

National Radioactive Waste Management Facility - Cultural Heritage Management Plan 01: Site Characterisation

National Radioactive Waste Management Facility Project

02-Nov-2022

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Acknowledgement of Country

The Australian Radioactive Waste Agency, a division of the Department of Industry, Science and Resources and AECOM acknowledge the Barngarla People as the traditional custodians and cultural authority of their ancestral lands. We acknowledge the deep feelings of attachment and the maintained relationship of the Barngarla People to the land and the sea. We acknowledge all Barngarla Elders; past, present and future, and respect that their spiritual and cultural practices are important to the living Barngarla People today. We recognise the strength, resilience, belonging and capacity of the Barngarla community and reinforce our commitment to reconciliation among all Australians.

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Abbreviations / Definitions

Abbreviation / Term	Definition
Aboriginal object	Defined under the AH Act as an object: <i>a. of significance according to Aboriginal tradition; or</i> <i>b. of significance to Aboriginal archaeology, anthropology or history</i> See Section 1.3 'Legislative Context' for further information
Aboriginal site	Defined under the AH Act as an area of land: <i>a. that is of significance according to Aboriginal tradition; or</i> <i>b. that is of significance to Aboriginal archaeology, anthropology or history</i> See Section 1.3 'Legislative Context' for further information
AIA	Activity Impact Assessment – the procedure used in this CHMP to assess likelihood of cultural heritage impacts from site characterisation activities considering the activity location and activity type, and whether any additional cultural heritage management measures are required beyond those already provided in the CHMP
AECOM	AECOM Australia Pty Ltd
AH Act	<i>Aboriginal Heritage Act 1988 (SA)</i>
ARPANSA	Australian Radiation Protection and Nuclear Safety Authority
ARWA	Australian Radioactive Waste Agency
ATSIHP Act	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)</i>
Barngarla community	All Aboriginal people who identify and are recognised as being Barngarla
BDAC	Barngarla Determination Aboriginal Corporation RNTBC
CHA	Cultural Heritage Assessment
CHMP	Cultural Heritage Management Plan
CHMP Project Area	Defined in section 1.2.1 and identified in Figure 1 of this CHMP
CHMR	Cultural Heritage Management Report
Cultural Heritage Area	Areas within the CHMP Project Area encompassing Aboriginal object locations and site extents, or possible Aboriginal object locations and site extents, incorporating a buffer of 10 m around those locations and extents
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEM	Digital elevation model
EIS	Environmental Impact Statement
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
GSV	Ground surface visibility
Heritage Monitor	Traditional Owner authorised to provide Aboriginal cultural heritage knowledge and advice on the management of Aboriginal sites and objects during site characterisation activities
Heritage Specialist	Refers to either an anthropologist or archaeologist, depending on the requirements of the CHMP task
HWG	Heritage Working Group
Intangible cultural heritage	Non-material aspects of culture that are valued. Expressions of intangible heritage include traditions, practices, performance, use, knowledge and language
NRWM Act	<i>National Radioactive Waste Management Act 2012 (Cth)</i>
NRWMF	National Radioactive Waste Management Facility
PPE	Personal protective equipment

Abbreviation / Term	Definition
RNTBC	Registered Native Title Body Corporate
Site characterisation activities	Defined in section 2 and set out in Table 1 of this CHMP
SMP	Site Management Plan
Tangible cultural heritage	Material aspects of cultural that are valued. Expressions of tangible heritage include objects and place
Traditional Owners	<p>According to <i>Ask First</i> (Australian Heritage Commission, 2002) Traditional Owners are defined as people who, through membership in a descent group or clan, have responsibility for caring for particular country. Traditional Owners are authorised to speak for country and its heritage. Authorisation to speak for country and heritage may be as a senior traditional owner, an elder, or in more recent times, as a registered Native Title claimant</p> <p>According to the AH Act, is defined as an Aboriginal person who, in accordance with Aboriginal tradition, has social, economic or spiritual affiliations with, and responsibilities for, a specific site or object</p>

1.0 Introduction

This Cultural Heritage Management Plan (CHMP) has been developed by AECOM Australia Pty Ltd (AECOM) for the program of site characterisation activities being undertaken to inform the design and licensing of the proposed National Radioactive Waste Management Facility (NRWMF), near Kimba in South Australia (NRWMF project). The NRWMF is being developed by the Australian Radioactive Waste Agency (ARWA).

This CHMP explains how ARWA will manage cultural heritage during site characterisation activities in the CHMP Project Area (Section 1.2.1 and Figure 1) and seek to work together with Traditional Owners to identify and manage any cultural heritage risk to Aboriginal sites and objects from the site characterisation activities. This CHMP incorporates information received to date from Traditional Owners and will be updated as ARWA seek comment and feedback, and as new information is received from Traditional Owners and/or further cultural heritage investigations. This CHMP will also provide a starting point for the development of further CHMPs for other phases or areas of the NRWMF project if and when required.

This CHMP has been developed to ensure that Aboriginal cultural heritage sites and objects are appropriately managed during the program of site characterisation activities being undertaken in the CHMP Project Area, and that a procedure is in place to appropriately manage unidentified Aboriginal cultural heritage sites and objects if discovered during the site characterisation activities.

1.1 Project description

AECOM has been engaged by ARWA, part of the Department of Industry, Science and Resources (the Department), to undertake an Aboriginal cultural heritage assessment (CHA) for the NRWMF project. Information collected as part of the CHA process has been used to develop this CHMP for site characterisation activities in the CHMP Project Area. This and further CHMPs will guide ARWA to manage and protect Aboriginal cultural heritage values in the CHMP Project Area during activities associated with the NRWMF project.

The site characterisation activities to be undertaken in the CHMP Project Area (Section 2.0) will provide ARWA with the information it needs to support the future design and licensing applications for the NRWMF. The program of site characterisation activities (described in Table 1) relevant to this CHMP includes:

- Flora and fauna surveys
- Drilling boreholes for soil, rock and groundwater sampling
- Water sampling
- Geotechnical test pits for soil sampling and testing
- Surface soil sampling and testing
- Surveys of naturally occurring radiation
- Geophysical seismic surveys to map soil and rock layers
- Geotechnical surveys to measure soil strength
- Geophysical surveys to measure electrical resistance in soils
- Native vegetation sampling and testing
- Produce, livestock and game animal sampling and testing
- Dust and air sampling and testing, light monitoring and noise measurements and testing
- Weather station installation for the collection of climate data
- Land maintenance activities.

1.2 Project location

1.2.1 CHMP Project Area

The CHMP Project Area for the NRWMF is situated on the southern portion of the Napandee property (CT 6274/56, Allotment 2 in DP129879 in the Hundred of Pinkawillinie; Figure 1), approximately 22 km west of the town of Kimba at the corner of Tola Road and Larwood Road. The CHMP Project Area is 210.3 hectares in size and is set over several paddocks that have been used for growing grain crops since the 1940s. There is one small patch of mixed mallee open woodland vegetation and several southern cypress pine (*Callitris gracilis*) trees in the southwest corner of the CHMP Project Area. Other vegetated areas exist along a paddock fence in the northwest corner of the CHMP Project Area, and within a narrow strip running north-south through the centre of the CHMP Project Area following another fence line. Previous technical surveys have identified two remnant sand dune landforms located in the northern portion of the CHMP Project Area, containing predominantly shrubland and some mixed mallee open woodland vegetation. For the site characterisation activities (Section 2.0), detailed environmental and engineering surveys and sampling and land maintenance activities will occur across the CHMP Project Area and a weather station will be installed.

The CHMP Project Area is the area covered under this NRWMF Site Characterisation Activities CHMP.

1.3 Legislative Context

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's key piece of environmental legislation for environment and heritage protection and biodiversity conservation.

The *Aboriginal Heritage Act 1988* (AH Act) provides for the protection and preservation of Aboriginal heritage in the state of South Australia.

The NRWM Act overrides provisions of State laws so long as they relate to certain subject matter if they regulate, prohibit or prevent the doing of activities for site selection and on a selected site described in section 24 of that Act. The CHA has been undertaken in adherence with the statutory requirements of the EPBC Act. However, to the extent that is practicable to do so, the principles of the AH Act such as the protection of Aboriginal cultural heritage and other elements outlined in the AH Act have been adopted in spirit, given that the Traditional Owners will be most familiar with this process.

The AH Act describes the protection of Aboriginal sites, objects and remains, the protection of Aboriginal traditions, and the creation of Aboriginal heritage agreements. The AH Act also mandates the creation and maintenance of the SA Register.

A search of the SA Register has been undertaken as part of the AECOM (2022b) desktop assessment.

Figure 1 CHMP Project Area



2.0 Site characterisation activities

The program of site characterisation activities covered by this CHMP is outlined in Table 1 and is planned to occur between 2022 and 2024. These activities will allow ARWA to:


- Inform the NRWMF design
- Develop the EIS required under the NRWMF referral application (EPBC 2021/9128) under the EPBC Act
- Provide information and baseline environmental data for the ongoing environmental management of the NRWMF project.


AECOM has undertaken a self-assessment of the planned site characterisation activities for the Project Area using the Department of Climate Change, Energy, the Environment and Water (DCCEEW) *Significant impact guidelines 1.1: Matters of National Environmental Significance* and *Significant impact guidelines 1.2: Actions on or impacting upon, Commonwealth land, and actions by Commonwealth agencies* (Guidelines). Each component of the site characterisation activities was assessed, both individually and collectively, based on their scale, intensity and timing, duration and frequency. The proposed cultural heritage management measures in this draft CHMP were considered in the assessment to understand whether the proposed activities (with those management measures having been implemented) are likely to have a significant impact on the environment.


By implementing the management measures outlined in this CHMP, the severity of potential impacts for all site characterisation activities was assessed as 'Minor, as defined by the *Significant impact guidelines 1.2: Actions on or impacting upon, Commonwealth land, and actions by Commonwealth agencies*


Table 1 Site characterisation activities for the CHMP Project Area)


Activity	Planned Location
<p>Flora and fauna surveys</p> <p>Flora and fauna surveys will be completed to observe and document species. Where required, pitfall traps or funnel or Elliot traps will be set up to catch (and release) small mammals and reptiles.</p> <p>If pitfall traps are needed, shallow holes will be dug temporarily into the ground, monitored and then backfilled. If surface funnel or Elliot traps are needed, then pegs may need to be temporary placed into the ground in order to hold barriers to direct animals to the traps.</p>	<p>CHMP Project Area (may include Cultural Heritage Areas, where unavoidable)</p>
<p>Drilling of boreholes for soil, rock and groundwater sampling and testing</p> <p>A drill rig (example picture below) will drill boreholes beneath the ground surface to document soil and rock types, and to collect samples for testing in the laboratory. Sensors will be temporarily lowered down boreholes to identify the presence of groundwater and detect aquifer properties.</p> <p>Groundwater bores will be constructed within some boreholes to collect water samples for testing in the laboratory. A shallow pit may need to be excavated adjacent to the groundwater bores while drilling for the recirculation of drilling muds.</p> <p>Any boreholes not converted to groundwater bores will be backfilled with grout. Groundwater bores no longer needed for sampling or monitoring will be decommissioned, backfilled with grout and the area remediated.</p>	<p>CHMP Project Area (excluding Cultural Heritage Areas)</p>


Activity	Planned Location
	
<p>Water sampling</p> <p>Water samples will be collected from existing groundwater bores (example picture below), farm dams, drainage lines and rainwater gauges or tanks. Water samples will be tested at laboratories.</p>	<p>CHMP Project Area (including Cultural Heritage Areas)</p>

Activity	Planned Location
	
<p>Excavation of pits for sampling and testing of soils</p> <p>An excavator will also be used to dig pits or trenches to document soil and rock types (example picture below), and to collect samples for testing in the laboratory.</p>	<p>CHMP Project Area (excluding Cultural Heritage Areas)</p>


Activity	Planned Location
	
<p>Survey of naturally occurring radiation</p> <p>A handheld meter (example picture below) will be used to measure the levels of naturally occurring radiation at the ground surface.</p> <p>Surface soil sampling and testing</p> <p>A hand trowel or shovel (example picture below) will be used to collect samples of soil from the ground surface for testing by laboratories.</p>	<p>CHMP Project Area (may include Cultural Heritage Areas, where unavoidable)</p>


Activity	Planned Location
	
<p>Geophysical surveys to map soil and rock layers</p> <p>A seismic geophysical survey will collect information on the structure of the soil and rock layers beneath the Project Area.</p> <p>The survey involves use of a vibrating steel plate attached to a truck (example picture below) that sends energy waves (vibrations) into the underlying ground. The energy waves that are reflected from the soil and rock back to the surface are measured using sensors mounted on metal rods pushed into ground that send the data through cables to computers (example picture below). This process is repeated along 'survey lines' across parts of the Project Area.</p>	<p>Vehicles – CHMP Project Area (excluding Cultural Heritage Areas)</p> <p>Sensors – CHMP Project Area (may include Cultural Heritage Areas, where unavoidable)</p>


Activity	Planned Location
	
<p>Geotechnical surveys to measure soil strength</p> <p>The strength and resistance to penetration of the underlying shallow soils will be tested by driving a metal rod into the ground using a sliding metal hammer (example picture below).</p> <p>The strength and ease of driving piles into the ground for future construction will be tested using a drilling rig that pushes steel piles into the ground (example picture below).</p>	<p>Hand application – CHMP Project Area (may include Cultural Heritage Areas, where unavoidable)</p> <p>Machine application – CHMP Project Area (excluding Cultural Heritage Areas)</p>


Activity	Planned Location
	
<p>Geophysical surveys to measure electrical resistance in soils</p> <p>The amount that soil resists or conducts electrical current will be measured at locations where the solar micro-grid and other electrical equipment are proposed to be located. An electrical current is placed into the soil via electrodes (metal pins that are pushed into the soil surface) with measurements of the current taken along a series of electrodes (example picture below).</p>	CHMP Project Area (excluding Cultural Heritage Areas)

Activity	Planned Location
	
<p>Native vegetation and fauna sampling and testing</p> <p>Samples of native vegetation (example picture below; including flora with identified cultural value – i.e. mallee species and cypress pine trees) will be collected from a few locations using shears or scissors (without compromising the health of the plant) and tested by laboratories. Native fauna will be collected using pitfall traps or Elliot traps (excluding EPBC Act listed threatened fauna and fauna with identified cultural value) and destructively tested by laboratories.</p>	CHMP Project Area (may include Cultural Heritage Areas, where unavoidable)

Activity	Planned Location
	
<p>Produce, livestock and animal sampling and testing</p> <p>Livestock (e.g. sheep), non-native animal (e.g. rabbits, rodents) and produce (e.g. crop) samples will be collected for testing by laboratories.</p>	<p>CHMP Project Area (may include Cultural Heritage Areas, where unavoidable)</p>

Activity	Planned Location
	
<p>Dust and air sampling and testing, light monitoring and noise measurements</p> <p>Samples of dust and air will be collected on a regular basis for testing in the laboratory, and light and noise measurements taken, using equipment attached to tripods / stands (example picture below).</p>	<p>CHMP Project Area (excluding Cultural Heritage Areas)</p>

Activity	Planned Location
	
<p>Weather station</p> <p>Climate data (e.g. wind direction and speed, rainfall, temperature) will be recorded from a weather station that comprise a number of instruments placed near the ground surface and on top of a mast (example picture below).</p>	CHMP Project Area (excluding Cultural Heritage Areas)

Activity	Planned Location
	
<p>Land maintenance activities</p> <p>The following activities will be undertaken for routine land maintenance:</p> <ul style="list-style-type: none">• Suppression or eradication of vegetation, including for fire prevention purposes• Pest and feral animal control and eradication• Repairs to existing fences (including replacement of fence posts)• Maintenance of existing tracks, paths, roads• Existing agricultural and pastoral land uses• Maintenance of infrastructure in support of existing agricultural and pastoral land uses (including water tanks and troughs).	CHMP Project Area (including Cultural Heritage Areas)

3.0 Aboriginal cultural heritage

This section summarises the known tangible and intangible Aboriginal sites and objects associated with the Project Area based on previous studies and Traditional Owner provided information. The Aboriginal archaeological sensitivity of landforms within the Project Area and of enabling infrastructure development corridors within the Area of Interest are preliminarily described and mapped.

3.1 Traditional Owner consultation

Consultation with Traditional Owners is occurring in accordance with the principles set out in *Ask First: a guide to respecting Indigenous heritage places and values* (Australian Heritage Commission, 2002) and *Engage Early: Guidance for Proponents on Best Practice Indigenous Engagement for Environmental Assessments under the Environmental Protection and Biodiversity Conservation Act 1999* (Australian Government (Department of the Environment), 2016). *Ask First* (Australian Heritage Commission, 2002:4) defines Traditional Owners as people who, through membership in a descent group or clan, have responsibility for caring for particular country. Traditional Owners are authorised to speak for country and its heritage. Authorisation to speak for country and heritage may be as a senior Traditional Owner, an Elder, or in more recent times, as a registered native title claimant.

The Ask First guidelines also recognise that people who are not Traditional Owners may wish to be consulted regarding works in an area. Defined as 'Other Indigenous people with interests' these are Aboriginal people who have a connection to a place through their personal or family history (Australian Heritage Commission, 2002:4).

The Project Area is within the Barngarla native title determination area. The Barngarla native title claim was registered in 1998 and determined in 2016. The determination found that native title has been extinguished over the freehold land of the Project Area. BDAC is the key Aboriginal stakeholder for the project as the registered native title body corporate (RNTBC) for the Barngarla native title holders.

For the NRWMF Project Cultural Heritage Assessment (CHA), the Barngarla community are likely to be the only group that meet the *Ask First* (Australian Heritage Commission, 2002:4) definition of Traditional Owner. However, there is the potential that 'Other Indigenous people with interests' also exist for this area. As such, consultation with BDAC, the broader Barngarla community and the wider Aboriginal community is occurring.

AECOM has sought registrations of interest from Aboriginal persons or organisations wishing to be informed, consulted or engaged with regard to the CHA. ARWA will continue to seek the development of a Heritage Working Group (HWG) with BDAC to facilitate consultation and engagement throughout the NRWMF project. The HWG would be made up of Traditional Owner representatives who are recognised by the community as being able to speak for Country, along with project contractors and ARWA representatives. Meetings of the HWG would occur in accordance with project needs and include a review of the last period of work, identification of any issues, and discussion of the upcoming period and any cultural heritage management requirements (Section 6.0).

3.2 Cultural heritage assessment reports

The information about Aboriginal cultural heritage in this CHMP is based upon the following cultural heritage assessment reports:

1. RPS (2018) *Kimba National Radioactive Waste Management Facility Aboriginal Heritage Desktop Assessment Report*
 - RPS completed a desktop assessment of two nominated and shortlisted site locations, including the Project Area
 - The report reviewed the available ethnographic studies and registered sites in proximity to the Project Area and made general predictive statements about sensitivity for Aboriginal archaeology in the study area
 - RPS used light detection and ranging (LIDAR) data to create a landscape model, including a digital elevation model and slope models, and used the landscape model to make predictive

statements about the location of artefact scatters in relation to landforms within the study area.

2. UQCHU (2018) *Preliminary Report: Kimba Radioactive Waste Management Facility Heritage Assessment*

- The University of Queensland Cultural Heritage Unit (UQCHU) completed a preliminary CHA of two potential site locations, including the Project Area
 - The report was independently commissioned by BDAC, written by UQCHU anthropologist Dr Dee Goring, and assessed a study area that included the Project Area
 - The assessment involved male and female representatives of BDAC and considered both tangible and intangible cultural heritage values
 - A constraint of the CHA was that the assessment team did not access the Project Area, making their findings preliminary
 - No archaeological data was collected, and the CHA was based upon vehicle transects through neighbouring properties and public roads adjacent to the study area as well as discussions with BDAC members
- The report states that Barngarla people's attachment to the Project Area is partially defined through the Seven Sisters Dreaming Story, which is associated with physical features, including salt lakes, hills, sandridges and/or sandhills, and specific trees species:
 - Sandridge features are identified as significant to Barngarla people
 - Soft wood or mallee (*Eucalyptus stricta*) is identified as significant to Barngarla people
 - White cypress pine (*Callitris glaucophylla*), although 'not explicitly linked to the Seven Sisters Dreaming Story', are identified as significant to Barngarla people
- The report identified nine Aboriginal sites (NRWMF_22_LF_01 to NRWMF_22_LF_09; Appendix A) within or nearby the Project Area, including six sandridge features located outside (but within 1 km of) the Project Area, as well as a copse of mallee trees (NRWMF_22_LF_05) and a small stand of pine trees (NRWMF_22_LF_07) located within the southwest portion of the Project Area
- In addition to these sites, BDAC representatives highlighted the presence of resource/totemic species in the landscape, including kangaroo, emu and sleepy lizard
 - These species were not identified as part of the cultural heritage sites linked to the Seven Sisters Dreaming Story, but were identified as a component of the cultural landscape requiring protection during the proposed works in the Project Area

3. AECOM (2022b) *Cultural Heritage Desktop Assessment - Napandee: National Radioactive Waste Management Facility Project*

- AECOM completed a desktop CHA that included identify cultural heritage values associated with the Project Area including:
 - An update of the RPS (2018) desktop assessment, including updated database searches
 - Review of technical literature, previous cultural heritage reports, and the available anthropological literature relevant to the project location
 - Updated assessments of cultural heritage potential and sensitivity, including the development of a predictive model
 - Recommendations for the management of cultural heritage impacts and requirements for further assessment
- The AECOM desktop assessment found that:
 - The mallee (*Eucalyptus stricta*) and white cypress pine (*Callitris glaucophylla*) tree species identified in the UQCHU (2018) report may have been incorrectly identified, but that this is unlikely to affect the cultural significance of the two vegetated areas identified

as intangible cultural heritage sites within the Project Area (NRWMF_22_LF_05 and NRWMF_22_LF_07).

- Intangible Aboriginal sites connected to Dreaming stories and songlines potentially exist within the Project Area
- Consultation with the Barngarla community is required to inform the CHA
- Detailed anthropological and archaeological survey assessment of the Project Area with Barngarla representatives is required to identify unrecorded tangible and intangible cultural heritage sites
- Management strategies are required for identified Aboriginal sites and objects, developed in consultation with the Barngarla community

4. AECOM (2022a) *Archaeological Assessment – Napandee: National Radioactive Waste Management Facility Project*

- Reports the results of AECOM's 5-day archaeological survey assessment, including the Project Area. Findings include:
 - Seven new Aboriginal cultural heritage objects (all isolated artefacts; NRWMF_22_IA_01 to NRWMF_22_IA_07; Appendix A) within the Project Area
 - The site boundaries of two previously recorded intangible cultural heritage sites (NRWMF_22_LF_05 and NRWMF_22_LF_07; Appendix A) recorded by UQCHU (2018) were ground-truthed on the basis of the presence of trees identified as culturally significant to the Barngarla people
 - The predictive model developed by AECOM (2022) was tested against the field assessment results and was found to be broadly supported
 - Detailed archaeological sensitivity mapping was developed for the Project Area incorporating the field assessment results and predictive modelling
- Provides recommendations for the management of identified archaeological sites, objects and potential archaeological deposits, and identifies requirements for further archaeological and cultural heritage assessment, including:
 - No further archaeological assessment of the Project Area is required
 - A cultural heritage significance assessment and impact analysis should be completed for all tangible and intangible Aboriginal cultural heritage identified in the Project Area
 - A series of recommendations to be included in this CHMP, including the establishment of Cultural Heritage Areas to avoid and reduce harm to known Aboriginal sites and objects

5. Gorrington (2022) *National Radioactive Waste Facility Preliminary Cultural Heritage Survey Report*

- ARWA facilitated access to the Project Area for the duration of the survey as requested by Dr Gorrington and offered to provide support from AECOM and ARWA for the duration of the survey, if required
- The report is termed 'preliminary'; ARWA has formally requested clarification from Dr Gorrington on why the report is preliminary, but have not received a reply to that request
- The report (provided as a draft) was independently commissioned by BDAC, written by anthropologist Dr Dee Gorrington to assess an area including the Project Area, and:
 - Involved male and female representatives of BDAC
 - Considered both tangible and intangible cultural heritage objects, places and values within the Project Area.
 - Was completed in accordance with a survey methodology comprising a series of vehicle transects and detailed spot checks
 - Aimed to identify Barngarla cultural heritage objects, places and values

- Did not include a comprehensive or systematic archaeological survey
- The report states that:
 - Barngarla people's attachment to the Project Area and enabling infrastructure development corridors is partially defined through the Seven Sisters Dreaming Story, which is significant to both Barngarla men and women, and is associated with physical sites and landscape features
 - Due to the culturally sensitive nature of the knowledge attached to these places, Barngarla representatives requested that the cultural details of the Seven Sisters Dreaming Story not be included in the report
 - It is Gorrings' understanding that the Seven Sisters Dreaming Story begins in the Whyalla/Iron Knob area, travels from Lake Gillies in a southwest direction to the Napandee property, and then continues to the Buckleboo area
 - BDAC representatives highlighted the presence of resource/totemic species in the landscape, including kangaroo, emu and sleepy lizard that would require protection, in addition to their cultural heritage sites
- The report found that:
 - Barngarla representatives were satisfied that effective visual coverage was achieved during the survey to enable the identification of intangible (anthropological or Dreaming Story) Aboriginal cultural heritage sites, places and values, and that ground surface visibility (GSV) was adequate for the identification of archaeological material
 - No archaeological material was identified, but could be present, as the archaeological survey was not comprehensive
 - Sandridges (generally) are not only associated with the Seven Sisters Dreaming Story, but are also known locations where Barngarla ancestral women camped, and these landforms could therefore contain unidentified archaeological material
 - Four Aboriginal sites were identified within the Project Area, including two sites (NRWMF_22_LF_05 and NRWMF_22_LF_07; Appendix A) previously recorded by Gorrings (UQCHU, 2018) both comprising trees, and two newly recorded sites (NRWMF_22_LF_10 and NRWMF_22_LF_11; Appendix A) both comprising sandridge landforms
 - The cultural significance of 3 Aboriginal sites identified within the Project Area was attributed to their association with the Seven Sisters Dreaming Story, and the cultural significance of the remaining site was attributed to its association with ancient Barngarla families
- Gorrings states that the NRWMF project could impact Barngarla cultural heritage sites, places and values in four ways:
 1. The NRWMF project activities could directly impact identified Barngarla sites.
 2. Further physical impacts to culturally significant landforms and vegetation would impact the intangible values of the Seven Sisters Dreaming Story:
 - Although the identified sandridge landforms have been previously disturbed by agricultural activities, any additional impacts could render the Seven Sisters Dreaming Story 'broken' and unable to be restored
 3. Barngarla are concerned about the toxicity of the radioactive waste that would be temporarily stored and permanently disposed at the NRWMF, particularly the potential risk of accidental environmental releases that could 'poison' traditional Barngarla resources and/or totemic species such as kangaroo, emu and sleepy lizard
 4. Unidentified subsurface archaeological material could be impacted by ground disturbing works. Artefactual material is of great importance to the Barngarla people as they represent locales where the Barngarla ancestors have been, rendering them as more

than simply discarded objects. Any disturbance to archaeological materials could be of concern to the Barngarla for this reason.

- Gorrington notes that Barngarla are presently opposed to the NRWMP project, which is on land that they consider spiritually significant, and are currently in Court to prevent the development proceeding. Therefore, from a Barngarla perspective no project activities should proceed within the Project Area.
- Due to Barngarla's position on the NRWMP, Gorrington could not list heritage recommendations for the Project Area. Nevertheless, Gorrington provides maps of identified Barngarla cultural heritage sites where any activity would clearly damage or disturb specific sites. The maps feature 10 m buffers for each Aboriginal site, with the exception of site NRWMP_22_LF_07 (small stand of pine trees; Appendix A)

3.3 Recorded Aboriginal sites and objects

The details of all recorded Aboriginal sites and objects identified to date within the CHMP Project Area are provided in Appendix A. This includes all Aboriginal sites (both tangible and intangible) and Aboriginal objects identified in Aboriginal CHA reports completed to date (Section 3.2). This information has been recorded in a database of recorded Aboriginal sites and objects for the Project. This database, and the associated geospatial database, will be updated with the findings contained in future reports, from ongoing CHA consultation, and from any other surveys and CHA activities completed for further project characterisation activities. Maps showing the location of these Aboriginal sites and objects are provided in Figure 2 for the Project Area. Detailed maps showing the location and extent of each Aboriginal site and object are provided in Appendix A.

3.3.1 Summary of recorded tangible Aboriginal sites and objects

A total of 7 Aboriginal objects (all isolated artefacts) have been recorded within the Project Area (Table 2 and Figure 2).

Table 2 Tangible Aboriginal sites and objects

Site ID (AECOM)	Site or object type	Area	Centroid (GDA94 Zone 53)	Centroid (GDA94 Zone 53)
			Easting	Northing
NRWMP_22_IA_01	Isolated artefact	CHMP Project Area	609729	6334363
NRWMP_22_IA_02	Isolated artefact	CHMP Project Area	609865	6334363
NRWMP_22_IA_03	Isolated artefact	CHMP Project Area	609926	6335224
NRWMP_22_IA_04	Isolated artefact	CHMP Project Area	609925	6335076
NRWMP_22_IA_05	Isolated artefact	CHMP Project Area	610064	6334355
NRWMP_22_IA_06	Isolated artefact	CHMP Project Area	610053	6334376
NRWMP_22_IA_07	Isolated artefact	CHMP Project Area	610163	6334993

3.3.2 Summary of recorded intangible Aboriginal sites

A total of 4 intangible Aboriginal sites (all significant landscape features, comprising 2 sandridge landforms and 2 areas containing trees) have been recorded in the Project Area (Table 3 and Figure 2).

Table 3 Intangible Aboriginal sites

Site ID (AECOM)	Site type	Area	Centroid (GDA94 Zone 53)	Centroid (GDA94 Zone 53)
			Easting	Northing
NRWMF_22_LF_05	Significant landscape feature	CHMP Project Area	609203	6334575
NRWMF_22_LF_07	Significant landscape feature	CHMP Project Area	609150	6334439
NRWMF_22_LF_10	Significant landscape feature	CHMP Project Area	609891	6335675
NRWMF_22_LF_11	Significant landscape feature	CHMP Project Area	610357	6335678

Figure 2 Locations of recorded Aboriginal sites and objects within the CHMP Project Area

3.4 Aboriginal archaeological sensitivity mapping

AECOM (2022b) developed a predictive model for the Project Area that was evaluated in the field and found to be broadly supported during the archaeological assessment (AECOM 2022a). The predictive model is based upon:

- Reviews of available background literature, previous CHAs and cultural heritage register searches, which suggest the most likely types of archaeological sites to occur in the region, and which landforms are likely to have elevated archaeological sensitivity
- A broad landscape appreciation drawing on environmental datasets such as geology and vegetation as well as understandings of climatic and palaeoclimatic changes through time
- Current satellite imagery to map areas of extant vegetation
- Results from a LIDAR survey for the Area of Interest from which a 3 m digital elevation model (DEM) and 1 m contours and drainage lines were mapped

The AECOM (2022b) predictive model makes statements about archaeological sensitivity, which is the result of:

- Subsurface archaeological potential: the likelihood of tangible Aboriginal cultural heritage site types occurring in an area, as indicated by landform and available resources (Table 4)
- Integrity: the level of ground disturbance due to historical land use activities (e.g. ploughing) and past ground disturbance.

Table 4 Definitions for subsurface archaeological potential

Subsurface archaeological potential	Definition
Low	Areas in which subsurface archaeological materials are unlikely to occur. This may be due to unfavourable environmental conditions and/or prior disturbance(s).
Moderate	Areas in which subsurface archaeological materials may occur. Reasonable environmental conditions exist, although high artefact counts/densities are unlikely. Subsurface evidence is likely to be the product of random discard events as opposed to repeated or extensive activity by Aboriginal people in antiquity.
High	Areas known or highly likely to contain subsurface archaeological materials. Presence of archaeological materials typically reflects optimal environmental conditions and little to no prior landscape disturbance. High artefact counts/densities are likely.

Archaeological sensitivity is therefore defined as the likelihood that archaeological sites exist in an area, and remain intact given past ground disturbance, as shown in Table 5.

Table 5 Archaeological sensitivity matrix

Archaeological sensitivity	Subsurface archaeological potential		
Integrity	High	Moderate	Low
Intact	High	Moderate	Low
Disturbed	Moderate	Low	Very Low

AECOM (2022a) completed Aboriginal archaeological sensitivity mapping for the Project Area (as shown in Figure 3), with the following findings:

- The deflated dune systems within ploughed paddocks in the Project Area were assessed as having very low archaeological sensitivity in the plough zone (up to 30 cm depth), and low archaeological sensitivity beneath the plough zone (Figure 3)
 - Although intact archaeology could exist beneath the plough zone, the archaeological sensitivity is assessed as low due to the observed high level of surface disturbance, paucity of surface cultural heritage finds, and consideration of the predictive model parameters (e.g. distance to potential water sources)
- Two areas containing relatively intact dune landforms in the northern portion of the Project Area (including site NRWMF_22_LF_11 and the central portion of NRWMF_22_LF_10; Figure 3) were assessed as having low archaeological sensitivity due to their moderate level of surface disturbance, lack of cultural heritage finds, and consideration of the predictive model parameters (e.g. distance to potential water sources)
- The archaeological sensitivity of the remnant vegetation in the southwest corner of the Project Area (containing site NRWMF_22_LF_05 and a portion of site NRWMF_22_LF_07; Figure 3) was assessed as low due to the observed moderate level of surface disturbance, lack of surface cultural heritage finds, and consideration of the predictive model parameters (e.g. distance to potential water sources)

3.5 CHA preliminary cultural heritage significance assessment and analysis

A cultural heritage significance assessment is required to understand why identified Aboriginal sites and objects are culturally and/or scientifically important, and is a critical input into an impact analysis, which aims to understand how any identified impacts from the proposed works will affect the significance of Aboriginal sites and objects. The cultural heritage significance of Aboriginal sites and objects can only be assessed by Traditional Owners, while scientific significance is normally assessed by a Heritage Specialist (e.g. an archaeologist or anthropologist).

A preliminary cultural heritage significance assessment is provided in Table 6 and is based upon information collected to date, including the AECOM (2022b) desktop assessment, AECOM (2022a) archaeological assessment and BDAC's two independent cultural heritage assessments (Gorring, 2022; UQCHU, 2018). BDAC have provided information about the cultural significance of the four Aboriginal sites recorded in the Project Area (Gorring, 2022; UQCHU, 2018), but have not had the opportunity to assess the cultural significance of the seven Aboriginal objects recorded during the archaeological assessment (2022a). A preliminary assessment of significance is considered appropriate for the present CHMP, as impacts to recorded Aboriginal sites and objects are anticipated to be avoidable at this stage of the NRWMF project.

If site characterisation activities are to occur within Cultural Heritage Areas, an Activity Impact Assessment (AIA) will be undertaken and BDAC notified, if required (see Section 5.2.3), and provided the opportunity to assess the cultural heritage significance of the Cultural Heritage Area and provide comment on the proposed management measures prior to the planned commencement of work. BDAC's assessment of the cultural heritage significance of the Cultural Heritage Area will be included in a review of existing, and development of new cultural heritage management measures for the site characterisation activities.

The preliminary cultural significance ratings provided in Table 6 for intangible cultural heritage sites are based upon information provided in the UQCHU (2018) and Gorring (2022) reports. Sites associated with the Seven Sisters Dreaming Story are preliminarily rated high cultural significance, while those associated with ancient Barngarla families are preliminarily rated as moderate cultural significance. Where insufficient information is known (e.g. all tangible cultural heritage sites) the cultural significance is noted as 'not known'.

The preliminary scientific significance ratings for tangible and intangible cultural heritage sites and objects are based upon the AECOM (2022a) archaeological assessment findings. Likewise, where insufficient information is known, the scientific significance is noted as 'not known'. The cultural and scientific significance of Aboriginal sites identified in SA Register search results was not provided in those results and is noted as 'not known'.

Table 6 Preliminary significance assessment for Aboriginal sites and objects located in the CHMP Project Area

ID (AECOM)	Location Area	Type	Description of cultural significance	Cultural significance Rating	Scientific significance Rating
NRWMF_22_IA_01	CHMP Project Area	Tangible – isolated artefact	Not known	Not known	Low
NRWMF_22_IA_02	CHMP Project Area	Tangible – isolated artefact	Not known	Not known	Low
NRWMF_22_IA_03	CHMP Project Area	Tangible – isolated artefact	Not known	Not known	Low
NRWMF_22_IA_04	CHMP Project Area	Tangible – isolated artefact	Not known	Not known	Low
NRWMF_22_IA_05	CHMP Project Area	Tangible – isolated artefact	Not known	Not known	Low
NRWMF_22_IA_06	CHMP Project Area	Tangible – isolated artefact	Not known	Not known	Low
NRWMF_22_IA_07	CHMP Project Area	Tangible – isolated artefact	Not known	Not known	Low
NRWMF_22_LF_05	CHMP Project Area	Intangible – significant landscape feature	Significant to BDAC women due to its association to the Seven Sisters Dreaming Story	High	Low
NRWMF_22_LF_07	CHMP Project Area	Intangible – significant landscape feature	Significant to BDAC men and women due to their relationship to ancient Barngarla families	Moderate	Low
NRWMF_22_LF_10	CHMP Project Area	Intangible – significant landscape feature	Sandridges are significant to Barngarla female representatives due to their association with the Seven Sisters Dreaming Story	High	Low
NRWMF_22_LF_11	CHMP Project Area	Intangible – significant landscape feature	Sandridges are significant to Barngarla female representatives due to their association with the Seven Sisters Dreaming Story	High	Low

Figure 3 Aboriginal archaeological sensitivity mapping of the CHMP Project Area



4.0 Risks to Aboriginal cultural heritage in the CHMP Project Area

Gorring (2022) identified three risks that are relevant to the site characterisation activities:

1. Risk of physical impacts to culturally significant landforms and vegetation from NRWMF project activities
2. The risk that any further disturbance to culturally significant landforms and vegetation could impact the intangible cultural heritage values of the Seven Sisters Dreaming Story, potentially rendering the story 'broken' and unable to be restored
3. Previous unidentified archaeological material in the form of subsurface material could be impacted by the NRWMF. Any disturbance to archaeological materials would be of concern to Barngarla people.

4.1 Risks to unidentified Aboriginal cultural heritage

Within the Project Area, field assessments to identify intangible and tangible Aboriginal sites and objects have been undertaken by BDAC (Gorring, 2022; UQCHU, 2018) and provided to AECOM. An archaeological assessment to identify tangible Aboriginal sites and objects and assess archaeological sensitivity has been completed by AECOM (2022a). The AECOM (2022a) archaeological assessment included a comprehensive and systematic archaeological survey of the Project Area to identify tangible Aboriginal sites and objects, and the Gorring (2022) assessment included a comprehensive anthropological survey to identify intangible Aboriginal sites and objects within the Project Area.

As such, there is a low likelihood that unidentified intangible and tangible Aboriginal sites and objects exist in the Project Area. If unidentified Aboriginal sites and objects do exist, the Aboriginal archaeological sensitivity mapping and predictive modelling (Section 3.4) suggest:

- They are likely to be isolated artefacts located either on the surface or within subsurface contexts.

Any such unidentified tangible Aboriginal sites and objects may be harmed by the proposed works (Section 2.0) if appropriate cultural heritage management measures (Section 5.0), including the unexpected finds protocol (Appendix B), are not implemented.

4.2 Risks to recorded tangible and intangible Aboriginal sites and objects

Seven isolated artefacts (Table 2, Figure 2 and Appendix A) and four significant landscape features (Table 3, Figure 2 and Appendix A) have been recorded within the Project Area. These Aboriginal sites and objects could be harmed by the proposed works (Section 2.0) if appropriate cultural heritage management measures (Section 5.0) are not implemented.

5.0 Aboriginal cultural heritage management

As described in the previous section, the proposed site characterisation activities have the potential to impact Aboriginal sites and objects located in the CHMP Project Area (Section 4.0). The following section describes the processes that will be put in place to avoid or mitigate these impacts.

5.1 Overarching management measures

The overarching cultural heritage management principles and measures outlined in Table 7 apply to all site characterisation activities outlined in this CHMP. Principles for Traditional Owner consultation and engagement to support these cultural heritage management principles and processes are outlined in Section 5.1.1.

Table 7 Cultural heritage management measures and principles that apply to all site characterisation activities covered by this CHMP

Overarching cultural heritage management measures	
1.	Wherever possible, cultural heritage management measures must seek to avoid harm to Aboriginal sites and/or objects within Cultural Heritage Areas
2.	Cultural heritage management measures outlined in this CHMP must be included in AECOM's Site Management Plan (SMP) developed for the site characterisation activities program for all activities planned within the CHMP Project Area
3.	The SMP must include project plans and maps clearly showing the location of cultural heritage sites and objects, and Cultural Heritage Areas in relation to the proposed work areas
4.	Cultural heritage briefing must be included as part of site inductions and must communicate all cultural heritage management measures relevant to the proposed work to all site personnel
5.	The unexpected finds procedure (Appendix B) must be included in the SMP, site inductions, contractor pre-start meetings and daily toolbox talks
6.	Opportunities should be provided to BDAC and the broader Barngarla community to develop and deliver cultural heritage awareness training as part of ongoing contractor site inductions or pre-start meetings
7.	Any proposed change(s) to the scope of the site characterisation activities previously assessed by an AIA, in terms of: <ol style="list-style-type: none"> A location change from outside to inside a Cultural Heritage Area, and/or A change in Activity Type as described in Table A must be notified to the ARWA Executive Committee and be re-assessed with an AIA prior to the activity commencement
8.	All identified Aboriginal cultural heritage site extents and object locations are buffered Cultural Heritage Areas for the duration of the site characterisation activities program, as shown in Figure 5
9.	High visibility temporary ground markers, indicating a 10 m buffer around the site extent or object location (Figure 10) demarcating Cultural Heritage Areas, must be used in the CHMP Project Area. These must be visible to personnel on foot and while operating vehicles and machinery, and must be installed prior to and maintained during the site characterisation activity works. They must be installed above the ground surface and their installation must be classifiable as a "Minor Ground Surface/Flora/Fauna Disturbance"
10.	Vehicle or machinery access to Cultural Heritage Areas is not permitted, unless assessed by an AIA as unlikely to impact Aboriginal cultural heritage and appropriate cultural heritage management measures are developed and implemented

5.1.1 Traditional Owner consultation and engagement

The following principles will support the cultural heritage management processes (Table C) in place for the site characterisation activity works outlined in this CHMP:

1. ARWA should ensure that all reasonable and practicable efforts and opportunities are made to engage, consult and where possible reach agreement with Traditional Owners in good faith about the management of Aboriginal cultural heritage in the CHMP Project Area for the duration of the program of site characterisation activities, including:
 - a. Seeking the establishment and supporting the functioning of a HWG
 - b. Seeking feedback on the draft CHMP for site characterisation activities from BDAC (and the HWG, if formed)
 - c. Seeking agreement on a reasonable schedule of rates for Heritage Monitors with BDAC (and the HWG, if formed)
 - d. Notifying BDAC with Works Notices and seeking feedback, prior to undertaking Minor or Major Ground Surface/Flora/Fauna Disturbance activities, as defined in Table A, within a Cultural Heritage Area
 - e. Facilitating and supporting Heritage Monitor(s) and/or Heritage Specialist(s) to attend Minor and Major Ground Surface/Flora/Fauna Disturbance activities within Cultural Heritage Areas where required (as per Table C)
 - f. Implementing all cultural heritage management measures contained in this CHMP for site characterisation activities within the CHMP Project Area
 - g. Implementing all final cultural heritage management measures developed through Works Notices and AIAs
 - h. Issuing Cultural Heritage Management Reports (CHMRs) to BDAC (and the HWG, if formed) for site characterisation activity works completed within Cultural Heritage Areas where required (as per Table C)
2. If all reasonable and practical efforts and opportunities are made to engage, consult and reach agreement with Traditional Owners in good faith, and the Traditional Owners choose not to engage, or agreement cannot be reached, then:
 - a. The details of all consultation, engagement and agreement making efforts completed to date will be documented
 - b. AIAs will be undertaken by Heritage Specialist(s) for all site characterisation activities undertaken within the CHMP Project Area, and for any change(s) to the scope of the site characterisation activity works
 - c. ARWA will continue with their efforts to consult with Traditional Owners about the findings of any AIAs (if required) and Works Notices, and seek input into appropriate cultural heritage management measures for any Aboriginal sites and/or objects identified
 - d. If invited Heritage Monitors do not attend site characterisation activity works within Cultural Heritage Areas, ARWA will continue to engage Heritage Specialist(s) to attend the works, produce CHMRs and issue CHMRs to BDAC (and the HWG, if formed)
 - e. Impacts to any identified Aboriginal sites and objects will be avoided, wherever possible
 - f. If impacts cannot be avoided, impacts to Aboriginal sites and objects will be minimised and mitigated by Heritage Specialist(s) in accordance with best practice cultural heritage management methodologies, and all impact mitigation actions documented in CHMRs
 - g. CHMRs will be provided to BDAC (and the HWG, if formed)
3. ARWA will provide and support opportunities for Traditional Owner access to the CHMP Project Area, provided:
 - a. Safe access can be provided for Traditional Owners who agree to abide by all reasonable site rules, including health and safety, environmental and any escort requirements
 - b. A request to access the CHMP Project Area has been made by Traditional Owner(s) at a reasonable time and with reasonable notice

5.2 Activity specific management measures

5.2.1 Activity Impact Assessments

AIAs will be undertaken for all site characterisation activities in the CHMP Project Area prior to works commencing. AIAs will be completed by a Heritage Specialist and will assess the likelihood of cultural heritage impacts, and outline the management measures required to avoid, minimise and mitigate potential harm to Aboriginal cultural heritage from the site characterisation activities. All site characterisation activities are subject to cultural heritage management measures as identified for each Activity Type assessed in accordance with Table A and Table B, and any additional management measures provided in the AIA.

Most of the site characterisation activities planned within the CHMP Project Area are conditionally planned to be undertaken outside of Cultural Heritage Areas (Figure 5), with the exception of some activities that may not be able to avoid these areas (Section 2.0). In the event that site characterisation activities are required within Cultural Heritage Areas, additional CHMP processes and cultural heritage management measures will be required as outlined in Table B and Table C.

AIAs must include:

- A description of the site characterisation activities and the activity location
- An assessment of the Activity Type in accordance with Table A and Table B
- Map(s) showing the location of the planned works area(s) and any Cultural Heritage Areas, Aboriginal sites and/or objects in the vicinity of the works area(s)
- An assessment of the likelihood of any impacts to Aboriginal cultural heritage from the works
- The monitoring requirements of any Heritage Specialist or Heritage Monitors in attendance
- Any additional cultural heritage management measures required, beyond those already provided in the CHMP
- Any further consultation required with Traditional Owners

5.2.2 Exemptions

For the purpose of this CHMP the following activities are considered exempt from the AIA process and any cultural heritage management measures because they are emergency measures:

- Any action taken for the protection or preservation of life or property in response to incidents including an emergency, extreme weather event/s, and malicious third party damage or vandalism.

5.2.3 AIA Process

The flowchart in Figure 4 shows the AIA process used to determine the appropriate level of cultural heritage management measures to be implemented for the assessed site characterisation activities. The cultural heritage management measures outlined in Table C are to be implemented during the site characterisation activities in accordance with the Activity Types and Levels outlined in Table A and Table B.

Figure 4: The AIA process

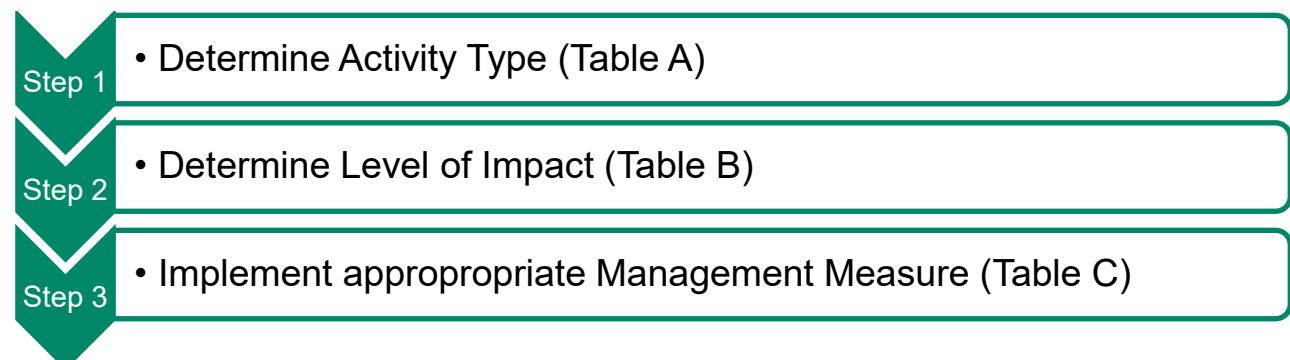


Table A: AIA description of activity types for site characterisation activities in the Project Area

Impact No.	Activity Type	Definition
1	Major Ground Surface/Flora/Fauna Disturbance	<ol style="list-style-type: none"> 1. Disturbance of the topsoil or surface rock layer of the ground by machinery including but not limited to: <ol style="list-style-type: none"> a. Digging, drilling, in-situ testing, grading, excavation, backfilling and subsequent soil compaction b. Bore remediation c. The use of vibrating steel plates as part of a geophysical seismic survey d. Excluding Minor Ground Surface/Flora/Fauna Disturbance 2. Destructive testing or removal of native fauna (excluding EPBC Act listed threatened fauna and fauna with identified cultural value – i.e. kangaroo, emu and sleepy lizard)
2	Minor Ground Surface/Flora/Fauna Disturbance	<p>Disturbance that does not involve Major Ground Surface/Flora/Fauna Disturbance, including but not limited to the following:</p> <ol style="list-style-type: none"> a. Removal of soil and rock samples using hand methods (including hand augering) from the natural surface b. Removal of native flora samples (including flora with identified cultural value – i.e. mallee species and cypress pine trees) using hand methods (including scissors and shears) not affecting flora health c. Driving metal rods into the ground for geotechnical and geophysical surveys d. Digging pitfall traps or funnel Elliot traps (for fauna catch and release) e. Traversing of heavy vehicles and machinery f. Ploughing of previously ploughed agricultural paddocks g. Livestock grazing h. Repairs to existing fences involving the replacement of fence posts) i. Maintenance of below ground agricultural and pastoral infrastructure
3	Above Surface	<p>Activities occurring on or above the natural surface of the land, including but not limited to:</p> <ol style="list-style-type: none"> a. Field mapping, including cadastral surveys, not involving the disturbance of soil and vegetation b. Traversing of light vehicles with rubber tyres c. Water and environmental sampling, including dust, air, light and noise d. Weed spraying e. Pest and feral animal control and eradication, including baiting and shooting f. Repairs to existing fences that do not involve the replacement of fence posts g. Maintenance of other above ground agricultural and pastoral infrastructure

Table B: AIA evaluation of potential cultural heritage impacts

Impact No.	Impact number and Activity Type	CHMP measures to be implemented	CHMP measures to be implemented
		Outside Cultural Heritage Areas	Inside Cultural Heritage Areas
1	Major Ground Surface/Flora/Fauna Disturbance	Level 2	Level 3
2	Minor Ground Surface/Flora/Fauna Disturbance	Level 1	Level 3
3	Above Surface	Level 1	Level 1

Table C: Cultural heritage management measures

Project Area – Level 1 measures	
1.	The unexpected finds procedure (Appendix B) must be implemented during all site characterisation activities
2.	Cultural heritage briefing must be included as part of site inductions and must communicate all cultural heritage management measures relevant to the proposed work to all site personnel

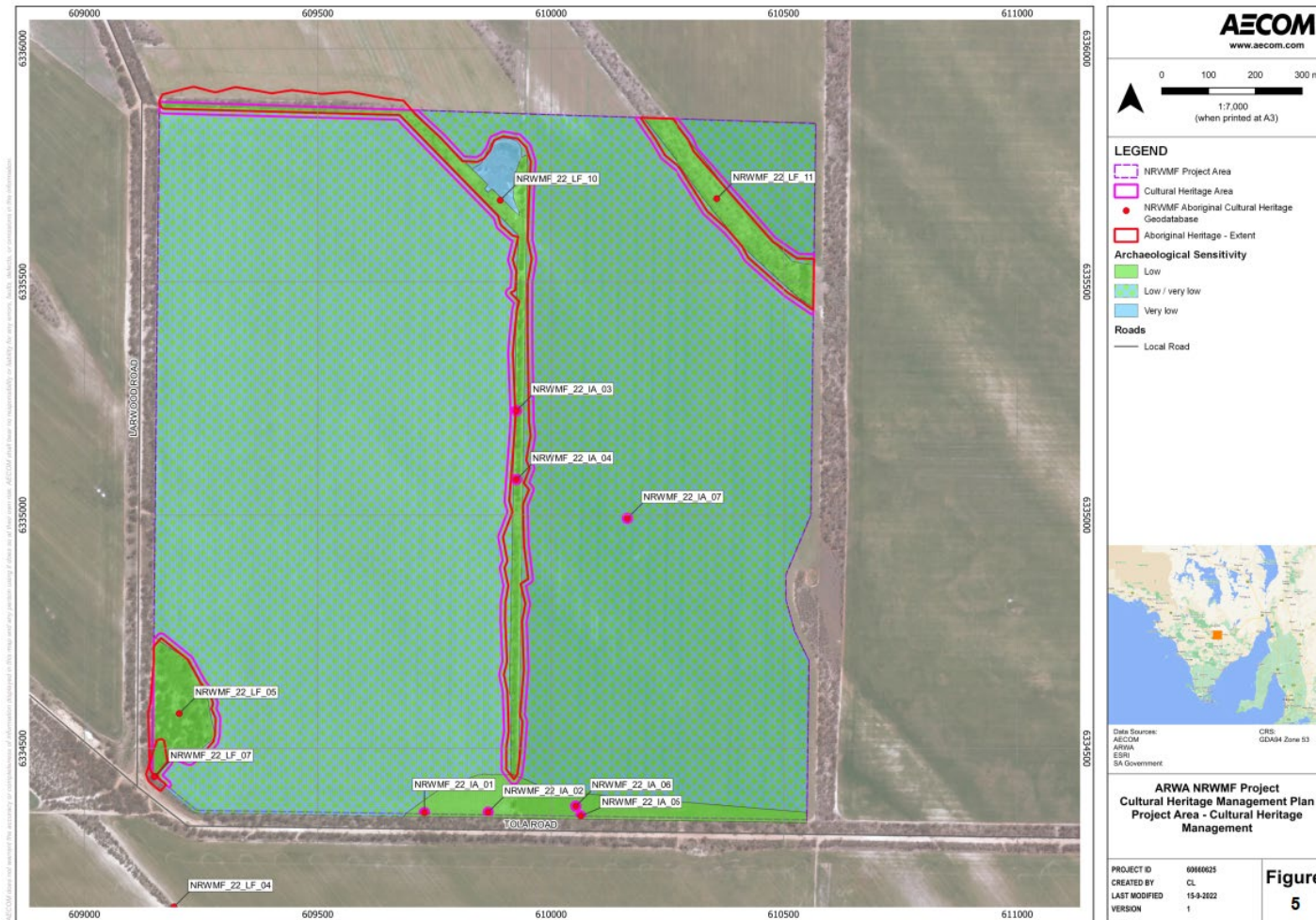
Project Area - Level 2 measures	
3.	Level 1 measures
4.	ARWA will ensure a Heritage Specialist attends the site characterisation activity works to: <ul style="list-style-type: none"> a. Deliver the cultural heritage component of site inductions to site personnel b. Ensure site personnel understand the unexpected finds procedure (Appendix B) c. Document and monitor the commencement of works d. Remain in attendance to document and monitor the works to the extent stipulated by the AIA requirements
5.	Following completion of the activity, the Heritage Specialist must provide a CHMR that includes: <ul style="list-style-type: none"> a. The dates and duration of the site characterisation activities works completed b. A description of the site characterisation activities works completed, including the location, depth and extent of all works undertaken c. Map(s) showing the location of the works area(s) for the site characterisation activities completed, the Cultural Heritage Area, and all identified Aboriginal sites and/or objects in the vicinity of the works area, including any unexpected finds recorded d. A description of how the cultural heritage management measures were implemented to avoid, minimise or mitigate harm to Aboriginal sites and/or objects from the site characterisation activities works e. A photographic record documenting the site characterisation activity works and how the cultural heritage management measures were implemented f. A record of any Aboriginal sites and/or objects impacted g. A record of any new Aboriginal sites and/or objects recorded under the unexpected finds procedure h. Details of any storage, burial or repatriation activities completed or planned for any Aboriginal objects recovered

Project Area - Level 3 measures	
6.	Level 1 and 2 measures
7.	Notify BDAC in writing at least 28 days prior to the site characterisation activities with a Works Notice providing BDAC the opportunity to: <ul style="list-style-type: none"> a. Comment on how cultural heritage impacts can be managed during the works b. Provide Heritage Monitors to attend and monitor the works

Project Area - Level 3 measures

8. Any comments provided by BDAC on the management of Aboriginal sites and/or objects must be given due consideration and, where possible, practical and reasonable, incorporated in the final cultural heritage management measures to be implemented during the activity
9. If requested, BDAC will be informed if and how their comments have been incorporated into the final cultural heritage management measures to be implemented during the site characterisation activity works
10. Works Notices must include:
 - a. A description of the site characterisation activity works, including the location, depth and extent of the activity
 - b. Map(s) showing the location of the planned works area(s), the Cultural Heritage Area(s), and all identified Aboriginal sites and/or objects in the vicinity of the works area(s)
 - c. An AIA including the preliminary cultural heritage significance assessment for the Aboriginal site(s) and/or object(s) located within the Cultural Heritage Area
 - d. An invitation to provide further information about the cultural significance and significance ratings for the Aboriginal site(s) and/or object(s)
 - e. The cultural heritage management measures planned to avoid, minimise or mitigate harm to the Aboriginal site(s) and/or object(s) from the site characterisation activities works
 - f. An invitation to provide comment on the cultural heritage management measures planned to avoid, minimise or mitigate harm to Aboriginal sites and/or objects
 - g. The planned dates and duration of the site characterisation activities works
 - h. An invitation for Heritage Monitor(s) to attend the works
 - i. Meeting time(s) and place(s) for Heritage Monitor(s)
 - j. Transportation and access arrangements for Heritage Monitor(s)
 - k. Personal Protective Equipment (PPE) requirements for Heritage Monitor(s)
11. Following completion of the activity, the Heritage Specialist must provide a CHMR that includes:
 - a. The Works Notice issued to BDAC
 - b. The dates and duration of the site characterisation activities works completed
 - c. A description of the site characterisation activities works completed, including the location, depth and extent of all works undertaken
 - d. Map(s) showing the location of the works area(s) for the site characterisation activities completed, the Cultural Heritage Area, and all identified Aboriginal sites and/or objects in the vicinity of the works area, including any unexpected heritage finds recorded
 - e. A description of how the final cultural heritage management measures were implemented to avoid, minimise or mitigate harm to Aboriginal sites and/or objects within the Cultural Heritage Area from the site characterisation activities works
 - f. A photographic record documenting the site characterisation activity works and how the final cultural heritage management measures were implemented
 - g. A record of any Aboriginal sites and/or objects impacted
 - h. A record of any new Aboriginal sites and/or objects recorded under the unexpected finds procedure
 - i. Details of any storage, burial or repatriation activities completed or planned for any Aboriginal objects recovered
12. The CHMR must be provided to BDAC.

Figure 5: Cultural Heritage Areas within the Project Area



6.0 Roles and responsibilities

The roles and responsibilities for the development, endorsement and implementation of the CHMP are outlined in Table 8, Table 9, and Table 10.

Table 8 ARWA and AECOM CHMP roles and responsibilities

Organisation	Role	Responsibilities
ARWA	Executive Committee - ARWA	<ul style="list-style-type: none"> Overall responsibility for endorsing any significant changes to the site characterisation activities or cultural heritage management protocols
ARWA	General Manager Technical & Safety	<ul style="list-style-type: none"> Ensuring site characterisation activities are carried out in accordance with the CHMP Ensure relevant CHMP measures are implemented for the NRWMF Project
ARWA	Indigenous Engagement Manager - ARWA	<ul style="list-style-type: none"> Project management of cultural heritage work for the NRWMF Project and endorse the CHMP and associated communication materials Lead and support the implementation of the CHMP
ARWA	Senior Heritage Officer - ARWA	<ul style="list-style-type: none"> Review and endorse the CHMP and associated communication materials Support the implementation of the CHMP Monitor the condition of recorded Aboriginal sites and objects in the Project Area Coordinate delivery of Aboriginal cultural heritage awareness training and inductions to site personnel Review and endorse AECOM fieldwork safety documentation Review and endorse AIAs Issue Works Notices
AECOM	Site Characterisation Activities Manager - AECOM	<ul style="list-style-type: none"> Responsibility for delivery of AECOM site characterisation activities work programs, in adherence to the CHMP Responsibility for notifying ARWA Indigenous Engagement Manager and Senior Heritage Officer of any planned changes to the scope and methods of the site characterisation activities.
AECOM	Senior Heritage Specialist - AECOM	<ul style="list-style-type: none"> Review and update the CHMP Develop and review communication materials related to the CHMP Support the implementation of the CHMP Maintain and update a database of recorded Aboriginal sites and objects (Appendix A), including the geospatial database Draft and finalise AIAs (unless allocated to third party Heritage Specialist) Assist with drafting Works Notices Attend site characterisation activities and document works in Cultural Heritage Areas in CHMRs Draft and finalise CHMRs
AECOM	Principal Heritage Specialist - AECOM	

Organisation	Role	Responsibilities
		<ul style="list-style-type: none"> Record Aboriginal sites and objects in accordance with cultural protocols and restrictions on sharing cultural information, and provide site cards to the SA Register

Table 9 BDAC CHMP Roles and Responsibilities - if agreed

Organisation	Role	Responsibilities
BDAC	Board of Directors	<ul style="list-style-type: none"> Review and provide comment on the draft CHMP Review and provide comment on updates to the CHMP if required Engage or employ Heritage Monitors to attend site characterisation activities within Cultural Heritage Areas Agree to a schedule of rates for Heritage Monitors Nominate a BDAC Cultural Heritage Coordinator
BDAC	BDAC Cultural Heritage Coordinator	<ul style="list-style-type: none"> Nominate Heritage Monitors to attend site characterisation activities within Cultural Heritage Areas Providing Heritage Monitor names and contact details to the ARWA Senior Heritage Officer Ensure Heritage Monitors have the necessary PPE described in the Works Notice Respond to Works Notices
BDAC	Heritage Monitors	<ul style="list-style-type: none"> Attend site characterisation activities within Cultural Heritage Areas as described in Works Notices Identify Aboriginal sites and objects within the work area(s) Report all identified Aboriginal sites and objects to the Heritage Specialist in accordance with cultural protocols and restrictions on sharing cultural information

Table 10 HWG CHMP roles and responsibilities – if formed and agreed

Organisation	Role	Responsibilities
Heritage Working Group (HWG) (if formed)	HWG Members	<ul style="list-style-type: none"> Review and provide comment on the draft CHMP Review and provide comment on updates to the CHMP if required Nominate a Service Provider to employ or engage Heritage Monitors Agree to a schedule of rates for Heritage Monitors Nominate a HWG Cultural Heritage Coordinator
Heritage Working Group (if formed)	HWG Cultural Heritage Coordinator	<ul style="list-style-type: none"> Nominate Heritage Monitors to attend site characterisation activities within Cultural Heritage Areas Providing Heritage Monitor names and contact details to the ARWA Senior Heritage Officer

Organisation	Role	Responsibilities
Nominated Service Provider	Service Provider for Heritage Monitors	<ul style="list-style-type: none">• Engage or employ Heritage Monitors to attend site characterisation activities within Cultural Heritage Areas• Ensure Heritage Monitors have the necessary PPE described in Works Notices
Nominated Service Provider	Heritage Monitors	<ul style="list-style-type: none">• Attend site characterisation activities within Cultural Heritage Areas as described in Works Notices• Identify Aboriginal sites and objects within works areas• Report all identified Aboriginal sites and objects to the Heritage Specialist in accordance with cultural protocols and restrictions on sharing cultural information

7.0 References

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- Gorring, D. (2022). *National Radioactive Waste Facility Preliminary Cultural Heritage Survey Report*. Report to Barnjarla Determination Aboriginal Corporation RNTBC.
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Appendix A

Recorded Aboriginal Sites and Objects

Appendix A Recorded Aboriginal Sites and Objects

Introduction

The records of Aboriginal sites and objects in Appendix A are a database of recorded Aboriginal sites and objects for the NRWMF project. This database is to be maintained updated with the findings of subsequent cultural heritage surveys and assessments completed for the site characterisation activities. A geospatial database of site and objects locations and site extents is to be maintained and updated as part of this database for the duration of the site characterisation activities.

AECOM Aboriginal site or object naming convention

The site naming convention used in the database (Site ID) is as follows:



The Aboriginal site or object type acronyms used in the AECOM naming convention are provided in Table 11.

Table 11 Aboriginal site or object type acronyms

Site/ object type	Acronym
Artefact scatter	AS
Culturally modified tree	CMT
Cultural site	CS
Historical Aboriginal	HA
Isolated artefact	IA
Potential rock shelter	PRS
Rock shelter	RS
Rock art	RA
Significant landscape feature	LF
Quarry	Q

Where site names in reports or databases differ from this convention, those names are recorded in the 'Alternative Name' field.

Appendix B

Unexpected Finds Procedure

Appendix B Unexpected Finds Procedure

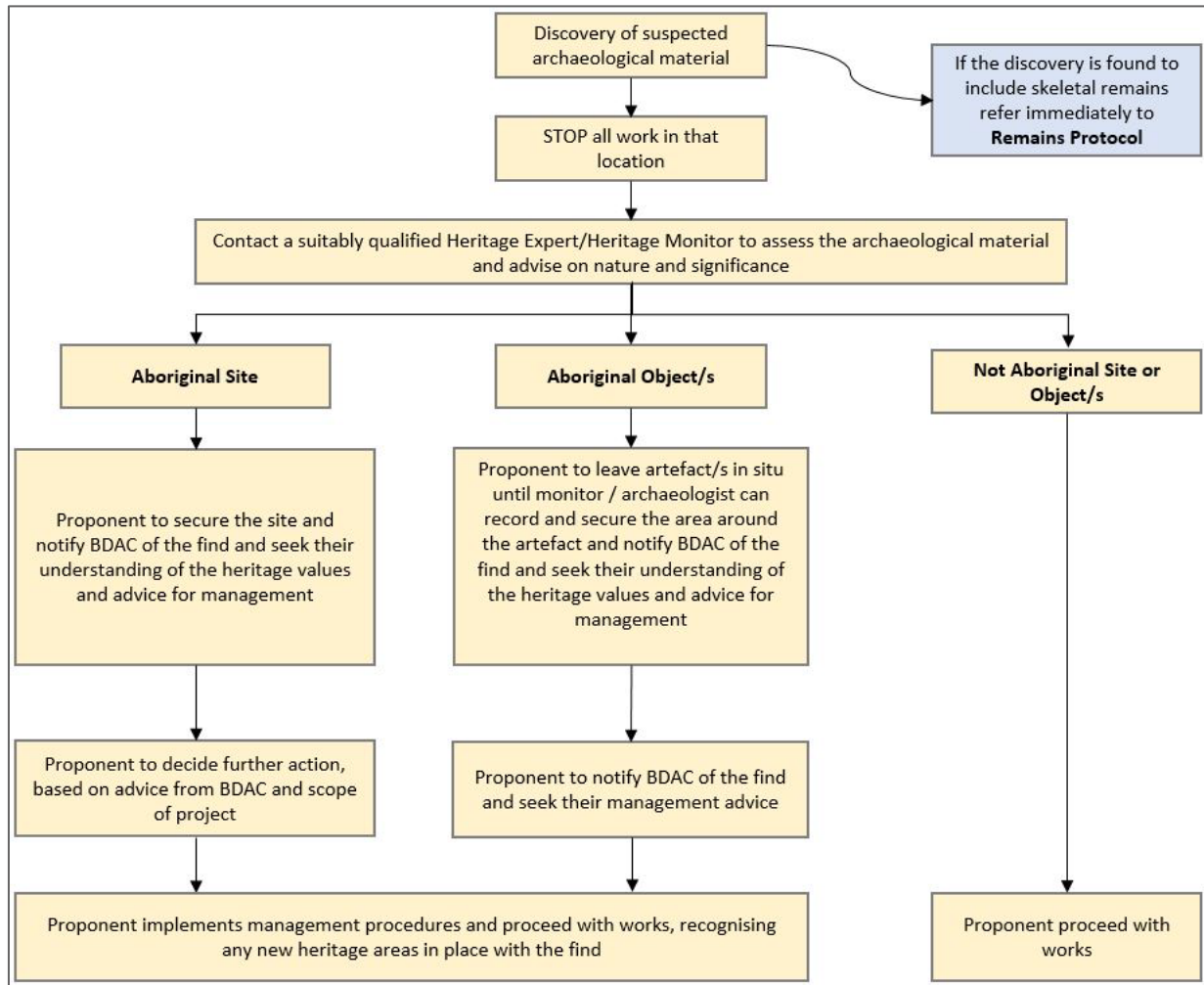


Figure 6: NRWMF Cultural Heritage Management Plan 01: Site Characterisation - Unexpected Finds Procedure

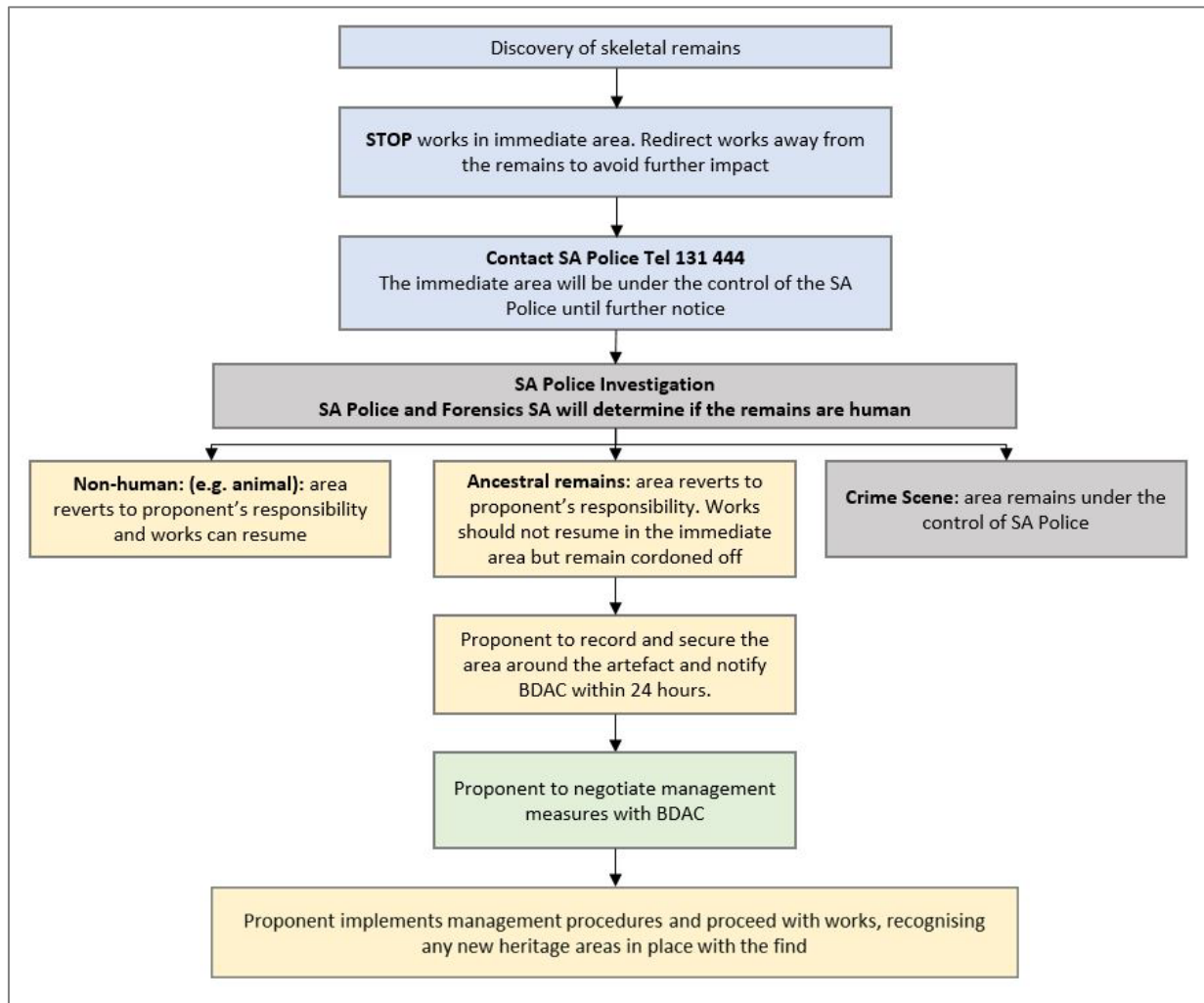


Figure 7: NRWMF Cultural Heritage Management Plan 01: Site Characterisation - Skeletal Finds Procedure

Appendix C

Activity Impact Assessments

Appendix D

Cultural Heritage Management Reports