ATTACHMENT A

Original Referral, October 2019

LIST OF ATTACHMENTS

ATTACHMENT	DESCRIPTION	STATUS
	Submission, October 2019	Included
A	Action Area Location Plan	Included
B	Action Area Site Plan and Disturbance Areas	Included
C	Indigenous Consultation Summary (Redacted)	*Superseded by **ATTACHMENT** S of the Final Preliminary Documentation September 2020 Resubmission*
D	Stakeholder Engagement and Consultation Report	*Superseded by **ATTACHMENT** S of the Final Preliminary Documentation September 2020 Resubmission*
E	AWM Redevelopment HIA	*Superseded by **ATTACHMENT** D of the Final Preliminary Documentation September 2020 Resubmission*
F	Mitigation Measures	Included
G	ACT Standard Construction Environmental Management Plan	Included
H	Energy and Environmental Policy, May 2019	Included
I	National Collection Environmental Management Plan (NCEMP)	Included

EPBC Act referral

Australian Government

Department of the Environment and Energy

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Title of proposal	2019/8574 - Australian War Memorial Redevelopment

Section 1

Summary of your proposed action

1.1 Project industry type Commonwealth

1.2 Provide a detailed description of the proposed action, including all proposed activities

Overview

The proposed action is the redevelopment of the Australian War Memorial (the Memorial), specifically the Southern Entrance, Parade Ground Anzac Hall and new glazed courtyard.

The Project is being undertaken to address current constraints in available display space (including future provision) and visitor amenity, enabling the Memorial to fulfil its role of telling the story of Australian's experience in conflicts, peacekeeping and humanitarian operations.

The action proposed is consistent with the Project's Detailed Business Case (DBC) as announced by the Commonwealth Government in November 2018 and funded in the Mid-Year Economic and Fiscal Outlook 2018-19 (Ref. MYEFO 18-19 pg 236).

Key elements of the design

Key elements of the design are outlined below (refer Attachment A for Action Area Location Plan):

New Southern Entrance

A New Southern Entrance would be built below the existing forecourt to improve visitor orientation, security screening and provide purpose built galleries.

- The entrance would provide enhanced visitor arrival and orientation inclusive of security screening capability, added display space and visitor functions (including a 250-person theatre, function room, bookshop and public amenities).
- The entrance would improve pedestrian access from the main car parking areas to the New Southern Entrance via an improved landscape.
- The entrance would be connected to the Parade Ground to provide visual amenity to the Stone of Remembrance and Anzac Parade and Parliament House beyond, thereby enhancing the existing views and vistas.
- The entrance would provide level access to the parade ground from the southern entrance and addresses current accessibility constraints.
- Works would include re-profiling the parade ground to provide enhanced site security, increased accessibility to seating areas, better viewing angles, and greater functionality to defence in terms of drilling and marching.
- The Project would retain (reinstate) the existing forecourt and stairs, which would be used as a secondary entrance primarily for ceremonial purposes.
- Works would include general landscaping works to reinstate areas disturbed around the new elements.

New Anzac Hall and glazed courtyard

A new two-storey Anzac Hall which would house the more recent conflicts as part of the Memorials exhibitions function - through curated display of the memorials collection.

- The new Anzac Hall would be constructed in the location of the existing Anzac Hall and would deliver a net increase in purpose built gallery area, sized to take many large technology objects (LTO's) recently accepted into the Memorials collection, and provide for future acquisitions. It will deliver a net increase in purpose built gallery area of 4500 m^2.
- The new Anzac Hall would improve social amenity with provisions such as a parents room, change room, and respite rooms for veterans affected by their experiences.
- A glazed courtyard would be constructed between the main Memorial building and the new Anzac Hall. The glazed courtyard would strengthen and improve connectivity, thereby improving the visitor experience and enhancing circulation.
- The glazed courtyard is proposed to contain non-light sensitive LTOs (e.g. F/A18 Hornet, RF-111C Aardvark, HMAS Brisbane Bridge, and various armoured vehicles), a food and beverage outlet, and space sufficient to support the Memorial's educational programs.

Proposed works

The proposed works would occur over an area of 28,046m2.

A total of 16,495 m2 Gross Floor Area (GFA) of new purpose built facilities new purpose-built facilities is proposed within

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the Memorial precinct. The new works include:
- New Southern Entrance – 3,476 m2 (internal area)
- New Anzac Hall – 10,476 m2 (internal area)
- New glazed courtyard – 2,543 m2 (internal area)

The works require the removal of the existing Anzac Hall (4,540 m2 GFA that includes 3,276 m2 of galleries) to enable the construction of the new Anzac Hall.

The external works comprise of squaring up the Parade Ground in lieu of the current trapezoidal shape.

1.3 What is the extent and location of your proposed action?

See Appendix B

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)

The Memorial is located at Block 3, Section 39, in the suburb of Campbell, within the Australian Capital Territory (ACT). The Memorial is located approximately 1.7km to the east of the Canberra CBD. The site is bounded by Limestone Avenue, Fairbairn Avenue and Treloar Crescent. It is in a prominent location at the northern end of the land axis of Walter Burley Griffin's plan for Canberra, which is subject to detailed conditions of the National Capital Plan (NCP) (refer Section 1.12 of this referral).

The Memorial incorporates four distinct precincts:
- Main Memorial Building, including Anzac Hall
- Parade Ground
- Western Precinct including the Sculpture Garden and Administration Building
- Eastern Precinct including the C.E.W. Bean Administration Building, Cafe and Terrace

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The proposed works will occur across approximately 28,046m². This includes building works and landscaping works as outlined in Section 1.2 and referred to in Attachments A and B of this referral.

1.7 Proposed action location

Lot - Block 3, Section 39, in the suburb of Campbell, ACT

1.8 Primary jurisdiction Australian Capital Territory

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☐ Yes ☑ No

1.10 Is the proposed action subject to local government planning approval?

☐ Yes ☑ No

1.11 Provide an estimated start and estimated end date for the proposed action

Start Date 01/10/2020
End Date 01/12/2022

1.12 Provide details of the context, planning framework and state and/or local Government requirements

The following legislation is relevant to this Project: Australian War Memorial Act 1980 (AWM Act); Environment Protection

and Biodiversity Conservation Act 1999 (EPBC Act); Native Title Act 1993 (Native Title Act); Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHP Act); and Australian Capital Territory (Planning and Land Management) Act 1988 (ACT P&LM Act).

The obligations under the AWM, EPBC Act and the ACT P&LM Act are outlined below. The Heritage Impact Assessment (HIA) (Attachment E) identifies the obligations under the Native Title Act, the ATSIHP Act, as well as other site-specific requirements as set out in the Australian War Memorial Site Development Plan and the Australian War Memorial – Heritage Management Plan.

AWM Act

The AWM Act sets out the purpose, functions and operations of the Memorial. In its role as the appointed guardians of the Memorial, the Council of the Australian War Memorial (Council) (established under Section 9 of the AWM Act), has closely reviewed the need for the planned expansion of the Memorial and established that such expansion is necessary in order for the Memorial to continue to meet its functions as described in Section 5 of the AWM Act.

Council has exercised close oversight over the Project governance process, including detailed review of the proposed options and preferred design. While conscious of the impacts of the Project, it was considered that the impact on veterans and their families of not properly telling the stories of more recent conflicts and operations was significantly higher. As such, it is the unanimous position of Council, that the proposed design offers the best outcome for the Memorial. It is the view of Council that, despite the loss of physical heritage fabric as a result of the removal of the existing Anzac Hall, the Project would enhance the Memorial's heritage values in both the immediate and long term future by enabling the Memorial to continue to remain relevant in Australia's continuing national story.

EPBC Act

Under the EPBC Act, any action that would result in a significant impact to the environment of Commonwealth land, or any action undertaken by, or on behalf of a Commonwealth Agency that is likely to have a significant impact on the environment anywhere in the world, or a matter of national environmental significance (NES) must undergo a rigorous assessment and approval process.

The Project involves the removal of the existing Anzac Hall which is listed on both the National Heritage List (NHL) (place ID 105889) and the Commonwealth Heritage List (CHL) (place ID 105466). The removal of Anzac Hall is considered likely to result in a 'significant impact' (as defined by the Significant Impact Guidelines 1.2 – Actions on, or imposing upon, Commonwealth land and Actions by Commonwealth Agencies). This is further discussed in Section 2 of this referral.

Section 26 of the EPBC Act relates to actions undertaken on Commonwealth land. Any actions which will, or are likely to, significantly impact the environment on Commonwealth land would need to be assessed with respect to the potential significance of impacts on the environment generally. An assessment of the impacts of the Project is provided in Section 2 of this referral with mitigation and management measures outlined in Section 4.

ACT P&LM Act / NCP

Planning and development in the ACT is governed by two separate but related planning jurisdictions and statutory controls, being the NCP and the Territory Plan administered by the ACT P&LM Act.

The Project area is classified as "National Land" and is within a 'Designated Area' under the NCP. As such, jurisdiction for planning and development on the Memorial rests with the Commonwealth Government under the; Department of the Environment and Energy (DoEE) responsible for administering the EPBC Act (as discussed in Section 1.12 of this referral); and the NCA responsible for administering the NPC.

Under the NCP the details of the design and development of a development must be agreed by the NCA prior to commencement. The detailed conditions must address (at a minimum) the following: building facades, including articulation, materials and colour; access and circulation; building form; landscape structure and open space; moral rights; lighting; and heritage.

Under the ACT P&LM Act, the NCA is required to approve all 'works' within the Designated Areas. Any alteration to buildings or structures, demolition, landscaping or excavation works in these Designated Areas require the prior written approval of the NCA or 'Works Approval'. The Memorial has met with the NCA and is in the process of preparing an application to submit to the NCA for the redevelopment works.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

Throughout the development of the Project, consultation has been undertaken with key stakeholders including DoEE, Registered Aboriginal Organisations (RAOs) and the local community. A summary of Project consultation to date is provided

in Attachment C.

Due to the significance of the Project and number of interested public and community groups, the Memorial commissioned a separate consultancy to undertake stakeholder engagement and consultation in respect of the redevelopment. Further details of this are provided below and in Attachment D.

Consultation with key stakeholders is an ongoing process and further consultation will be required during subsequent phases of the Project, to both finalise the design and identify those stories that should be told in the Memorial's new galleries.

Community consultation
A number of public consultation activities were undertaken with a program that was developed around five themes. Each theme contained a brief description and questions to assist respondents. These themes are:
- Theme 1: A Place for Veterans and their Families; How can we best serve veterans and their families when they visit the Memorial?
- Theme 2: Precinct Priorities; What are the priority areas for the Australian War Memorial precinct? How could we make the external experiences at the Australian War Memorial better?
- Theme 3: The Visitor Experience; What are the access requirements and functionality you would like to see in the Memorial in the future?
- Theme 4: Telling More Stories to More People; What are the important things to consider for the planning of future gallery spaces at the Memorial?
- Theme 5: Future 50 – Commemoration, Museum and Research Themes; What would you like future generations to experience when they visit the Memorial in the 2060's?

Consultation methods included:
- Face to face consultation activities which comprised of drop-in sessions and pop-up information sessions, consultation themed forums a neighbour forum and three interstate forums which resulted in approximately 17 percent of the feedback received
- An online scrapbook which provided participants with the ability to comment on each of the consultation themes. This was the most popular feedback channel, accounting for 36 percent of overall feedback followed by 25 percent via email and 20 percent via social media.

Feedback was received from 134 individuals. Many individual participants provided feedback on multiple themes and this resulted in a valuable data-set as a contribution to future design considerations and decision making. Participants were asked to identify their relationship to the Memorial. The highest representation was provided by current or former Australian Defence Force members, followed by those who were visiting the Memorial either on holiday or with family/friends. Participants were evenly spread in terms of age but participation by males was nearly double that of females. Approximately 25 percent of participants were from the ACT with the remainder representing the other Australian states and territories, except Tasmania, where no responses were recorded.

The feedback received has been categorised to assist in identifying recurring trends and to enable an appreciation of the breadth of information gathered. Attachment D provides further detail on the feedback received during the consultation program.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

The redevelopment of the Memorial is subject to Commonwealth approvals.

A HIA has been undertaken for the proposed action and is attached to this referral (Attachment E). Environmental assessments relating to the whole of the proposed action have been undertaken cognisant of Commonwealth and Territory legislative obligation and are outlined in Section 2 of this referral.

The Memorial has met with the NCA and is in the process of preparing an application to submit to the NCA for the redevelopment works.

1.15 Is this action part of a staged development (or a component of a larger project)?

☑ Yes ☐ No

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action

The Memorial is an evolving site seeking to commemorate and tell the story of Australian nation's experience in world wars, regional conflicts, and international peacekeeping. The DBC has been developed for the redevelopment of the Memorial to

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meet future development, gallery expansion and storage demand. This DBC was approved by Government during Mid-Year Economic and Fiscal Outlook (MYEFO) 2018-19.

This referral relates to the two principal scope items within the redevelopment with the potential to impact the heritage values of the main Memorial building. This includes the new Anzac Hall and glazed courtyard designed by Cox architects (Cox) and the New Southern Entrance designed by Scott Carver architects (Scott Carver).

The scope and design of other works to be carried out as part of the redevelopment have not yet been finalised and accordingly are outside the scope of this referral. The potential for these other works to significantly impact on matters of NES or Commonwealth land would be assessed and, if required, subject to a separate referral, once their scope is known.

1.16 Is the proposed action related to other actions or proposals in the region?

☐ Yes ☑ No

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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☐ Yes ☑ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☑ Yes ☐ No

Place

Australian War Memorial, New Southern Entrance - NHL place ID 105889, CHL place ID 105466.

Impact

The proposed New Southern Entrance involves the construction of a subterranean entrance to improve visitor entry and provide Disability Discrimination Act 1992 (DDA) compliant access.

Externally, the New Southern Entrance would require:

- Modification of the main Memorial building's lower southern elevation
- Removal and reinstatement of existing stoneworks to the main Memorial entrance including stairs, podium stone paving entrance, and some of the entry steps.

The ceremonial entrance at the upper level would still remain as per the original Memorial layout for ceremonial events, however it is anticipated the majority of visitors would use the New Southern Entrance.

The proposed new subterranean southern entrance would have impacts on the heritage values and fabric. Specifically, it would change the original sense of arrival to the Memorial, alter the front view of the original building and require removal of the original fabric (forecourt stairs and plinths). However, the symmetrical configuration of the building would be maintained and the original building would continue to dominate the heritage place, thereby retaining its heritage setting and values.

Impacts would be addressed through a range of measures as outlined in Section 4 of this referral. This includes careful selection of materials, underpinning of the existing façade and other load-bearing elements, retaining original features as far as practicable, ensuring that landscaping works required for the setting complement the new entrance and ensuring all new works retain a strong symmetry.

There are also risks to the structural integrity to the front façade during excavation, construction and post construction, which would be carefully managed to avoid impacts to the building (refer Section 4 of this referral).

It is noted that the New Southern Entrance will require the removal of several planted trees, which in accordance with the HMPs (GML, 2011; GML, 2019) and Memorial Personnel do not possess historic heritage values. This includes what is commonly referred to as the 'Queen's Tree' which has been replaced six times since 1954 due to tree mortality.

Overall, with these management measures in place, it is not anticipated that works associated with the main Memorial building would degrade or damage its National Heritage values.

Place

Australian War Memorial, Anzac Hall - NHL place ID 105889, CHL place ID 105466.

Impact

The Project proposes to remove the existing Anzac Hall and replace it with a new Anzac Hall and glazed courtyard.

An additional 4500 m² of floor space is required by the Memorial to increase and upgrade available exhibition space. The consideration of options during the Initial Business Case (IBC) resulted in the decision to replace this building. This was considered to have the least negative impact on the Memorial heritage values while also being the most cost effective.

The existing Anzac Hall features in the NHL listing for the Memorial under criterion e (aesthetic) and was awarded the Sir Zelman Cowen Award for Public Buildings in 2005 by the Royal Australian Institute of Architects (Section 6.3 of the Historical

Impact Assessment in Attachment E provides further detail). As such, applying the precautionary approach, the removal of this building is likely to result in a 'significant impact' as defined by the Significant Impact Guidelines 1.2 – Actions on, or imposing upon, Commonwealth land and Actions by Commonwealth Agencies. This is because the heritage values associated with existing building would be removed and there will be changes to the setting and landscape of the Memorial as a result of the new Anzac Hall.

Notwithstanding the above, the new Anzac Hall would be complementary and recessive to the main Memorial building in terms of bulk and scale. Measures to achieve this are outlined in Section 4 of this referral and include engaging an experienced and well-recognised architect to develop a detailed design for the new building, careful selection of materials to retain the significance of the Memorial's setting and built environment, and proactively consider heritage values of the place.

To retain the memory of the existing Anzac Hall, it is proposed to fully document the existing landscape and built features and provide an exhibition display about the architectural development of the Memorial precinct (refer mitigation measure 8 and 9 in Section 4.1 of this referral).

Existing non-remnant trees along the southern reserve of Treloar Crescent and on the eastern margins of the existing Anzac Hall would also be removed. It is noted in the HMPs (GML 2011, GML 2019) that these trees do not possess historic heritage values.

Place

Australian War Memorial, Glazed courtyard - NHL place ID 105889, CHL place ID 105466.

Impact

The new glazed courtyard would create additional gallery space which would improve wayfinding and circulation. Enclosing or the use of glazing in heritage spaces is not uncommon and examples are present in Australia and internationally, such as the Melbourne Central shot tower, the Louvre and the German History Museum.

The current space created between Anzac Hall and the main Memorial building is considered "dead space" and creates a thoroughfare that is confusing (particularly for those that have parked at the Memorials rear carparks) and can misdirect visitors. While the Anzac Hall design has been successful in being visually recessive and obscuring the aerobridge from important sight lines including those from Mount Ainslie, the current aerobridge is visually dominant within the thoroughfare and inhibits the ability to perceive the main Memorial building 'in the round'.

Sensitive design and the engagement of specialists, including an experienced architect and conservation architect are proposed to avoid undertaking works inconsistent with the Memorial's National Heritage values. Provided these measures are adopted, the new glazed courtyard is not considered a significant impact.

Place

Parliament House Vista - CHL place ID 105466, NHL place ID 105889

Impact

The Memorial stands at the northern (top) end of Anzac Parade and is visible from Parliament House, being highly symbolic and representative of the linkage between the Memorial and Parliament House. The Parliament House Vista is listed on the CHL (Place ID 105466) and its significance noted in the NHL listing for the Memorial.
The impacts of the Project on these views and vistas is described below:

- The proposed New Southern Entrance and a small part of the glazed courtyard would alter part of the Parliament House Vista when viewed from Old Parliament House, New Parliament House, Constitution Avenue and the Parade Ground. These changes are considered minor and do not substantially alter the axial layout, the prominence of the main Memorial building or its landscape setting against Mount Ainslie.

- The proposed New Southern Entrance would alter part of the Parliament House Vista when viewed from the steps of the main Memorial entrance towards the Old Parliament House and New Parliament House. This change is related to the introduction of the nexus element, however it does not obscure any of the sight lines and only alters the Memorial's discrete forecourt area. This is considered a minor change and does not substantially alter the Parliament House Vista.

- The proposed glazed courtyard would alter part of the Parliament House Vista when viewed from Mount Ainslie. These changes are considered minor and do not substantially alter the prominence of the main Memorial building, its landscape setting or the view to the Parliament Houses. This is considered to be a minor change and does not substantially

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alter the Parliament House Vista or views of the Memorial.

• One of the key conservation considerations of both the 2011 and 2019 HMP is conservation of the view of the building 'in the round' and that the landscape setting is not comprised by any new surrounding development (GML, 2011; GML, 2019). The new Anzac Hall and glazed courtyard would substantially alter the visual setting created by the existing Anzac Hall and potentially obscure part of the northern elevation of the main Memorial building. However, the Project design is sensitive to the main Memorial building and changes to the aerobridge would improve the ability to perceive the building "in the round" from the courtyard and aerobridge. While a change to the views of the main Memorial building would occur, they are not out of keeping with the landscape setting of the Memorial or its architectural values.

Sensitive design and the engagement of specialists, including an experienced architect and conservation architect, are proposed to protect the views and vistas. Specifically, the proposed design uses a range of options to minimise the bulk of the new Anzac Hall, including bunding, use of copper roof elements and adjacent landscaping to ensure that the building is visually recessive in the landscape and environmentally responsible. In addition, Design Guidance 12 (refer Section 4.1.1 of this referral) recommends that the height of the glazed courtyard remains below, or minimises the structure above, the main Memorial building parapet roofline so that the structure is not visible along the Parliament House Vista.

2.2.2 Do you consider this impact to be significant?

☑ Yes ☐ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☑ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☐ Yes ☑ No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☐ Yes ☑ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☐ Yes ☑ No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☐ Yes ☑ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☐ Yes ☑ No

2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

2.11 Is the proposed action to be taken by a Commonwealth agency?

☑ Yes ☐ No

2.11.1 Describe the nature and extent of the likely impact on the whole of the environment

Refer to Section 2.7.2 of this referral.

2.11.2 Do you consider this impact to be significant?

☑ Yes ☐ No

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2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☑ No

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Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

Flora, fauna and habitat

The Memorial site is highly modified environment, consisting of buildings and structures, car parking and access areas and landscaped gardens.

There are no listed threatened species or communities and/or known habitat for these species or communities, listed migratory species and/or known habitat for these species or areas of remnant native vegetation on the Memorial site.

There has however been observations of the EPBC Act and NC Act listed vulnerable Superb Parrot (Polytelis swainsonii) within Mount Ainslie Nature Reserve to the north of the Memorial site (GHD, 2018b).The Parrot has been observed feeding within the reserve, perching within Yellow Box and Scribbly Gum and at times flying over the Memorial site (GHD, 2018b).

One plant species listed as a Weed of National Significance has previously been identified in the study area; Serrated Tussock (Nassella trichotoma) (GHD, 2018b). This species was restricted to a few scattered plants within the Mount Ainslie Nature Reserve. Some appeared to have been previously sprayed and active spraying of this species was being undertaken during the May survey period.

Three weed species listed under the Pest Plants and Animals Act have previously been identified in the area surrounding the Memorial. This includes St. John's Wort (Hypericum perforatum), Serrated Tussock (Nassella trichotoma), and Sweet Briar (Rosa rubiginosa) (GHD, 2018b).

3.2 Describe the hydrology relevant to the project area (including water flows)

Surface Water

There are no natural watercourses within the Memorial precinct. Ephemeral drainage lines have been mapped running from Mount Ainslie in all directions including through the Remembrance Nature Park section of the Memorial precinct. The closest permanent surface water body is Lake Burley Griffin, located down-gradient approximately 1,350 m south of the Memorial precinct.

Groundwater

Review of the Hydrogeology of the Australian Capital Territory and Environs Map indicates that the Memorial site is located on fractures aquifers of the late Middle Silurian age (Bureau of Mineral Resources, Geology and Geophysics 1984 cited in Douglas Partners, 2016).

Douglas Partners state 'the yield of aquifers increases from the east to the west from less than 0.5 l/s to between 0.5 – 1.0 l/s. Total dissolved solids (TDS) are mapped as decreasing in an easterly to westerly direction from in excess of 1000mg/L to less than 500mg/L' (2016: 3).

Information on groundwater bores adjacent to and within the Memorial site is limited. Douglas Partners documented that encountering groundwater onsite is unlikely however perched groundwater or springs cannot be discounted (Douglas Partners, 2016).

A 2018 search of groundwater bores within 500 m of the Memorial precinct identified two groundwater abstraction bores west (inferred to be hydraulically down-gradient), no groundwater data was available for these boreholes. No current on-site use of groundwater was identified.

3.3 Describe the soil and vegetation characteristics relevant to the project area

Soils

The Memorial was constructed on an undulating landscape where extensive landscape design has modified the site from its original topography. Soils within the area typically include red earths and red and yellow podzolic soils.

Review of publically available information from the ACT Government on erosion risks and creeks (Australian Soil Resource Information System, 2017), documents that the Memorial precinct is located within an area of low to moderate erosion and with an extremely low probability of acid sulphate soils.

Potential for contamination

The site has been occupied by the Australian War Memorial since 1928, while the surrounding area has been used for open space, residential and educational purposes. Historical site activities include: storage and use of chemicals associated with film preparation, landfilling, fill placement, pesticide application and hazardous building materials.

While most chemical use and storage areas at the Memorial site were located internally in concrete lined spaces with penetrations through slabs and walls only for drainage at the former photographic processing area (to the north of the Main building), waste chemicals were also stored in underground tanks. Anecdotal evidence indicates that this infrastructure has since been removed.

The risk of potential contamination at the site is generally considered to be low (GHD, 2018c) however, there is a risk of localised contamination from the underground storage of chemicals should this infrastructure still be present.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

The NHL Statement of Significance for the Memorial states that the open landscape surrounding the main Memorial building and the natural landscape of the Mount Ainslie backdrop are important features of the Memorial. Eucalypts and wattles are planted to the east of the building, giving an appearance of an extension of the natural vegetation of Mount Ainslie and were proposed as part of the 1952 plans. To the west of the building are mixed exotic plantings of deciduous and coniferous trees including the Lone Pine tree which was planted by the Duke of Gloucester in 1934 in memory of those who died in the Lone Pine attack at Gallipoli (1915).

3.5 Describe the status of native vegetation relevant to the project area

The project site is highly modified and landscaped. Native vegetation is described above in Section 3.1 of this referral.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area

The Memorial precinct was constructed on an undulating landscape where extensive landscape design has modified the site from its original topography.

3.7 Describe the current condition of the environment relevant to the project area

The Memorial site is highly modified and landscaped. The current condition is described in Section 1.5 and Section 3.1 of this referral.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

The Memorial is cited on the following heritage lists for having significant historic heritage values:
— CHL Australian War Memorial, Anzac Parade, Campbell, ACT, Australia (Place ID 105469)
— NHL Australian War Memorial and the Memorial Parade, Anzac Parade, Campbell, ACT, Australia (Place ID 105889)

Further, the Memorial is listed as part of the CHL citation: Parliament House Vista, Anzac Parade, Parkes, ACT, Australia (Place ID 105466).
Being on the CHL and the NHL, the Memorial has been recognised of outstanding heritage significance to the nation.

Three other National Heritage Places are located within 10 km of the Project. These are:
— Australian Academy of Science Building (Place ID 105741), located approximately 2.2 km west of the Project
— High Court - National Gallery Precinct (Place ID 105745), located approximately 2.2 km south west of the Project
— Old Parliament House and Curtilage (Place ID 105774), located approximately 2.8 km south of the Project
These sites will not be affected by the proposed action.

Further detail of the heritage values of these places is provided in the HIA (Attachment E).

3.9 Describe any Indigenous heritage values relevant to the project area

A search of the Australian Heritage Database was undertaken with no results returned for documented Commonwealth Indigenous heritage values.

An assessment for Indigenous heritage at the Memorial has previously been undertaken by Navin Officer (2008). This assessment identified one Indigenous site, AWM 1, an isolated artefact located to the north of Treloar Crescent (refer Figure 2 in Section 4.2 of the HIA). Due to the past disturbance of the site, Navin Officer concluded that there was little potential for Indigenous material to present within the Memorial precinct or survive in situ.

A site visit of the Memorial precinct was undertaken in 2018, as part of this Project with RAO participation. RAOs have commented that Mount Ainslie is a significant location in the Indigenous cultural landscape of Canberra and is known as a woman's place (pers comm Karen Denny 24 May 2018). Two additional flaked stone artefacts were found north of Treloar Crescent in the Remembrance Nature Park in a disturbed context, AWM 2 (refer Figure 2 in Section 4.2 of the HIA). RAOs are aware that larger artefact scatters are located north of the Memorial, on the slopes of Mount Ainslie. The site visit

confirmed that there is little potential for Indigenous material to present within the Memorial Precinct. However, further investigation was recommended in locations to the north of Treloar Crescent should works be undertaken in this area.

Measures for managing unanticipated archaeological finds would be included within the CEMP to minimise risk of impacts to Aboriginal heritage.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

The land tenure (or titling) system in the ACT is managed through Crown Leases, issued either by the Commonwealth or ACT Government. As the Memorial site is not subject to a Crown Lease, there are no restrictions imposed on the site, except for those that arise through the NCP and EPBC Act.

Day-to-day operations of the Memorial are regulated by the AWM Act.

National Land
The Memorial precinct is wholly within Block 3 Section 39 Campbell, which is identified as National Land for the special purpose of Canberra as the National Capital.
Jurisdiction for development or management of National Land properties rests with the Commonwealth, rather than the ACT Government. This status combined with the site being 'Designated Land' under the NCP means that all main building works within the block are wholly within Commonwealth jurisdiction.

3.11 Describe any existing or any proposed uses relevant to the project area

Functions of the Memorial
The Summary Statement of Significance for the Memorial in the Australian National Heritage List (place ID105889) describes the place as a purpose-built repository where "the nature of commemoration was based on an integral relationship between the building, commemorative spaces and the collections of objects and records" (Australian Heritage Database, 2006).

This recognises that the role of the Memorial is to be a place of commemoration not only through ceremonies or commemorative spaces, such as the Tomb of the Unknown Australian Soldier, but also through the National Collection, its exhibitions, archives and its research, collection and publication activities in support of 'Section 5 - Functions of Memorial' under the AWM Act.

The Memorial forms the core of the nation's tribute to the sacrifice and achievement of the more than 102,000 Australian men and women who have died serving their country, and to all those who served overseas and at home.

The Memorial is also a place for visitors to understand these sacrifices and to honour them, to see the records of the deeds of Australian soldiers, sailors, airmen and airwomen recorded first hand in the archives held by the Memorial. Visitors come to learn of the lives they lived through the objects that they carried to war. Not simply weapons or uniforms, but the personal items, for example lucky charms, reminders of home, loving letters from family far away and more. Veterans also come to the Memorial to remember their mates, and to explain to their families what they did, what they saw, and how it affected them.

The Memorial provides a place for reflection, for true commemoration and understanding. In turn, true understanding is not possible without the realisation derived from the Memorial's co-equal role as shrine, museum and archive which it is required to provide by the AWM Act – that those whose stories are told at the Memorial were real men and women, who lived and loved, and are more than just names on a list.

Evolution and development
The Memorial is an ever evolving site seeking to commemorate and tell the story of Australia's national experience in world wars, regional conflicts, and international peacekeeping. The main Memorial building was completed in 1941 and extended in 1971, but the Memorial also features recent developments including the Administration Building in 1988, Anzac Hall in 2001, the C.E.W Bean Building in 2006, and the balance of the Eastern Precinct including Poppy's Café in 2010.

The Memorial's purpose remains the same today and, as it has since its inception in the fields of France in 1916, it continues to gain significance with each new generation of Australian servicemen and women to serve in Australian uniform.

The Memorial has always grown to accommodate Australia's continuing story since the first major gallery expansion with the addition of the East and West Wings in 1968-1971. These galleries, which contained both First and Second World War artefacts and stories were but one of ten major developments at the Memorial, including the 11 November 1993 interment of the body of the Unknown Australian Soldier in the Hall of Memory.

Each development has increased the relevance of the Memorial to its current and future audiences and ensured that the

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Memorial speaks to Australia's ongoing story.

This Project in particular would create additional gallery space and improve the visitor experience, which would allow the Memorial to continue to fulfil its role of telling the story of Australian's experience in conflicts, peacekeeping and humanitarian operations.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

As outlined in Section 8 of this referral, the Project has undergone a comprehensive design process, with a number of design options considered. During this process measures to mitigate impacts on the heritage values of the Memorial have been integrated into the design process as outlined in further detail below.

General design guidance

With the aim of avoiding and reducing potential historic heritage impacts,16 guiding principles have been developed for the Project. These are identified in Attachment F.

Construction environmental management plan

A CEMP would be developed and implemented for construction works, covering a range of measures to avoid, mitigate and manage construction related impacts. These measures are outlined in Attachment F.

The CEMP would be prepared in accordance with Memorial Environmental Management procedures/guidelines and the ACT Standard CEMP included at Attachment G. The Memorial has successfully used this as a guide for previous works.

Heritage mitigation measures

In addition to design guidance, the following mitigation measures are provided for consideration for the detailed design and prior to construction activities at the Memorial. Mitigation measures required to be undertaken prior to construction would be integrated in the Project's CEMP.

Refer Attachment F for a full explanation of these mitigation measures.

- Mitigation measure 1 – Engage a suitable architect(s) for further detailed design
- Mitigation measure 2 – Maintain excellence in design
- Mitigation measure 3 – High quality materials
- Mitigation measure 4 – Design checks
- Mitigation measure 5 – Monitoring for Structural Impacts
- Mitigation measure 6 – Management of heritage fabric
- Mitigation measure 7 – CEMP contingencies
- Mitigation measure 8 – Photographic recording
- Mitigation measure 9 – Public interpretation
- Mitigation measure 10 – Consultation with RAOs
- Mitigation measure 11 – Induction
- Mitigation measure 12 – Construction go/no go areas

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

The proposed action is being undertaken to meet future development, gallery expansion and storage demand, with the works essential to the Memorial's ability to fulfil its role under Section 5 of the AWM Act.

If left unresolved, these existing functional inadequacies would lead to the building being outdated, but most significantly, would not meet future requirements for gallery space, back of house space, access (including DDA access), back of house facilities, useable/functional areas for LTOs, and improved wayfinding and amenities.

An assessment of the impacts of the proposed action has been undertaken as outlined in Section 2 of this referral. While the removal of the existing Anzac Hall is likely to result in a 'significant impact' on the heritage values of the site which are recognised under the NHL and CHL listing, the new Anzac Hall would be complementary and recessive to the main Memorial building in terms of bulk and scale. Measures to achieve this are outlined in Section 4 of this referral and include engaging an experienced and well-recognised architect to develop a detailed design for the new building, careful selection of materials which reflect the significance of the Memorial's setting and built environment, and proactively considering heritage values of the place.

To capture the history of the existing Anzac Hall, it is proposed to fully document the existing landscape and built features and provide an exhibition display about the architectural development of the Memorial precinct (refer mitigation measure 8 and 9 in Section 4.1.3 of this referral).

This referral is supported by an HIA (refer Attachment E). The HIA concludes the Project will result in changes to the setting and landscape of the Memorial that will impact historic heritage values. In some instances, these changes could be viewed positively, for instance the proposed changes reinforce the axial relationship of the main Memorial building within the Canberra

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landscape, greatly increase the connectivity of these new spaces to the heart of commemoration at the Memorial (the Hall of Memory & Tomb of the Unknown Australian Soldier) and improve the connection between museums, archive and commemorative functions across the entire precinct.

The recommendations and guidance provided in Section 4 of this referral provides design considerations to reduce or limit impacts to significant heritage values of the Memorial and the Parliament House Vista.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- [ ] World Heritage properties
- [x] National Heritage places
- [ ] Wetlands of international importance (declared Ramsar wetlands)
- [ ] Listed threatened species or any threatened ecological community
- [ ] Listed migratory species
- [ ] Marine environment outside Commonwealth marine areas
- [ ] Protection of the environment from actions involving Commonwealth land
- [ ] Great Barrier Reef Marine Park
- [ ] A water resource, in relation to coal seam gas development and large coal mining development
- [ ] Protection of the environment from nuclear actions
- [x] Protection of the environment from Commonwealth actions
- [ ] Commonwealth Heritage places overseas
- [ ] Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Not applicable.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

Yes

In accordance with section 516A of the EPBC Act, Australian government agencies are required to include in their annual reports information detailing environmental performance contributions to ecologically sustainable development. The Memorial' s annual reports include a summary of environmental performance, including measures taken to address social justice and equity, energy consumption, water and waste management and heritage management. The annual reports can be found at: https://www.awm.gov.au/about/organisation/corporate

Where the Memorial has carried out previous works, the Memorial has undertaken environment and heritage assessments and, where assessed as required, EPBC Act referrals.

The Memorial has conserved one of Australia's largest heritage collections (the National Collection) since its inception in May 1917 as the Australian War Records Section. It has successfully expanded the collection and buildings to support heritage outcomes over the past century.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

There are no past or present proceedings against the Memorial.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☑ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

The Memorial has established systems in place to manage its environmental responsibilities. These include:

— An Environment and Energy Policy: https://www.awm.gov.au/about/organisation/policies/environmental-policy (see Attachment H)

— A Heritage Management Plan (GML 2011) prepared in accordance with National and Commonwealth heritage management principles outlined in Schedule 5B and 7B of the Environment Protection and Biodiversity Conservation Regulations 2000. The Heritage Management Plan has recently been updated (GML 2019) and is pending accreditation.

- The Memorial manages the National Collection under its National Collection Environmental Management Plan (NCEMP) to protect and conserve all elements of the National Collection (see Attachment I).

— The Memorial has completed a number of major EPBC approved projects in the recent past such as the Australian War Memorial Eastern Precinct Development and National Service Memorial and the Gallery Development Stage 2. These projects were successfully completed and the Memorial met all its requirements of its EPBC Referral and other planning and legislative requirements.

— The Memorial regularly undertake smaller non-significant impact works such as the development of commemorative works on the grounds in coordination with the NCA to ensure minimal environmental impact and appropriate management of heritage matters. In recent years these have included the Aboriginal and Torres Strait Islander Memorial (For Our Country), Flanders Memorial Garden, and the Sir John Monash Memorial, which were successfully implemented and well received by the community.

As an example in 2018/2019 the Memorial commissioned the development of For Our Country which the Memorial treated as a minor construction work. A CEMP was developed and the works were delivered in accordance with this plan to ensure positive environmental outcomes. The works resulted in an important new commemorative work to honour the Indigenous personnel who served in the military.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☑ Yes ☐ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

6.4.1 EPBC Act No and/or Name of Proposal

Australian War Memorial Eastern Precinct Development and National Service Memorial (EPBC 2008/4629)
Gallery Development Stage 2 (EPBC 2006/2829)
HMAS Brisbane Bridge (EPBC 2005/2379)
The Bomber Command Memorial (EPBC 2004/1353)
Administration (CEW Bean) Building (EPBC Number 2004/1731)

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

Australian Heritage Database. (2004a). Australian War Memorial, Anzac Pde, Campbell, ACT, Australia: CHL Citation. Canberra

Reliability

High

Uncertainties

N/A

Reference source

Australian Heritage Database. (2004b). Parliament House Vista, Anzac Pde, Parkes, ACT, Australia. Canberra.

Reliability

High

Uncertainties

N/A

Reference source

Australian Heritage Database. (2006). Australian War Memorial and the Memorial Parade, Anzac Pde, Campbell, ACT, Australia: NHL Citation. Canberra.

Reliability

High

Uncertainties

N/A

Reference source

Australian Soil Resource Information System. (2017). Maps. Retrieved from: http://www.asris.csiro.au/themes/AcidSulfateSoils.html

Reliability

High

Uncertainties

N/A

Reference source

Australian War Memorial. (2017). Australian War Memorial Redevelopment - Initial Business case (Draft). Canberra: Unpublished report for the Australian War Memorial

Reliability

High

Uncertainties

N/A

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

Douglas Partners. (2016). Report on Geotechnical Desktop Assessment, Master Planning, Australian War Memorial, Campbell: An unpublished report for the Australian War Memorial.

Reliability

High

Uncertainties

None identified

Reference source

GHD. (2018a). Australian War Memorial Redevelopment: Detailed Business Case Reference Design Report. Canberra: An unpublished report for the Australian War Memorial.

Reliability

High

Uncertainties

N/A.
The DBC was approved by Government during Mid-Year Economic and Fiscal Outlook (MYEFO) 2018-19.

Reference source

GHD, (2018b) Australian War Memorial Redevelopment Ecological Impact Assessment. Canberra: An unpublished report for the Australian War Memorial.

Reliability

High

Uncertainties

None identified

Reference source

GHD, (2018c) Australian War Memorial Redevelopment Phase 1 Environmental Contamination Assessment. Canberra: An unpublished report for the Australian War Memorial.

Reliability

High

Uncertainties

None identified

Reference source

GML, (2011). Australian War Memorial Heritage Management Plan Final Report. Sydney: Unpublished report to the Australian War Memorial.

Reliability

High

Uncertainties

None - Has been accredited by the Federal Environment Minister.

Reference source

GML, (2019). Australian War Memorial: Heritage Management Plan. Canberra: Report prepared for the Australian War Memorial.

Reliability

High

Uncertainties

In draft form – has not been accredited by the Federal Environment Minister.

Reference source

National Native Title Tribunal. (2019a). Maps. Retrieved from National Native Title Tribunal: http://www.nntt.gov.au/assistance/Geospatial/Pages/Maps.aspx

Reliability

High

Uncertainties

N/A

Reference source

National Native Title Tribunal. (2019b). Search Register of Indigenous Land Use Agreements. Retrieved from National Native Title Tribunal: http://www.nntt.gov.au/searchRegApps/NativeTitleRegisters/Pages/Search-Register-of-Indigenous-Land-Use-Agreements.aspx

Reliability

High

Uncertainties

N/A

Reference source

Navin Officer. (2008). Australian War Memorial, Campbell and Mitchell, ACT: Indigenous Cultural Heritage Assessment. Canberra: Unpublished report for GML.

Reliability

High

Uncertainties

None identified

Reference source

Department of Sustainbility, Environment, Water, Population and Communities. (2013). Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies. Canberra: Department of Environment.

Reliability

High

Uncertainties

N/A

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

☑ Yes ☐ No

8.0 Provide a description of the feasible alternative

In developing the Project a range of alternatives have been considered including the 'no project' and alternate design options. A summary of this process and findings is provided below. No alternatives were identified that enabled the Memorial to meet its obligations under the AWM Act.

No Project

The 'no Project' option would not address current operational issues at the Memorial site.

Specifically, the DBC (GHD, 2018a) demonstrates that the Memorial in its current configuration lacks the area and volume required to recognise all Australians who have served, particularly those who have served in recent and ongoing Defence operations. The DBC highlights the significant investments made in recent years to update and rotate exhibition content, and to convert maximum possible space into galleries. The DBC describes that there is no further area available within the Memorial that can be converted into galleries without the significant addition of new space (GHD, 2018a). As such, there is a compelling and urgent business need to provide the facilities and infrastructure to create additional galleries for recent conflicts and operations.

Alternate design options

The Project has been subject to a comprehensive design process amongst key stakeholder groups, specialist consultants, Memorial architects and the Memorial Council. This has included:

— The development of a User Requirements Brief (URB) which defined the overall vision for the Project and endorsed by the Memorial Council. Informed by the Precinct Master Plan and the Heritage Management Plan (GML, 2011; GML, 2019), the URB also set out the specific Project requirements, site investigations, and constraints relevant to the Memorial

— The development of a Functional Design Brief, which describes in detail the manner in which the Project would achieve the User Requirements

— The development of four separate preliminary design options, with one shortlisted to be the reference design for the purpose of developing a P80 Cost Estimate in the DBC (see discussion below)

— A design competition, using the Functional Design Brief as a basis for the design, with a number of design consultants having the opportunity to submit their preferred design for the Project (see discussion below)

— Further development of the preferred designs from the design competition, forming the subject of this referral

Details of the design process and the options considered are provided in Section 7 of the HIA (Attachment E).

Preliminary design options

An IBC (Australian War Memorial, 2017) was prepared for the Project in 2017, which considered four shortlisted options from a total of 18 options overall.

The shortlisted concepts were named Concepts A through to D and broadly tested the manner in which the Memorial might be redeveloped, with additional galleries being proposed to the north, east (underground) and west (both below and above ground). The Preliminary design options are identified in Section 7.2 of the HIA (Attachment E).

Each of the four concept designs were evaluated using a Project developed multi-criteria assessment (MCA) to facilitate a comparable evaluation of each design. The heritage impacts relevant to each option are discussed in Section 7.2 of the HIA (Attachment E).

Reference design phase

Based on the outcomes of the MCA one option was selected by the Memorial Council to further develop into a Reference Design. Preliminary design option A was identified as the preferred concept by the Memorial, and was unanimously endorsed by Council.

Design competition

Following the Reference Design process, the Memorial considered that in order to achieve the best outcome for the Project, it was essential to seek concept designs from a range of Australia's architectural practices most skilled in public architecture. These were (i) Design Package -Anzac Hall and glazed courtyard, and (ii) Design Package - New Southern Entrance.

The objectives for each design package are provided in Section 7.4.2 of the HIA (Attachment E). The winning designs for each of packages met these objectives, achieved the required functionality, while being aesthetically pleasing from a design

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perspective.

Preferred design

The Project design has been developed iteratively by the selected design consultancies, with a focus on the New Southern Entrance, new Anzac Hall and glazed courtyard. Key elements of the Reference Design prepared to support the DBC (GHD, 2018a), such as the C.E.W. Bean Building extension and refurbishment, C.E.W. Bean Research Centre and additional car parking, have not been included in the Project design but are included as part of the wider Project. The other elements of the Project will be brought forward in a future EPBC referral.

While the Project design will be subject to further detailing, it has been endorsed by the Memorial Council and is now not subject to any material change.

8.1 Select the relevant alternatives related to your proposed action

- ☐ Timeframes
- ☐ Locations
- ☐ Activities

8.25 Do you have another alternative?

☐ Yes ☑ No

Australian Government

Department of the Environment and Energy

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	AUSTRALIAN WAR MEMORIAL
Business name	
ABN	64909221257
ACN	
Business address	Treloar Crescent, Campbell, 2612, ACT, Australia
Postal address	
Main Phone number	+61 2 6243 4211
Fax	
Primary email address	development@awm.gov.au
Secondary email address	executive@awm.gov.au

9.1.2 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

☐ Small business

☑ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations *

☐ Yes ☑ No

9.1.3 Contact

First name	Wayne
Last name	Hitches
Job title	Executive Program Director
Phone	+61 2 6243 4211
Mobile	
Fax	
Email	development@awm.gov.au
Primary address	Australian War Memorial, GPO Box 345, Canberra, 2601, ACT, Australia
Address	

Declaration: Person proposing the action

I, _____, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity.

Signature: ..... Date: .....

I, _____, the person proposing the action, consent to the designation of _____ as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:.....Date: .....

Australian Government

Department of the Environment and Energy

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent

9.2.1 Is the proposed designated proponent a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	AUSTRALIAN WAR MEMORIAL
Business name	
ABN	64909221257
ACN	
Business address	Treloar Crescent, Campbell, 2612, ACT, Australia
Postal address	
Main Phone number	+61 2 6243 4211
Fax	
Primary email address	development@awm.gov.au
Secondary email address	executive@awm.gov.au

9.2.2 Contact

First name	Wayne
Last name	Hitches
Job title	Executive Program Director
Phone	+61 2 6243 4211
Mobile	
Fax	
Email	development@awm.gov.au
Primary address	Australian War Memorial, GPO Box 345, Canberra, 2601, ACT, Australia
Address	

Declaration: Proposed Designated Proponent

I, _____,the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: ..... Date: .....

Australian Government

Department of the Environment and Energy

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)

9.3.1 Is the referring party (person preparing the information) a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	AUSTRALIAN WAR MEMORIAL
Business name	
ABN	64909221257
ACN	
Business address	Treloar Crescent, Campbell, 2612, ACT, Australia
Postal address	
Main Phone number	+61 2 6243 4211
Fax	
Primary email address	development@awm.gov.au
Secondary email address	executive@awm.gov.au

9.3.2 Contact

First name	Wayne
Last name	Hitches
Job title	Executive Program Director
Phone	+61 2 6243 4211
Mobile	
Fax	
Email	development@awm.gov.au
Primary address	Australian War Memorial, GPO Box 345, Canberra, 2601, ACT, Australia
Address	

Declaration: Referring party (person preparing the information)

I, _____, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: ..... Date: .....

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Appendix A

Attachment

Document Type	File Name
action_area_images	Attachment A _Action Area Location.pdf
action_area_images	Attachment B_Action Area Site Plan.pdf
public_consultation_reports	Attachment D_Stakeholder Engagement and Consultation Report.pdf
public_consultation_reports	Attachment C - Consultation Summary.pdf
supporting_tech_reports	Attachment E - AWM Redevelopment HIA Final Vol1.pdf
supporting_tech_reports	Attachment E - AWM Redevelopment HIA Final Vol2.pdf
impact_reduction_docs	Attachment F - Mitigation measures.pdf
impact_reduction_docs	Attachment G_ACT Standard Construction Environmental Management Plan.pdf
corp_env_policy_docs	Attachment H Energy and Environmental Policy April 2019.pdf
corp_env_policy_docs	Attachment I NCEMP.pdf

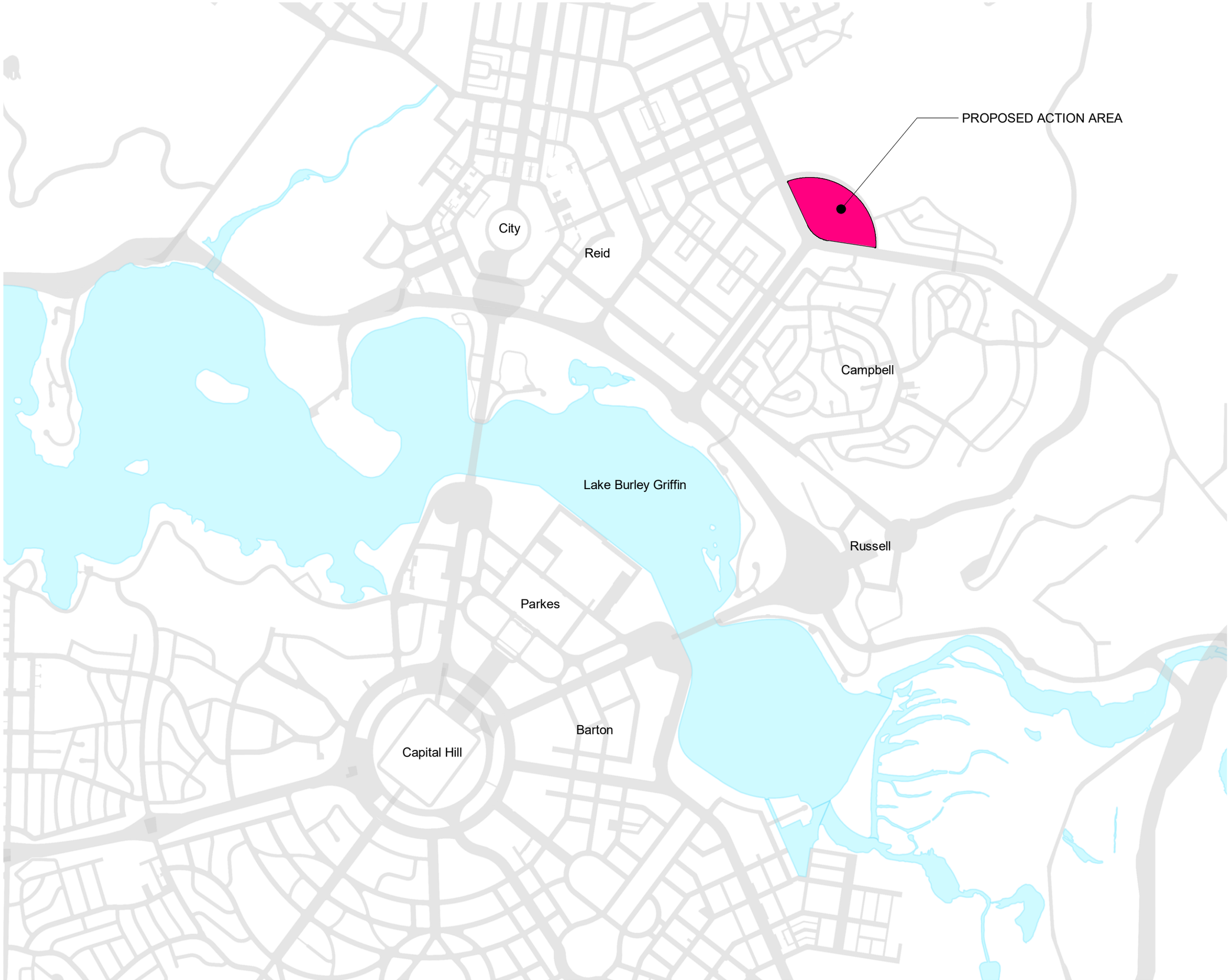
Appendix B

Coordinates

Area 1
-35.27919962067,149.1488858676
-35.279642095254,149.14984872694
-35.28025982372,149.15062796236
-35.280522573551,149.15005761706
-35.282361798493,149.14842565397
-35.281605883723,149.14705912217
-35.279748160455,149.14867413418
-35.27919962067,149.1488858676

ATTACHMENT A

Action Area Location Plan



AWM REDEVELOPMENT PROJECT

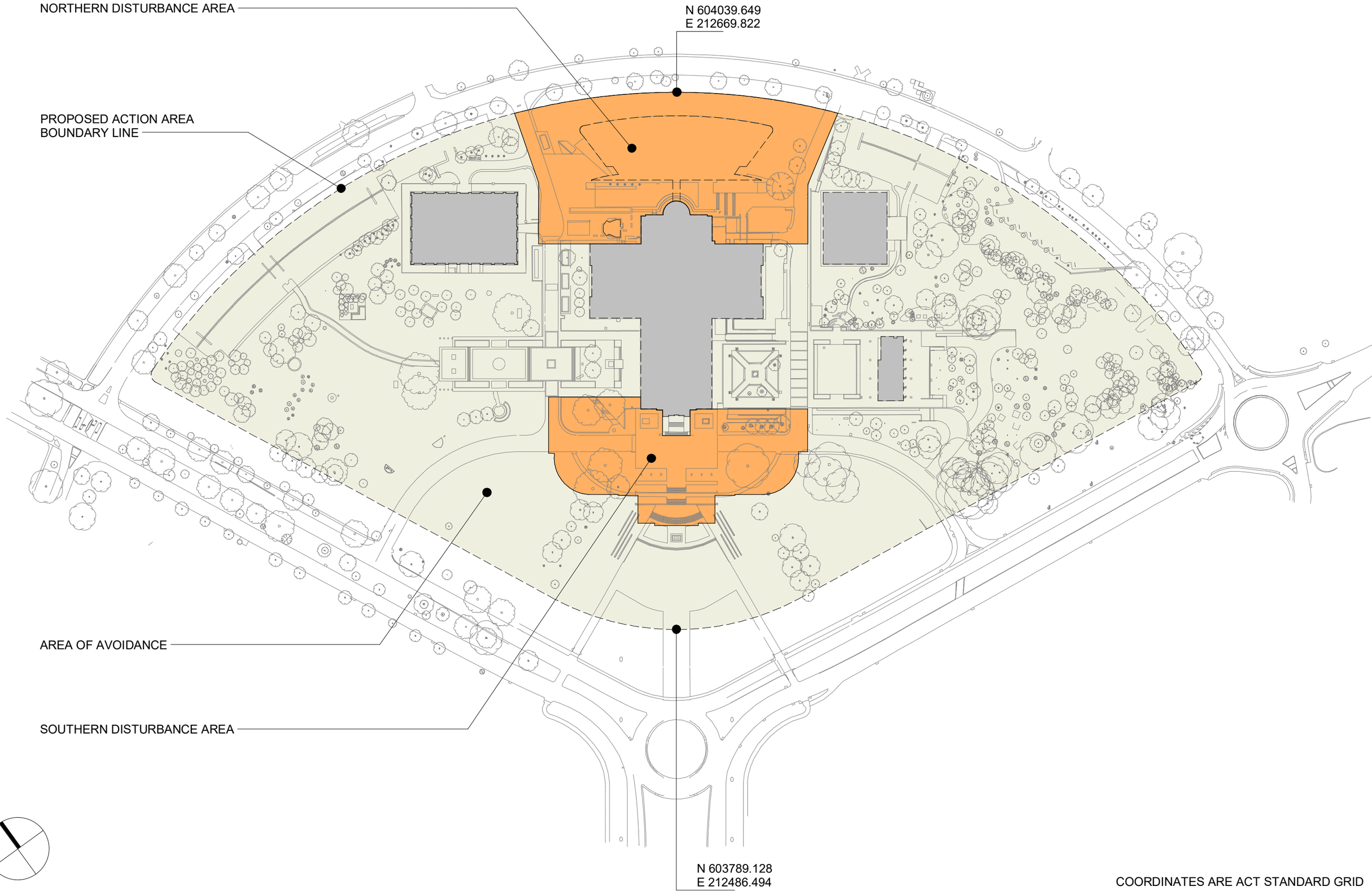
12/11/19
1 : 20000 @A3

Action Area Location Plan

AUSTRALIAN WAR MEMORIAL
OUR CONTINUING STORY

ATTACHMENT B

Action Area Site Plan and Disturbance Areas



COORDINATES ARE ACT STANDARD GRID

AWM REDEVELOPMENT PROJECT

12/11/19

1 : 2000 @A3

Action Area Site Plan

AUSTRALIAN WAR MEMORIAL

OUR CONTINUING STORY

ATTACHMENT C

Consultation Summary (Redacted)

*Superseded by **ATTACHMENT T1** of the EPBC Preliminary Documentation, June 2020 Resubmission*

ATTACHMENT D

Stakeholder Engagement and Consultation Report

*Superseded by **ATTACHMENT S1** of the EPBC Preliminary Documentation, June 2020 Resubmission*

ATTACHMENT E

AWM Redevelopment HIA

*Superseded by **ATTACHMENT C** of the EPBC Preliminary Documentation, June 2020 Resubmission*

ATTACHMENT F

Mitigation Measures

General design guidance

With the aim of avoiding and reducing potential historic heritage impacts, the following will provide guidance to the Project and it is refined through detailed design:

- Design Guidance 1 – it is recommended when considering adaptive reuse that compatible uses of the place be considered.
- Design Guidance 2 – adaptive reuse should aim to retain and conserve heritage fabric, setting and views, and minimise new impacts to all extent practicable.
- Design Guidance 3 – proactively consider heritage values when planning adaptive reuse and ensure proposed changes and development consider potential heritage impacts.
- Design Guidance 4 – adaptive reuse should consider minimal changes to significant fabric and make changes reversible as far as practicable.
- Design Guidance 5 – locate new services (electricity etc.) and service areas so they do not impact on significant spaces or fabric.
- Design Guidance 6 – changes of use require compliance with the BCA for disabled access, fire, health and safety, which adversely impact on the significance of the place. However, the BCA is sufficiently flexible so that solutions can be found in the majority of projects.
- Design Guidance 7 – new additions should be undertaken in such a way that, if they are removed in the future, the essential form and integrity of the historic place is unimpaired.
- Design Guidance 8 – non-reversible changes to a heritage place should only be considered when there is no alternative way of retaining the place as a viable asset.
- Design Guidance 9 – where original features remain, such as original timber doors, these be retained as far as practicable. Should such features require replacement, as they cannot be repaired, it is recommended that similar material/look replacements be found (for example avoid a mix of timber and metal window casements).
- Design Guidance 10 – new build should be constructed using durable high quality materials. New material should be consistent with existing colour palettes in the Memorial precinct.
- Design Guidance 11 – continue to seek advice from the HMPs and DoEE as required where unsure of potential heritage impacts. Given the NHL status of the Memorial and the scope of the proposed redevelopment works it is considered that a Referral under the EPBC Act is likely to be a requirement.
- Design Guidance 12 – the new glazed courtyard integrating the proposed new Anzac Hall and the main Memorial building will enclose rear elevations of the main Memorial building. It is recommended that the height of the glazed courtyard remains below, or minimises the structure above, the main Memorial building parapet roofline so that the structure is not visible along the Parliament House Vista and therefore avoiding heritage impacts this view.
- Design Guidance 13 – entrances from the main Memorial building to the new glazed courtyard should use existing access points and avoid creating news ones by removing fabric if possible.
- Design Guidance 14 – the aerobridge linking the main Memorial building and the proposed new Anzac Hall will be replaced. The current tinted glazing that enclosed the aerobridge visually dominates the rear elevation of the main Memorial building when viewed from the ground. This detracts from the heritage values of the Memorial. Ideally, the new aerobridge should be less visually intrusive and enable views of the rear of main Memorial building 'in the round' as proposed in the Project Design.

- Design Guidance 15 – structural attachments to the main Memorial building should minimise impacts to significant fabric as much as possible.
- Design Guidance 16 – concern has been expressed in relation to the Project, potential demolition of Anzac Hall, and the moral rights of Denton Corker Marshall Architects with regard to Anzac Hall. If the Project is to proceed, and Anzac Hall is to be demolished and rebuilt, the moral rights of Denton Corker Marshall Architects will need to be considered.

Construction environmental management plan

A CEMP would be developed and implemented for construction works, covering a range of measures to avoid, mitigate and manage construction related impacts. The CEMP would cover the following:

- Noise and vibration control measures
  - Implement controls to comply with relevant standards (e.g. *AS 2436 Guide to noise control on construction, demolition and maintenance sites* and the ACT EPA *Noise Environment Protection Policy 2010*)
- Works areas, machinery or vehicle parking, spoil dumps, fuel and chemical stores
  - Minimise the construction footprint as far as practicable and identify construction storage in areas already previously disturbed areas
- Heritage mitigation and control measures
  - Implement mitigation measure 5, 7 and 12 as outlined in Section 4.1 of this referral
  - A two-metre heritage protection zone is to be created along the interface with the front façade meaning no excavation will occur within two metres of the front heritage facade. This protection zone will remove the requirement for the direct underpinning of the heritage façade, however the vertical cut two metres out from the façade will be laterally supported, to prevent any movement of the wall.
  - Identify management measures and contingences in the event that previously unknown items of Aboriginal cultural heritage are uncovered during construction
- Flora and fauna protection
  - Trees to be lopped rather than cleared where practicable. Construction area to be minimised.
  - Exclusion zones identified to protect vegetation / habitat to be retained –
  - Identify and retain (where possible) large hollow-bearing trees and protect by a physical barrier of fence
  - Clearing requirements, including where practicable, hollow-bearing tree removal to occur outside of the main breeding season of the Superb Parrot (August to January), and hollows to be checked for fauna prior to clearing. Clearing to be supervised by a fauna spotter-catcher
  - Construction material laydown areas are to be sited in existing cleared areas of the Memorial (i.e. not in vegetated areas)
- Weed management
  - Implement existing programs for the control of weeds and feral animals
  - Cleaning of personnel/ equipment to prevent spread of weeds, pests and diseases
- Contamination
  - Confirm that the tanks and underground storage tank have been removed, though ground penetrating radar survey or records. Carry out a soil sampling program targeting the former locations of the underground tanks prior to works within the footprint to check that there is no residual contamination that presents a risk to human health and ecological receptors.

    - Develop and implement an Unexpected Finds Protocol, Hazardous Materials Management Plan, Asbestos Management Plans and Procedures to assist with the identification and management of potential contamination
- Waste management
    - Undertake waste classification consistent with ACT EPA Guidelines, where material is to be removed from site for disposal. Testing should take into consideration Contaminant of Potential Concern identified for that particular area of site.
- Construction traffic movements and visitor safety
    - Prepare traffic management plan(s) and implement to manage construction to, from and the Memorial site
    - Maintain safe access to the main Memorial building, the C.E.W Building, administration building and café during construction
- Site rehabilitation
    - Progressive site reinstatement and landscaping where practicable
- Monitoring and review
    - Undertake environmental auditing, correction actions, regular CEMP reviews

The CEMP would be prepared in accordance with Memorial Environmental Management procedures/guidelines and the ACT Standard CEMP included at Attachment G.

Heritage mitigation measures

In addition to design guidance outlined above, the following mitigation measures are provided for consideration for the detailed design and prior to construction activities at the Memorial.

Mitigation measures required to be undertaken prior to construction will be integrated in the Project's CEMP.

Mitigation Measure 1 – Engage an architect(s) with suitable experience and qualifications to undertake further detailed design guided by the National and Commonwealth heritage values of the Memorial and the Parliament House Vista

The Project Design includes changes, such as the new Anzac Hall, glazed courtyard and New Southern Entrance that will impact the heritage values associated with both the Memorial and Parliament House Vista, if not mitigated appropriately. The services of an experienced architect(s), with familiarity of working within sensitive historic heritage places, will be engaged to develop the detailed design and ensure that all design changes or additions to the Memorial are guided by its National and Commonwealth heritage values. More specifically, the detailed design, as well as changes or additions to this design, must not adversely impact the National and Commonwealth heritage values of the Memorial listed under criterion (a), (b), (e), (g) and (h) in the NHL citation and criterion (a), (b), (d), (e), (f), (g) and (h) in the CHL citation.

Outcome

Selection of an architect(s) experienced in sensitive heritage considerations and design, as well as a track record of design excellence, is essential to achieving positive outcomes for the detailed design. Further, the architect(s) will protect existing heritage values through careful design to avoid impacts to heritage building fabric and vistas caused by the project.

Mitigation Measure 2 – Retain and enhance the National and Commonwealth heritage values of the Memorial and Parliament House Vista through continued excellence in design

The Project Design will introduce new elements, such as the new Anzac Hall, glazed courtyard and New Southern Entrance, that if not mitigated appropriately, could impact heritage values associated with the main Memorial building and its landscape setting. Design guidelines and briefings issued for further detailed design and associated design changes or additions to the Memorial, must prioritise the retention and enhancement of the National and Commonwealth heritage values of the Memorial. Proposed further detailed design, design changes or additions to the Memorial must continue to be critically evaluated by a panel of experts. The evaluation is to use criteria that emphasises the importance of the retention and enhancement of the National and Commonwealth heritage values of the Memorial listed under criterion (a), (b), (e), (g) and (h) in the NHL citation and criterion (a), (b), (d), (e), (f), (g) and (h) in the CHL citation.

Outcome

Design excellence for the redevelopment of the Memorial will be achieved through a design that retains and enhances the place's National and Commonwealth heritage values, as well as facilitating and enhancing the place's co-equal role as shrine, museum and archive. The development and evaluation of further detailed design, design changes or additions to Memorial, must be guided by robust decision making informed by experts, that emphasis these desired outcomes.

Mitigation Measure 3 – Retain and enhance the landscape setting and built environment of the Memorial through the use of high quality materials that are sympathetic to the existing built fabric of the Memorial

The introduction of new materials and builds to the Memorial precinct has the potential to impact heritage values associated with the National and Commonwealth heritage values of the Memorial and Parliament House Vista listed under criterion (a), (b), (e), (g) and (h) in the NHL citation and criterion (a), (b), (d), (e), (f), (g) and (h) in the CHL citation, if not mitigated appropriately. The new builds need to be constructed with high quality materials that are sympathetic to the existing built heritage fabric of the Memorial, its landscape setting and built environment.

Introduction of new sandstone elements for the glazed link and New Southern Entrance should match the existing sandstone of the main Memorial building. It is understood that the Memorial has an ongoing relationship with Gosford Quarries, who still operate the Wondabyne quarry from which sandstone for the main Memorial Building was sourced. New sandstone introduced for the glazed courtyard should ideally be sourced from the same Wondabyne quarry, or within the same region to match the existing sandstone.

It is recommended that as part of future HMP updates, that condition assessments include the glazed courtyard to measure and appropriately manage changes in sandstone weathering or patina that are undesirable.

Granite pathing for the New Southern Entrance should also match the existing 'Christmas bush granite'.

Outcome

New builds will use high quality materials, sympathetic to the Memorial's existing built heritage fabric, to avoid impacts to heritage building fabric and vistas caused by the project. Built heritage fabric will be periodically inspected during later scheduled HMP updates, to measure and appropriately manage changes in sandstone weathering or patina that are undesirable.

Mitigation Measure 4 - Implement a robust peer review design check process to evaluate changes in design against the National and Commonwealth heritage values of the Memorial and the Parliament House Vista, and provided expert advice to retain and enhance these values

The Project Design includes changes, such as the new Anzac Hall, glazed courtyard and New Southern Entrance that will impact heritage values associated with both the Memorial and Parliament House Vista if not mitigated appropriately. An independent peer review of further detailed design and associated design changes or additions to the Memorial, should be undertaken by a conservation architect(s) and/or museum specialist(s), with suitable experience and qualifications, particularly if these changes impact on original heritage fabric, both internal and external. Ideally, these specialists will have opportunities to provide direct input with the appointed detailed design architect during changes to the Project Design to ensure that the National and Commonwealth heritage values of the Memorial listed under criterion (a), (b), (e), (g) and (h) in the NHL citation and criterion (a), (b), (d), (e), (f), (g) and (h) in the CHL citation, are retained and excellence in design is achieved.

Outcome

Engagement of an independent peer review of the detailed design, including changes or additions to this design, will ensure that the project is protecting existing heritage values through careful design to avoid impacts to heritage building fabric and vistas caused by the project.

Mitigation Measure 5 – During construction, excavation will not occur within a two metre heritage protection zone along the interface of the main Memorial building front façade. Further a commitment to monitor potential structural movement and vibrations during construction work at the main Memorial building and develop contingencies in the case of potential structural impacts

The Project Design presents a number of structural challenges to the main Memorial building as a result of the proposed excavation and construction of the New Southern Entrance. The main Memorial building is recognised in the National and Commonwealth heritage values of the Memorial listed under criterion (a), (b), (e), (g) and (h) in the NHL citation and criterion (a), (b), (d), (e), (f), (g) and (h) in the CHL citation. Built heritage fabric associated with external facades of the main Memorial building has been identified as having a low tolerance for change by the Memorial's HMPs (GML, 2011; GML, 2019).

The following mitigation actions should be undertaken to manage potential structural impacts:

- A two-metre heritage protection zone will be created along the interface with the main Memorial building front façade, resulting in no excavation occurring within two metres of the front heritage facade. This protection zone will remove the requirement for the direct underpinning of the heritage façade, however the vertical cut two metres out from the façade will be laterally supported, to prevent potential movement of the wall.
- The Project will monitor structural movement and vibrations during bulk excavation and construction works. Currently, there is no Australian Standard that sets the criteria for the assessment of building damage caused by vibration. However, the German Standard DIN4150-3: 2016 *Structural Vibration – Part 3: Effects of vibration on structures* is suggested as appropriate industry standard in which to assess for building damage caused by vibration. For example this standard was used during recent works to World Heritage Listed Sydney Opera House, with success. The CEMP must include contingencies in the case of structural impacts.

Outcome

The risk of structural impacts to the built heritage fabric of the main Memorial building will be avoided by the creation of a two-metre heritage protection zone and emplacement of lateral supports during the excavation and construction of the New Southern Entrance. Additionally, the monitoring for structural movement and vibrations during bulk excavation and construction works will occur, so that appropriate contingencies can be enacted, if required to protect built heritage fabric.

Mitigation Measure 6 – Protect built heritage fabric while construction works are being undertaken, including careful deconstruct and reconstruct plans, handling procedures, and secure storage of built heritage fabric

The Project will include removal and reinstatement, of built heritage fabric associated with the main Memorial building, which is recognised in the National and Commonwealth heritage values of the Memorial listed under criterion (a), (b), (e), (g) and (h) in the NHL citation and criterion (a), (b), (d), (e), (f), (g) and (h) in the CHL citation. Built heritage fabric associated with external facades of the main Memorial building has been identified as having a low tolerance for change by the HMPs (GML, 2011; GML, 2019).

However, with proactive planning and methodical handling procedures of the built heritage fabric, potential significant impacts can be avoided. It is recommended that the handling procedure include information such as careful deconstruct and reconstruct plans, handling procedures (for example by hand or mechanical), and secure storage of built heritage fabric (such as the sandstone blocks) that is protected by the elements, while project works occur.

Further, works undertaken to sensitive built heritage fabrics (for example sandstone), should only be undertaken by appropriately qualified and experienced specialist with a strong background of working with built heritage fabric.

Outcome

Engagement of appropriately qualified specialists to undertake the removal and reinstatement, of built heritage fabric, as well as proactive planning, methodical handling procedures and secure storage protocols, will avoid impacts to heritage building fabric caused by the project.

Mitigation Measure 7 – Develop a Construction Environment Management Plan that includes descriptions of how built heritage fabric associated with National and Commonwealth heritage values of the Memorial will be managed and monitored during works

The Memorial includes a range of built heritage and landscape values that are cited on the NHL and CHL under criterion (a), (b), (e), (g) and (h) and criterion (a), (b), (d), (e), (f), (g) and (h) respectively. The Memorial precinct also includes one Indigenous archaeological site, AWM1. These heritage values have the potential to be impacted during construction works if poor planning or inadequate management of the construction process occurs.

A CEMP must be prepared to guide the management of built heritage fabric during proposed works. This must include monitoring, handling and other mitigation actions identified under Mitigation Measures 5 and 6. The services of an experienced and qualified heritage specialist and conservation architect should be engaged to assist in the development of the CEMP. The heritage specialist and conservation architect need to work closely with the appointed detailed design architect to ensure a collaborative and informed CEMP.

Outcome

The CEMP will describe how activities will be undertaken during construction in such a manner that Mitigation

Mitigation Measure 8 – Undertake photographic archival recording to appropriately document the existing built features and landscape setting of the Memorial

The Project Design will introduce new elements, such as the new Anzac Hall, glazed courtyard and New Southern Entrance, that will change the main Memorial building and its landscape setting, as well as remove the existing Anzac Hall. The incremental development of the architecture of the Memorial precinct is an important part of its history, with various architectural and social aspects identified under criterion (a), (e), (g) and (h) in the NHL citation and criterion (a), (d), (g) and (h) in the CHL citation.

Photographic archival recording must be undertaken to document the existing landscape and built features of the Memorial precinct prior to redevelopment works commencing. The photographic recording should be undertaken in accordance with the Guideline: Archival recording of heritage places (QLD Department of Environment and Heritage Protection, 2013) and Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Heritage Office, 2006), which are considered industry best practice guides.

Outcome

The existing landscape and built features of the Memorial precinct will be documented in a photographic archival recording, capturing the current stage of the Memorials' growth and evolution. The photographic archival recording will provide a detailed record of the architectural technical achievement at the Memorial, after built heritage elements have been altered or removed (i.e. the existing Anzac Hall).

Mitigation Measure 9 – Provide public interpretation on the architectural development of the Memorial precinct, to document change and retain a record of significant built features for future generations

The Project Design will introduce new elements, such as the new Anzac Hall, glazed courtyard and New Southern Entrance, that will change the main Memorial building and its landscape setting, as well as remove the existing Anzac Hall. Public interpretation of historic elements is recommended to document and allow the interpretation of the architectural development of the Memorial precinct since its inception. The incremental development of the architecture of the Memorial precinct is an important part of its history, with various architectural and social aspects as identified under criterion (a), (e), (g) and (h) in the NHL citation and criterion (a), (d), (g) and (h) in the CHL citation. This evolving history of the Memorial is currently not included in the exhibition of the place.

Outcome

The project will provide an exhibition display about the architectural development of the Memorial precinct over time, so that the elements important to the overall story of architectural technical achievement at the Memorial (i.e. such as the existing Anzac Hall), remain accessible to the public and appropriately communicated.

Mitigation Measure 10 – Continue to consult with RAOs during the life of the project

Indigenous heritage values for the Memorial are not identified in either the NHL or the CHL citation. However it is recognised that one Indigenous archaeological site is located within the Memorial precinct (AWM1) and Indigenous archaeological site (AWM2) is located in close proximity to the precinct. Neither AWM1 or AWM2 are located within the proposed project footprint. If the detailed design, or changes or additions to this design, would impact AWM1 and/or AWM2, then it is recommended that these changes should be undertaken in consultation with RAOs, using the Australian Heritage Commission's (2002) *Ask First: A guide to respecting Indigenous heritage places and value* as best practice guidelines.

Outcome

Ongoing consultation with RAOs should occur throughout the life of the Project, particularly in regards to developing mitigation measures for Indigenous heritage values if the Project footprint changes.

Mitigation Measure 11 – Induct construction personnel so that they are aware of the heritage values of the site, including the historic heritage values of the Memorial, its buildings and feature and the potential for Indigenous heritage sites and the values of the area

The Memorial includes a range of built heritage and landscape values that are cited on the NHL and CHL under criterion (a), (b), (e), (g) and (h) and criterion (a), (b), (d), (e), (f), (g) and (h) respectively. The Memorial precinct also includes one Indigenous archaeological site, AWM1. Construction (site) personnel have the potential to impact these heritage values during construction works, or when moving plant equipment near these heritage values.

It is recommended that as part of the induction of site personnel that the heritage values of the site, including the historic heritage values of the Memorial, its buildings and features (statues, plaques and plantings) and the potential for Indigenous heritage sites and the values of the area, be communicated. Chance find protocols and obligations to protect the heritage values of the Memorial must be emphasised in the induction. Requirements for contractors to protect heritage values of the site should be included in tender documents, contracts and the CEMP.

Outcome

Inducting site personnel on the location and types of heritage values of the site, in particularly within proximity to the proposed works, will reduce the potential for accidental impacts to heritage building fabric and Indigenous archaeological sites caused by the project. If accidental impacts or chance finds occur during works, then site personnel must be able to implement contingency plans to prevent further impacts to heritage values from actions being undertaken and to mitigate harm that has occurred.

Mitigation Measure 12 – Construction of go/no go areas will be developed to manage potential impacts to built heritage fabric, including traffic movements and laydown areas

The Memorial includes built heritage features listed under criterion (a), (b), (e), (g) and (h) in the NHL citation and criterion (a), (b), (d), (e), (f), (g) and (h) in the CHL citation, as well as Indigenous archaeological sites that could potentially be impacted by construction traffic movements and laydown areas. The CEMP needs to consider the heritage values of the Memorial and accordingly plan for construction, traffic and laydown areas. Careful forethought to traffic movements throughout the site, including turning circles of construction vehicles need to be fully articulated and accounted for to avoid impacts to significant built heritage fabric. Where required, temporary fencing or barriers should be erected to protect built heritage fabric during works.

Outcome

The CEMP will include plans for construction, traffic and laydown areas that will reduce the risk of accidental impacts the heritage values of the Memorial.

ATTACHMENT G

ACT Standard Construction Environmental Management Plan

ACT Government
Environment and Sustainable Development

Environmental guidelines for preparation of an Environment Management Plan

Environment Protection Authority

MAY 2013

Telephone: 02 6207 1923

Website: www.environment.act.gov.au

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If you are deaf or hearing impaired and require the TTY typewriter service — please telephone 02 6207 2622.

Contents

These guidelines are provided to assist with the preparation of the proponent's Environment Management Plan (EMP). It is recommended that an EMP address all elements of these guidelines.

The Environment Protection Authority (the Authority) expects the proponent to fully consult with relevant stakeholders and to take due care in ensuring any other relevant environmental factors, which may be of interest to the public and stakeholders, are addressed. The EMP should document the results of all consultations undertaken.

1. Overview

The ***Environment Protection Act 1997*** (the Act) provides for the protection of the environment. Part 7 of the Act allows the Environment Protection Authority (the Authority) to enter into an environmental protection agreement (an agreement) with a person conducting an activity. While Part 8 of the Act allows the Authority to require an environmental authorisation (an authorisation) for an activity.

To assist with assessing proposed and existing developments and the preparation of agreements and authorisations, Environment Management Plans (EMPs) should be developed by all agreement holders and authorisation applicants. Where the submission of an EMP is required or desirable, the structure of the EMP should be consistent with these guidelines.

All EMPs have the purpose of protecting the environment, and are based around the objectives of Part 1 of the Act. This includes requiring persons engaging in polluting activities to prevent environmental degradation and adverse risks to human and ecosystem health, make progressive environmental improvements, achieve effective integration of environmental, economic and social considerations in the decision making process, promote shared responsibility for the environment and promote the principles of ecologically sustainable development.

The primary purpose of the EMP is to provide information to the Authority on a proposed/existing activity within the local and regional framework. The plan emphasises how the proposed/existing activity may impact on the relevant environmental factors and how those impacts may be mitigated and managed to be environmentally acceptable. An EMP requires the proponent to:

- describe the proposed/existing activity
- describe the receiving environment
- carry out a risk assessment to identify environmental issues relevant to the site and the potential impacts of the proposed/existing activity on the environment
- identify the proposed management strategies to ensure the environment is appropriately protected and environmental issues are appropriately mitigated and
- demonstrate that the proposed/existing activity should be judged by the Authority to be environmentally acceptable.

Throughout the assessment process it is the objective of the Authority to assist the proponent to design the EMP to improve the protection to the environment, in line with the objectives of the Act, and manage their environmental performance in partnership with the Authority.

2. Objectives of the Environment Management Plan

The objectives of the EMP are to:

- place the proposed/existing activity in the context of the local and regional environment
- adequately describe all components of the proposed/existing activity, so that the Authority can consider approval of a well-defined project
- identify the environmental issues/risks associated with the proposed/existing activity
- provide the basis of the proponent's environment management program, which shows that the environmental impacts resulting from the proposed/existing activity, including cumulative impact, can be acceptably managed and
- provide a document that clearly sets out the reasons why the proposed/existing activity should be judged by the Authority to be environmentally acceptable.

3. Preparation of the Environment Management Plan

Proponents are encouraged to maintain close contact with the Authority during the preparation of the EMP. Contact details are provided below:

Post: **Environment Protection Authority**
Environment and Sustainable Development Directorate
Dame Pattie Menzies House, Challis Street, Dickson
GPO Box 158 Canberra ACT 2601

Call: Canberra Connect 13 22 81

Email: environment.protection@act.gov.au

It is not a requirement for all information to be presented in a professionally drafted form. However, all information must be accurate, clear, unambiguous and suitable for an understanding of the treatment, control and backup methods to be employed.

When the Authority is satisfied with the EMP, it will provide written sign-off to the proponent. The EMP will then be implemented as a condition of an authorisation or agreement.

3.1 The submission

3.1.1 General requirements

The EMP should provide a comprehensive description of the proposed/existing activity including its location (street address, block and section and certificate of title details where relevant).

Specific matters requiring attention are:

- justific ation and/or objectives for the proposed/existing activity
- the legal framework, including existing zoning and environmental approvals, decision making authorities and involved agencies and
- consideration of alternative options.

3.1.2 Key characteristics of the proposed/existing activity

Include a description of the components of the proposed/existing activity, including the nature and extent of proposed and current works. This information can be summarised in the form of a table, an example of which follows:

Table 1: Key characteristics (example only)

Element	Description
Life of project	< 5 yrs (continual operation)
Total land area of site	10 hectares
Any subsurface developments, identify	Bore, approximately 40 metres
Water table depth	50m below ground surface
Area of disturbance (including access)	5 hectares
Operating hours: During construction Business operating hours	 8.00am to 5.00pm, Monday to Friday 8.30am to 5.30pm, Monday to Friday 8.00am to 12.00pm, Saturday
List of major components	refer 'plans, specifications, charts' section immediately below for details of map requirements.
Solid waste management	Waste materials taken to landfill.
Water supply: source maximum hourly requirement maximum annual requirement	 bore 180 cubic metres 1 000 000 cubic metres
Fuel storage capacity and quantity used	litres; litres per year
Number of fuel storage tanks (above or underground)	3 underground storage tanks

3.1.3 Plans, specification, charts

Provide adequately dimensioned plans clearly showing the location and elements of the proposed/existing activity that are significant from the point of view of environmental protection. Locate and show dimensions (for progressive stages of development, if relevant) of plant, amenities buildings, access ways, stockpile areas, dredge areas, waste product disposal and treatment areas, all dams and water storage areas, storage areas including fuel storage and waste oil and landscaped areas.

Only those elements of plans, specifications and charts that are significant from the point of view of environmental protection are relevant here.

Always include:

- a map showing the proposed/existing activity in the local context- an overlay of the proposed/existing activity on a base map of the main environmental constraints and surrounding land uses;
- a map showing the proposed/existing activity in the regional context; and, if appropriate,
- a process chart/mass balance diagram showing inputs, outputs and waste streams.

The plan/s should include contours, north arrow, scale bar, legend, grid coordinates, the source of the data and a title. The dates of any aerial photos should be shown.

Other logistics

The EMP will need to include:

- timing and staging of project; and
- ownership and liability for waste during transport, disposal operations and long-term disposal (where appropriate to the proposed/existing development).

3.2 Environmental factors

The EMP should focus on the relevant environmental factors for the proposed/existing development, and these should be agreed in consultation with the Authority and relevant public and government agencies.

To assist with addressing the environmental factors the proponent may choose to document every activity, product and/or service that interacts or has the potential to interact with the environment. For example:

Table 2: Example documentation of environmental interactions

Activity	Interaction ('cause')	Change to Environment ('effect')	Management/Mitigation Measures
Driving company vehicle	Use of fossil fuels	Depletion of non-renewable resource	Reduce usage of vehicle for short distances

The following table documents environmental factors, objectives and the Authority requirements.

Table 3: Environmental Factors and the Authority Requirements

Factor	Objective(s)	Requirements
Noise management*		
Noise/Vibration	Protect the amenity of nearby residents from noise/vibration impacts resulting from activities associated with the proposed/ existing development by ensuring that noise/vibration levels meet statutory requirements and acceptable standards.	Identification of sources of noise/vibration and estimates of project-wide noise. Ensure that noise and vibration levels meet acceptable standards and that an adequate level of service, safety and public amenity is maintained. Propose measures to manage and/or mitigate impacts.
Water management*		
Surface water quality	Maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance, are protected.	Details of site drainage, hydrocarbon use, disposal of plant site waste (including sewage), dewatering, and fate of water used/pumped. Incorporate measures and/or operating procedures to ensure that stormwater run-off from the site reflects patterns, volumes and quality that exist prior to development as far as reasonably practicable. Drainage lines are to be naturalised as much as possible and should enhance the ecological values and recreational opportunities. Propose measures to manage and/or mitigate impacts.
Groundwater quality	Maintain or improve the quality of groundwater to ensure that existing and potential uses, including ecosystem maintenance are protected.	Describe water requirements for any on-site processing. Incorporate measures and/or operating procedures that will minimise the demand of the development on potable water supplies. Propose measures to manage and/or mitigate impacts, including over-abstraction.
Wastewater management*		
Wastewater reuse	To protect the aquatic ecosystems, reduce the demand on potable water supplies and prevent off-stream diversions by reusing treated wastewater on site.	Describe potential wastewater reuse schemes for the site. Ensure that no contaminated water, including that containing sediments, leaves the site. Propose measures to manage and/or mitigate impacts.
Air management*		
Air	Ensure that potential air pollutants are contained and that activities do not impact on the natural environment.	Identify sources of air pollution. Propose measures to manage and/or mitigate impacts.
Particulates/Dust	Ensure that particulate /dust emissions, both individually and cumulatively, meet appropriate criteria and do not cause an environmental or human health problem.	Identification of sources of particulates/dust and estimates of project-wide emissions. Propose measures to manage and/or mitigate impacts.
Odour	Ensure that operations do not generate odour that causes environmental nuisance.	Identification of sources of odour and estimates of project-wide emissions. Propose measures to manage and/or mitigate impacts.

Factor	Objective(s)	Requirements
Waste management*		
Solid/liquid waste	Ensure that wastes are contained and isolated from land, ground and surface water surrounds and treatment or collection does not result in long-term impacts on the natural environment.	Identify sources of solid and liquid waste and estimate the proposed amount generated. Propose measures to manage and/or mitigate impacts.
Special waste (medical, radioactive, chemical)	Ensure that wastes are contained and isolated from land, ground and surface water surrounds and treatment or collection does not result in long-term impacts on the natural environment.	Identify the source of special waste and estimate the amount generated. Propose measures to manage and/or mitigate impacts.
Contaminated land*		
Land	Ensure that existing or proposed activities do not discharge to land.	Identify activities that have the potential to discharge to land. Propose measures to manage and/or mitigate impacts.
Surface water	Ensure that existing or proposed activities do not discharge to surface waters.	Identify activities that have the potential to discharge to surface waters. Propose measures to manage and/or mitigate impacts.
Groundwater	Ensure that existing or proposed activities do not discharge to groundwater.	Identify activities that have the potential to discharge to groundwater. Propose measures to manage and/or mitigate impacts.
Hazardous materials management*		
Scheduled wastes	Ensure scheduled wastes are specially treated for their destruction.	Identify scheduled wastes and describe treatment of their destruction. Propose measures to manage and/or mitigate impacts.
Resource storage	Ensure that chemicals and other potentially harmful resources used in the manufacturing process are stored and disposed of correctly.	Describe the use and management of chemicals and other potentially harmful resources. Propose measures to manage and/or mitigate impacts.
Pest control	Ensure that pest control chemicals are used safely and appropriately.	Describe the use and management of pest control chemicals. Propose measures to manage and/or mitigate impacts.
Household chemicals	Ensure residual household chemicals are disposed of in accordance with guidelines.	Describe the use and management of household chemicals. Propose measures to manage and/or mitigate impacts.
Compressed/ liquid gas	Ensure the suitable storage of compressed/liquid gas.	Describe the use and management of compressed/ liquid gas. Propose measures to manage and/or mitigate impacts.

** Refer to relevant Environment Protection Policy for guidance on meeting the requirements of the Act and Environment Protection Regulation 2005.*

These factors should be addressed within the EMP document.

Further environmental factors may be identified during the preparation of the EMP; therefore, on-going consultation with the Authority and other relevant agencies is recommended.

4. EMP report structure

The following is a suggested report structure.

General information

As documented under 3.1.1 General requirements on page 3 of these guidelines.

Key characteristics

As documented in the example Table 1 at 3.1.2 Key characteristics of the proposed/existing development on page 3 of these guidelines.

Environmental factors

The environmental factors can be documented in table form. It is suggested that the table states the activity, identifies the source of all pollutants and potential pollutants, states the environmental factors which may be impacted and documents measures to manage and/or mitigate the impacts on the environment.

Plans, specifications and charts

Attach all plans, specifications and charts as identified under 3.1.3 Plans, specifications, charts on page 4 of these guidelines.

5. EMP submission checklist

This checklist helps proponents provide the necessary information to ensure a timely assessment process. Information should be provided on all those items that are relevant to your proposal/existing development.

Table 4: EMP checklist

	Issue and Comment	Yes, No or Not Applicable
1	Have you described the proposed/existing development in full and included plans showing the location of the proposed/existing development and surrounding environment (land uses/features)?	
	Description of proposed activities	
	Ownership details of proposed land area	
	Bushland areas, other system areas and reserves	
	Wetlands and waterways (eg. declared waterways, etc)	
	Priority surface and groundwater protection areas (eg. public drinking water sources and other declared areas)	
	Any existing site contamination or details of previous land uses which may have contaminated the soil or water resources	
	A layout of the proposed/existing development on a site plan with the current topography including contour lines and catchment boundaries, catchment areas, adjacent areas including creeks and buildings; the location of permanent stormwater inlets, pipes, outlets, and other permanent drainage facilities; current vegetation on site and vegetation to be removed from the site; and detailed alterations to existing land structures.	
2	Have you addressed relevant issues from the following list and identified control measures to address environmental impacts?	
	a. Air	
	b. Particulates/dust	
	c. Odour	
	d. Noise/vibration	
	e. Surface water	
	f. Groundwater	

	Issue and Comment	Yes, No or Not Applicable
	g. Wastewater reuse	
	h. Solid and liquid waste	
	i. Special waste (medical, radioactive, chemical)	
	j. Scheduled wastes	
	k. Hazardous materials	
	l. Resource storage	
	m. Pest control	
	n. Household chemicals	
	o. Compressed/liquid gas	
	p. Underground/above ground fuel storage tanks	
	q. Discharges to land	
	r. Discharges to surface water	
	s. Discharges to groundwater	
3	Have you addressed onsite water usage? For example	
	a. Irrigation	
	b. Laundry	
	c. Swimming pools	
	d. Cleaning	
	e. Drinking	
4	Have you provided the following information?	
	a. Operating hours	
	b. Timescale for completion of construction works	
	c. Planned timelines for construction and operation	
	d. Risk assessment	
	e. Environmental Protection measures required	
	f. Company contact details including 24-hour emergency phone number	

6. Lodging your Environment Management Plan

Environment Management Plans should be lodged with the Environment Protection Authority at:

Post: **Environment Protection Authority**
Environment and Sustainable Development Directorate
Dame Pattie Menzies House, Challis Street, Dickson
GPO Box 158 Canberra ACT 2601

Call: Canberra Connect 13 22 81

Email: environment.protection@act.gov.au

For further information, please contact the Environment Protection Authority on 13 22 81 or visit www.environment.act.gov.au

Appendix A – Further information for service station EMP's

This Appendix provides further information for those preparing an EMP for Service Stations. An EMP for Service Stations must include the following:

- The name of the person responsible for the system and a 24 hour contact number for that person
- The street address of the storage site
- Land title particulars
- Incident management procedure which must outline the procedures to be followed in dealing with any leaks or spills from the system
- Loss monitoring procedure – Australian Standard 4897 requires a loss monitoring system capable of detecti g losses occurring at a rate of 0.76 litres per hour or more with at least 95% accuracy. (Currently Statistical Inventory Reconciliation Analysis (SIRA) is the only system capable of detecting losses at this rate.) If the site does not have SIRA outline the current loss monitoring system and the expected timeframe for SIRA installation
- The maintenance schedule for the system which must include what maintenance is proposed to be carried out and when in relation to the system, measuring instruments, indicators and gauges and groundwater monitoring wells
- A map showing the site in a local context, the main environmental constraints and surrounding land uses
- A plan of the site that includes the locations of the storage system, all buildings and associated infrastructure, all fences and gates, all groundwater monitoring wells (including any codes or symbols by which they are designated), any unsealed ground surfaces, details of access to and security of the site. The plan should also include contours, north arrow, scale bar, legend, grid coordinates, source of the data and a title
- Current 'as built' drawings for the system and
- Location of all records kept for the authorisation.

ATTACHMENT H

Energy and Environmental Policy, May 2019

AUSTRALIAN
WAR MEMORIAL

DIRECTOR'S INSTRUCTIONS (ADMINISTRATIVE) 9.03
Updated May 2019

ENERGY AND ENVIRONMENTAL POLICY

INTRODUCTION

The Memorial recognises community and government expectations for Commonwealth agencies to be environmentally accountable. The Memorial is committed to operating in a manner that limits pollution, minimises risks to human health and the environment, and to continually reduce energy consumption, greenhouse gas emissions and any negative environmental impacts associated with it's operations.

The Memorial recognises that efficient and responsible energy use practices can realise significant energy savings and associated cost reductions. This Instruction provides policy guidelines on how the Memorial will meet its obligations under Commonwealth energy and environmental policy

INSTRUCTION

Environmental Management System

The Memorial will use the Guidelines for Section 516A reporting - *Environment Protection and Biodiversity Conservation Act 1999* developed by the Department of the Environment, Water, Heritage and the Arts (DEWHA). The AWM Energy and Enviromental Policy will be specifically structured and designed to help reduce environmental impacts through continuous improvement in our environmental and energy management. This will lead to improvements in our environmental performance and deliver 'bottom line' benefits through reduced operating costs.

Scope

This policy covers all activities at the Memorial properties in Campbell and Mitchell ACT comprising public buildings, office space, conservation storage and workshops, and grounds.

Environmental Priorities

The Memorial will aim to minimise its negative environmental impact by:

- Establishing an Energy and Environment Committee (EEC) [1] to oversee the Memorial's energy and environmental policies and practices, and promote best practice initiatives to staff;
- Taking into account all relevant environmental legislation, regulations and applicable government policies relating to energy and the environment;
- Sourcing energy in line with Whole of Government (WOG) policies and initiatives;
- Systematically compiling and analysing energy consumption data to develop strategies to reduce energy consumption;

[1] Refer to Attachment A for the Energy and Environment Committee Terms of Reference

- Reducing energy intensity through both technical and staff based initiatives and the use of renewable energy technology where cost effective;
- Ensuring all new equipment is Energy Star (power saving) compliant and rated 4 stars or better under the appliance labelling scheme;
- Engendering environmental awareness amongst our employees, contractors and the community and working together to achieve agreed environmental outcomes through consultation and communication by the EEC;
- Implementing effective environmental management practices to protect the environment and prevent or limit pollution from activities under the Memorial's control;
- Reducing, reusing, repairing and recycling resources to ensure waste minimisation at every level of the organisation;
- Implementing practical initiatives to conserve water;
- Incorporating ecologically sustainable development principles into the design, construction and operation of new facilities; and,
- Monitoring the Memorial's progress towards sustainable development on a regular basis and reporting both internally and to our stakeholders.

RESPONSIBILITY

This Instruction is a key part of the Memorial's commitment to the *Environment Protection and Biodiversity Conservation Act 1999.* The Assistant Director, Corporate Services through the Head, Buildings and Services is responsible for ensuring this Instruction is implemented and reviewed at least every two years.

References:

Guidelines for Section 516A reporting - *Environment Protection and Biodiversity Conservation Act 1999*
Radiation Management Plan
SOP 7 Asbestos Management Procedure (Buildings and Grounds) May 2016

Attachments:

A Energy and Environment Committee Terms of Reference
B Energy and Environment Policy Roles and Responsibilities

AUSTRALIAN WAR MEMORIAL

ENERGY AND ENVIRONMENT COMMITTEE

TERMS OF REFERENCE

Membership

The Energy and Environment Committee will have the following membership:

- Assistant Director, Corporate Services (chair);
- Head, Buildings and Services;
- National Collection branch representative; and
- Exhibitions section representative.

Specialist advice may be invited to meetings as appropriate.

Responsibilities

The responsibilities of the Committee include:

- Consideration of all areas of Memorial energy use and oversight of the development and implementation of energy management action plans by the Head of Buildings and Services.
- Evaluation of energy management performance and trends and identification of initiatives that may offer reduced consumption and/ or cost savings.
- Monitor and formally report on the Memorial's obligations under the *Environment Protection & Biodiversity Act 1999* (EPBC Act) in relation to the protection of its National and Commonwealth heritage values.
- Reporting to the Senior Management Group (SMG) on its activities after each meeting as a means of influencing and shaping employee behaviours regarding energy and environment matters.
- The Committee will report to the Corporate Management Group (CMG) annually, or more frequently as required for endorsement of major energy and environment initiatives or issues.
- Consultation and communication with staff across the AWM to stimulate support for energy initiatives and to gain wide input to action plans.
- Monitoring environmental matters and facilitation of communications on and implementation of environment friendly policies.

Frequency of meetings

Committee meetings shall be held quarterly, or more frequently as determined by the Chair.

AUSTRALIAN WAR MEMORIAL

ENERGY AND ENVIRONMENT POLICY

ROLES AND RESPONSIBILITIES

Corporate Management Group (CMG)

- Overall responsibility for the Memorial's energy and environmental policies.

Energy and Environment Committee (EEC)

- ADCS, through the EEC, is responsible for assigning roles and responsibilities and ensuring these are documented and communicated to relevant staff.
- Develops the ECC targets; and implements in accordance with CMG direction;
- Conducts management reviews and reports on performance of the ECC targets to SMG quarterly and CMG annually;
- Oversights the performance of the EEC Coordinator.

ECC Coordinator

- Works as directed by the EEC to:
    - develop, implement and review the Memorials's energy and environmental objectives and targets; and
    - monitor the Memorial's compliance with Government policy / legislation;
- Records and responds to environmental communication and relevant Government policies / initiatives;
- Ensures EEC documentation is kept up-to-date;
- Ensures emergency response procedures consider environmental issues;
- Coordinates responses to assessments of environmental performance;

AWM employees, volunteers and contractors

- Be aware of individual and section responsibilities and the Memorial's priorities identified in the AWM Energy and Environmental Policy;
- Report environmental incidents to the Security Control Room;
- Report environmental inefficiencies to the EEC coordinator (EnergyandEnviroment@awm.gov.au);
- Assist the EEC where appropriate to improve AWM energy consumption and environmental performance.

ATTACHMENT I

National Collection Environmental Management Plan (NCEMP)

AUSTRALIAN
WAR MEMORIAL

National Collection Environmental Management Plan

APPROVAL

Owner:	Collection Services		
Title:	Head, Collection Services		
Name:	Mel Coen	Date:	9 August 2019

REVIEW

This plan will be reviewed every 2 years by:

- Manager, Conservation (Technology, Objects, and Preventive)
- Preventive Conservation Officer

Table of Contents

1 Introduction

Preventive conservation is the most effective means of promoting the long-term preservation of cultural property. It is an ongoing pre-emptive process of managing preventable agents of deterioration, and does not end with interventive treatment. Minimising deterioration relies significantly on defining and managing the environmental conditions for display and storage, in particular: temperature, relative humidity (RH), light exposure, and environmental pollutants.

This plan outlines both the environmental parameters recommended for the display and storage of the National Collection, and the activities to monitor and maintain these conditions. The parameters defined in the National Collection Environmental Management Plan (NCEMP) are based on national standards defined by the Australian Institute of Conservation of Cultural Materials (AICCM).

2 The 10 Agents of Deterioration

The ten agents of deterioration were developed in the 1990s to define the main forces of deterioration in collections. The agents are:

1. Physical forces
2. Thieves and vandals
3. Fire
4. Water
5. Pests
6. Pollutants
7. Light
8. Incorrect temperature
9. Incorrect relative humidity
10. Custodial neglect and dissociation

This plan addresses the issues and mitigation strategy for pollutants, light, and incorrect temperature and RH. The remaining agents are addressed in the National Collection Disaster Plan, the Integrated Pest Management Plan, Preservation Plan and Director's Instructions Administrative 4.05 Preservation Policy.

3 Pollutants

Pollutants can be gases or particulates, from sources as varied as materials used in showcase construction, fumes from cleaning products, car exhaust or collections themselves. The primary strategy to managing the risk of pollutants to collections is identifying and eliminating the sources in the first places, the secondary strategy is the use of mitigation techniques.

Indoor air quality for collection is managed by assessing the suitability and risk of materials used in proximity to collection. Staff and contractors work in conjunction with the Memorial's Preventive

Conservation Officer (PCO) and use the hierarchy of controls to ensure the on-going preservation of the collection is the highest priority.

Products and materials used in and around collection can be hazardous so the risk assessed prior to use. A review of the Safety Data Sheet (SDS) and method of use will be sufficient in some instances to assess the risk. In others, especially when the materials will be in close contact with collection (within showcases or storage containers) analytical testing may be required to determine the suitability of the material.

HVAC filtration is another control measure designed to capture particulate pollution (eg. dust) before it enters the buildings.

3.1 Selecting Materials for storage and display

Any material to be used in proximity to collection should be assessed by the PCO prior to use, and tested if deemed necessary. A list of approved exhibition materials is available for inclusion in contracts for Exhibition and construction contractors, as well as the capacity for testing new materials.

Storage Materials

Materials used in the packing and storage of collection are selected because they are inert, i.e. they will not present a risk to the collection. Most commonly used are: acid free board, archival quality cardboard boxes, acid free tissue, pure polyethylene and polyester sheet plastic but this is hardly an exhaustive list. Conservators can provide more suggestions when needed.

The National Archives of Australia maintains an open database of Photographic Activity Tested materials.

Material Specifications and SDSs

The PCO liaises with Buildings and Services (BS), Exhibitions and their contractors to assess material SDSs and/or undertake testing to gauge risk to collections. The PCO records all product Safety Data Sheets (SDSs) that have been assessed for suitability of use in proximity to collections in the Preventive Conservation SDS Register

The PCO also reviews work methods for the use of chemicals, and runs staff training to raise awareness of the pollutants which may pose a risk to collection.

The Memorial's contract cleaners are provided with principles, materials, and methods approved for use in proximity to collection, called Collection Awareness for Cleaning Methods and Materials.

The Oddy Test

The Oddy test is used to test materials for their potential to emit harmful Volatile Organic Compounds (VOCs) that may damage collection when sealed inside a showcase. The testing process takes a minimum 42 days (6 weeks) for solid materials, and 70 days (10 weeks) for liquid samples. This time allows for sample preparation, analysis and the testing period. The additional time required for liquid samples is due to the 4 weeks of drying time required before the samples are

tested. This time ensures the experimental method reflects the requirement for all chemicals used inside showcase to off-gas for 4 weeks prior to display.

Oddy testing will be carried out on *all untested materials* to be used in the fabrication of showcases for exhibition and display of collection items as well as any materials used in collection storage areas and display areas (eg. paint, floor sealant). Materials will additionally require periodic re-testing to identify undeclared changes to product formulations, which can then be noted and approved by the PCO.

The Preventive Conservation Officer maintains an up to date list of tested materials.

Procedures to undertake Oddy testing are detailed in the SOP Oddy Test.

3.2 Mitigation

In some situations it is not feasible to eliminate sources of environmental pollutants that pose a risk to collection items; in others it is the collection itself that is the emitter. Mitigation programs are put in place to mitigate these areas of risk.

Activated carbon

Harmful gases emitted from plastics or timber used in showcase construction can be partially mitigated by the use of adsorbent activated carbon products. The Memorial uses activated charcoal to adsorb environmental pollutants and mitigate the levels of VOCs in showcases. Activated carbon is extremely porous, having an average surface area of 1000m^2 per gram of material. The micro pores inside the carbon capture and hold volatile organic compound molecules, removing them from the air around collection items.

The Preventive Conservation team are responsible for managing the installation and mapping of activated charcoal placement in showcases. This includes documentation, reporting, and identifying areas in need of replenishment. The process is detailed in the SOP Use of Activated Carbon in Showcases

Air Exchange

The accumulation of damaging VOCs is mitigated by increasing the air exchange rate within showcases. Critical to this effort is the scheduled opening of showcases in each gallery every three months by Gallery Maintenance teams. Incidental maintenance of showcases and collection changeovers also promote the exchange of air.

Roles and responsibilities of Gallery Maintenance teams are detailed in the SOP Gallery Maintenance

3.3 Monitoring

Lead Coupons

Throughout the installation of the First World War galleries in 2014, staff reported the presence of strong chemical smells within the showcases; these reports continued after the launch when showcases were opened during Gallery Maintenance.

Qualitative testing of air quality in 2015 showed average concentrations of total VOCs, formaldehyde, acetaldehyde, formic acid and acetic acid all exceeded the high or extremely high action limit in the Getty Conservation Institute's recommended museum pollutant guidelines. Corrosion loggers showed the corrosion rate was 25 times higher in one showcase than outside the case.

Lead coupons were installed in First World War gallery showcase in 2016 to monitor for corrosion. At the same time, activated carbon bags were installed to adsorb VOCs. Active corrosion of the coupons was identified in several showcases in 2019, primarily in those where there was no room to install activated carbon. Coupons will be inspected every 3 months by Gallery Maintenance teams.

TSOS bag monitoring

Following the identification of a major pest infestation in the Textiles Store in 2014 and subsequent pest mitigation treatment of all collection in TSOS, it was agreed all collection would remain in sealed plastic bags as an additional mitigation strategy. There is a risk the formation of corrosive microclimates will accelerate deterioration of other materials within the bags. The Low Density Polyethylene (LDPE) bags currently in use will gradually be swapped over to zippered non-woven polyethylene (*Tyvek*) bags, Tyvek provides a greater Air Exchange Rate and reduce wastage.

The process to monitor this collection is defined in the SOP Plastic Bag Inspections and continues on a monthly basis.

Vinegar Syndrome

The smell resulting from the autocatalytic deterioration of cellulose triacetate film is also known as "vinegar syndrome". The acetic acid produced in this process can react with the dyes in colour films, causing dye fading and damage to the image and substrate. Storage of acetate film in appropriate conditions will significantly slow the rate of deterioration.

Monitoring of the acetate collection is detailed in the SOP Monitoring for Vinegar Syndrome

Specific Collection Material Requirements

The containment of some plastics with other materials can be a cause of deterioration mechanisms. For example, benzoic acid from degraded plasticizers can cause corrosion of copper and its alloys in sealed enclosures, while sulfur compounds from rubbers can lead to staining through contact or when contained in a sealed enclosure.

Conservation have commenced a program to rehouse and store like materials together and identify those that would benefit from storage in sealed enclosures and those that should not. The strategy will be developed in 2019-20.

4 Light

Light is known to cause damage over time that is cumulative and irreversible. The slow progression of resulting damage is often only noticeable by the human eye when a significant amount of damage has been done. Colours that fade can do so within hours or years. Light damage is caused by both

visible and ultraviolet (UV) light is invisible, does not enhance how an object is seen, and will accelerate the rate of disintegration of the media chalking and yellowing. For the protection of the collection against fading, the aim is to exclude UV wherever possible.

The three factors to consider when understanding light damage:

- Intensity – the amount of light the item is exposed to
- Exposure – the length of time the item is exposed to the light source.
- Elimination of UV light

The Memorial employs a combination of methods using gallery lighting systems that are multi-functional and can be manipulated individually to suit the needs of the specific type of material, including the use of low IR and zero UV fittings.

To reduce the cumulative exposure, showcase lighting is programmed to shut off at 5pm each day, and turned on at 8am to allow for showcases to be visually inspected by Memorial staff. Exceptions to this are limited to out-of-hours functions and tours. Cleaning and gallery circulation lighting is managed separately, however, is still assessed for its effect on the displayed collections

4.1 Parameters

Recommended parameters for the display of collection do not take into account the age, condition or materials that make up an object and contribute to its individual assessment of its light sensitivity. Each item is assessed on a case by case basis to determine the appropriate light level and acceptable duration of display to manage deterioration. Overall, the rate of damage can be controlled by understanding how sensitive an object is to light and managing its exposure[1].

The following table outlines the Memorial's maximum recommended levels by material type:

Item Type *NB: All Values Are Lux*	Long Term Display (>1 Year)	Short Term Display (< 1 Year)	Very Short Display (< 1 Month)
Textiles – uniforms, costumes, flags, cloth badges, dyed leather, suede, felt	50	50	80
Medals with ribbons	50	50	80
Photographs – original	50	50	80
Works on Paper – lithographs, watercolours, drawings unless Conservator advises otherwise	80	80	100
Other Paper Items – books, manuscripts, documents	80	80	100
Photographs – prints – non-original only	80	100	150
Organics – undyed leather, rawhide, bone, ivory, wood, fur, feathers	100	150	150
Plastics and other polymerics – rubber	100	150	200

[1] https://www.canada.ca/en/conservation-institute/services/agents-deterioration/light.html

Item Type *NB: All Values Are Lux*	Long Term Display (>1 Year)	Short Term Display (< 1 Year)	Very Short Display (< 1 Month)
LTOs, weapons, etc with mixed media including organics and plastics (upholstery, leather, rubber)	100	150	300
Painted surfaces – oils, acrylics, tempera, synthetic polymer	150	250	300
Inorganics – stone, ceramics, glass, enamel, metal	200	300	300

Light levels are determined by Conservation in consultation with Exhibitions Audio Visual team and exhibition designers, based on the sensitivity of the most vulnerable material type.

In some circumstances, light sensitive items may be displayed using motion detector activated or visitor activated lighting to minimise overall light exposure.

Display of collection in natural light

Objects are most vulnerable to light induced deterioration under natural light due to the high lux levels and UV component. Collection displayed in locations with natural light should be assessed on a case by case basis to determine the risks to the object. Physical means of limiting exposure may include UV barrier film or UV absorbing acrylic can be used in framing or in the construction of showcases and vitrines.

Light induced damage to Large Technology Objects (LTO) on outdoor display is mitigated by selecting items that do not have original finishes, and ensuring fragile components are substituted with replaceable replicas. Regular maintenance of these items includes weekly cleaning and scheduled repainting every 5-7 years.

4.2 Mitigation

Filters

Filters are used on UV emitting light sources to exclude or reduce UV. This strategy is used in offices and storage areas to mitigate UV emitted from fluorescent tubes.

Works on Paper Changeovers

All works of art on paper are changed over every 12 months to manage the impact of light induced fading. The schedule of changeovers is managed by Exhibitions in consultation with Collection Services (CS) through the Galleries and Exhibitions Co-ordination Meetings (GECM). Specific lighting requirements are provided by Conservation and monitored by the Gallery Audio Visual Team.

Sensitive materials on display are either put on a changeover schedule (ie. works on paper) or the lighting is reduced manually to an acceptable level.

We currently do not distinguish between very vulnerable paper items and items that are less sensitive to light. Creating categories allows greater flexibility in object selection and gives us the

ability to actively manage and schedule a changeover program. The following categories have been formulated (note that the lists are not exhaustive and will be added to progressively):

Category 1 (most vulnerable to be displayed for 1 year in 5)

- Pastels, watercolours, gouaches, tempera, coloured printing inks, most tinted paper, colour photographs (chromogenic), polaroids, felt tip pen drawings, complex black inks, unknown yellows or reds in Japanese and European manuscripts;
- Wood pulp and other low grade paper, silver dye bleach processed prints.

Category 2 (less vulnerable to be displayed for 2 years in 5)

- Good quality rag paper, carbon based inks, graphite, natural chalks, conte crayons, toned photographic prints (selenium or sepia), highest quality modern colour pigments.

These categories bring the Memorial in line with the accepted standard for the most vulnerable items while still allowing adequate display times and maintaining an annual changeover schedule. Establishing Category 2 is an appropriate way to reflect the large volume of printed and modern material in the National Collection that can be displayed for longer periods before causing noticeable fading.

The Categories can also be applied to works requested for loan or travelling exhibition. If longer display periods are desired, these can be considered in consultation with conservation as long as the display/rest ratio is maintained.

The Categories can be applied systematically by utilising search terms and mass updates in the CMS. These can be confirmed on a case by case basis as WOPs are considered for display.

4.3 Monitoring

Several options are available for monitoring light exposure and fading. The most common practice at the Memorial is the use of a light meter to ensure the light levels collection are exposed to are within the Memorial's recommended levels. Exhibitions Audio Visual team ensure levels are within limits when installing or updating fixtures and lamps. Gallery Maintenance teams check light levels on vulnerable items every three months, and BS facilities contractors ensure standard lighting is replaced like for like. Any deviations are discussed with the CS Preventive Conservation team to ensure protection of the collection is paramount.

Procedures outlining the use of the light meter are detailed in the SOP Light Measurement

In limited circumstances, Conservation may recommend high value, iconic or highly significant items be tested with a MicroFade Tester to ascertain the likely rate of fading. The actual rate of fade may be monitored with measurements taken at predetermined positions on the objects using a spectrophotometer.

5 Temperature and Relative Humidity

The National Collection includes numerous material types with specific needs. The risk of complex chemical, physical and biological induced deterioration in materials sensitive to changes in temperature and RH is significant. The consequences of not maintaining these conditions are advanced rates of deterioration, damage from differential expansion/contraction in composite objects, and increased fragility. The rate of change is one of the most significant factors informing the degree of deterioration, so, providing stable environment conditions is the simplest, most cost effective means of preserving material culture.

Temperature and RH are interrelated conditions with heating, ventilation and air-conditioning (HVAC) controlled by the building management system (BMS). BS work closely with CS to monitor and maintain a stable environment, within specified parameters, in all HVAC controlled areas containing collection. Environmental conditions are monitored and reported on a monthly basis. The PCO and BS meet monthly to present temperature and RH data and work towards resolving any anomalies.

Several factors are managed to control environmental conditions efficiently and effectively. Collection preservation must be balanced with human comfort and energy efficiency. Collection display and working areas are maintained at a temperature and RH that is a balance between all material requirements and comfort for visitors. Allowing for seasonal drift is an effective measure to balance these parameters while managing cost and energy efficiency.

Other factors effecting environmental control include the building envelope, air volume and stratification, as well as air pressure. Well sealed buildings ensure efficiency of HVAC systems. Environmental conditions in large building volumes may be subject to stratification, so consideration should be given to this when designing and maintaining the HVAC system. For example, the design of the recently built Treloar E aircraft storage facility is positively pressurised to discourage the ingress of pests, dust and other pollutants. The building fabric is well insulated and temp/RH set points are broader than other locations to reduce both fluctuations and energy costs.

5.1 Parameters

Recommended parameters are based on averages over a 24 hour period, with a priority on minimising fluctuations and rates of change. The AICCM Interim Temperature and Relative Humidity Guidelines for Acceptable Storage and Display Conditions (2014)[2] are:

[2] Standards are congruent with those agreed at The International Institute for Conservation of Historic and Artistic Works (IIC) Congress in Hong Kong, the International Council of Museums – Committee for Conservation (ICOM-CC) conference in Melbourne in September 2014 and the American Institute for Conservation (AIC) guidelines endorsed by the American Association of Museums Directors in 2013. http://www.icom-cc.org/332/-icom-cc-documents/declaration-on-environmental-guidelines/#.W-KQkpMza70

- Temperature – between 15–25°C with allowable fluctuations of +/-4°C per 24 hr
- Relative Humidity – between 45-55% with an allowable fluctuation of +/- 5% per 24 hr

Temperature and RH parameters for preservation of cultural materials will differ according to their material, construction, and condition, but stable conditions maintained within the parameters above are generally acceptable for most objects.

HVAC parameters for the Memorial's collection are:

Collection Area	Temperature Set Point	Rate of change per 24 hrs	RH Set Point	Rate of change per 24 hrs
Galleries	20°C	±2°C	50%	±5%
General storage	20°C	±2°C	50%	±5%
Cool Storage[3]	12°C	±2°C	40%	±5%
Cold Storage	5°C	±2°C	30%	±5%
Nitrate Storage at the shared NFSA vault, Mitchell	4°C	±2°C	30%	±5%
Treloar E*	15-25°C	±2°C	40-60%	±5%

*BMS is designed to provide a controlled rate of change; it will be set to 15°C and 50% RH during winter and 25°C and 50% RH during summer with a controlled rate of change in shoulder seasons.

5.2 Monitoring

Building Services use fixed position sensors connected to the BMS to monitor environmental conditions which are used in conjunction with portable data loggers used by CS. In 2019, the locations of all BMS sensors and the zones controlled by each Air Handling Unit will be collated with CS data logger locations to provide greater visibility of the factors influencing conditions being monitored.

TinyTag loggers currently in use require a USB connection to access data, so are positioned in easy to access locations. This excludes showcases, so the extent of buffering the showcases provide to collection on display is currently undocumented. Acquisition of wireless data loggers in FY2019-20 will enable collection of this data and real time access to conditions.

Data is collected and assessed each month to determine the percentage of time that conditions are outside of recommended conditions, and the risk categorised as:

[3] As recommended by the Rochester Institute of Technology, Image Permanence Institute, Media Store Quick Reference guide, 2nd edition
https://www.imagepermanenceinstitute.org/webfm_send/301

No Risk	
Low Risk	
Moderate Risk	
High Risk	

Risk is measured against the following categories:

Dimensional change/Mechanical Risk	Percentage of 24 hr periods that RH changed more than 5%
Dimensional change/Mechanical Risk	Percentage of 24 hr periods that RH changed more than 10%
Dimensional change/Mechanical Risk	Percentage of 24-hour periods that RH varied more than 20%
Pest Activity	Percentage of time temperature above 24

Maps showing data logger locations are saved here.

Procedures for downloading data and preparing monthly reports are detailed in the SOP Temperature and Relative Humidity Data Collection.

Calibration

The air handling units (AHUs) in the galleries rely on correct calibration and maintenance. Their proper function is the first point in addressing unusual environmental readings. BMS sensors and CS data loggers are calibrated annually.

6 Reporting

Areas of risk and actionable items are presented by the PCO at the following meetings:

- Environmental Conditions Working Group (monthly)
  The Preventive Conservation Officer, Manager Conservation, Building Manager and contract Facilities manager meet monthly to review environmental data, identify solutions and track progress of rectification strategies.

- Preventive Conservation Working Group (monthly)
  Representatives from each Collection Services team meet to review incident, pest, and environmental data and track progress against actions.

- National Collection Branch Preventive Conservation Working Group (quarterly)
  Assistant Director National Collection, National Collection Section Heads, Head Exhibitions, Manager Buildings, Conservation Managers and PCO meet quarterly to review incident, pest and environmental data, and discuss strategies to promote preventive conservation principles at the Memorial.

7 References and Resources

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