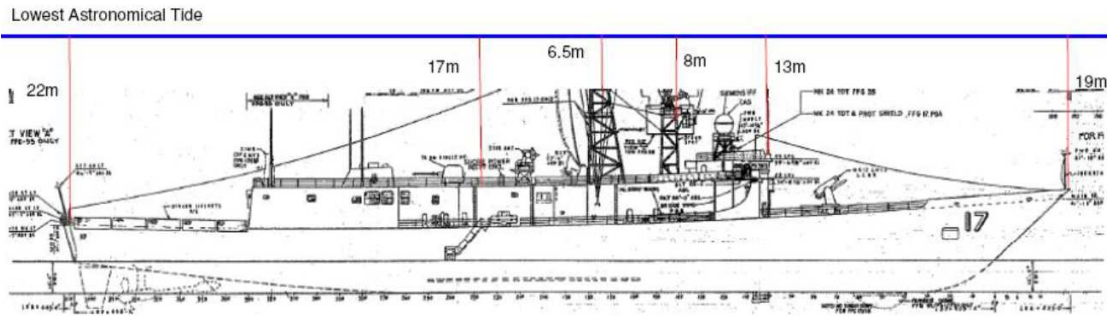
After site selection studies were completed it was determined that the vessel would be scuttled with an ESE orientation (112°), so that the bow would be facing into the general direction of the largest waves (coming from the SE, ESE and S). As sunk, the vessel is oriented at 116° and is generally upright (immediately after scuttling the vessel had a small list of 2.5 degrees to port (personal communication with DoI Crown Lands and Water in 2011)).

The final scuttling site is in 32 m of water at Lowest Astronomical Tide (LAT) and after scuttling, the depth of water over the main mast is 8.02 m LAT (personal communication with DoI Crown Lands and Water in 2011). The substrate on which the Ex-HMAS Adelaide rests is reasonably flat and sandy, with at least 6 m of sand overlaying bedrock as anticipated (Figure 1-2). Approximate depths to various levels on the ship are shown in Figure 1-3.



Note: depths relative to Australian Height Datum (AHD) (approximately 0.93m above LAT). Source: multibeam hydrographic survey data (DECC 2008) overlain on digitised NSW Public Works Department (PWD) survey (1m contours) (1984-1989).

Figure 1-2 Bathymetry in the vicinity of the scuttling site.



Note: depths in relation to Lowest Astronomical Tide (LAT) do not take into account settlement which is expected to be 0.5 m initially and approximately 2 m in the longer term.

Figure 1-3 Approximate depth to the Ex-HMAS Adelaide dive reef.

The dive reef has been operational since May 2011, following post-scuttling safety inspections of the vessel undertaken by McLennans Diving Service.

1.2 Purpose

The purpose of the Ex-HMAS Adelaide LTMMP is to provide for the post-scuttling management and monitoring (structural and environmental) of the Ex-HMAS Adelaide as an artificial reef for recreational diving, pursuant to the requirements of the *Environment Protection (Sea Dumping) Act 1981*. The focus of the vessel monitoring is to inform management actions and contingency measures to minimise potential risks to the uses of the artificial dive reef and also to the environment.

The original LTMMP (WorleyParsons 2011) addressed the monitoring requirements and methods for the vessel for the first five years post-scuttling, and forms the basis for ongoing monitoring and maintenance over the operational life of the vessel (taken to be 40 years). The original LTMMP includes schedules and methodologies for structural and environmental monitoring requirements as listed below:

1. Monitoring of Structural Integrity, Stability and Position.
2. Environmental Monitoring:
 - Sediment Quality Surveys
 - Bioaccumulation Surveys
 - Reef Community Surveys

There are a number of Plans which are independent of the LTMMP which relate to the Ex-HMAS Adelaide dive reef:



1. The *Scuttling Management Plan* (McMahon Services Australia 2010) provided a contingency plan in the event that a major storm was forecast on or around the proposed scuttling date, if the vessel did not rest upright on scuttling or if the vessel suffered damage during scuttling. The *Scuttling Management Plan* also includes repair work and checking of dive routes to assess whether other works are required to maintain safe diver ingress and egress.
2. The *Ex-HMAS Adelaide Asset Management Plan* (Capability by Design 2010) includes additional detail on management actions and contingency measures associated with structural monitoring, including repair work, if a problem is detected during the normal operational life of the vessel as a dive site (i.e. taken to be 40 years).

Condition 26 of the Sea Dumping Permit requires that a review of the Ex-HMAS Adelaide LTMMP is undertaken within the first five years post-scuttling as outlined previously. Following a review of the results of the first five years of monitoring for structural and environmental components (see summary in Section 3), the schedules and methods for these monitoring components going forward have been revised, the details of which are included in Section 4. The Revised LTMMP covers the period from six to 15 years post-scuttling inclusive (i.e. a 10 year period).

1.3 Responsible Parties

The Ex-HMAS Adelaide is located within a Crown Reserve (the Ex-HMAS Adelaide Reserve) which was gazetted for purpose on 20th June 2008 under the provisions of the NSW *Crown Lands Act* 1989. DoI Crown Lands and Water has responsibility for the administration and management of all Crown Land in NSW, including the seabed out to the 3 nautical mile (nm) limit of State waters (i.e. they are responsible for the seabed in which the Ex-HMAS Adelaide rests).

The Crown Lands Reserve Trust (CLRT) was appointed as the Trust Manager. The Trust is administered by the Lands Administration Ministerial Corporation (a statutory body representing the Crown) which has overall management responsibility of the reef, including implementation of the LTMMP.

Ongoing reporting associated with the LTMMP is required to include a description of the methodology, observations (e.g. material deterioration), any remedial works which may be required and the required timing of these works (e.g. urgent, routine). Responsibility for the ongoing implementation and reporting in accordance with the LTMMP ultimately rests with DoI Crown Lands and Water.

1.4 Goals and Objectives

The overall goal of the Ex-HMAS Adelaide artificial dive reef is to provide a world class recreational dive attraction which provides benefits to the local NSW Central Coast economy.

In relation to the artificial dive reef, the objectives are to:



- Provide a wreck which is maintained to ensure diver safety while retaining a quality diving experience;
- Provide an artificial reef that continues to remain stable and maintains its structural integrity;
- Enhance local marine biodiversity in the area and provide marine research opportunities;
- Minimise the debris field during degradation of the vessel; and
- Examine how the vessel is influencing / impacting on the surrounding marine environment and vice versa.

Section 2 of this Revised LTMMP provides the scope and rationale for all LTMMP monitoring components along with management criteria and mitigation measures, and requirements for reporting and personnel.

Section 3 (and Appendix E) of this Revised LTMMP summarises the results and recommendations of the first five years of monitoring.

Section 4 of this Revised LTMMP outlines the key changes to the LTMMP and revised monitoring schedules for the next ten years based on results and recommendations from the first five years of monitoring.

Section 5 of this Revised LTMMP provides additional information on the requirements for maintenance of dive moorings and marker buoys.



2 LTMMP Scope

The Revised LTMMP includes structural and environmental monitoring components. The scope and rationale for these are outlined below. Detailed methods for each monitoring component can be found in the original Ex-HMAS Adelaide LTMMP (WorleyParsons 2011).

2.1 Monitoring of Structural Integrity, Stability and Position

2.1.1 Structural Integrity

The rationale for investigating the structural integrity of the Ex-HMAS ADELAIDE is to ensure that the vessel remains intact and is not showing signs of significant corrosion and weathering due to major storm events and that the vessel is suitable for on-going use as a recreational dive site.

For the purpose of this plan, a major storm event is defined as when the Bureau of Meteorology (BoM) has issued a Severe Weather Warning for Damaging Waves. This essentially means when onshore waves in the surf zone are expected to reach at least 5 m, generally within the next 24 hours.

The Bureau of Meteorology (BoM) website defines an East Coast Low (ECL) as *'intense low-pressure systems which occur on average several times each year off the eastern coast of Australia, in particular southern Queensland, NSW and eastern Victoria. Although they can occur at any time of the year, they are more common during autumn and winter with a maximum frequency in June. East Coast Lows will often intensify rapidly overnight making them one of the more dangerous weather systems to affect the NSW coast.'* The Bureau of Meteorology has a detailed database of these ECLs beginning in 1973, and advises that *'Each year there are about ten "significant impact" maritime lows. Generally, only once per year do we see "explosive" development. Looking at all the ECL between 1973 & 2004, there is no evidence of a trend.'* A more detailed description of weather patterns is covered in Section 5.6 Coastal Storms and Wave Climate of the Ex-HMAS Adelaide Artificial Reef Review of Environmental Factors (Worley Parsons, December 2009).

Within one week following a major storm event, inspections will be undertaken to identify and report on:

- debris requiring removal from within and surrounding the vessel;
- levels of corrosion;
- blocked or impeded diver entry and access points;
- access to areas designed to have no diver access; and
- structural damage or failure.



A general assessment of structural integrity will be undertaken by annual visual inspections and visual inspections immediately following major storm events (before diving is permitted to recommence). Where the weather permits, inspections will be undertaken within 7 days. The assessment will be undertaken under the direction of a qualified maritime structural engineer or naval architect.

Annual monitoring will be carried out for vessel components (barred off areas, lockers, bunks, masts etc) and a number of specified monitoring points along principal stress flow paths and where structural weaknesses were observed/ repairs were carried out when the HMAS ADELAIDE was in service. The registers of "Barred Off Items" and "Rapid Deterioration Items" referred to in the original Plan are included in **Appendix B** and **Appendix C** respectively. Ships drawings showing the location and photographs that identify each of these monitored items are enclosed on CD-ROM at **Appendix D**.

The locations of the monitoring points are as follows:

- Location 1 - the hull plating on the forecastle just aft of where the GMLS launcher was removed
- Location 2 - midships at the base of the forward screen (where the superstructure and hull are bonded together)
- Location 3 – at the vertical midpoint of the main mast Location 4 - where the main mast attaches to 02Deck Location 5 - the hull plating on the transom
- Location 6 – where the helicopter hangars are attached to the hull

As the aluminium superstructure will provide anodic protection to the steel hull, divers will photograph and record areas where pitting is occurring and take measurements using an ultrasonic thickness tester. Where pitting becomes severe, or there is other damage due to storm waves, demolition works will be undertaken to mitigate the risk to divers (based on stability modelling, it is not anticipated that the entire vessel would become unsafe for diving following a major storm within the initial period of the LTMMP). Where possible (and where this will not pose a risk to divers), structures/ components will be left on the ship, for example, if it is necessary to remove a portion of the mast it will be placed (or secured) on the deck to give the impression that it has fallen naturally, thus maintaining interest for divers.

AS 4997-2005 Guidelines for the design of marine structures specifies a corrosion allowance for untreated steel of 0.05mm/year for permanently submerged structures in sea water within the temperate zones (south of 30°S). Note that the hull will still be protected by protective paint systems until they begin to breakdown (MacLeod et al 2004 noted that protective coatings were still providing considerable protection to the Ex-HMAS SWAN four years after scuttling).

In addition to scheduled monitoring, dive tour operators and others visiting the vessel will be required to report any structural issues to the DoI – Crown Lands and Water under the terms of the



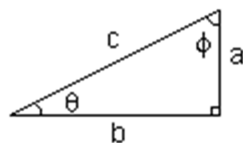
Permit / 'Code of Conduct' to dive on the wreck.

2.1.2 Vessel Stability

The rationale for investigating vessel stability is to ensure that the vessel remains stable on the seabed and is not inclining beyond acceptable limits that may result in blocked diver access holes or disorientation.

The stability of the vessel on the seabed will be examined by calculating the angle of incline of the vessel relative to a vertical surface on the superstructure, such as the helicopter hangar on the main deck. The locations selected for measuring the angle of the vessel will be marked clearly, and their exact locations accurately described relative to other permanent structures, allowing for repeat measurements to be taken.

The angle of the vessel will then be measured at each location by attaching a plumb bob (a strong cord attached to a heavy weight), to the edge of the vessel. The plumb bob will then be lowered until it remains stable in the water column. At a point toward the bottom of the vertical superstructure measuring location (e.g. near the bottom of the helicopter hanger wall), the vertical distance along the plumb bob and the horizontal distance from the plumb bob line to the vertical structure will be measured. The angle of incline is then calculated (i.e. $\tan \theta$) from the horizontal and vertical measures on the right angled triangle (see Figure 2-1).



where: $\tan (\theta) = \text{Opposite} / \text{adjacent}$ and $\tan (\theta)^{-1} = \text{the angle of incline}$

Figure 2-1 Measurement of the incline of the vessel using a right angle triangle calculation

Wave loads during major storms have the potential to cause ship movement. If the ship were to list, this would most likely occur during a major storm event (when boating and hence diving would cease due to BoM weather warnings) with the ship essentially settling into a new position under its own weight.

The angle at which the vessel may become unstable would depend on a number of factors and is likely to change over time. Factors include how the ship initially settles on the seabed (upright / on an angle), depth of settlement over time and any movement under storm waves.



If thought necessary an analysis of the likely theoretical angle at which the ship becomes unstable could be undertaken for initial settlement conditions, post scuttling (taking into account the location of concrete pumped into the hull to account for the weight of material removed from the vessel during preparation).

If determined to be necessary in future, sensors (tilt monitors) and / or underwater video cameras / webcams could be installed on the vessel to record any movement immediately post storm event. An assessment could then be made of any actions required to ensure the wreck was safe for diving.

2.1.3 Vessel Position and Settlement

The rationale for investigating the position of the vessel is to document the vessel's position on the seabed and to monitor its position over time. The depth to deck level and highest points on the vessel will also provide an understanding of any changes in water depth over time, due to the vessel settling on the seabed.

The position of the vessel will be determined by divers attaching buoys to the stern and bow sections during slack water. The location of these buoys will then be determined using GPS located on the survey boat. This fieldwork should be undertaken during slack water, with minimal wind to prevent drift of the marker buoys. If fieldwork is not undertaken during slack water, the approach will be for divers to swim directly over the stern and bow of the ship and mark their locations using a waterproof hand held GPS unit.

During these dives, divers will also record the depths (relative to LAT) of the highest point of the vessel in the water column, as well as the depth at the bow and stern at main deck level. The depth at seabed will be measured using the diver's computer lowered to the seabed on a weight as the depth at the seabed is beyond the normal commercial diving (Level 1 and 2) approved depth limit of 30m. In essence, the overall vessel position task will be completed using a combination of GPS positioning and diver depth measurements, converted to LAT using published tide charts.

The extent of settlement will be determined by first calculating the vertical distance from a known point (same locations as for vessel stability) of the ship to the seabed using a plumb bob. This measurement, together with the measurements described above, will be used to calculate the angle of incline of the ship and the length of the hypotenuse, using the formula for a right angle triangle. The length of the hypotenuse will then be compared to the known vertical height of the whole hull of the Ex-HMAS ADELAIDE from naval drawings to indicate the depth of settlement.

Vessel stability, position and settlement will be measured in conjunction with annual and post



storm structural integrity inspections.

Results and recommendations from the first five years of monitoring of structural integrity, stability and position are provided in Section 3.1.

2.2 Environmental Monitoring

2.2.1 Reef Communities

The rationale for investigating reef communities on the Ex-HMAS Adelaide is to gain an understanding of the marine flora and fauna assemblages present on the vessel, examine the rate of development of fouling assemblages and how they change over time, identify whether there is variation in the rates of development on different surfaces of the vessel (i.e. horizontal versus vertical) and identify whether any introduced species are present.

Full details of the survey methods for monitoring of reef communities can be found in the original Ex-HMAS Adelaide LTMMMP (WorleyParsons 2011).

Results and recommendations from the first five years of diver based reef surveys are provided in Section 3.2.

2.2.2 Sediment Movement

The rationale for examining sediment movement on the seabed is to gain an understanding of sediment movement around the vessel, accumulation rates and scour depths. Sediment movement will be reported annually and after major storm events. During a major storm it is predicted that a scour hole, approximately 0.7 m to 1.4 m in depth and 7 m to 14 m in diameter, could develop at the stern. At the bow it is estimated that a scour hole 1.5 m deep and 8 m to 10 m in diameter could develop.

The seabed will be described by taking incidental photographs around the vessel. Any sand waves or rippling effects occurring will be described. Incidental sightings of benthic fauna / flora present on the adjacent sandy substrate will also be recorded, as well as the presence or otherwise of any debris from the vessel. The ability to complete this survey using divers will be limited to making observations from above the 30 m depth limit for commercial divers. Consequently, the detail of the survey may be limited by visibility and distance off the seabed.

Full details of the survey methods for monitoring of sediment movement around the vessel can be found in the original Ex-HMAS Adelaide LTMMMP (WorleyParsons 2011).

Results and recommendations from the first five years of diver based sediment movement surveys are provided in Section 3.3.



2.2.3 Sediment Quality

The rationale for documenting sediment quality around the Ex-HMAS Adelaide is to examine how metal corrosion and degradation of protective paint layers impacts on the surrounding environment, i.e. whether benthic organisms are affected by potential metal enrichment of sediments around the vessel.

Sediment samples are analysed for a suite of metals including aluminium and iron (primarily due to corrosion of the superstructure and hull) and chromium, copper, lead, nickel and zinc (heavy metals which may have been in paints or components of the vessel which were unable to be removed). Sediment quality results will be compared with ANZECC/ARMCANZ (2000) Interim Sediment Quality Guidelines (ISQG) and previous results for control sites.

Sediment samples are collected by deploying a Ponar benthic grab from a boat and testing for trace metals against NODG (National Ocean Disposal Guideline for Dredged Material and ANZECC/ARMCANZ (2000) ISQG).

The locations of sediment quality (and bioaccumulation) sampling sites are shown in Figure 2-1 and Figure 2-2. Samples are collected from three control locations (S2, S3 and S6) and six impact locations (I1, I2, I3, I4, I5 and I6) for all survey times.

Full details of the survey methods for monitoring of sediment quality around the vessel can be found in the original Ex-HMAS Adelaide LTMMP (WorleyParsons 2011) and Cardno 2016a.

Results and recommendations from the first five years of sediment quality monitoring are provided in Section 3.3.

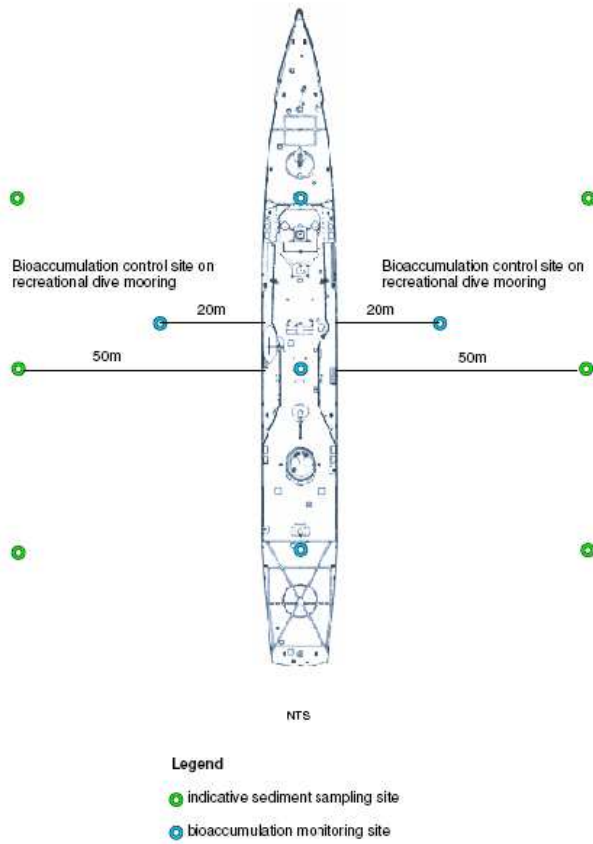


Figure 2-1 Location of sediment and bioaccumulation monitoring sites.

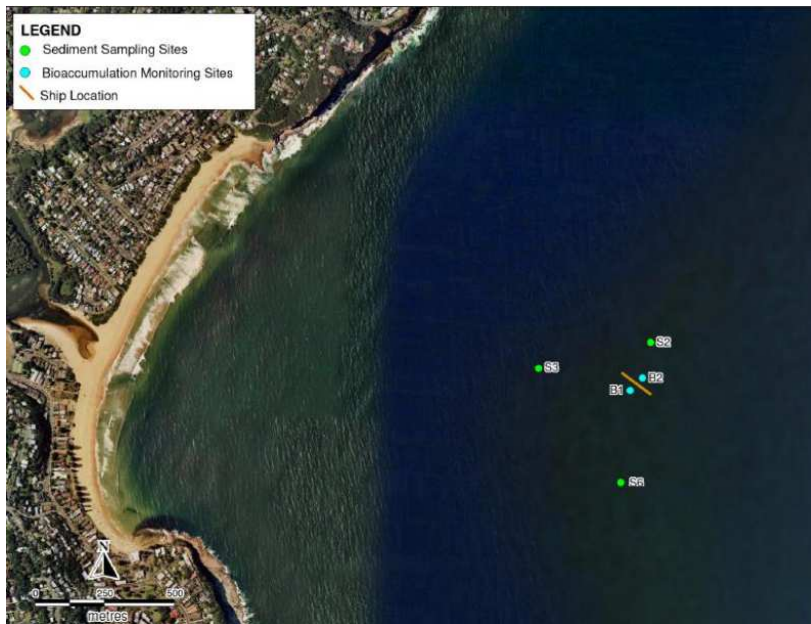


Figure 2-2 Sediment and bioaccumulation control sites.



2.2.4 Bioaccumulation Study

The aim of the bioaccumulation study is to determine whether resident biota are affected by the degradation of zinc chromate paint which may have originally been used on the aluminium alloy. As the initial process of biofouling was expected to take some time, active biomonitoring methods were to be adopted until there was sufficient growth on the ship for direct testing of resident fouling biota.

Full details of the survey methods for the bioaccumulation study can be found in the original Ex-HMAS Adelaide LTMMP (WorleyParsons 2011).

Results and recommendations from the first five years of bioaccumulation studies are presented in Section 3.4.

2.3 Management Criteria and Mitigation Measures

2.3.1 Structural Integrity, Stability, Position and Sediment Movement

A reduction in metal thickness of 50% should be used as a guide to initiate more frequent monitoring. The point at which various parts of the vessel become at risk of failure will vary in response to factors other than metal thickness, e.g. stress points. The point at which this becomes a risk to divers will also vary, e.g. collapse of the masts would be a risk to divers but severe corrosion in the centre of a plate on the side of the aircraft hangar may not pose a risk, or may be able to be managed. The point at which structural decay will warrant closing sections of the vessel or restricting access will be assessed through ongoing inspections.

An important consideration is whether diver access or egress is impeded, or disorientation of the divers inside the vessel is likely. Any major changes to structural integrity or stability of the vessel will typically occur during a major storm event. Divers would not be diving on the vessel under such conditions and so would not be subject to sudden entrapment or physical injury. Removal of encrusting biota may be required, in instances where significant fouling of the vessel is occurring, which limits diver access or egress or presents a hazard to divers.

If the wreck is deemed unsuitable for diving it will be closed until demolition / repair works and removal of debris are completed. Bookings will not be taken (or will be cancelled) and permits will not be issued for diving on the wreck until it is safe to do so.

Where monitoring determines that there is a risk to diver safety, the management actions outlined in Table 2.1 should be implemented.



Table 2-1 Diver safety management actions.

| Monitoring Program | Response |
|---|---|
| Structural Integrity | Using an Ultrasonic Thickness Measurement Instrument, measure the thickness of the test site, and if there is significant deterioration (i.e. > 50% reduction compared to the pre-scuttling measurement) in the thickness of material (steel or aluminium) at the monitoring points, appoint a marine surveyor to determine the risk to divers of a structural failure. Advise divers not to enter internal spaces of the vessel until the area is certified safe and reopened. |
| Access holes, barring off and deterioration of furnishings and partitioning | If there is significant deterioration of the non-structural fittings or failure of the barring off then advise divers to avoid those areas until the risk can be either removed or rectified by a suitably qualified and authorised contractor. Advise divers not to enter the internal spaces of the vessel until the area is certified safe and reopened to divers. |
| Vessel Positional Stability (angle of rest) | In the unlikely occurrence that there is a significant change in the position of the vessel, then there will be a need to undertake a more detailed risk assessment of the impact of the change in position on diver safety. The immediate action is to advise divers not to enter the vessel. Appoint a suitably qualified marine surveyor and risk assessor to determine the significance of the change in position and to provide advice on remedial actions. Advise divers not to enter the internal spaces of the vessel until the area is certified safe and reopened to divers |
| Seabed Topography | If there is significant change in the sea bed topography (erosion of the sand from under the vessel) seek advice from marine surveyor to determine if there is a risk to the stability of the vessel. If there is then follow the actions outlined above. Historical information from other wreck sites indicates that once the vessel has settled into the seabed by 1.5 m it should become stable. |
| Introduced Marina Biota | If marine pest species are identified seek management advice from DoEE, Industry & Investment NSW (Fisheries) and/or the Office of Environment and Heritage (OEH). |

Reports from dive operators regarding the safety of the dive site will be continuously monitored by DoI Crown Lands and Water. Should it become apparent that permanent closure of the site may be warranted, a working group will be formed to consider options for site management. Advice will be sought from divers, work place authorities, regulatory bodies and legal advice. It would be expected that the site would continue to be monitored to understand the potential for significant failure of the structure but diving would no longer be permitted.

As a permit condition, all dive operators will be required to have an emergency action plan and site induction plans for guides and divers, and to maintain appropriate insurances. They will also be required to comply with a Permit / "Code of Conduct" which includes hazard and incident



reporting as well as emergency contact phone numbers should any emergency response be required at the dive site.

2.3.2 Environmental Monitoring

Marine Biota

If any marine pest species are identified during the reef surveys, DoEE and Industry & Investment NSW (Fisheries) will be notified and advice sought on control / management measures.

In the event that any listed threatened or protected species are observed at the site, the appropriate authority (i.e. DoEE, Industry & Investment NSW (Fisheries) or the OEH) will be advised.

Sediment Quality

The relevant trigger levels for marine sediments identified in ANZECC/ARMCANZ (2000) will be adopted for sediment quality monitoring and are shown in Table 2-2. In the event that the ISQG-Low trigger value is exceeded for a particular metal, further investigation will be undertaken (such as leachate testing).

Table 2-2 Sediment quality guidelines (ANZECC/ARMCANZ 2000).

| Parameter | ISQG - Low | ISQG – High |
|-----------|------------|-------------|
| Aluminium | - | - |
| Chromium | 80 mg/kg | 370 mg/kg |
| Copper | 65 mg/kg | 270 mg/kg |
| Iron | - | - |
| Lead | 50 mg/kg | 220 mg/kg |
| Nickel | 21 mg/kg | 52 mg/kg |
| Zinc | 200 mg/kg | 410 mg/kg |
| PCBs | 23 µg/kg | - |

Notes: ISQG = Interim sediment quality guideline trigger values (metals reported in mg/kg dry wt). Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000).

Bioaccumulation

If zinc chromate contamination is detected in biota then further monitoring should be undertaken. No special management strategies are proposed as removal of biota from the ship by divers is prohibited and all forms of fishing are prohibited within approximately 100 m of the ship.



2.4 Reporting

Monitoring results should be reported to the DoEE within one month of survey completion. In the event that an environmental or diver safety risk is identified, DoEE should be advised within 24 hours. Survey reports should be provided individually within one month of survey.

An annual survey report is to be prepared containing an introduction, objectives of the monitoring program, survey methods, results, conclusions and recommendations (including any necessary changes to monitoring frequency and duration). The annual survey report will include a description of sand movement around the vessel (including scour) and any changes in settlement depth and the angle of the vessel (compared to the scuttled position and previous field survey work), as well as a general description of the state of the vessel and amount of biological growth observed.

A locality plan and all photographs taken during the survey will be provided in an Appendix.

The annual survey report will form part of the Reserve Trust's annual reporting to the NSW Minister for Lands as required under Clause 32 of the *Crown Lands Regulation 2006*.

Reporting to the DoEE will be via the annual survey report or as required under the Sea Dumping Permit conditions and will occur separately to the reporting for the Minister for Lands.

2.5 Personnel

Environmental monitoring and reporting must be undertaken by qualified and experienced marine scientists using a commercially registered vessel. All diving work must be undertaken by commercially qualified divers. The assessment of structural integrity must be undertaken by a qualified naval architect or maritime structural engineer.



3 Results and Recommendations from the First Five Years of Monitoring

3.1 Monitoring of Structural Integrity, Stability and Position

Monitoring of structural integrity, stability and position was undertaken as per the original LTMMP schedules for the first five years post-scuttling. Annual and events based inspections were undertaken by McLennans Diving Service with review and comment on the structural integrity and safety of the vessel for diving undertaken by Shearforce Maritime Services Pty Ltd.

3.1.1 Results of First Five Years Monitoring

The most recent annual underwater inspection to monitor structural integrity, stability and position was undertaken by McLennans Diving Service in April 2017. The findings of this survey can be summarised as follows:

- The vessel was structurally sound and stable – it remained unchanged since the previous annual inspection in June 2016.
- No new dangers were found that could affect recreational divers.
- No signs of corrosion were observed.
- Hanger damage was stable.
- No change in the ships position or list had occurred.

A summary of the results of the most recent structural inspections are included in **Appendix E**. These provide an indication of the current structural condition of the Ex-HMAS Adelaide dive reef.

3.1.2 Recommendations for Future Monitoring

Due to a necessity to continually monitor the ship for potential hazards / risks to divers and ensure diver safety, monitoring of structural integrity, stability and position should continue as per the original LTMMP schedules, with a requirement for annual monitoring, as well as events based monitoring (i.e. following major storm events), for the next 10 years. Monitoring of corrosion as well as sediment movement around the vessel should be undertaken during all structural integrity inspections.

All ongoing structural integrity monitoring should refer to the Management Criteria for this component, as outlined in Section 2.3.1. Depending on the findings, the regularity of structural integrity monitoring may need to be increased, or the vessel closed to diving until necessary demolition or repair works are made. At any stage that the vessel is deemed unsafe for diving and



where repairs / demolitions to reduce risk to divers are not possible, all diving activities should cease either in localised areas, or on the entire vessel, permanently.

3.2 Environmental Monitoring – Reef Communities

Reef community surveys on the Ex-HMAS Adelaide were undertaken immediately post-scuttling and at numerous other time points during the first five years post-scuttling as follows, in accordance with the original LTMMP schedules:

- Baseline Survey (1 week) – 18th April and 30th May 2011 (WorleyParsons)
- Post-scuttling Survey 1 (6 months) – 11th and 13th October 2011 (Cardno)
- Post-scuttling Survey 2 (10 months) – 14th and 16th February 2012 (Cardno)
- Post-scuttling Survey 3 (12 months) – 3rd and 4th May 2012 (Cardno)
- Post-scuttling Survey 4 (15 months) – 27th July 2012 (Cardno)
- Post-scuttling Survey 5 (18 months) – 31st October and 1st November 2012 (Cardno)
- Post-scuttling Survey 6 (21 months) – 16th and 17th January 2013 (Cardno)
- Post-scuttling Survey 7 (24 months) – 29th and 30th April 2013 (Cardno)
- Post-scuttling Survey 8 (27 months) – 16th and 17th July 2013 (Cardno)
- Post-scuttling Survey 9 (2 years 6 months) – 16th and 21st October 2013 (Cardno)
- Post-scuttling Survey 10 (2 years 11 months) – 3rd and 4th March 2014 (Cardno)
- Post-scuttling Survey 11 (3 years 5 months) – 22nd, 23rd and 29th September 2014 (Cardno)
- Post-scuttling Survey 12 (3 years 11 months) – 26th and 27th March 2015 (Cardno)
- Post-scuttling Survey 13 (5 years 2 months) – 1st and 2nd June 2016 (Cardno)

The full methods and results of all reef community surveys can be found in WorleyParsons (2011b) and Cardno (2016a and 2016b).

3.2.1 Results of First Five Years Monitoring

Overall, the reef community monitoring program undertaken during the first five years post-scuttling has met the aims of the original LTMMP well:

- It documented the types of flora and fauna present on the vessel.



- It described the rates of development of fouling assemblages and changes over time.
- It described variation in rates of development on different surfaces of the vessel.

After a baseline survey (WorleyParsons 2011) and 13 post-scuttling surveys (Cardno 2016b), a total of 42 taxa / taxon groups were identified on the vessel, with the ten most numerically abundant taxa in terms of percentage cover being serpulid, barnacle and encrusting algae matrix (57.8%), large barnacles and brown filamentous algae (7.2%), solitary ascidians (6.7%), serpulid polychaetes (6.5%), jewel anemones (4.4%), brown filamentous algae (4.3%), kelp (2.3%), early colonising matrix (2.2%), base surface (1.3%) and red encrusting algae (1.3%) (Cardno 2016a and 2016b).

Multivariate analysis indicated that there were changes in reef assemblages over time, with significant differences in the overall assemblage composition between surveys (regardless of transect position / orientation). Surface orientation was a significant factor in structuring the epibenthic assemblages on the vessel for the first five years post-scuttling. The assemblages associated with horizontal deck surfaces were significantly different from those on the vertical surfaces of the hull during all surveys. Depth was also a significant factor in structuring the epibenthic assemblages on the vessel for the first five years post-scuttling. Assemblages associated with deep surfaces between 20 – 30 m were significantly different to those associated with shallower 13 – 20 m surfaces across all surveys.

Fish taxa identified during the 13 post-scuttling surveys included 62 species from 31 families. There was a clear increase in the number of species identified over time. No species of threatened or protected fish were recorded (although anecdotal evidence suggests that grey nurse sharks, *Carcharius taurus*, may occur at the site on occasion).

No listed marine pest species were detected during the first five years of monitoring, however, it was noted that the survey methods adopted may mean that small and cryptic pest species would be difficult to identify as they can be well camouflaged or found in crevices and overhangs.

Further detail on the results of the first five years of reef monitoring can be found in **Appendix E**

3.2.2 Recommendations for Future Monitoring

Reef Communities and Threatened Species

No further reef community monitoring is required under the Revised LTMMP. Any further monitoring of long-term changes to epibenthic reef communities and / or fish communities for ecological research or educational purposes could be undertaken by external agencies, educational facilities or organisations, but is not necessary to meet the goals of the LTMMP.

Any further external studies should include special consideration of the presence of threatened and protected marine species, as listed under the NSW *Fisheries Management Act 1994* and/or NSW *Biodiversity Conservation Act 2016* that may begin to utilise the artificial reef over longer time periods.



A volunteer sighting and reporting program for threatened and protected species may also be implemented by the local dive operators who regularly dive on the vessel with data provided to appropriate management agencies on a regular basis (e.g. a basic 6 monthly report with images if obtained). LTMMP Management Criteria (see Section 2.3.2) require that in the event that any listed threatened or protected species are observed, the appropriate authority (i.e. DoEE, Industry & Investment NSW (Fisheries) or OEH) should be advised.

Marine Pests

Ongoing surveys for marine pest species known from NSW and Australia which have the potential to occur on the vessel (see Cardno 2016a and 2016b) should occur for the next 10 years to ensure that the aims of the original LTMMP in regard to marine pest species are fully met and that environmental risk is appropriately managed.

As no pest species have been detected to date, it is considered that the frequency of these surveys could be significantly reduced. It is suggested that the next marine pest surveys are undertaken at 10 years followed by 15 years post scuttling (these could be undertaken in conjunction with the suggested future *in-situ* sediment quality and biomonitoring surveys – see Section 3.3.2 and 3.4.2).

Any future marine pest surveys should utilise a combination of survey methods including diver transects (with video footage and/or photquadrats taken), scrapings with subsequent taxonomic analysis and targeted diver searches for more cryptic pest species which have the potential to occur on the ship (refer to Cardno 2016a and 2016b for details of these). Appropriate monitoring methods for the detection of the species of interest should be implemented by the consultant / agency undertaking these surveys, with reference to *The Australian Marine Pest Monitoring Guidelines and Manual* (DAFF 2010).

In accordance with the Management Criteria for marine pests in Section 2.3.2, if any marine pest species are identified, DoEE and Industry & Investment NSW (Fisheries) should be notified and advice sought on control / management measures.

In accordance with the *Australian Marine Pest Monitoring Guidelines and Manual* (DAFF 2010), marine pest detections should also be reported to the Consultative Committee on Introduced Marine Pest Emergencies (CCIMPE) who are responsible for initiating action in response to any new or suspected new incursions of marine pests according to CCIMPE agreed protocols.

While the level of marine pest monitoring on the vessel would not necessarily adhere fully to the *Australian Marine Pest Monitoring Guidelines and Manual* (DAFF 2010), data collected during such monitoring could potentially be made available for inclusion in the National Introduced Marine Pest Information System (www.marinepests.gov.au/nimpis).

3.3 Environmental Monitoring – Sediment Quality

Sediment quality monitoring prior to scuttling and for the first five years post-scuttling was undertaken in accordance with the schedule in the original LTMMP as follows:



- Baseline sediment sampling (prior to scuttling) – 2009 (WorleyParsons)
- One month post-scuttling – 17th May 2011 (WorleyParsons)
- Six months post-scuttling – 20th October 2011 (Cardno)
- 21 months post-scuttling (i.e. 18 month event) – 11th January 2013 (Cardno)
- 62 months post-scuttling (i.e. 60 month event) – 10th June 2016 (Cardno)

Full details of the methods and results of these sampling events can be found in WorleyParsons (2009, 2011a and 2011b) and Cardno (2016c). Cardno (2016c) should be referred to for details of sediment sampling methodology and locations for any future monitoring.

3.3.1 Results of First Five Years Monitoring

The sediment quality assessment found that particle size distribution was relatively uniform across sampling sites. In addition, metal concentrations in sediments recorded at 62 months post-scuttling (June 2016) were similar to those recorded one month post-scuttling (May 2011) indicating no significant long-term effects on sediment quality as a result of the vessel being scuttled (aluminium was an exception). All metals measured for which ANZECC/ARMCANZ (2000) ISQG are available (i.e. chromium, copper, nickel, lead and zinc) had concentrations that were well below the ISQG low trigger values and therefore were not considered to be a contamination risk to the marine environment.

Further detail on the results from the first five years of sediment quality monitoring are provided in **Appendix E**.

3.3.2 Recommendations for Future Monitoring

Monitoring of sediments from within the hull of the Ex-HMAS Adelaide is not necessary going forward. Any impacts on sediments within the hull would be highly localised and contained. Furthermore, restrictions on commercial diving implemented after the preparation of the original LTMMP mean that there would be significant costs associated with undertaking this collection.

As the ship corrodes over time there remains the potential for metals to enter the surrounding marine sediments creating environmental risk, however, this is expected to be a long-term process. Considering the results of the first five years of monitoring (Cardno 2016c), continued monitoring of sediment quality at five year intervals up until 15 years post-scuttling (i.e. at 10 and 15 years post scuttling) is recommended. If after this time no impacts on sediment quality are seen, monitoring at an even further reduced rate for rest of the operational life of the vessel should be adequate (subject to future review and consideration).

For all future sediment quality sampling, additional sampling sites located further away from the vessel (i.e. several kilometres) should be included to validate the results from the existing control sites (which may be located too close to the vessel).



Ad-hoc sampling should also be undertaken if the results of any structural monitoring should warrant it.

3.4 Environmental Monitoring – Bioaccumulation Study

Bioaccumulation surveys undertaken within the first five years post-scuttling were completed in accordance with the schedule in the original LTMMMP as follows:

- One week post-scuttling (baseline survey) – 19th April 2011 (WorleyParsons)
- Seven months post-scuttling – 24th November 2011 (Cardno Ecology Lab)
- 15 months post-scuttling – 21st September 2012 (Cardno Ecology Lab)

Full details of the sampling methodology and results of these sampling events can be found in WorleyParsons (2011), Cardno Ecology Lab (2012) and Cardno (2016a).

3.4.1 Results of First Five Years Monitoring

The results of the bioaccumulation study showed that there was no contamination of marine biota which could be attributed to zinc chromate paint over the 27 month post-scuttling monitoring period. However, issues with the loss of some samples limited the interpretation of results.

Further detail on the results from the first five years of bioaccumulation studies is provided in **Appendix E**.

3.4.2 Recommendations for Future Monitoring

Considering the insignificant results of the first five years of monitoring, no further active biomonitoring (i.e. deployment and testing of organisms) is required for the Ex-HMAS Adelaide to assess ecological risk from the vessel.

However, to fully meet the requirements of the original LTMMMP, which requires testing of organisms directly from the vessel, at least one round of *in-situ* sampling and testing of resident biota should be undertaken. Cardno (2016a) suggested that a large gastropod or solitary ascidian be used for *in-situ* monitoring.

It is recommended that a common species with high abundance on the vessel and on nearby rocky reefs (which would be used as control sites) be selected. This is required for ease of collection and appropriate sample replication. The chosen organism should be relatively easy to collect by divers and preferably occur in shallower areas of the Ex-HMAS Adelaide dive reef for diver safety purposes.

Following a review of Cardno (2016a) and Cardno (2016b), two potential species include the sessile solitary ascidian *Herdmania momus* (red throated ascidian) and the gastropod *Dicathais orbita* (cartrutt shell). *Herdmania momus* is common and abundant on intertidal and shallow subtidal



reefs along the NSW coastline (Edgar 1997) and was also found to be common on vertical surfaces of the Ex-HMAS Adelaide dive vessel in the most recent reef surveys. Alternatively, the gastropod *D. orbita* (cartrutt shell - a genus of predatory sea snail), was identified on the vessel and is also common in rocky reef areas of the NSW coastline (Beechey 2000, Edgar 1997).

Ascidian and/or gastropod samples should be collected from the bow, midship and stern of the vessel (as per the active biomonitoring studies) and at multiple reef control sites located at a range of distances from the vessel (at least two). Once collected, sub-sampling and analysis methods should follow those outlined in Cardno Ecology Lab (2012). Sample numbers (i.e. within site replication) should be suitable to allow for meaningful statistical comparisons to be made, however, due to the nature of the study, may be limited by natural availability at the time of sampling and restrictions associated with diving. A sample size of 10-15 individuals per site / location should be collected if possible.

A Section 37 NSW Fisheries Collection Permit for Scientific Research (Section 37 Permit - <https://www.dpi.nsw.gov.au/fishing/closures/section-37-permits>) will be required prior to sampling.

The *in-situ* sampling and testing should be undertaken at 10 years post scuttling. Following a review of results from the first *in-situ* bioaccumulation study, along with results of corrosion monitoring on the vessel, the need for further *in-situ* sampling should be reviewed. If significant differences between metal concentrations in biota tissue between samples from the vessel and from control sites, or ecologically significant levels of chromium or zinc in tissues are detected at 10 years, the frequency of *in-situ* biomonitoring should be reviewed and an increased monitoring frequency may be required. If corrosion levels on the vessel are at any time found to increase significantly, additional biomonitoring may also be warranted.



4 Revised LTMMP and Monitoring Schedule 2017-2026

In accordance with Condition 26 of Sea Dumping Permit SD2008/1062 the original Ex-HMAS Adelaide LTMMP (WorleyParsons 2011a) was reviewed and a Revised LTMMP (current Plan) has been developed. The Revised LTMMP takes into account the results of all monitoring undertaken to date and the recommendations made by Cardno (2016a) following first five years of post-scuttling monitoring. Key changes to monitoring along with a revised monitoring schedule for the next ten years (i.e. years six to 15 post-scuttling; 2017-2026) are provided below.

4.1 Key Changes to LTMMP Requirements

4.1.1 Monitoring of Structural Integrity Structural Integrity, Stability, Position and Sediment Movement

No changes to the original monitoring schedules have been proposed in the Revised LTMMP. Annual monitoring of structural integrity, stability, position and sediment movement, along with monitoring after large storm events should continue. There may also be a requirement for increased structural integrity monitoring if Management Criteria outlined in Section 2.3.1 are met.

4.1.2 Environmental Monitoring

4.1.2.1 Reef Communities

No further monitoring of reef communities for ecological purposes is required under the Revised LTMMP, however, reef monitoring could be undertaken by external agencies for scientific research purposes. Monitoring for threatened or protected species could be undertaken concurrently or by local diver operators.

Surveys for detection of marine pest species should continue (at a reduced frequency considering the lack of positive data obtained to date) to ensure that environmental risk is managed. At this stage a marine pest survey should occur at 10 years (2021) and at 15 years (2026) with additional surveys to be scheduled during this time period if any marine pest incursions are detected. A greater range of survey methods which are targeted at pest species which are likely to occur on the vessel (i.e. for which suitable habitat is available) should be used.

4.1.2.2 Sediment Quality

Due to the insignificant results from sediment quality monitoring obtained during the first five years post-scuttling, a reduced monitoring frequency of marine sediment quality going forward is considered suitable. Monitoring every five years until 15 years post-scuttling is recommended (i.e.



at 10 and 15 years; 2021 and 2026). Additional control sites located further north and south of the vessel should also be included.

4.1.2.3 Bioaccumulation Study

Considering the insignificant results of the first five years of post-scuttling monitoring, active biomonitoring is no longer considered necessary. However, the fully meet the requirements of the original LTMMP, *in-situ* biomonitoring (i.e. direct sampling and testing of biota from the vessel and nearby control reefs) should be undertaken at 10 years (2021). If any significant results are obtained at this stage then further testing should be considered and scheduled. The species to be used should be one which is common and abundant on the vessel and also on nearby rocky reefs, and should be easy to sample using divers (e.g. *H. momus* and/or *D. orbita*).

4.2 Revised Monitoring Schedule

A revised monitoring schedule from years six (2017) to 15 (2026) post-scuttling is provided in Table 4-1. After year 15 (2026) it is recommended that the results of monitoring from years six to 15 are reviewed and revisions once again be made to the Revised LTMMP as appropriate.

Table 4-1 Revised LTMMP monitoring schedule – years 6 - 15. (2017-2026)

| Parameter | 72 Months (6 years) Post- scuttling 2017 | 84 Months (7 years) Post- scuttling 2018 | 96 Months (8 years) Post- scuttling 2019 | 108 Months (9 years) Post- scuttling 2020 | 120 Months (10 years) Post- scuttling 2021 | 142 Months (11 years) Post- scuttling 2022 | 154 Months (12 years) Post- scuttling 2023 | 166 Months (13 years) Post- scuttling 2024 | 178 Months (14 years) Post- scuttling 2025 | 190 Months (15 years) Post- scuttling 2026 | Ongoing Monitoring (operational life) |
|---|---|--|---|--|--|--|--|--|--|--|---|
| Structural integrity, vessel stability, position and sediment movement | At 72 months and 1 week after major storm events. | At 84 months and 1 week after major storm events. | At 96 months and 1 week after major storm events. | At 108 months and 1 week after major storm events. | At 120 months and 1 week after major storm events. | At 142 months and 1 week after major storm events. | At 154 months and 1 week after major storm events. | At 166 months and 1 week after major storm events. | At 178 months and 1 week after major storm events. | At 190 months and 1 week after major storm events. | Review results and revise the LTMMP for ongoing monitoring requirement. |
| Vessel components and specified structural monitoring points | At 72 months or as determined plus post major storm and if alerted to issue by commercial dive operators. | At 84 months and 90 months plus post major storm and if alerted to issue by commercial dive operators. | At 96 months and 102 months plus post major storm and if alerted to issue by commercial dive operators. | At 108 months and 114 months plus post major storm and if alerted to issue by commercial dive operators. | At 120 months and 126 months plus post major storm and if alerted to issue by commercial dive operators. | At 142 months and 126 months plus post major storm and if alerted to issue by commercial dive operators. | At 154 months and 126 months plus post major storm and if alerted to issue by commercial dive operators. | At 166 months and 126 months plus post major storm and if alerted to issue by commercial dive operators. | At 178 months and 126 months plus post major storm and if alerted to issue by commercial dive operators. | At 190 months and 126 months plus post major storm and if alerted to issue by commercial dive operators. | Review results and revise the LTMMP for ongoing monitoring requirement. |
| Reef Community Study | Not required. | Not required. | Not required. | Not required. | Marine pest survey to be undertaken at 120 months. Increased survey frequency between 10 and 15 years | Not required at this stage. | Not required at this stage. | Not required at this stage. | Not required at this stage. | Marine pest survey to be undertaken at 190 months. | Review results and revise the LTMMP for ongoing monitoring requirement. |



| Parameter | 72 Months (6 years) Post- scuttling 2017 | 84 Months (7 years) Post- scuttling 2018 | 96 Months (8 years) Post- scuttling 2019 | 108 Months (9 years) Post- scuttling 2020 | 120 Months (10 years) Post- scuttling 2021 | 142 Months (11 years) Post- scuttling 2022 | 154 Months (12 years) Post- scuttling 2023 | 166 Months (13 years) Post- scuttling 2024 | 178 Months (14 years) Post- scuttling 2025 | 190 Months (15 years) Post- scuttling 2026 | Ongoing Monitoring (operational life) |
|-------------------------------|--|--|--|--|---|--|--|--|--|--|--|
| | | | | | if any pest incursions are detected. | | | | | | |
| Bioaccumulation Study | Not required. | Not required. | Not required. | Not required. | In-situ bioaccumulation study to be undertaken at 120 months. Revised frequency of future sampling will be required if results are significant. | Not required at this stage. | Not required at this stage. | Not required at this stage. | Not required at this stage. | Not required at this stage. | Review results and revise the LTMMMP for ongoing monitoring requirement. |
| Sediment Quality Study | Not required unless results of structural monitoring warrants. | Not required unless results of structural monitoring warrants. | Not required unless results of structural monitoring warrants. | Not required unless results of structural monitoring warrants. | Sampling at 120 months and if results of structural monitoring warrants. | Not required unless results of structural monitoring warrants. | Not required unless results of structural monitoring warrants. | Not required unless results of structural monitoring warrants. | Not required unless results of structural monitoring warrants. | Sampling at 190 months and if results of structural monitoring warrants. | Review results and revise the LTMMMP for ongoing monitoring requirement. |



5 Marker Buoys, Mooring Buoys and Navigation Aids

Following the scuttling of the Ex-HMAS Adelaide two marker buoys, six mooring buoys and associated navigation aids were installed in the vicinity of the vessel for use by dive vessels and to ensure the navigational safety of other recreational and commercial vessels which may be operating in these coastal waters. Figure 5-1 and Figure 5-2 show the location of these as originally installed. A summary of the various moorings / markers and required maintenance regimes for each is described in the following sections.

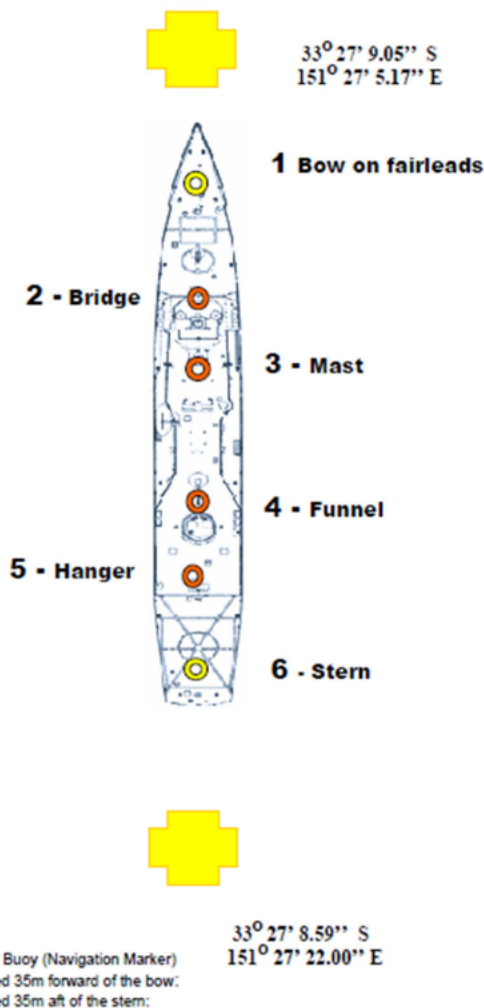


Figure 5-1 Location of all originally installed moorings and special markers around the Ex-HMAS Adelaide dive wreck. Note that the special marker buoys are now ~ 100 m off the bow and stern rather than the 35 m indicated here.

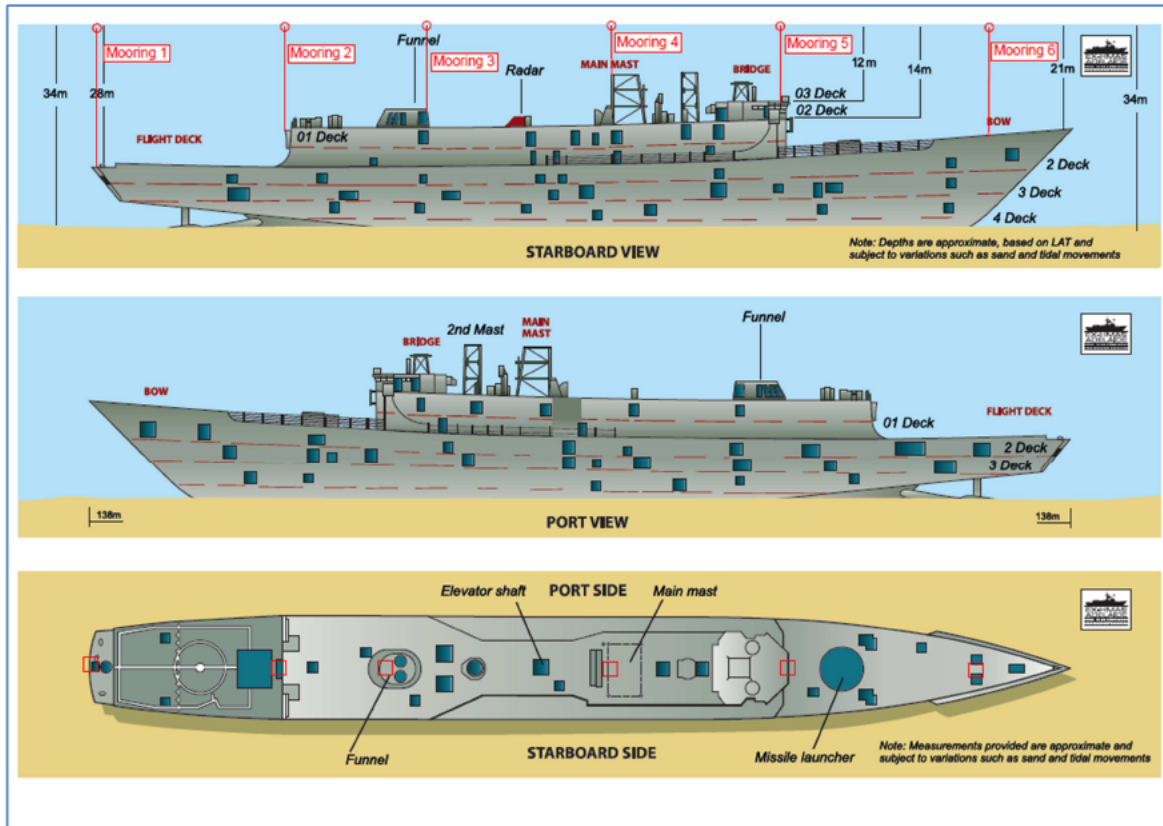


Figure 5-2 Mooring buoy numbering and locations on the Ex-HMAS Adelaide dive wreck.

5.1 Dive Moorings and Special Markers

5.1.1 Dive Moorings

There are six mooring sites on the Ex-HMAS Adelaide Reserve and one in Terrigal Haven that are authorised under commercial mooring Licence CL6353 (issued by Roads and Maritime Services). The design specifications for these moorings is shown in Figure 5-3.

Currently there are only four moorings physically available for use on the Reserve and one in Terrigal Haven. These moorings have adequately met diver demand to date (without considering visitor numbers generated by unauthorised access). Figure 5-1 and Figure 5-2 show the location of these moorings. These moorings are attached directly to the ship.

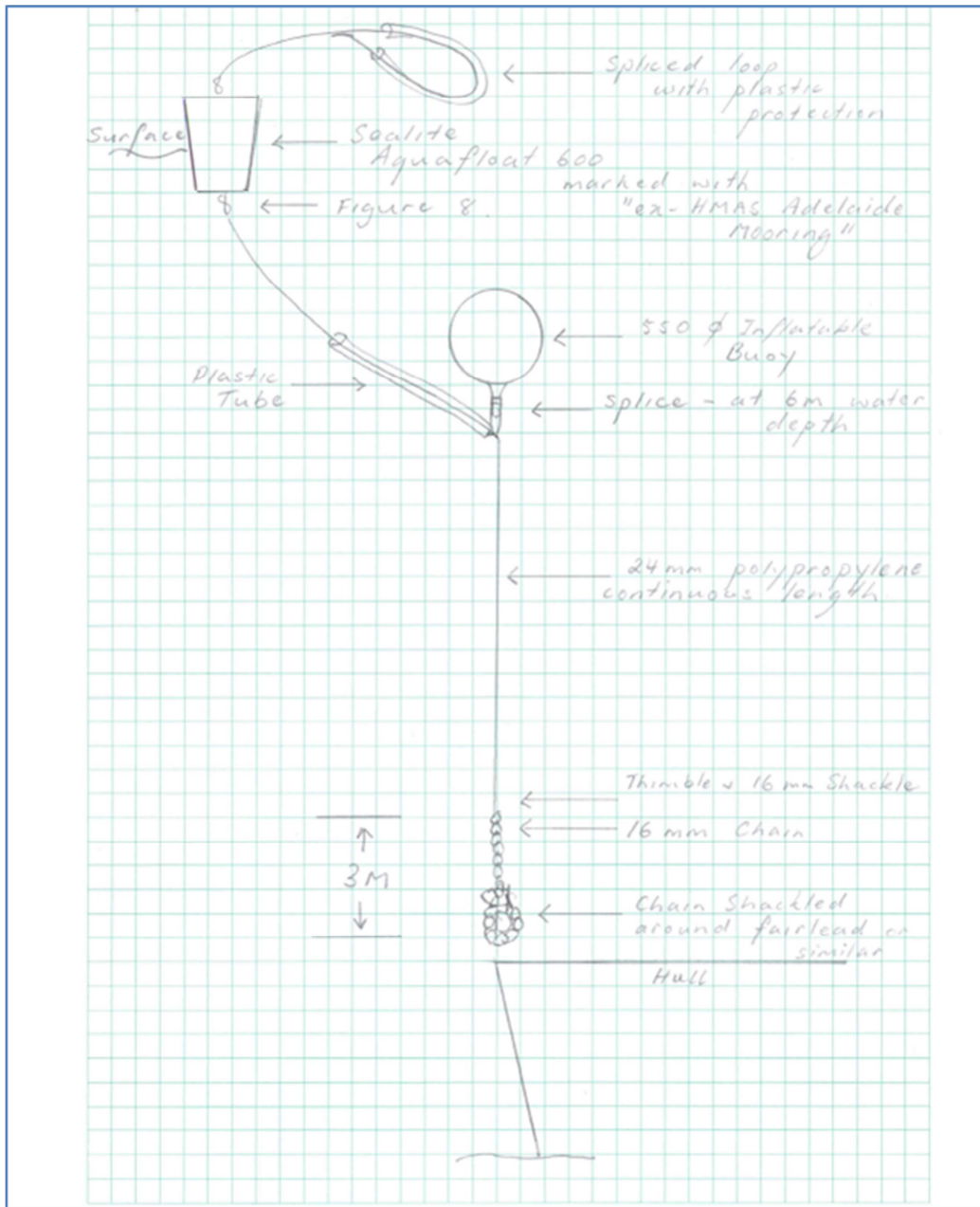


Figure 5-3 Design specifications for the mooring buoys on the Ex-HMAS Adelaide.

The commercial mooring Licence CL6353 must be renewed annually. Renewal requires a phone call to RMS and there is no charge for the Licence. If the Licence is not renewed by the due date DoI Crown Lands and Water is not lawfully occupying the mooring space. The mooring Licence is granted with the expectation that the RMS Commercial Mooring Licence Standard Conditions are adhered to. Failure to comply with any of the Conditions may lead to cancellation of the Licence. The RMS Commercial Mooring Licence Standard Conditions are provided in **Appendix F**.



5.1.2 Special Marker Buoys

There are two special marker buoys on the Reserve which mark the bow and stern of the sunken vessel. Special marker buoys are located approximately 100m forward off the bow and 100m aft of the stern of the Ex-HMAS Adelaide dive wreck. These are key for the navigational safety of Reserve users and other passing vessels. The GPS locations of the special marker buoys as installed are provided in Table 5-1.

Table 5-1 GPS locations of the special marker buoys (as installed location).

| Special Marker | Latitude (S) | Longitude (E) |
|----------------|--------------|----------------|
| Bow Marker | 33°27'9.05"S | 151°27'5.17"E |
| Stern Marker | 33°27'8.59"S | 151°27'22.00"E |

5.1.3 Terrigal Haven Mooring Buoy

The Terrigal Haven mooring buoy is used by diving vessels when transferring divers and equipment to and from the shore. The approximate location of this buoy is shown in Figure 5-4.

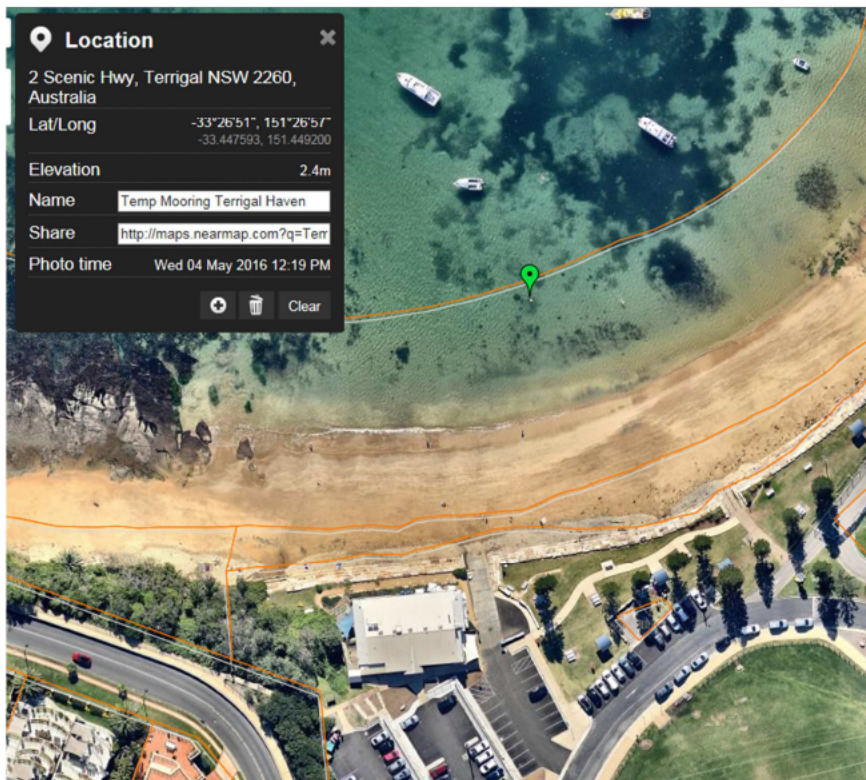


Figure 5-4 Location of the mooring buoy in Terrigal Haven.



5.2 Maintenance

Maintenance of marker and mooring buoys should be undertaken annually and also within one week of any major storm event.

5.2.1 Special Marker Buoy Maintenance

The maintenance regime for the special marker buoys is to be undertaken annually and involves the following:

- Lift both marker buoys and ground tackle.
- Clean and inspect.
- Check functionality of the flashing lights and replace all associated lights / batteries.
- Replace all fixtures and fittings annually.
- All shackles and fixtures previously welded shut are to be re-welded annually.
- Reinstall marks in the location they were retrieved from.
- Provide a report on the condition of the equipment and all works undertaken including a photographic record of before and after works.

5.2.2 Dive Mooring Buoy Maintenance

The maintenance regime for the dive moorings buoys is to be undertaken annually and involves the following:

- Divers will need to inspect mooring attachments to the Ex-HMAS Adelaide decks.
- Moorings are to be retrieved and cleaned (i.e. remove barnacles and other marine growth).
- Replace all fixtures or fittings annually.
- Any shackles welded shut are to be re-welded annually.
- Reinstall the mooring on location.
- Provide a report on the condition of the equipment and works undertaken including a photographic record of before and after works.

5.2.3 Terrigal Haven Mooring Buoy Maintenance

The maintenance of the commercial mooring buoy in Terrigal Haven is to be undertaken annually and involves the following:



- Lift the marker buoy and ground tackle.
- Mooring to be retrieved and cleaned (i.e. remove barnacles and other marine growth).
- Replace all fixtures and fittings annually.
- Reinstall on location.
- Provide a report on the condition of the equipment and works undertaken including a photographic record of before and after works.



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WorleyParsons Group

Department of Industry Crown Lands and Water
Ex-HMAS Adelaide Artificial Dive Reef
Revised Long Term Monitoring and Management
Plan - 2017-2026



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WorleyParsons Group

Department of Industry Crown Lands and Water
Ex-HMAS Adelaide Artificial Dive Reef
Revised Long Term Monitoring and Management
Plan - 2017-2026



**Department
of Industry**

Appendix A Sea Dumping Permit



ENVIRONMENT PROTECTION (SEA DUMPING) ACT 1981

SEA DUMPING PERMIT No. SD2008/1062

for

NEW SOUTH WALES LAND AND PROPERTY MANAGEMENT AUTHORITY

I, VICKI JANE MIDDLETON, a delegate of the Minister for Environment Protection, Heritage and the Arts, acting under Section 19 of the *Environment Protection (Sea Dumping) Act 1981*, hereby grant a sea dumping permit to the New South Wales Land and Property Management Authority, PO Box 2185, Dangar, NSW, 2309, for an artificial reef placement of the vessel "Ex- HMAS *Adelaide*" off Avoca Beach, New South Wales, commencing on the date of signature of this permit and extending for a period of fifty years, subject to conditions which are specified in Appendix 1.

DATE.....*22nd*.....day of.....*March*.....2010

Vicki Middleton

VICKI MIDDLETON
Delegate of the Minister

This permit comprises six (6) pages, including Appendix 1.



Appendix 1

**CONDITIONS FOR ARTIFICIAL REEF PLACEMENT OF THE VESSEL
“EX-HMAS ADELAIDE”, OFF AVOCA BEACH, NEW SOUTH WALES.**

Definitions

In this permit:

- “the Act” means the *Environment Protection (Sea Dumping) Act 1981*;
- “the Application” means the Application for a permit under the *Environment Protection (Sea Dumping) Act 1981* submitted by the NSW Lands and Property Management Authority, received by the Department on 16 December 2008;
- “the Department” means the Department of the Environment, Water, Heritage and the Arts,
Ports and Marine Section,
GPO Box 787, Canberra ACT 2601.
Telephone – 02 6274 1111
Facsimile – 02 6274 1620
Email – portsandmarine@environment.gov.au
or successor entities;
- “Ex- HMAS *Adelaide*” means the decommissioned FFG-7 Class Guided Missile Frigate *Ex-HMAS Adelaide*;
- “environmental incident” any event which has the potential to, or does impact, on the environment;
- “environmental risk” any risk, additional to those risks previously identified in the Application, which has the potential to, or does impact, on the environment;
- “ final exclusion zone” means the area within a radius of 500 metres of the *Ex-HMAS Adelaide* following the successful scuttling of the vessel and prior to the vessel being opened to the public as specified in the scuttling Plan;
- “IALA” means the International Association of Lighthouse Authorities;
- “initial exclusion zone” means the area within a radius of 1000 metres of the *Ex-HMAS Adelaide* during placement;
- “LAT” means lowest astronomical tide;
- “LTMMP” means the Long Term Monitoring and Management Plan (Revision D) received by the Department on 17 March 2010;
- “Minister” means the Australian Government Minister who administers the *Environment Protection (Sea Dumping) Act 1981*;
- “monitoring zone” means within 2 nm radius of the *Ex-HMAS Adelaide*;
- “placement” includes all activities associated with the placement permitted under this permit, including, but not limited to the placement of the *Ex-HMAS Adelaide*;



- “Scuttling Plan” means the Scuttling Plan (Revision 3) for the *Ex-HMAS Adelaide* received by the Department on 17 March 2010;
- “LPMA” means the New South Wales Land and Property Management Authority, PO Box 2185, Dangar, NSW, 2309; and
- “unauthorised people, boats” means any people and boats not authorised by NSW Maritime to be within the initial exclusion zone.

1. Except so far as the contrary intention appears, terms used in these conditions to this permit have the same meaning as such terms in the Act.

Material to be Placed

2. LPMA must place the *Ex-HMAS Adelaide* in the same preparation condition as per the ship inspection on 25 February 2010, with the addition of the following clean up preparations:
 - (a) all temporary barricades, planks, wooden or steel blanking and other safety fittings are removed;
 - (b) all ladders not permanently fixed into place and intended to remain in that position post scuttling are to be either removed or lowered to the deck;
 - (c) the mast/structure must be modified to give a minimum over water clearance of 6 m at LAT immediately after scuttling; and
 - (d) the ship must be cleaned of all other loose, unattached material and debris.

LPMA must notify the Department in writing that the above preparations have been completed prior to the scuttling of the *Ex-HMAS Adelaide*.

3. LPMA must ensure no material additional to the *Ex-HMAS Adelaide*, in the condition described under Condition 2, is to be taken to sea and disposed of in association with this placement.

Location of Placement Site

4. LPMA must place the *Ex-HMAS Adelaide* on the designated scuttling datum of 151° 27.38 East, 33° 27.91 South. (MGA 94, Easting 356,551.686, Northing 6,296,076.969)

Conditions Applying Prior to Placement

5. LPMA must ensure the scuttling of the *Ex-HMAS Adelaide* is undertaken in accordance with the Scuttling Plan.
6. LPMA must advise the Department the planned date and time of commencement of the tow and scuttling process no less than 24 hours in advance of the tow commencing.
7. LPMA must advise the Department and other relevant authorities as soon as practicable of any delay, postponement or cancellation of the final tow and scuttling, whether due to actual or forecast weather or sea conditions or any other contingency or incident.



8. LPMA must ensure the pyrotechnic display is conducted as per the scuttling plan. All 28 pyrotechnic units must be removed as part of the post scuttling activities.
9. The person engaged to manage the deployment and detonation of explosives (including pyrotechnics) used in the placement of the Ex-HMAS Adelaide, must hold a current shotfirers permit.
10. LPMA must undertake visual reconnaissance of the placement area using binoculars from the shot firing vessel and by a spotter aircraft before and during the placement phase to ensure the exclusion zone of 1000 metres is clear of all unauthorised people or boats. The initial exclusion zone must be maintained until such time as the *Ex-HMAS Adelaide* is checked for non-detonated explosives and declared safe. Any unauthorised people or boats not essential to the scuttling straying into the exclusion zone are to be requested to clear and/or be escorted to the exclusion zone boundary. Scuttling charges are not to be detonated if any unauthorised people or boats are within the exclusion zone.
11. LPMA must ensure a spotter aircraft is in the air above the placement site at least 30 minutes prior to and during the placement phase to ensure that no cetacean, seal, Grey Nurse shark or great white shark are within a 2 nautical mile radius of the *Ex-HMAS Adelaide*. Detonation of the scuttling charges is to be suspended should any cetacean, seal, Grey Nurse Shark or Great White Shark be detected within a 2 nautical mile radius of the *Ex-HMAS Adelaide*, and must remain suspended until such time as the cetacean, seal or great white shark has been seen to leave the monitoring zone or until 30 minutes after the last sighting of the cetacean, seal, Grey Nurse Shark or Great White Shark within the monitoring zone. The spotter aircraft must maintain audio contact with the shot firing vessel monitoring the scuttling to ensure that the above procedures are followed.
12. LPMA must ensure no persons, vessel or aircraft pursue, herd or harass any cetacean, seal, Grey Nurse Shark or Great White Shark prior to or during the placement phase.

Conditions Applying Following the Placement

14. LPMA must ensure that the *Ex-HMAS Adelaide* sinks and settles on the seabed, and that the placement occurs centrally within the scuttling zone specified in Condition 4.
15. LPMA must undertake visual footage of the scuttling, including video reconnaissance of the placement location, and sea surface, immediately after placement, to detect the presence, or confirm the absence, of any visible pollution or debris, such as oil slicks or floating material. Any material left floating after the placement operation must be retrieved prior to access by recreational divers.
16. LPMA must ensure that after the *Ex-HMAS Adelaide* has been placed, a diving team checks all explosives have been detonated correctly. In the event that an explosive fails to detonate, it is to be made safe prior to the initial exclusion zone being removed.
17. LPMA must ensure that the highest point of the *Ex-HMAS Adelaide* is no less than 6.0 m below sea level at LAT immediately following placement. If this was not achieved during placement, then the mast and/or other structure must be lowered to the required height prior within 14 days.
18. LPMA must ensure after the placement, and prior to the final exclusion zone being removed, that a diving team inspects the *Ex-HMAS Adelaide*, and undertakes all repair work required to ensure that the *Ex-HMAS Adelaide* is safe for recreational divers.



19. LPMA must ensure within 5 days of scuttling, the *Ex-HMAS Adelaide* is to be marked as a navigation hazard by a marker that conforms to the IALA maritime buoyage system. The marker must be effective during all visibility conditions.
20. LPMA must provide a report to the Department within 5 days of placement which includes:
 - (a) date and time of placement;
 - (b) the position of the *Ex-HMAS Adelaide* (confirmation of the placement site to two decimal places of a minute, plus horizontal datum, in latitude and longitude format);
 - (c) the estimated depth of water over the *Ex-HMAS Adelaide* as measured at LAT, and the date and time of the observation;
 - (d) video footage (as specified in Condition 15) including a discussion on the scuttling detailing whether any problems arose during the scuttling, how they were rectified and if any clean up actions were undertaken;
 - (e) verification from an independent observer, agreed by the Department, of the highest point of the vessel (as specified in Condition 17) prior to the exclusion zone being removed;
 - (f) details of the inspection dive (as specified in Condition 18) including whether any items were removed or hazards rectified;
 - (g) confirming the removal of all pyrotechnics equipment from the vessel (as specified in condition 9);
 - (h) the position and description of the cardinal mark and any other visual indicators (e.g. buoys and/or lights) marking the wreck;
 - (i) evidence of notification to the RAN Hydrographic Office and NSW Maritime as specified in Condition 21;
21. LPMA must provide the details specified in Condition 20 (a), (b), (c) and (h) to the Australian Hydrographic Office and NSW Maritime within 5 days of placement.

Environmental Risk and Incidents

22. If, at any time during the course of the placement activities, an environmental incident occurs or environmental risk is identified, or the placement does not occur in accordance with the Scuttling Plan as specified in Condition 5, all measures must be taken immediately by LPMA to mitigate the risk or the impact. The Department must be notified in writing within 24 hours of the occurrence or identification of an environmental incident or risk, and the measures taken, the success or otherwise of those measures in addressing the incident or risk, and any additional measures proposed to be taken or advised by the Department.

Monitoring and Reporting

23. LPMA must implement the Long Term Management and Monitoring Plan (LTMMP) for the *Ex-HMAS Adelaide* following the scuttling of the vessel. The results of the LTMMP must be published on the *Ex-HMAS Adelaide*'s website (www.hmasadelaide.nsw.gov.au) within 1 month of the completion of sampling for the life of the LTMMP.



24. LPMA may submit for the Minister's approval a revised version of the LTMMP specified under Condition 23. If the Minister approves such a revised LTMMP, that LTMMP must be implemented in place of the LTMMP as originally approved.
25. If the Minister believes that it is necessary or desirable for the better protection of the environment to do so, the Minister may request LPMA to make specified revisions to the LTMMP and submit the revised LTMMP for the Minister's approval. If the Minister approves a revised LTMMP pursuant to this condition, the LPMA must implement that LTMMP instead of the LTMMP as originally approved.
26. A review of the LTMMP must be undertaken within five years of scuttling with the revised version submitted to the Minister for approval. A revised LTMMP must not be implemented until it is approved by the Minister. If the Minister approves a revised LTMMP pursuant to this condition, the LPMA must implement that LTMMP instead of the LTMMP as originally approved.

Compliance of all Parties engaged in dumping activities

27. LPMA must ensure that all persons engaged in the placement activities under this permit, including the owner(s) and person(s) in charge of the vessel, comply with this permit and the requirements of the Act.

Access for Observers

28. LPMA must allow at least two Australian Government nominees access to witness, inspect, examine or audit any part of the operations, including any placement or monitoring activity, the vessel or any other equipment, or any documented records, and are to be provided with any necessary assistance in carrying out their duties.

Auditing

29. After placement of the *Ex-HMAS Adelaide*, if the Department believes that it is necessary or desirable to undertake an audit of the permit conditions, LPMA must comply with any such request and must provide any necessary assistance to the Department's representatives in carrying out their duties.



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Appendix B Register of Barred Off Items



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Ex HMAS Adelaide
Register of Barred OFF Items

| Item # | Description | Location | Deck | Compartment # | Location Frame | Photo # |
|--------|---|-------------------------------|---------|---------------|----------------------|---------|
| 1 | Escape Hatch | | 02 Deck | Upper Deck | Frame 144 Starboard | 1 |
| 2 | Escape Hatch | | 02 Deck | Upper Deck | Frame 177 Starboard | 2 |
| 3 | Port Hole | Missile Launcher Control Room | 01 Deck | 01-100-2-C | Frame 100 Port | 3 |
| 4 | Ceiling | Captains Toilet & Shower | 01 Deck | 01-108-2-L | Frame 109 | 4 |
| 5 | Trunk Opening | Fan Room | 01 Deck | 01-180-1-Q | Frame 185 Starboard | 5 |
| 6 | Trunk Opening | Passageway | 01 Deck | 01-212-0-L | Frame 213 Starboard | 6 |
| 7 | Escape Hatch | Plenum Chamber | 01 Deck | 01-250-1-Q | Frame 251 | 7 |
| 8 | Escape Hatch | Plenum Chamber | 01 Deck | 01-250-2-Q | Frame 251 | 8 |
| 9 | Trunk Opening | Sonobuoy Room #2 | 01 Deck | 01-278-1-A | Frame 280 Inboard | 9 |
| 10 | Trunk Opening | Helicopter Hanger #1 Catwalk | 01 Deck | 1-278-1-Q | Frame 292 | 10 |
| 11 | Trunk Openings | Helicopter Hanger #1 Catwalk | 01 Deck | 1-278-1-Q | Frame 309 | 11 |
| 12 | Trunk Openings | Fan Room | 1 Deck | 1-100-1-Q | Frame 101 | 12 |
| 13 | Trunk Opening | Fan Room | 1 Deck | 1-152-1-Q | Frame 154 Outboard | 13 |
| 14 | Trunk Opening | Fan Room | 1 Deck | 1-152-1-Q | Frame 162 Inboard | 14 |
| 15 | Trunk Opening | Wardroom | 1 Deck | 1-180-0-L | Frame 187 | 15 |
| 16 | Opening in Deck | Wardroom | 1 Deck | 1-180-0-L | Frame 189 | 16 |
| 17 | Escape Hatch | Passageway | 1 Deck | 1-108-2-L | Frame 210 Port | 17 |
| 18 | Trunk Opening | Passageway | 1 Deck | 1-212-0-L | Frame 213 Starboard | 18 |
| 19 | Trunk Opening | Passageway | 1 Deck | 1-212-0-L | Frame 213 Port | 19 |
| 20 | Trunk Opening | Passageway | 1 Deck | 1-212-0-L | Frame 247 | 20 |
| 22 | Trunk Opening | Torpedo Magazine | 1 Deck | 1-220-0-M | Frame 247 | 21 |
| 21 | Escape Hatch | Passageway | 1 Deck | 1-212-0-L | Frame 326 | 22 |
| 23 | Escape Hatch | Passageway | 1 Deck | 1-250-3-L | Frame 251 Starboard | 23 |
| 24 | Escape Hatch | Passageway | 1 Deck | 1-250-4-L | Frame 251 Port | 24 |
| 25 | Trunk Opening | Helicopter Workshop | 1 Deck | 1-253-2-Q | Frame 264 Inboard | 25 |
| 26 | Trunk Opening | 400Hz Freq Changer Room | 1 Deck | 1-258-1-Q | Frame 262 | 26 |
| 27 | Trunk Opening | Helicopter Hangar #1 | 1 Deck | 1-278-1-Q | Frame 293 Inboard | 27 |
| 28 | Trunk Opening | Helicopter Hangar #1 | 1 Deck | 1-278-1-Q | Frame 312 Inboard | 28 |
| 29 | Trunk Opening | Helicopter Hangar #1 | 1 Deck | 1-278-1-Q | Frame 315 Inboard | 29 |
| 30 | Trunk Opening | Helicopter Hangar #2 | 1 Deck | 1-278-2-Q | Frame 312 Inboard | 30 |
| 31 | Trunk Opening | Helicopter Hangar #2 | 1 Deck | 1-278-2-Q | Frame 315 Inboard | 31 |
| 32 | Trunk Opening | Passageway | 2 Deck | 2-64-0-L | Frame 100 Port | 32 |
| 33 | Trunk Opening | IC & Gyro Room | 2 Deck | 2-79-0-C | Frame 98 Starboard | 33 |
| 34 | Trunk Opening | CPO Dressing Space | 2 Deck | 2-152-0-L | Frame 154 | 34 |
| 35 | Trunk Opening | CPO Berthing Space #3 | 2 Deck | 2-171-3-L | Frame 178 | 35 |
| 36 | Exhaust Opening | Galley | 2 Deck | 2-180-0-Q | Frame 181 Starboard | 36 |
| 37 | Trunk Opening | Galley | 2 Deck | 2-180-0-Q | Frame 190 | 37 |
| 38 | Trunk Opening | Galley | 2 Deck | 2-180-0-Q | Frame 202 | 38 |
| 39 | Trunk Opening | CPO Dining Space | 2 Deck | 2-180-2-L | Frame 197 | 39 |
| 40 | Dishwasher both ends | Scullery | 2 Deck | 2-203-2-Q | Frame 210 | 40 |
| 41 | Trunk Opening | Jr Sailors Dining Area | 2 Deck | 2-212-0-L | Frame 213 Starboard | 41 |
| 42 | Trunk Opening | Trash Disposal Room | 2 Deck | 2-237-1-Q | Frame 244 Inboard #1 | 42 |
| 43 | Trunk Opening | Trash Disposal Room | 2 Deck | 2-237-1-Q | Frame 244 Inboard #2 | 43 |
| 44 | Opening | Passageway | 2 Deck | 2-292-0-L | Frame 312 Port | 44 |
| 45 | Trunk Opening | Engineers Workshop | 2 Deck | 2-292-2-Q | Frame 313 Inboard | 45 |
| 46 | Space Around Electrical Equipment Cabinet | Electrical Shop | 2 Deck | 2-316-2-Q | Frame 325 | 46 & 47 |



Ex HMAS Adelaide
 Register of Barred OFF Items

| Item # | Description | Location | Deck | Compartment # | Location Frame | Photo # |
|--------|---|------------------------------------|--------|---------------|---|-------------|
| 47 | Manhole | Void | 3 Deck | 3-64-1-V | Frame 76 Starboard | 48 |
| 48 | Manhole | Void | 3 Deck | 3-64-2-V | Frame 76 Port | 49 |
| 49 | Opening | Magazine Service Room | 4 Deck | 4-64-0-M | Frame 77 | 50 |
| 50 | Opening Between CHT Tank and Bulkhead | Sewage Collecting Holding & Boiler | 4 Deck | 4-160-0-Q | Frame 179 | 51 & 52 |
| 51 | Space Foreward of Engine between Misc Equipment | AMR1 | 4 Deck | 5-180-0-E | Frame 182 | 53 |
| 52 | Space under Engine and Generator | AMR1 | 4 Deck | 5-180-0-E | Frame 182 to Frame 203 | 54 |
| 53 | Space under Escape Trunk | AMR1 | 4 Deck | 5-180-0-E | Frame 203 to Frame 208 Port | 55 |
| 54 | Deck level around Engine and Generator | AMR2 | 3 Deck | 5-212-0-E | Frame 225 to Frame 250 Starboard | 56 & 57 |
| 55 | Deck level around Engine and Generator | AMR2 | 3 Deck | 5-212-0-E | Frame 225 to Frame 250 Port | 58 & 59 |
| 56 | Space below Engine and Generator | AMR2 | 5 Deck | 5-212-0-E | Frame 225 to Frame 250 Starboard | 60 & 61 |
| 57 | Space below Engine and Generator | AMR2 | 5 Deck | 5-212-0-E | Frame 225 to Frame 250 Port | 62 & 63 |
| 58 | Space around Misc Machinery | AMR2 | 5 Deck | 5-212-0-E | Frame 238 to Frame 250 Centreline | 64, 65 & 66 |
| 59 | Trunk Opening | AMR2 | 3 Deck | 5-212-0-E | Frame 244 Port - Deckhead | 67 |
| 60 | Space Between Gas Turbine Intake and Bulkhead | Engine Room | 2 Deck | 5-250-0-E | Frame 250 Stbd | 68 |
| 61 | Space Between Gas Turbine Intake and Bulkhead | Engine Room | 2 Deck | 5-250-0-E | Frame 250 Port | 69 |
| 62 | Space Between Gas Turbine Intake and Gas Turbine Module | Engine Room | 2 Deck | 5-250-0-E | Frames 251 - 257 Stbd | 70 |
| 63 | Space Between Gas Turbine Intake and Gas Turbine Module | Engine Room | 2 Deck | 5-250-0-E | Frames 251 - 257 Port | 71 |
| 64 | Space Between Engine Module and Deck | Engine Room | 2 Deck | 5-250-0-E | Frames 254 - 275 Starboard | 72 |
| 65 | Space Between Engine Module and Deck | Engine Room | 2 Deck | 5-250-0-E | Frames 254 - 275 Port | 73 & 74 |
| 66 | Space Between Gas Turbine Uptake and Gas Turbine Module | Engine Room | 2 Deck | 5-250-0-E | Frames 271 - 277 Stbd | 75 |
| 67 | Space Between Gas Turbine Uptake and Gas Turbine Module | Engine Room | 2 Deck | 5-250-0-E | Frames 271 - 277 Port | 76 |
| 68 | Space under Engine Module | Engine Room | 4 Deck | 5-250-0-E | Frame 260, Frame 264, Frame 265 Starboard | 77, 78 & 79 |
| 69 | Space under Engine Module | Engine Room | 4 Deck | 5-250-0-E | Frame 260, Frame 264, Frame 265 Port | 80, 81 & 82 |
| 70 | Space Between Engine Module and Gearbox (A Frame) | Engine Room | 4 Deck | 5-250-0-E | Frame 278 Starboard | 83 |
| 71 | Space Between Engine Module and Gearbox (A Frame) | Engine Room | 4 Deck | 5-250-0-E | Frame 278 Port | 84 |
| 72 | Space Beside Gearbox lower area | Engine Room | 4 Deck | 5-250-0-E | Frame 282 to Frame 288 Starboard | 85 |
| 73 | Space Beside Gearbox lower area | Engine Room | 4 Deck | 5-250-0-E | Frame 282 to Frame 288 Port | 86 |
| 74 | Space below Gearbox | Engine Room | 4 Deck | 5-250-0-E | Frame 288 Starboard | 87 |
| 75 | Space below Gearbox | Engine Room | 4 Deck | 5-250-0-E | Frame 288 Port | 88 |
| 76 | Space under Service Tanks | AMR3 | 3 Deck | 5-292-0-E | Frame 292 to Frame 298 Port | 89 |



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Appendix C Register of Rapid Deterioration Items



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Management Plan - 2017-2026

Ex HMAS Adelaide
Register of Rapid Deterioration Items

| Item # | Description | Location | Deck | Compartment # | Location Frame | Photo # |
|--------|---------------------------------------|---------------------------------------|---------|---------------|--|---------|
| 1 | Captains Chair | Bridge | 02 Deck | 02-100-0-C | Frame 106 Starboard | 1 |
| 2 | Chart Table & Chart | Chart Room | 02 Deck | 02-116-2-C | Frame 122 Port | 2 |
| 3 | Cabinet | Mk 92 Equipment Room | 02 Deck | 02-116-1-Q | Frame 120 Starboard | 3 |
| 4 | Cupboards & Honeycomb Bulkhead | Captains Pantry | 01 Deck | 01-108-4-Q | Frame 108 Port | 4 |
| 5 | Cupboards | Operations Room | 01 Deck | 01-113-0-C | Frame 122 Starboard | 5 |
| 6 | Lamp with Extention Arm | Communications Centre | 01 Deck | 01-156-0-C | Frame 162 | 6 |
| 7 | Desks & Cupboards | Communications Centre | 01 Deck | 01-156-0-C | Frame 162 | 7 |
| 8 | Desks & Cupboards | Communications Centre | 01 Deck | 01-156-0-C | Frame 168 | 8 |
| 9 | Desks & Cupboards | Communications Centre | 01 Deck | 01-156-0-C | Frame 178 Centreline | 9 |
| 10 | Cabinet | ECM Room | 01 Deck | 01-180-0-Q | Frame 190 | 10 |
| 11 | Cabinet | ECM Room | 01 Deck | 01-180-0-Q | Frame 193 | 11 |
| 12 | Cabinets | Officers Staterooms XO/MEO | 01 Deck | 01-215-2-L | Frame 223 | 12 |
| 13 | Honeycomb Bulkhead | Officers WC & Shower | 01 Deck | 01-220-2-L | Frame 220 Port | 13 |
| 14 | Cabinet & Shelf | 76mm Ammo Magazine Local Control Room | 01 Deck | 01-238-2-C | Frame 238 Port | 14 |
| 15 | Desk | Helicopter Office | 01 Deck | 01-285-0-Q | Frame 292 Centreline | 15 |
| 16 | Lamp with Extention Arm | Radar, IFF, CIC Equipment Room | 1 Deck | 1-100-0-C | Frame 112 Port | 16 |
| 17 | Desk & Cabinet | Radar, IFF, CIC Equipment Room | 1 Deck | 1-100-0-C | Frame 112 Port | 17 |
| 18 | Cabinet | Radar, IFF, CIC Equipment Room | 1 Deck | 1-100-0-C | Frame 125 Port | 18 |
| 19 | Bunks, Honeycomb Bulkhead & Cupboards | Officers Staterooms 3 | 1 Deck | 1-140-0-L | Frame 140 Centreline | 19 |
| 20 | Bunks, Honeycomb Bulkhead & Cupboards | Officers Staterooms 2 | 1 Deck | 1-140-2-L | Frame 140 Port | 20 |
| 21 | Honeycomb Bulkhead | Officers Staterooms 2 | 1 Deck | 1-140-2-L | Frame 148 Port | 21 |
| 22 | Honeycomb Bulkhead | Officers WC & Shower | 1 Deck | 1-151-1-L | Frame 151 Starboard | 22 |
| 23 | Bunks, Honeycomb Bulkhead & Cupboards | Officers Staterooms 4 | 1 Deck | 1-156-2-L | Frame 156 Port | 23 |
| 24 | Honeycomb Bulkhead & Cupboards | Officers Staterooms 5 | 1 Deck | 1-164-1-L | Frame 164 Starboard | 24 |
| 25 | Bunks, Honeycomb Bulkhead & Cupboards | Officers Staterooms 6 | 1 Deck | 1-164-2-L | Frame 164 Port | 25 |
| 26 | Bunks, Honeycomb Bulkhead & Cupboards | Officers Staterooms 8 | 1 Deck | 1-172-2-L | Frame 172 Port | 26 |
| 27 | Trunking | Passageway | 1 Deck | 1-108-2-L | Frame 180 Port | 27 |
| 28 | Honeycomb Bulkhead | Wardroom | 1 Deck | 1-180-0-L | Frame 188 to Frame 202 Port | 28 |
| 29 | Honeycomb Bulkhead | Wardroom Pantry | 1 Deck | 1-198-1-L | Frame 198 Starboard | 29 |
| 30 | Trunking | Passageway | 1 Deck | 1-212-0-L | Frame 246 Starboard | 30 |
| 31 | Desk & Cabinet | Helicopter Workshop | 1 Deck | 1-253-2-Q | Frame 253 Port | 31 |
| 32 | Cabinet | Helicopter Hangar #1 | 1 Deck | 1-278-1-Q | Frame 312 Starboard | 32 |
| 33 | Cabinet | Helicopter Hangar #2 | 1 Deck | 1-278-2-Q | Frame 312 Port | 33 |
| 34 | Rack and Shelving | Bosuns Storeroom #1 | 2 Deck | 2-2-0-A | Frame 19 Port | 34 |
| 35 | Cupboards | Windlass Room | 2 Deck | 2-32-0-Q | Frame 32 Starboard | 35 |
| 36 | Desk | Registered Publication Vault | 2 Deck | 2-48-2-Q | Frame 52 Port | 36 |
| 37 | Cabinet | Foreward Repair #2 | 2 Deck | 2-55-1-A | Frame 56 Starboard | 37 |
| 38 | Desks | IC, Gyro Room & Electronic Shop | 2 Deck | 2-79-0-C | Frame 79 Centreline & Frame 98 Starboard | 38 & 39 |
| 39 | Honeycomb Bulkhead | PO Sanitary Space | 2 Deck | 2-111-0-L | Frame 111 Centreline | 40 |
| 40 | Honeycomb Bulkhead | Junior Sailors Sanitary Space | 2 Deck | 2-111-1-L | Frame 112 Starboard | 41 |
| 41 | Bunks, Honeycomb Bulkhead & Cupboards | POs Sleeping Space | 2 Deck | 2-120-2-L | Frame 120 Port | 42 |
| 42 | Bunks, Honeycomb Bulkhead & Cupboards | POs Sleeping Space | 2 Deck | 2-120-2-L | Frame 126 Port | 43 |
| 44 | Bunks & Honeycomb Bulkhead | Officers Stateroom | 2 Deck | 2-140-1-L | Frame 140 Starboard | 44 |
| 45 | Honeycomb Bulkhead & Cupboards | Officers WC & Shower | 2 Deck | 2-140-2-L | Frame 140 Port | 45 |
| 46 | Honeycomb Bulkhead | Next to Passageway near doorway | 2 Deck | 2-140-2-Q | Frame 140 Port | 46 |
| 47 | Honeycomb Bulkhead & Cupboards | Medical Treatment Room | 2 Deck | 2-152-2-L | Frame 152 Port | 47 |



Ex HMAS Adelaide
Register of Rapid Deterioration Items

| Item # | Description | Location | Deck | Compartment # | Location Frame | Photo # |
|--------|---------------------------------|--|---------|---------------|--|-----------------|
| 48 | Operating Table | Medical Treatment Room | 2 Deck | 2-152-2-L | Frame 158 Port | 48 |
| 49 | Honeycomb Bulkheads and Doors | Medical Treatment Room | 2 Deck | 2-152-2-L | Frame 161 Port | 49 |
| 50 | Desk and Cabinet | Medical Treatment Room | 2 Deck | 2-152-2-L | Frame 166 Port | 50 |
| 51 | Honeycomb Bulkhead | CPO WC & Shower | 2 Deck | 2-154-0-L | Frame 154 Centreline | 51 |
| 52 | Bunks & Honeycomb Bulkhead | CPO Berthing | 2 Deck | 2-171-3-L | Frame 171 Starboard | 52 |
| 53 | Cupboards | CPO Berthing | 2 Deck | 2-171-1-L | Frame 171 Starboard | 53 |
| 54 | Honeycomb Bulkhead | Galley | 2 Deck | 2-180-0-Q | Frame 184 Starboard Outboard | 54 |
| 55 | Honeycomb Bulkhead and Fittings | Galley | 2 Deck | 2-180-0-Q | Frame 184 Starboard Inboard | 55 |
| 56 | Bench & Cupboards | Galley | 2 Deck | 2-180-0-Q | Frame 188 Starboard Inboard | 56 |
| 57 | Cupboard | Galley | 2 Deck | 2-180-0-Q | Frame 203 Starboard Inboard | 57 |
| 58 | Honeycomb Bulkheads & Cupboards | Galley | 2 Deck | 2-180-0-Q | Frame 210 Starboard Outboard | 58 |
| 59 | Honeycomb Bulkheads & Cupboards | Galley | 2 Deck | 2-180-0-Q | Frame 210 Starboard Inboard | 59 |
| 60 | Honeycomb Bulkhead | CPO Dining Space | 2 Deck | 2-180-2-L | Frame 187 Port | 60 |
| 61 | Honeycomb Bulkhead | CPO Dining Space | 2 Deck | 2-180-2-L | Frame 195 to Frame 199 Port | 61 |
| 62 | Honeycomb Bulkhead | Scullery | 2 Deck | 2-203-2-Q | Frame 203 Port (2-180-4-L printed on bulkhead) | 62 |
| 63 | Cabinets | JS Dining Area | 2 Deck | 2-212-0-L | Frame 214 Starboard | 63 |
| 64 | Cabinet | Repair #5 | 2 Deck | 2-225-1-A | Frame 230 | 64 |
| 65 | Shelving | General Workshop | 2 Deck | 2-292-2-Q | Frame 300 Port | 65 |
| 66 | Fan | General Workshop | 2 Deck | 2-292-2-Q | Frame 316 Port | 66 |
| 67 | Desk & Honeycomb Bulkhead | Disbursing Office | 2 Deck | 2-328-0-Q | Frame 328 Centreline | 67 |
| 68 | Cabinets | Aft Repair #3 | 2 Deck | 2-344-2-A | Frame 350 Port | 68 |
| 69 | Honeycomb Bulkhead | PO & Coxswains Office | 2 Deck | 2-360-0-Q | Frame 360 Centreline | 69 |
| 70 | Honeycomb Bulkhead | Junior Sailors Sanitary Space | 3 Deck | 3-113-0-L | Frame 113 to Frame 123 Centreline | 70 |
| 71 | Honeycomb Bulkhead | Junior Sailors Sanitary Space | 3 Deck | 3-140-0-L | Frame 140 to Frame 150 Centreline | 71 |
| 72 | Cabinets | Junior Sailors Berthing & Dressing Space | 3 Deck | 3-144-0-L | Frame 150 Centreline | 72 |
| 73 | Cabinet | Dry Provisions Storeroom | 3 Deck | 3-180-5-A | Frame 191 Starboard Inboard | 73 |
| 74 | Cabinet | Dry Provisions Storeroom | 3 Deck | 3-180-5-A | Frame 191 Starboard Outboard | 74 |
| 75 | Lamp with Extention Arm | Naval Store Storeroom | 3 Deck | 3-328-0-A | Frame 342 Starboard | 75 |
| 76 | Ironing Presses | Laundry | 4 Deck | 4-140-0-Q | Frame 143 & Frame 148 Port | 76 & 77 |
| 77 | Fans | Laundry | 4 Deck | 4-140-0-Q | Frame 150 & Frame 164 Port | 78 & 79 |
| 78 | Workbench and Cabinet | AMR3 | 3 Deck | 5-292-0-E | Frame 300 Starboard | 80 |
| 79 | Trunking | Upper Deck | 02 Deck | | Frame 178 Port | 81 |
| 80 | Trunking | Upper Deck | 02 Deck | | Frame 180 Starboard | 82 |
| 81 | Trunking | Upper Deck | 02 Deck | | Frame 182 Starboard | 83 |
| 82 | Trunking | Upper Deck | 02 Deck | | Frame 292 Starboard | 84 |
| 83 | Trunking | Upper Deck | 02 Deck | | Frame 293 and Fame 294 Port | 85 |
| 84 | Trunking | Upper Deck | 02 Deck | | Frame 303 Port | 86 |
| 85 | Trunking | Upper Deck | 02 Deck | | Frame 313 Port | 87 |
| 86 | Guardrails | Upper Deck | 02 Deck | | | 88, 89 & 90 |
| 87 | Guardrails | Upper Deck | 01 Deck | | | 91 |
| 88 | Guardrails | Upper Deck | 1 Deck | | | 92, 93, 94 & 95 |
| 89 | Portable Gun Mount Shield | Upper Deck | 1 Deck | | Frame 168 Port | 96 |
| 90 | Portable Gun Mount Shield | Upper Deck | 1 Deck | | Frame 171 Starboard | 97 |



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Appendix D Ship Drawings – CD ROM



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Appendix E Summary of Findings From the First Five Years of Monitoring



Monitoring of Structural Integrity, Stability and Position

Underwater Inspection by McLennans Diving Service - 18th May 2015.

The 18th May 2015 underwater inspection was undertaken by McLennans Diving Service following two significant East Coast Lows. The report prepared by McLennans (10th June 2015) provided the following details regarding impacts to the vessels structure:

- The starboard helicopter hangar wall was missing for a length of 10.5 m horizontally and its full height vertically.
- Four vertical frames were missing (sheared off their weld points at the deck). At the top of the wall the frames had sheared off the corresponding roof frames, taking the knee braces with them.
- There was a loose section at the forward end of the gap which was cracked horizontally for 700 mm near the top and bottom (at the time of survey this section was not moving but was predicted to break off in the next big swell).
- The missing wall relived pressure on the remaining hanger by allowing improved water flow through the hanger, however, one side of the roof had become unsupported. It was expected that the roof would tear apart when the next significant swell hit. If it collapsed downward (rather than onto the seabed) it would present a significant obstruction.

A review of the above report was undertaken by Shearforce Maritime Services Pty Ltd on 23rd June 2015. Following the review it was the opinion of Shearforce Maritime Services Pty Ltd that:

- The structure forward of the helicopter hanger transverse bulkhead was structurally sound. However, the starboard hanger top structure may deteriorate over time due to a lack of support of the starboard side, therefore this area should be monitored over time.
- Diving activities around the starboard hanger should be suspended and all visiting divers warned to stay clear of that area due to risks associated with jagged metal from the failed areas.

Underwater Inspection by McLennans Diving Service – 13th April 2017.

The most recent annual underwater inspection to monitor structural integrity, stability and position was undertaken by McLennans Diving Service on 13th April 2017. During this inspection McLennans divers made two full sweeps from bow to stern and observed the major monitoring points listed in the LTMMP. The report prepared by McLennans following this dive inspection (dated 18th April 2017) provided the following details:



Structural Integrity

- Steel Hull – Remained unchanged since the previous inspection. No sign of any cracking or deformations. Main deck was free of cracking with no signs of warping. The hull had a uniform coverage of marine life with few signs of corrosion outbreaks. Corrosion levels appear to be very low. Hull was fully supported by the sand with no scouring observed. The sand level was very close to the ships waterline.
- Aluminium Superstructure – No new cracking of the superstructure was seen. Cracks that existed in the lift shaft area on Deck 02 had not propagated since the previous year's monitoring. The previously jagged edges of the cracks were now completely covered in marine growth indicating a low level of movement.
- LTMMP Monitoring Locations - A number of monitoring locations were examined and showed no new signs of deterioration or deformation.
- Internal Debris – All accessible portals above 30 m were verified as clear. The largeswell restricted access to the internal parts of the wreck.

Vessel Stability

- In 2012 the vessel developed a 4 degree list to port. This list remained unchanged in the 2017 inspection.

Vessel Position and Settlement

- Vessel position was unchanged since the previous annual inspection. The trim was unchanged based on water depth measurements at the bow and stern. The vessel had not moved its horizontal position as tested using a GPS.

Corrosion

- No signs of corrosion were observed. Previous inspections had shown tell-tale signs of corrosion (red rusticles on the hull and white corrosion deposits on the superstructure) which were no longer present. The 100% cover of marine growth on exterior surfaces of the vessel indicates that the metal underneath is very stable.

Marine Life

- Marine growth was thicker and more widespread with well-developed over the aft deck, dense cunjevoi and anemones on the upper decks as well as kelp (Ecklonia) beds.
- Fish life was rich.



Conclusions

- Vessel was unchanged since previous annual inspection in June 2016.
- No new dangers were found that could affect recreational divers.
- No signs of corrosion were observed.
- Hanger damage was stable.
- No change in the ships position or list had occurred.

Images from this inspection can be found in the original report (McLennans Diving Service 2017).

A review of the above report was undertaken by Shearforce Maritime Services Pty Ltd on 20th April 2017. Following the review it was the opinion of Shearforce Maritime Services Pty Ltd that:

- The vessel was structurally sound and stable. There were no new factors that may affect recreational divers.

Reef Community Monitoring

The reef community monitoring surveys aimed to gain an understanding of:

1. The types of flora and fauna assemblages present.
2. The rates of development of fouling assemblages and changes over time.
3. Variation in the rates of development of fouling assemblages on different surfaces of the vessel (i.e. horizontal vs vertical).
4. The presence of introduced or pest species.

After a baseline survey (WorleyParsons 2011) and 13 post-scuttling surveys (Cardno 2016b), a total of 42 taxa / taxon groups were identified on the vessel, with the ten most numerically abundant taxa in terms of percentage cover being serpulid, barnacle and encrusting algae matrix (57.8%), large barnacles and brown filamentous algae (7.2%), solitary ascidians (6.7%), serpulid polychaetes (6.5%), jewel anemones (4.4%), brown filamentous algae (4.3%), kelp (2.3%), early colonising matrix (2.2%), base surface (1.3%) and red encrusting algae (1.3%) (Cardno 2016a and 2016b).

Multivariate analysis indicated that there were changes in reef assemblages over time, with significant differences in the overall assemblage composition between surveys (regardless of transect position / orientation). During the baseline survey very little growth was observed. Survey 1 was characterised by relatively monospecific matrices of serpulid worms and / or serpulids with barnacles and encrusting algae. Surveys 2 and 3 were similar to Survey 1 but also included solitary ascidians. Surveys 4 to 9 were



characterised by a high percentage of serpulids, barnacles and encrusting algae. The most recent surveys (Survey 11 to 13) were represented by more taxonomically diverse assemblages with jewel anemones, solitary ascidians, yellow sponges and brown filamentous algae (Cardno 2016a and 2016b). Ongoing changes in reef assemblages on the Ex-HMAS Adelaide indicate that the epibenthic assemblage is still developing and has not yet reached a state of equilibrium (Cardno 2016a and 2016b). To reach a state of equilibrium has been shown to take several decades, rather than years (Perkol-Finkel and Benayahu 2007) so may only be seen after much longer term surveys.

Surface orientation was a significant factor in structuring the epibenthic assemblages on the vessel for the first five years post-scuttling. The assemblages associated with horizontal deck surfaces were significantly different from those on the vertical surfaces of the hull during all surveys. The taxa predominantly associated with horizontal deck surfaces were serpulids with barnacles and encrusting algae matrix, red encrusting algae and red filamentous algae. Kelp (*Ecklonia radiata*) was only recorded on horizontal deck surfaces (mainly in the mid-ship area) and never on vertical surfaces over the five year period. The vertical surfaces of the vessel were consistently inhabited by solitary ascidians (e.g. *Herdmania momus*) and anemones (e.g. the jewel anemone, *Corynactis australis*), for all surveys during which they were recorded. Bryozoans and sponges were only ever recorded on vertical surfaces (and were only recorded in some of the 13 surveys) (Cardno 2016a and 2016b).

Depth was also a significant factor in structuring the epibenthic assemblages on the vessel for the first five years post-scuttling. Assemblages associated with deep surfaces between 20 – 30 m were significantly different to those associated with shallower 13 – 20 m surfaces across all surveys. Shallow transects were characterised by the presence of kelp (*E. radiata*), brown algae (*Lobophora sp.*) and red encrusting algae (which were not present on deep photo quadrats or had comparatively lower percentage cover). Serpulid, barnacle and encrusting algae matrix occurred on both shallow and deep surfaces but was consistently more prevalent on the deeper transects (Cardno 2016a and 2016b).

Fixed photograph analysis (of various ship structures) showed a rapid colonisation of the vessel during the first six months post-scuttling with an encrusting layer of serpulids, small and large barnacles, filamentous and encrusting algae, bryozoans and hydroids. More complex structures e.g. ladders, railings and mast structures, were quickly colonised by large barnacles, solitary ascidians, as well as a matrix of filamentous algae, hydroids, sponges and bryozoans. Over time kelp, white papillate sponges, soft tree corals and small tubular sponges appeared on the fixed photo surfaces. In general, after an initial rapid colonisation, the encrusting layer gradually developed over the first five years post-scuttling, with subtle differences in thickness and complexity between different structures seen (Cardno 2016a and 2016b).

While not a requirement of the original LTMMP, fish species utilising the vessel were recorded during all reef surveys. Fish taxa identified during the 13 post-scuttling surveys included 62 species from 31 families. There was a clear increase in the number of species identified over time. The family Monacanthidae (leatherjackets) was represented by the highest number of species (seven species), Labridae (wrasses) by six species, Carangidae (trevallies, jacks, mackerels and scad) by five species, Pomacentridae (damselfishes) by four species, Serranidae (bass and grouper) by three species and Cheilodactylidae (morwongs) by three species. All other families had less than one or two species.



Many of the species were recorded only once over the five year monitoring period. No species of threatened or protected fish were recorded (although anecdotal evidence suggests that grey nurse sharks, *Carcharius taurus*, may occur at the site on occasion) (Cardno 2016a and 2016b).

No marine pest species listed by NSW DPI which are known to occur in NSW, or known to occur in Australia, were detected on the vessel in any photquadrats, fixed photos, video footage or scrapings taken during the first five years of post-scuttling monitoring. However, one species of potentially introduced barnacle, the Panamanian large barnacle (*Megabalanus coccopoma*) has been observed on the vessel. While this species, and similar introduced species, may be problematic as fouling organisms, they do not pose a threat to native species or ecosystems (Cardno 2016a and 2016b).

Although no marine pest species have been identified on the vessel to date, the methods used for identification to date have been limited to diver observation, photquadrats and video footage. Cardno (2016a) notes that any small and cryptic pest species e.g. crabs, mussels and fan worms, would now be difficult to identify using these methods alone, as they can be well camouflaged or found in crevices and overhangs. Going forward, a greater variety of marine pest survey methods, targeted at species of interest which have the potential to occur on the vessel (see Cardno 2016a) would be more suitable for the detection of marine pests.

The full reef survey dataset can be found in WorleyParsons (2011b) and Cardno (2016b), along with the specifics of the survey methods and locations for the first five years of monitoring. This report should be referred to for any future reef surveys to allow for meaningful comparisons of changes in reef assemblages on the vessel over longer time periods.

Overall, the reef community monitoring program undertaken during the first five years post-scuttling has met the following aims of the original LTMMP well:

1. It has documented the types of flora and fauna present on the vessel.
2. It has described the rates of development of fouling assemblages and changes over time.
3. It has described variation in rates of development on different surfaces of the vessel.

Considering this, it is not thought that any further reef community monitoring to meet the above aims are necessary. Further surveys undertaken for ecological research or educational purposes could be undertaken outside the ongoing scope of the LTMMP and would provide information on long-term changes at the site. However, no further reef community monitoring to manage environmental risk or safety is considered to be required.

Since the methods adopted during the first five years of monitoring are no longer considered appropriate to properly survey the ship for the occurrence of marine pests (due to the now complex structure and thickness of the reef assemblages), ongoing targeted surveys for marine pest species utilising additional survey methods are recommended (at a reduced frequency).



Sediment Quality Monitoring

The main findings of the first five years of sediment monitoring were summarised by Cardno in their *Review of Ecological Monitoring Five Years Post-scuttling* (Cardno 2016a) as follows:

- In general, the metal concentrations recorded 62 months post-scuttling (June 2016) were similar to those recorded one month post-scuttling (May 2011), indicating that there were no significant long-term effects on sediment quality as a result of the vessel being scuttled.
- There was one exception to the above pattern which was aluminium – aluminium showed an overall increase in concentrations at the impact sites 62 months post-scuttling when compared to one month post-scuttling. The increase appeared to be greater at the impact location than the control location (in June 2016) which may indicate metal corrosion associated with the vessel. However, the difference was not statistically significant due to large variation between control samples.
- Particle size distribution was relatively uniform across sites and therefore was not considered to be a factor in the differences seen in aluminium concentrations between the control and impact sites.
- Metal concentrations recorded six months post-scuttling (October 2011) and 21 months post-scuttling (January 2013) were notably lower than the levels recorded one and 62 months post-scuttling.
- All metals measured for which ANZECC/ARMCANZ (2000) Interim Sediment Quality Guidelines (ISQG) are available (i.e. chromium, copper, nickel, lead and zinc) had concentrations that were well below the ISQG low trigger values and therefore were not considered to be a contamination risk to the marine environment.

Bioaccumulation Monitoring

WorleyParsons undertook the baseline biomonitoring survey on the Ex-HMAS Adelaide one week post-scuttling using the blue mussel, *Mytilus edulis*, as a test organism. Results of the baseline survey showed significant differences in metal (chromium, zinc and lead) concentrations in blue mussel tissue between baseline controls (i.e. mussels sampled from the aquaculture facility prior to deployment) and the vessel impact monitoring sites (i.e. mussels deployed onto the vessel). Concentrations of metals were higher in samples which had been deployed near the vessel (WorleyParsons 2011). Samples from the control sites located ~ 35 m from the vessel were all lost in large seas and via suspected tampering so could not be tested and compared. So without any local or control site data on metal concentrations in blue mussels located away from, but in the vicinity of, the ship this result could not be directly attributed to the presence of the vessel (WorleyParsons 2011).



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Results of further biomonitoring surveys undertaken by Cardo Ecology Lab (2012) at seven and 15 months post-scuttling (using the Sydney rock oyster, *Saccostrea glomerata*, as a test organism) showed that chromium concentrations in oyster tissue increased slightly over time at the stern of the ship (however this was also the case for baseline controls – the samples from the aquaculture facility). Concentrations of chromium at midship appeared to decrease substantially from seven to 15 months (although there was a high level of variation in the seven month samples). Zinc concentrations in oyster tissue also increased marginally over time at the stern of the ship and baseline control while concentrations at midship decreased (Cardo Ecology Lab 2012, Cardo 2016a).

Statistical analyses of the data showed no significant differences in the concentration of chromium or zinc in oyster tissue between the seven and 15 month sampling events or between control and impact samples. No oyster tissue samples had concentrations of chromium or zinc which were considered to be of toxicological significance. In summary, the results of the bioaccumulation study showed that there was no contamination of marine biota via zinc chromate paint over the 27 month post-scuttling monitoring period. However, issues with the loss of some samples limited interpretation of results (Cardo Ecology Lab 2012, Cardo 2016a).

More detailed methods and results can be found in WorleyParsons (2011), Cardo Ecology Lab (2012) and Cardo (2016a). These should be referred to for any future biomonitoring.



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Appendix F RMS Commercial Mooring Licence Standard Conditions



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**Transport
Roads & Maritime
Services**

**THIS IS EXTREMELY IMPORTANT
KEEP FOR REFERENCE**

Commercial Mooring Licence Standard Conditions

**FAILURE TO COMPLY MAY RESULT IN THE
CANCELLATION OF YOUR MOORING LICENCE.**

Note:

- Commercial moorings are only issued to:
 - **a business entity or person approved by Roads and Maritime Services**, as trading to provide approved marine type services to the boating public (eg: boat repair, marinas, commercial fishing, charter vessels, boat brokerage, mooring contractor); and
 - Any other business which cannot be accessed by means other than the water ie: there is no land access.
- Commercial moorings can only be sub-let if associated with a marina/boatshed (ie premises consisting of one or more moorings, pontoons, jetties, piers or other structures (whether water-based or landbased)) designed to provide:
 - Accommodation for, or means of securing vessels;
 - Preferably a Slipway, or some other way of taking a vessel out of the water; and
 - One or more of the following, or similar services for vessels: shipwright service, sewage pumpout facilities, dinghy/tender storage, fuel, engineering service, mechanical repair service, tender service, or provisioning services
- The mooring sites may only be used in accordance with the approved purpose of the Licence.



The mooring

The licensee must ensure that:

- The **mooring apparatus** (block and chain) **must be suitable** for the vessel attached thereto and for the mooring area allocated having regard to all possible adverse conditions, including potential flooding in the area. In view of the Mooring Licensee's responsibility in relation to the mooring and mooring apparatus it is strongly recommended that a professional mooring contractor is consulted to ensure that an appropriate mooring apparatus is provided and that it can withstand possible flood conditions when necessary.
- **The mooring apparatus must be kept in good condition and be serviced every 12 months or more frequently if subject to specific mooring conditions. It is strongly recommended that it be serviced by a professional mooring contractor. Proof of mooring service must be produced on request. Roads and Maritime Services will randomly require documentary proof of mooring service.**
- The **mooring buoy must be orange** (unless otherwise approved by Roads and Maritime) or **red for clubs**, be of the preferred type and meet the standard and have the issued identification number on it in characters at least 50mm high.
- Where a **pole/post mooring** exists it **must be kept in good condition** and have the issued Mooring Licence Number on it in characters at least 50mm high starting 250mm from the top in black letters on a white background and face the navigation channel. Nothing is to be attached to/or between the posts except the licensed vessel, without the written permission of Roads and Maritime.
- The **mooring buoy** must be lifted from the water when the vessel is moored. It **must be secured on the foredeck** of the vessel in a way that ensures the identification number can be clearly seen from a passing vessel.

The vessel on a commercial mooring

The licensee must ensure that:

- Only **one vessel is to be attached to each mooring** (unless written approval is given by Roads and Maritime).



- **The vessel is registered or holds a Certificate of Operation** and in survey if required to be under the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012*, at all times. **NSW registration** or a **NSW issued Certificate of Operation** is required if the vessel has been in NSW for three months or more.
- **The vessel is properly displaying appropriately sized registration numbers** in accordance with the Marine Safety Regulation 2016 and as outlined in the NSW Boating handbook or a vessel Unique Identifier in accordance with the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012*.
- **The vessel is not the subject of any construction, alteration repair work or use** at the mooring that causes, or is likely to cause, annoyance or pollution or contravention of any Regional or Local Environment Plan implemented under the Local Government Act. Approval from Roads and Maritime is also required.
- **The vessel is visually suitable** for the mooring area allocated and is **maintained in a seaworthy condition** (ie, capable of undertaking a voyage under its own power/sail).
- The vessel only occupies the mooring in pursuance of the approved purpose of the Licence and for no other purpose.
- **They are aware that it is prohibited to permanently live onboard a vessel attached to a mooring licensed by Roads and Maritime.** Contact Roads and Maritime for details.

Other

- **The Mooring Licensee is responsible at all times for damage caused by the licensee's vessel (or vessel in their charge) and/or mooring apparatus to any other vessel or property.** It is strongly recommended that the Mooring Licensee have adequate insurance to cover such contingencies as Roads and Maritime bears no responsibility.
- The Mooring Licensee's use of the mooring constitutes acceptance of the allocated mooring site as suitable for the licenced vessel with specific regard to sea room and water depth. Roads and Maritime bears no responsibility in relation to suitability.
- **Mooring fees are payable** until the date that the Mooring Licensee advises Roads and Maritime, in writing, of cancellation, or the date the mooring apparatus/vessel is/are removed, whichever is the later.



- **Mooring fees are to be paid** on or before “the pay by date”.
- **No more than the maximum number of mooring sites** specified by the Commercial Mooring Licence may be in the water.
- The Mooring Licensee must promptly advise Roads and Maritime of any change to the Commercial Mooring Licence details. Change of address/contact telephone number may be advised by phone, however all other changes must be advised in writing.
- The mooring licence may be transferable on sale of the business, subject to Roads and Maritime, and any other statutory approval that may be necessary.
- Roads and Maritime may impose additional conditions to be met by a Commercial Mooring Licensee.

Removal of mooring apparatus

The former Mooring Licensee* must provide to Roads and Maritime within 7 days of cancellation of the Mooring Licence a Statutory Declaration or other written evidence (from a mooring contractor or professional diver) that the mooring apparatus has been removed from the water, unless some other arrangement has been agreed with Roads and Maritime.

Failure to provide the required written evidence may result in Roads and Maritime conducting a check to establish whether the mooring apparatus has been removed. Any cost associated with such inspection, and any associated removal of the mooring apparatus, if applicable, will be the responsibility of the former Mooring Licensee*.

*former Mooring Licensee is the Licensee as at the date of mooring cancellation.

**REMEMBER, FAILURE TO COMPLY WITH ANY
CONDITION MAY LEAD TO CANCELLATION OF YOUR
COMMERCIAL MOORING LICENCE**

For further information please contact Roads and Maritime on **13 12 36** (8.30am to 5.00pm Mon to Fri and 8.30am to 4.30pm weekends) or visit our website www.rms.nsw.gov.au



From: s22 [redacted]
To: s22 [redacted]@crownland.nsw.gov.au"
Cc: [Sea Dumping](#); s22 [redacted]
Subject: Ex-HMAS Adelaide artificial reef (SD2008-1062) [SEC=UNCLASSIFIED]
Date: Friday, 27 April 2018 9:16:14 AM
Attachments: [SD2008-1062-Revised LTMP-Decision-letter-signed.pdf](#)

Good morning

Please see attached a letter regarding the revised long term monitoring and management plan for the Ex-HMAS Adelaide Artificial Reef.

Regards

s22 [redacted]

Queensland South and Sea Dumping Section

ESD

02 s22 [redacted]



Ref: SD2008/1062

Mr s22
Natural Resources Management Project Officer
Department of Industry - Lands - Hunter Office
516 High Street
MAITLAND NSW 2320

Revision of Ex-HMAS Adelaide Long Term Monitoring and Management Plan

Dear Mr s22

I refer to your correspondence of 24 January 2018 seeking approval of the revised Ex – HMAS Adelaide Artificial Reef *Revised Long Term Monitoring and Management Plan 2017-2026* (LTMMP) for Sea Dumping Permit SD2008/1062, as required by Condition 26 of the permit.

I can advise that, as a delegate of the Minister for the Environment and Energy, I have approved the LTMMP under Section 21 of the *Environment Protection (Sea Dumping) Act 1981*.

If you have any further questions please contact s22 Ph: (02) s22 or email s22@environment.gov.au

Yours sincerely

s22

Director
Queensland South and Sea Dumping Section

26/4/2018