

Consultation Information Pack: BHP Oak Dam Underground Access (OKDUGA) Project

Applicant	BHP Olympic Dam Corporation Pty Ltd.
Application type	Section 21 and 23 of the <i>Aboriginal Heritage Act 1988</i> (SA).
Application area	An area of land comprising 916 hectares, located 65km south-east of Roxby Downs and 500km north of Adelaide, situated within Exploration License EL5941 and wholly contained within the Oak Dam Retention Lease M2023/0161 and Miscellaneous Purpose Licenses MPLA2023/0003391, MPLA2023/0003381 and MPLA2023/0003382.
Proposed activities	Ground-disturbing works to support the development of the proposed BHP Oak Dam Underground Access Project (OKDUGA Project).
Potential heritage impacts	Impacts to up to 1604 Aboriginal heritage sites identified during heritage surveys (due to overlapping surveys by Traditional Owner groups, the actual number of sites is ~700).

Community information meeting:

From 10.00 am on Friday 17 July 2026

Central Oval, 10 Augusta Tce, Port Augusta SA 5700



Figure 1: exploration drilling at Oak Dam

Acknowledgement:

The Attorney-General's Department acknowledges and respects Aboriginal peoples as the state's First Peoples and nations and recognises Aboriginal peoples as Traditional Owners and occupants of lands and waters in South Australia.

Cultural warning:

This consultation information pack, and associated material, may contain discussion of Aboriginal heritage sites and traditions that may have sensitivities for some Aboriginal people.

***The information contained in this document about the Oak Dam Underground Access Project (OKDUGA Project), proposed heritage impacts and management measures, is based on information provided by BHP Olympic Dam Corporation Pty Ltd (BHP). Maps and images have been provided by BHP unless otherwise indicated.**

We seek your views on an application by BHP for authorisation under sections 21 and 23 of the *Aboriginal Heritage Act 1988* (SA) to impact Aboriginal heritage at the Oak Dam Exploration Hub.

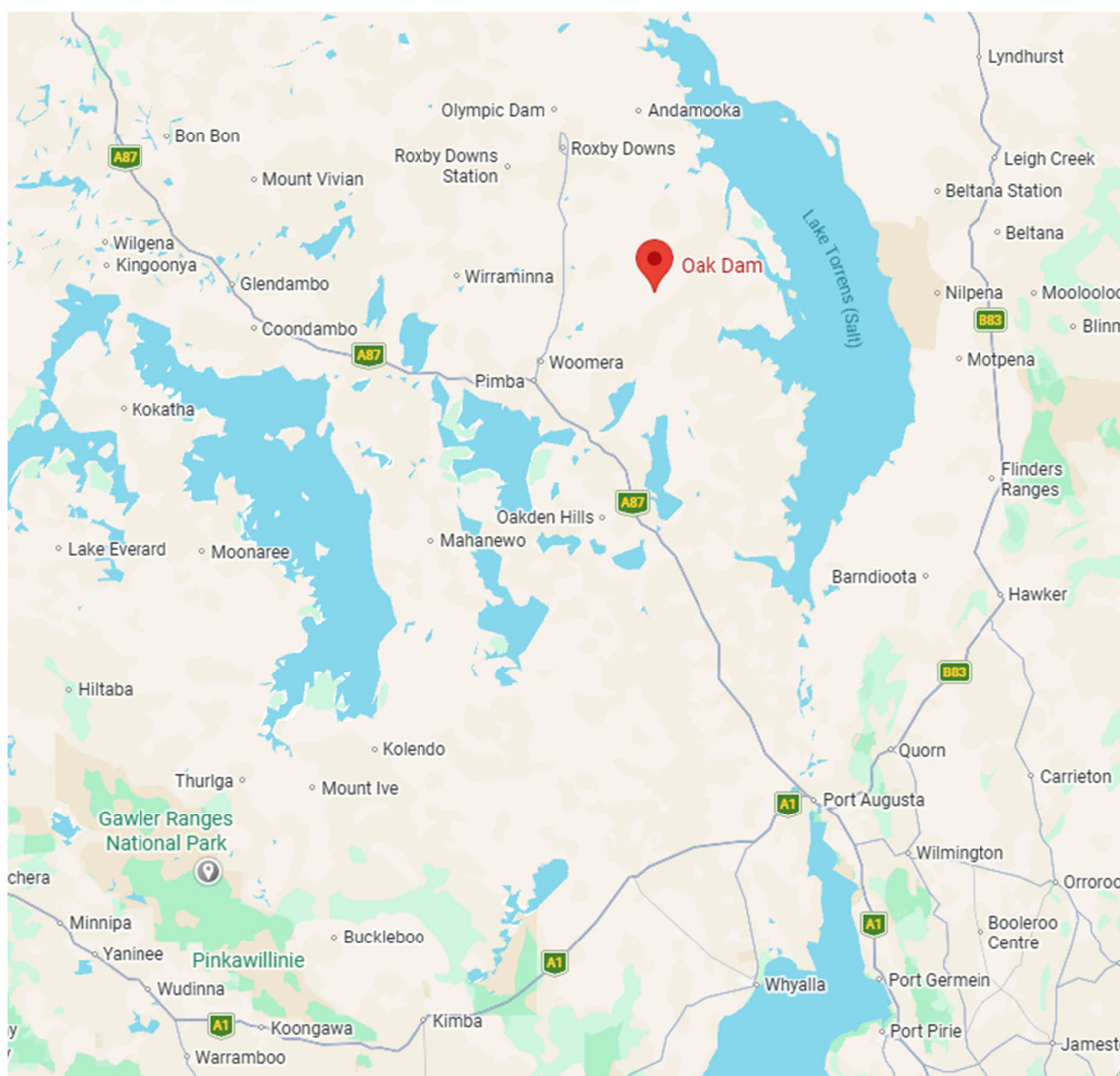


Figure 21: Location of the Oak Dam Exploration Hub in northern South Australia

¹ Google maps.

Executive Summary

This consultation information pack (CIP) has been prepared by the Attorney-General's Department – Aboriginal Affairs and Reconciliation (AAR). It is intended for Aboriginal people and groups with an interest in country in the Oak Dam area on Arcoona Station.

BHP Olympic Dam Corporation Pty Ltd (BHP) currently operates three copper (+uranium and gold) mines in the far north of South Australia: Olympic Dam, Carrapateena, and Prominent Hill. BHP advises the purpose of the proposed Oak Dam Underground Access Project (OKDUGA Project) is to conduct advanced mineral exploration on a previously identified copper, uranium and gold deposit within the Oak Dam Exploration Hub to determine whether copper mining at Oak Dam is a viable prospect into the future. The Oak Dam Exploration Hub is located on Arcoona Station, 65km southeast of Roxby Downs (Figure 2).

To develop the required infrastructure to support exploration drilling activities at Oak Dam, BHP has applied for authorisation from the Minister for Aboriginal Affairs (Minister) under sections 21 and 23 of the *Aboriginal Heritage Act 1988* (SA) (Act) to impact Aboriginal heritage. Section 21 of the Act makes it an offence to excavate land for the purposes of uncovering Aboriginal sites, objects and remains (together, heritage); while Section 23 makes it an offence to damage, disturb or interfere with Aboriginal heritage without the Minister's authorisation. The area over which the authorisations to impact Aboriginal heritage is sought (Application Area) for OKDUGA Project activities is described in section 2 and Figures 3 and 4 in this document

BHP advises it is seeking authorisations to impact Aboriginal heritage under the Act for OKDUGA Project activities within the Application Area (see Figures 3 and 4) associated with mineral exploration only. Future approval processes, separate from this application, will be required by BHP if it seeks to establish a mine at Oak Dam.

BHP seek authorisation to impact up to 1604 Aboriginal heritage sites in the Application Area, identified during separate heritage surveys undertaken with Kokatha, Barngarla and Kuyani Traditional Owners. Due to the overlapping surveys recording individual sites more than once, the actual number of sites is closer to 700.

BHP proposes that, if authorised, all identified sites may be subject to full or partial impact. To manage these impacts, BHP has developed a Project Heritage Management Plan (PHMP) containing a series of mitigation measures delivered through a hierarchy of controls, including avoidance and impact minimisation where possible, and where impacts cannot be avoided, detailed site recording, salvage and, where appropriate, relocation of Aboriginal cultural material. BHP states that the establishment of a permanent keeping place or repository will be considered

through future agreement-making processes with Aboriginal parties. In addition, BHP advise they have considerably reduced the OKDUGA footprint area prior to submitting the application, in order to reduced impacts to heritage.

The OKDUGA Project Application Area is located within the native title determination area of the Kokatha people (Part A, SCD2014/004), whose interests are represented by the Kokatha Aboriginal Corporation (KAC). KAC has an ongoing Retention Lease Indigenous Land Use Agreement (ILUA) with BHP at Oak Dam which has been in place since 2025 (NNTT No. SI2025/004). In addition, Kokatha, Barngarla and Kuyani representative bodies are parties to the Olympic Dam Agreement (ODA) which requires BHP to engage and consult with all three groups in relation to mining exploration and operations in the Stuart Shelf, including the Oak Dam area.

In accordance with section 13 of the Act, AAR is consulting on the application on the Minister's behalf with the relevant groups. **This consultation information pack and associated consultation process provides an opportunity for Aboriginal people with an interest in the OKDUGA Project to provide their views on the application and propose conditions on any authorisation.** Your views will inform the Minister's decision whether to grant the authorisation sought by BHP and, if so, under what conditions.

To assist the Minister decide the application, please review this CIP and consider the following questions:

1. **What are your views on this request for authorisations?**
2. **If the authorisations were granted, would you seek that the authorisations be conditioned in any way? Please provide example conditions.**
3. **What are your views on the project proceeding as proposed, including:**
 - **the impacts to Aboriginal heritage that are proposed?**
 - **the proposed protection and management of Aboriginal heritage?**
4. **Do you have any other views you wish to share with the Minister before the application is decided?**

A community information meeting will be facilitated by AAR on 17 July 2026 in Port Augusta, at the Central Oval. The meeting will provide an opportunity for interested Aboriginal people and groups to discuss the application, the contents of this CIP and make submissions on the application to the Minister. **AAR is also available to meet separately with individuals and groups to discuss the application.** For further details about the information meeting and consultation process, and how to make a submission on the application, refer to section 7 of this document. Representatives from BHP will attend the information meeting to answer questions from the community about the OKDUGA Project and proposed impacts to Aboriginal heritage.

Contents

Executive Summary	ii
Contents	iv
List of Figures	v
List of Tables	v
List of Acronyms	vi
List of Appendices	vi
1. Aboriginal Heritage Act 1988 (SA) – application details	1
2. Project details	2
2.1 The Applicant	2
2.2 The Application Area	2
2.3 Project background	5
2.4 Project implementation	5
2.5 Anticipated Project benefits	11
2.6 Estimated Project timeframe	11
2.7 Scope of section 21 and 23 authorisations sought	11
3. Aboriginal heritage within the Application Area	12
3.1 The central archives	12
3.2 BHP-maintained database (pre-Project)	12
3.3 The Oak Dam Advanced Exploration Project Archaeological and Ethnographic Survey	12
3.3.i Aboriginal engagement	12
3.3.ii Survey parameters	13
3.3.iii Summary of AHS reports	14
3.3.iv Identified heritage sites – maps	17
3.4 Cultural heritage – summary	19
3.4.i Tangible (archaeological sites) in the Application Area	20
3.4.ii Intangible (ethnographic sites) in the Application Area	20
3.4.iii Culturally significant landscapes / Natural site	21
3.4.iv Environmental impact	22
4. Impacts to heritage	23
5. Proposed management of Aboriginal heritage	24
5.1 Previous heritage management recommendations	24
5.1.i Change to earlier management recommendations	27
5.2 Current cultural heritage management provisions	27
5.2.i Mitigation measures:	29
5.3 Heritage management requirements under the Act	31
5.3.i Heritage discovery procedures	31

6. Project summary	32
7. Consultation process.....	33
7.1 Aboriginal Community Information Meeting	33
7.1.i Individual group meetings.....	34
7.2 Invitation for submissions from interested Aboriginal parties	34
7.3 Consultation considerations	34
7.4 How your submission will be used.....	35
8. Appendices	36
Appendix A: BHP Oak Dam Underground Access Project Description	36
Appendix B: Aboriginal Sites Discovery Protocol	37

List of Figures

Figure 1: exploration drilling at Oak Dam	i
Figure 2: Location of the Oak Dam Exploration Hub in northern South Australia.....	i
Figure 3: Location of the OKDUGA Project Application Area in far-northern South Australia.....	3
Figure 4: The locations of the Application Area.....	1
Figure 5: BHP conceptual illustration of the Oak Dam underground access.....	7
Figure 6: BHP 3D visualisation of the OKDUGA Project twin decline entry points.....	7
Figure 7: BHP 3D visualisation of the proposed OKDUGA Project accommodation village.	7
Figure 8: The six development zones.	10
Figure 9: Heritage sites identified in the Oak Dam Archaeological and Ethnographic Survey	17
Figure 10: Heritage sites.....	18
Figure 11: In the AHS survey documents, 'Exclusion Zones'	26
Figure 12: The Dedicated Heritage Protected Zone.....	28

List of Tables

Table 1: The six development zones (1-6) and associated activities.....	8
Table 2: Australian Heritage Services OKDUGA Project Survey Reports – summary.....	15

List of Acronyms

AAR	Attorney-General's Department - Aboriginal Affairs and Reconciliation
Act	<i>Aboriginal Heritage Act 1988 (SA)</i>
Applicant	BHP Olympic Dam Corporation Pty Ltd
AHS	Australian Heritage Services (archaeological consultant)
BHP	BHP Olympic Dam Corporation Pty Ltd
PHMP	Project Heritage Management Plan
Committee	The State Aboriginal Heritage Committee
KAC	Kokatha Aboriginal Corporation RNTBC
ha	Hectares
ML	Mining Lease
MPL	Miscellaneous Purpose Licence
NTMA	Native Title Mining Agreement
OKDUGA	Oak Dam Underground Access Project
RL	Retention Lease
ODNTPRC	Olympic Dam Native Title Parties Representative Corporation
AHS survey	Oak Dam Advanced Exploration Project Archaeological and Ethnographic Survey (extensive heritage survey conducted by Australian Heritage Services)

List of Appendices

A	<i>Oak Dam Underground Access Project s.21 and s.23 Application – Supplementary Document: Project Description</i>
B	Aboriginal Heritage Discovery Protocol

1. Aboriginal Heritage Act 1988 (SA) – application details

The Minister for Aboriginal Affairs (Minister), who is responsible for administering the *Aboriginal Heritage Act 1988* (SA) (the Act), has received an application for authorisations under sections 21 and 23 of the Act from BHP in relation to the Oak Dam Underground Access Project (the OKDUGA Project).

- Section 21 of the Act makes it an offence to excavate land for the purposes of uncovering Aboriginal sites, objects and remains (together, heritage) without the Minister's authorisation.
- Section 23 makes it an offence to damage, disturb or interfere with Aboriginal heritage without the Minister's authorisation.

The Application Area (916 hectares) contains a total of 1604 Aboriginal sites. The sites were identified by Traditional Owners during separate heritage surveys with Kokatha, Barngala and Kuyani representatives undertaken between 2022 and 2025. **Due to the overlapping surveys by the three groups, the actual number of sites is lower than 1604. When sites with overlapping boundaries are counted as a single site, the true number of sites is closer to 700. As such, in this document, the number of sites in the Application (Project) Area will be described as 1604 (~700).**

BHP anticipates that ground disturbing works associated with the OKDUGA Project may impact all identified heritage sites in the Application Area. Potential impacts include the complete or partial excavation of Aboriginal sites, objects or remains; relocation of soil and spoil from a site to outside the Application Area to facilitate development activities; and site salvage/removal and relocation of Aboriginal objects from the Application Area for non-destructive analysis and temporary storage. BHP states that future, long-term storage and relocation of salvaged objects would be subsequently provided through consultation with the relevant Aboriginal groups. If authorisations are granted, BHP seeks to manage Aboriginal heritage in accordance with the Project Heritage Management Plan (PHMP) and subject to conditions of any authorisations granted. Further details about identified Aboriginal heritage and BHP's proposed PHMP are provided in section 5 of this document.

Prior to considering whether to grant an authorisation, section 13 of the Act requires the Minister to consider the views of Aboriginal parties with an interest in the Oak Dam area.

Aboriginal Affairs and Reconciliation (AAR) is conducting consultation and obtaining the views of interested Aboriginal parties on the Minister's behalf. Only Aboriginal people and groups may make submissions related to cultural heritage management associated with the OKDUGA Project.

2. Project details

A complete Project description provided to AAR by BHP is attached as Appendix A (*Oak Dam Underground Access Project s.21 and s.23 Application – Supplementary Document: Project Description*). A summary is provided in this section.

2.1 The Applicant

The Applicant is BHP Olympic Dam Corporation Pty Ltd (BHP).

2.2 The Application Area

The Application Area is a total of 916 hectares and is located around 65 kilometres southeast of Roxby Downs and 500km north of Adelaide.

The Application Area is situated within (see Figures 3 and 4):

1. Area B of the BHP-owned Exploration Licence 5941 (EL5941)²
2. The Oak Dam Retention Lease RL 139 (Oak Dam Retention Lease / RL139)
3. Miscellaneous Purpose Licence (MPL) 168 and MPL Applications (MPLAs) 2023/0003381 and 2023/0003382
4. The Kokatha Native Title Determination Area (Part A, SCD2014/004)
5. Mostly within the boundaries of the Arcoona Pastoral Lease Area (PE002347) owned by Handbury Asset Management Pty Ltd.
6. A small portion of one of the MPLAs (MPLA2023/0003381) is located on the Purple Downs Pastoral Lease (PE002480) owned by BHP and subleased to Kokatha Pastoral Pty Ltd.
7. The Kokatha Native Title Determination Area (Part A, SCD2014/004).

The Oak Dam Retention Lease area RL 139 (being equal to Area B of EL5941), is 8,823 hectares in size; inside this area is most of the 916-hectare Application Area. The majority of the proposed OKDUGA infrastructure will be developed in this area. The Miscellaneous Purpose Licences are additional licence areas extending beyond the Retention Lease, largely to allow for infrastructure corridors (road and water pipelines) to and from the Retention Lease area.

It is within the 916-hectare Application Area that BHP seeks authorisation to impact Aboriginal heritage.

While the Application Area falls wholly within the Kokatha Native Title Determination Area (Part A, SCD2014/004), the Barngarla Peoples and Kuyani Peoples are also identified as having interests in the Oak Dam area, including via the Olympic Dam Agreement (see section 3).

² Exploration License EL5941 is a license granted to BHP to undertake surface and subsurface exploration for mineral deposits in a 1,751km² area on the Stuart Shelf. EL5941 contains three exploration areas (Areas 'A', 'B', and 'C'). Area C encompasses Olympic Dam, Area B contains Oak Dam, and Area A contains a mineral exploration area east of Andamooka.

A small portion of the Application Area is currently used for exploration activities on EL5941 conducted prior, and leading up to, development of the OKDUGA Project; activities include the development of a small Exploration Hub (village and accommodations), access tracks, communication towers, and surface areas used during mineral exploration, hydrogeological and geotechnical investigation activities (e.g., drill pads), most of which will be expanded if the proposed OKDUGA Project goes ahead. BHP states that all exploration activities to date on EL5941 have occurred in areas that have been the subject of cultural heritage surveys and have avoided all identified heritage locations/sites.

The locations of the Application Area, EL5941, Oak Dam Retention Lease M2023/0161 and Miscellaneous Purpose Licenses MPLA2023/0003391, MPLA2023/0003381 and MPLA2023/0003382, is depicted in Figures 3 and 4.

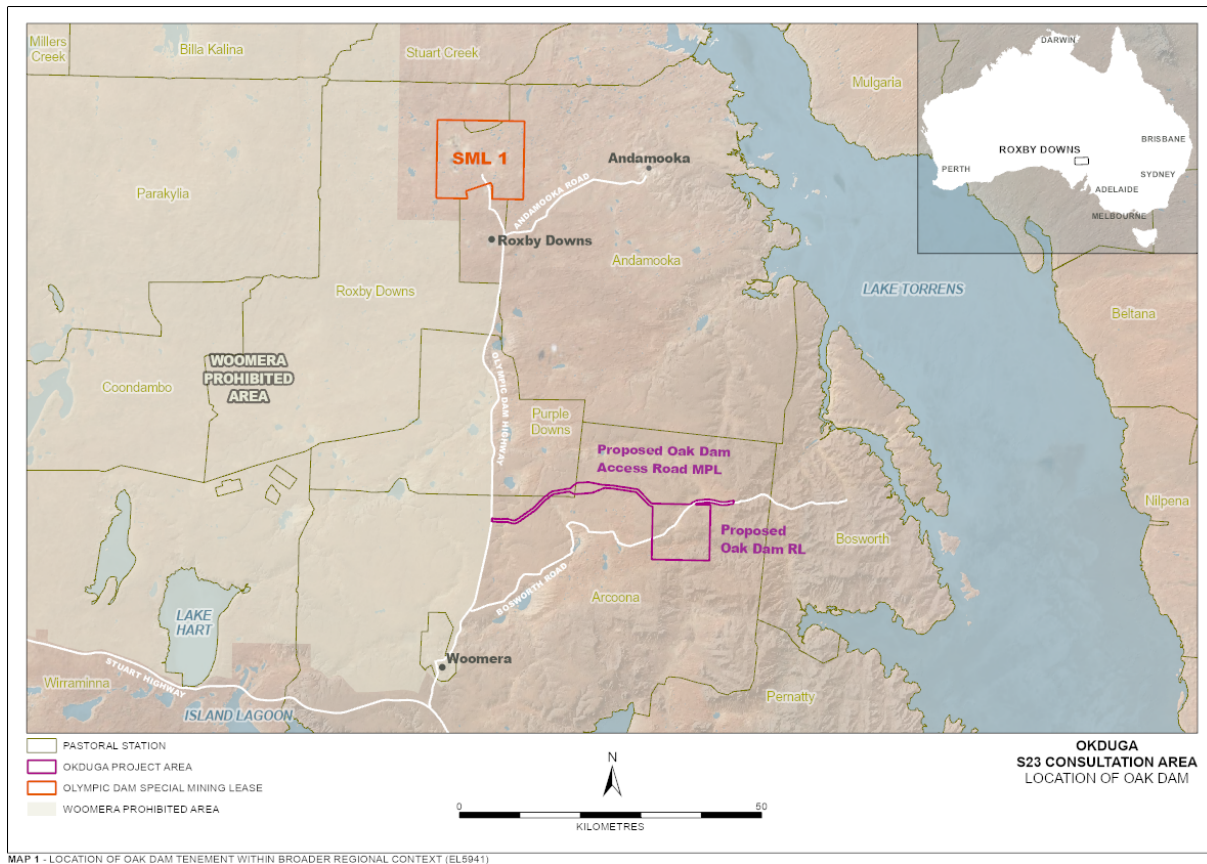


Figure 3: Location of the OKDUGA Project Application Area in far-northern South Australia.

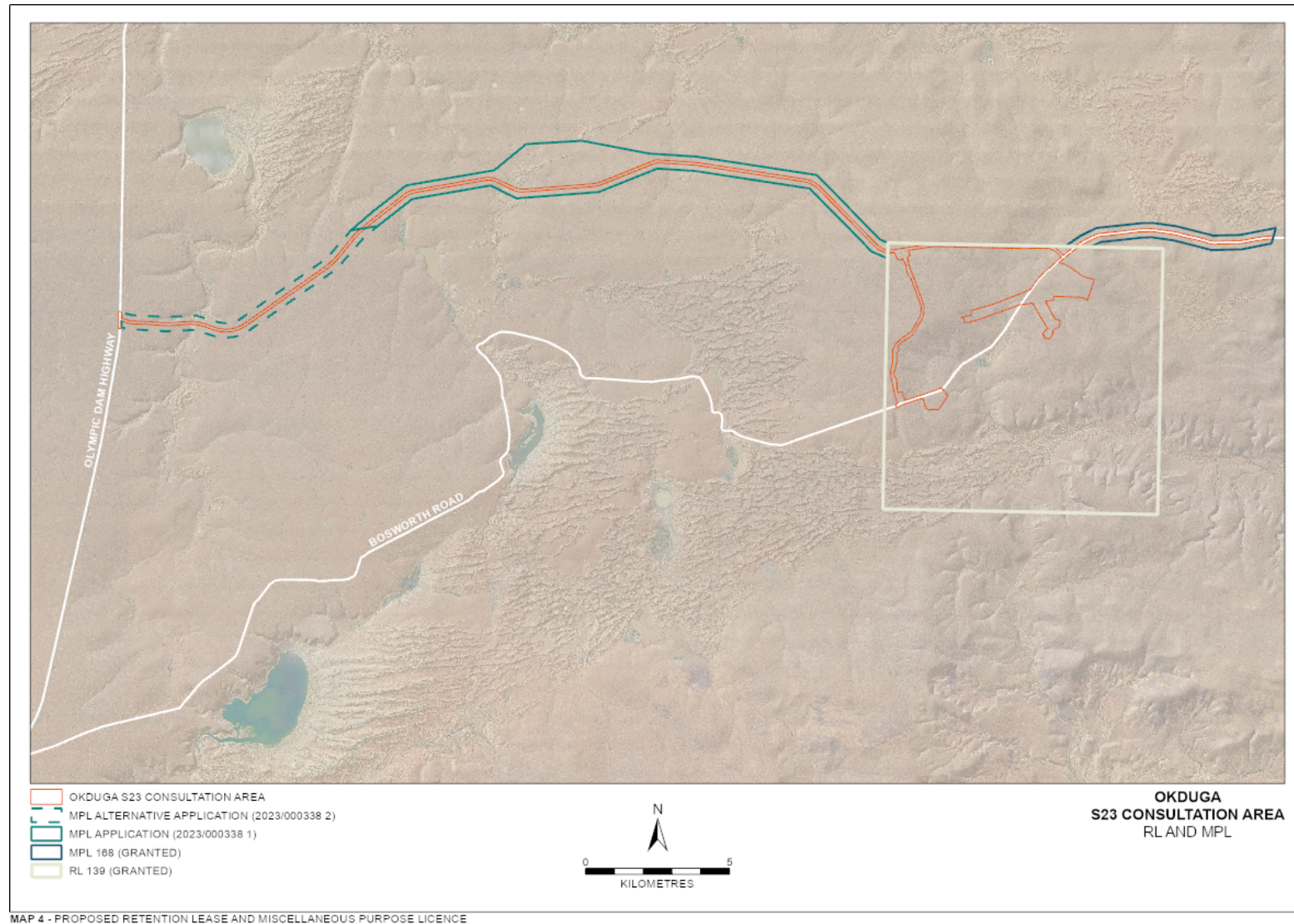


Figure 4: The locations of the Application Area (OKDUGA S23 Consultation Area), Oak Dam Retention Lease RL 139 and Miscellaneous Purpose Licences MPL168, MPLA2023/0003381 and MPLA2023/0003382.

2.3 Project background

For several decades, BHP has been undertaking surface and subsurface mineral exploration on the Stuart Shelf geological province in far northern South Australia, within areas allowed under Exploration Licence EL5941 (Areas A, B and C). These exploration zones include Oak Dam (Area B within EL5941), where exploration undertaken since 2021 has indicated a substantial high-grade copper and associated mineral (primarily gold and uranium) deposit commencing at approximately 800m below the ground surface.

The OKDUGA Project's aim is to undertake targeted and advanced exploration of the identified Oak Dam deposit to determine if the resource is economically viable to mine, with copper being the main target resource. The OKDUGA Project is solely for exploration. Should exploration reveal viable deposits, the establishment of a mine by BHP (or any other proponent) would be subject to further regulatory approval processes as required under mining and any other relevant legislation, including the Heritage Act.

With respect to the OKDUGA Project, the Oak Dam Retention Lease and Miscellaneous Purpose Licences were granted by the Department of Energy and Mining (DEM) in 2025, to progress exploration activities at Oak Dam. Activities within the RL and MPL areas are subject to the conditions of the Oak Dam Underground Access Project Retention Lease Proposal and Miscellaneous Purposes Licence Management Plans (four volumes) prepared by BHP and submitted to DEM in November 2023. The Management Plans include environmental impact assessments for the entire RL and MPL areas. All four volumes can be reviewed and downloaded from the DEM 'Oak Dam Project' webpage: <https://energymining.sa.gov.au/industry/minerals-and-mining/mining/major-projects-and-mining-activities/developing-projects/oak-dam>.

Approval of these mining lease applications address environmental considerations. Applications must be made separately under the *Aboriginal Heritage Act* 1988 (SA) for authorisations to impact Aboriginal heritage, hence this application.

2.4 Project implementation

The OKDUGA Project proposes to establish underground access to the Oak Dam mineral deposit via twin declines, or downward sloping underground tunnels (Figure 5). The underground access to the deposit will:

- allow exploration drill rigs to directly access the deposit
- establish a drilling platform to support advanced exploration drilling to define the resource (i.e., work out how viable the deposit is to mine); and
- enable BHP to better understand critical geotechnical ground conditions (e.g., how susceptible the area is to collapse, establish groundwater conditions etc.).

The OKDUGA Project proposes to establish access to the underground declines (tunnels) via box cut and portal development (Figure 6).

To support construction of the declines and the development and operation of the drill rigs underground, significant site infrastructure is required. This infrastructure will include:

- utility facilities (electricity, water, sewage, telecommunications etc.)
- diesel generation plant
- refrigeration plant
- administration buildings
- maintenance buildings
- laydown area
- concrete batch plant
- explosives storage
- waste rock landform (storage facility for excavated non-economic rock)
- borrow pit(s), stockpiles, dams, and ponds
- water pipelines
- worker village (Figure 7).

The declines and drilling platform, and associated supporting infrastructure, will occur in six defined development zones (Zones 1 – 6). Taken together, the six zones are equivalent to the total extent of the Application Area. The works proposed for each zone will involve a range of ground disturbance activities that will impact the Aboriginal heritage in that zone, if authorised under the Act. A summary of the activities proposed within each zone is provided in Table 1 and Figure 8.

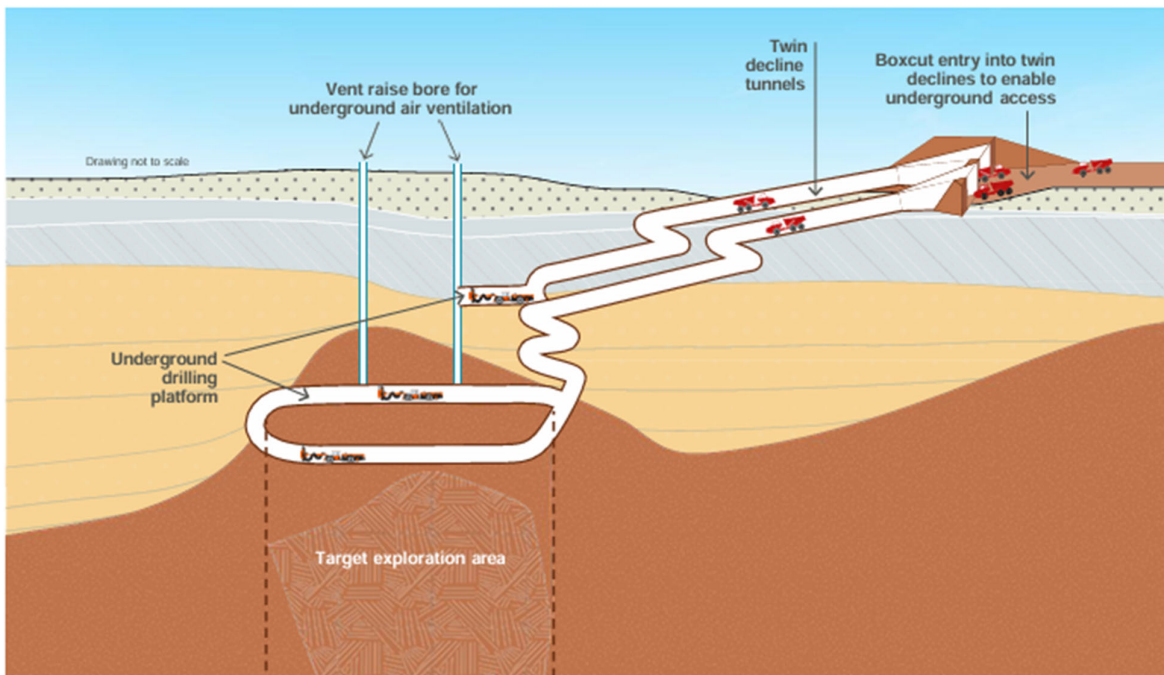


Figure 5: BHP conceptual illustration of the Oak Dam underground access via twin declines to target the ore body ('Target exploration area').



Figure 6: BHP 3D visualisation of the OKDUGA Project twin decline entry points.



Figure 7: BHP 3D visualisation of the proposed OKDUGA Project accommodation village.

Table 1: The six development zones (1-6) and associated activities proposed for the OKDUGA Project. Developments within all six zones will impact cultural heritage.

Zone	Purpose	Proposed activities
1	Surface infrastructure	This area will host the entry point to the underground tunnels and the development of power and water systems, buildings and storage areas. It includes drilling pads, maintenance facilities, and waste rock management. Prior to construction the land would be cleared of vegetation where necessary and all topsoil removed (first 150-200mm of soil). Up to 1.2m of additional subsoil will also be removed where required and stockpiled for use in rehabilitation. Additional developments in Zone 1 include: • establish access to the decline via a box cut and portal development. • drill and blasting activities to establish the boxcut, portal and decline • installation of utility facilities to support decline access development and operation of the drill rigs underground. Utilities include: diesel generation plant (up to 20 megawatts), refrigeration plant, crushing and screening plant, administration buildings, temporary maintenance and workshop buildings, laydown area, concrete batch plant, explosives storage, access roads, waste rock landform, stockpiles, dams, and ponds • establish hydrogeology drilling pads and drill holes • establish geotechnical drilling pads and drill holes • establish geotechnical test pits • vegetation clearing and topsoil/subsoil stockpiling.
2	Decline	Zone 2 is where the underground tunnels are developed. Activities here focus on drilling, ventilation, and water management. Development of the decline will be underground with no additional surface disturbance. The decline is developed from the boxcut and portal within Zone 1 to enable underground exploration activities. Additional developments in Zone 2 include: • development of the decline will be underground with no surface disturbance. The decline is developed from the boxcut and portal within Zone 1 to enable underground exploration activities • establish hydrogeology drilling pads and drill holes • establish geotechnical drilling pads and drill holes • establish geotechnical test pits • vegetation clearing and topsoil/subsoil stockpiling.
3	Access corridor (Bosworth Connector)	A new all-weather site access road would be constructed within this zone, including access roads and intersections to Bosworth Road and the Exploration Hub. This is to allow for safe access to the operational areas as part of Traffic Management. The new road would be 11m wide and would require vegetation to be cleared and soil removed (up to 1m). Additional developments in Zone 3 include: • install transmission line and fibre optic for communications • establish hydrogeology drilling pads and drill holes

Zone	Purpose	Proposed activities
		- establish geotechnical drilling pads and drill holes - establish geotechnical test pits - vegetation clearing and topsoil/subsoil stockpiling.
4	Exploration Hub	This development zone includes upgrading the Oak Dam Village: - to accommodate ~310 people. Hub includes accommodation, dining halls, ablutions, laundry and recreational facilities - install communication cables and water pipelines - vegetation clearing and topsoil/subsoil stockpiling required.
5	Greenfield access road	A new 34km access road will be built in Zone 5 to connect the Oak Dam Exploration Hub to nearby highways. The access road will support safe transport and include communication lines and water pipelines. The new road would be built to the following specifications: - access road constructed of formed, graded and compacted imported crushed material, with either a cross-fall or crown - road surface to be gravel, imported to site and/or sourced from local borrow pit(s) where suitable materials are identified/available - road will be 11m wide (3.0m wide traffic lanes; 0.5m wide shoulders; 2.0m wide surface drainage) - total disturbance footprint of 48.37ha.
6	Water pipeline	A 17km pipeline will be installed to connect the Oak Dam RL to the existing Carrapateena Northern Wellfield pipeline. This pipeline will allow the Oak Dam site to send excess groundwater to Carrapateena for use in mine operations. The pipeline would be laid on the surface along existing access tracks and buried under creek crossings. The pipeline will tie into the existing Carrapateena transfer station within MPL 156. Prior to construction the pipeline corridor (~5m wide) would be cleared of vegetation where necessary and all topsoil removed (first 150-200mm of soil). Total disturbance corridor is 15-20m wide.

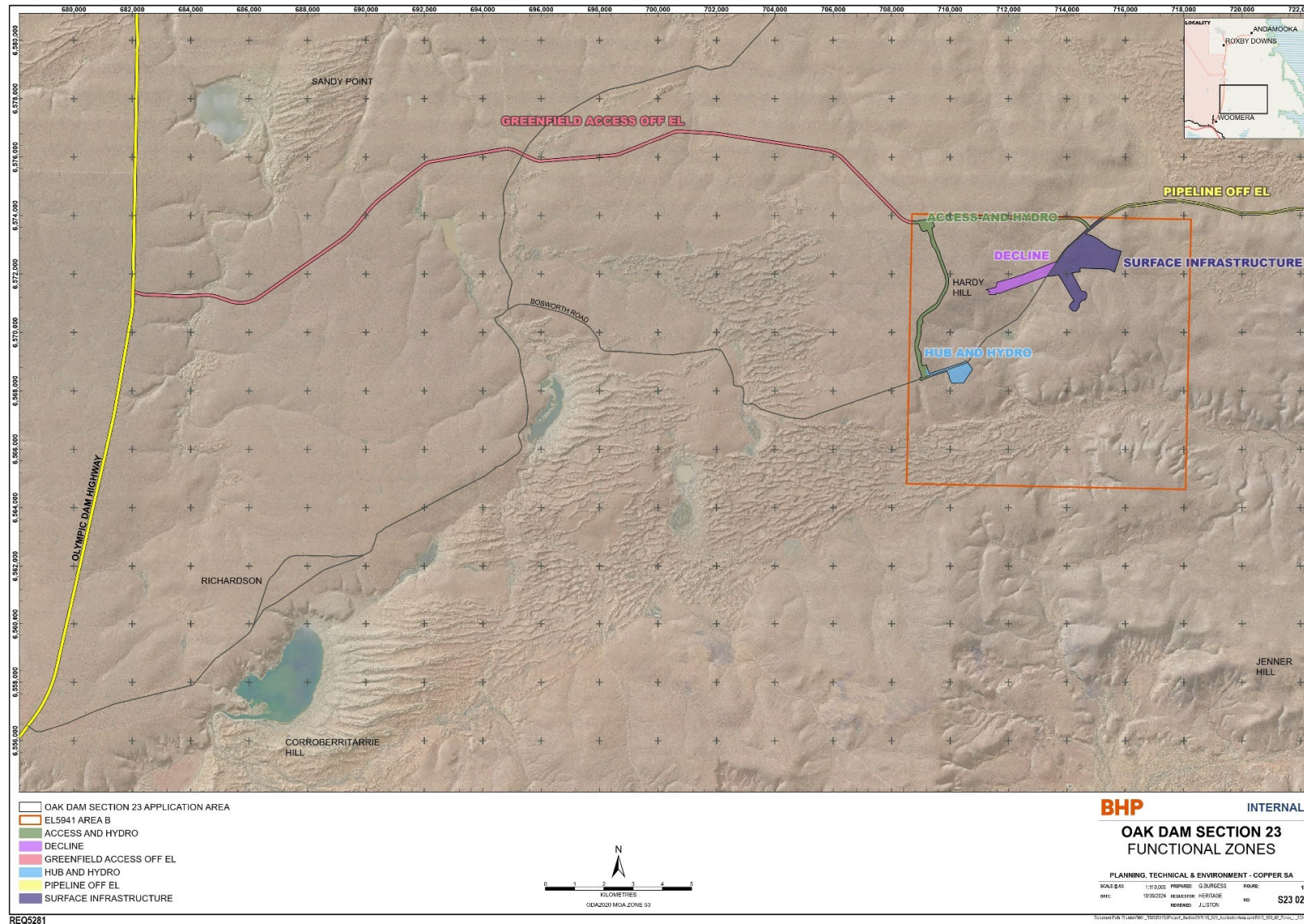


Figure 8: The six development zones (1-6) within the Application Area (colour coded to match Table 1).

2.5 Anticipated Project benefits

BHP states that it seeks to maximise economic benefits for the far north region of South Australia. BHP says the OKDUGA Project would contribute to this by:

- directly employing or contracting up to 310 people
- provisioning capital expenditure for infrastructure, plant and equipment, a proportion of which would be sourced from Indigenous, local and regional providers
- payment of State and Federal fees and taxes.

In addition, BHP intends to develop and provide, or support, training and education programs aimed at up-skilling local communities and providing employment opportunities that would help maintain regional populations.

2.6 Estimated Project timeframe

The OKDUGA Project has an expected project life of 10 years. Within the 10-year period the following activities will be undertaken:

- Twin decline construction lasting ~ 6 years
- Underground exploration activities lasting ~2.5 years
- Closure process lasting ~2 years after cessation of exploration activities (closure will only occur if BHP elects not to proceed to mining activities. If mining activities are progressed these will be subject to separate approval processes).

2.7 Scope of section 21 and 23 authorisations sought

BHP is seeking that section 21 and 23 authorisations, if granted by the Minister, will extend to:

- BHP Olympic Dam Corporation Pty Ltd
- BHP's agents, staff, contractors, subcontractors, and joint venture partners
- anyone else engaged by BHP, directly or indirectly, to perform work within the Application Area
- anyone else engaged directly or indirectly by a related entity of BHP
- any future owners or operators of the OKDUGA Project
- all future repairs and maintenance for the life of Project

3. Aboriginal heritage within the Application Area

3.1 The central archives

The central archives, which are maintained by AAR on behalf of the Minister, do not contain any records of Aboriginal heritage within the Application Area³. AAR notes that the central archives are not an exhaustive record of Aboriginal heritage in South Australia.

3.2 BHP-maintained database (pre-Project)

The Oak Dam Retention Lease / Area B of Exploration Licence 5941 has been the subject of significant cultural heritage surveys undertaken by BHP. Information about Aboriginal heritage in this CIP is based on these surveys and associated reports.

BHP maintains an internal database of all previously identified and recorded Aboriginal heritage. BHP reports that 23 Aboriginal heritage sites have been previously recorded within the 8,823ha Oak Dam Retention Lease / Area B within EL5941.

The existing BHP heritage database is not a detailed record of all sites in the Oak Dam Retention Lease area.

To improve knowledge and management of Aboriginal heritage associated with its proposed OKDUGA Project, BHP commissioned a series of cultural heritage surveys between 2022 and 2025, *'The Oak Dam Advanced Exploration Project Archaeological and Ethnographic Survey'*. A summary of the survey results is provided below, noting that some of the survey material includes cultural information restricted to Aboriginal people and, as such, is not included in this CIP. Traditional Owners seeking access to the survey reports may contact the relevant Aboriginal representative body⁴.

3.3 The Oak Dam Advanced Exploration Project Archaeological and Ethnographic Survey

3.3.i Aboriginal engagement

BHP advises requirements and methods for its engagement with Aboriginal people and groups in relation to Aboriginal heritage in the Oak Dam area have been undertaken in accordance with the

³ The central archives maintained by AAR contain information about Aboriginal heritage in South Australia. While information about Aboriginal heritage can be extremely sensitive, and there are legislative and cultural restrictions related to whether and how this information is shared, project proponents may request a search of the archives to identify whether any known Aboriginal heritage sites exist in an Application Area. Any further information about sites may require the engagement and permission of Traditional Owners to share. The central archives are not an exhaustive record of all Aboriginal heritage sites in South Australia. A requested search is only one part of managing Aboriginal heritage for proposed ground disturbing projects in South Australia. For more information see: <https://www.agd.sa.gov.au/aboriginal-affairs-and-reconciliation/aboriginal-heritage/aboriginal-heritage-registers-and-the-central-archive>

⁴ If a Traditional Owner would like full access to the survey reports, please contact the relevant native title body. If you require assistance, please contact AAR.

requirements outlined in the Olympic Dam Agreement (ODA). The ODA is an agreement entered into by BHP with Barngala, Kokatha and Kuyani Peoples prior to the Kokatha Peoples' and Barngala Peoples' native title determinations in relation to mining exploration and operations in the Stuart Shelf, which contains most of the large copper reserves of the far north of South Australia⁵. The ODA includes a Heritage Protocol that outlines, among other things, obligations to undertake heritage surveys with Kokatha, Barngala and Kuyani peoples and the conditions of BHP's engagement with Aboriginal people.

3.3.ii Survey parameters

The Oak Dam Advanced Exploration Project Archaeological and Ethnographic Survey (Oak Dam Survey) was a large-scale heritage survey program carried out between 2022-2025. In accordance with the Olympic Dam Heritage Protocols, representatives of the Kokatha, Barngala, and Kuyani were invited to participate in the heritage survey. A selection of Aboriginal heritage representatives was made by the Olympic Dam Native Title Parties Representative Corporation Ltd (ODNTPRC), the Aboriginal representative body associated with BHP's activities on the Stuart Shelf, in consultation with the Kokatha Aboriginal Corporation (KAC), Barngarla Determination Aboriginal Corporation (BDAC), and Kuyani Yartah Association (KYA) Boards⁶. Each field survey was conducted by one language group at a time, supported by the ODNTPRC's preferred heritage consultant. Australian Heritage Services (AHS) was identified by ODNTPRC as its preferred heritage service provider, to support the infield heritage survey at Oak Dam. BHP states the selection of the preferred heritage service provider was undertaken in line with ODNTPRC's governance process and with no involvement from BHP.

To date, around 2,500ha of the 8,823ha area Oak Dam Retention Lease / Area B within EL5941 has been surveyed, including the whole 916 hectares of the Application Area.

BHP advises the Oak Dam Survey adhered to the conditions of the ODA with representatives from each language group nominated to attend, with each group undertaking separate surveys that includes the Application Area. The primary focus of the AHS Survey was to assess the Aboriginal heritage values to inform the development of OKDUGA Project. The AHS Survey also sought

⁵ The Olympic Dam Agreement, signed in January 2008, sets out the terms and conditions upon which the Kokatha, Barngarla and Kuyani Aboriginal people have agreed to the Olympic Dam project. This includes a regime for ongoing protection and management of Aboriginal cultural heritage sites and values (the Heritage Management Protocols). The ODA was initially developed to facilitate a proposed substantial expansion of the Olympic Dam Mine that is now on hold; however, the ODA can be applied to other regions of the Stuart Shelf, such as at Oak Dam. See *Olympic Dam Expansion Draft Environmental Impact Statement 2009*: Chapter 17. Application of the ODA and Heritage Management Protocols to the OKDUGA project is stipulated in the *Oak Dam Retention Lease Project Indigenous Land Use Agreement (S12025/004)* made between KAC, BHP, and the State of South Australia.

⁶ The Olympic Dam Native Title Parties Representative Corporation is a representative body comprised of Barngarla, Kokatha and Kuyani members. Its role is to 'Provid[e] the mechanism for making information about employment, training, contracting and business opportunities at Olympic Dam [available] to Aboriginal People resident in the Northern Region of South Australia' with a focus on Kokatha, Barngarla and Kuyani communities. Although usually associated with activities undertaken at Olympic Dam, the ODNTPRC served as an important decision-making body for the OKDUGA Project (see <https://www.acnc.gov.au/charity/charities/e21896d9-38af-e811-a963-000d3ad24077/profile>). Involvement of the ODNTPRC in the Oak Dam development is provided for in the ODA and *Roxby Downs (Indenture Ratification) Act 1982*.

recommendations from Aboriginal survey participants on how to manage and mitigate potential impacts to heritage sites during project implementation. The infield AHS Survey engagement was completed in accordance with the ODA Heritage Protocol, which sets out an agreed process for the identification of Aboriginal heritage sites including participation by the three nations described above.

Between June 2022 and February 2025, a total of 779 days of heritage infield engagements (heritage survey and monitoring) were completed within the Oak Dam Retention Lease, covering approximately 2500 hectares of the Lease area. The outcome was 42 separate survey reports of between 300-800 pages each, identifying Aboriginal heritage values in different parts of the six OKDUGA Project development zones. In total, 2378 sites were recorded in the total survey area (2500ha).

Following the survey, in consultation with Traditional Owners, the proposed OKDUGA project footprint was reduced to the now 916-hectare Application Area. The remaining 1604 (~700) sites from the initial survey identified by the three groups within the Application Area may be subject to impact if authorised by the Minister, noting that the extent and occurrence of impacts will vary depending on detailed design, including application of avoidance and minimisation measures aligned with the PHMP.

AAR estimates that approximately 700 of the 1604 sites have been identified as having site boundaries that overlap with the boundaries of sites identified by two or more of the above groups. This means the total number of sites is more likely to be approximately 700 with some sites identified as of significance to two or more groups.

3.3.iii Summary of AHS reports

The Oak Dam Survey program produced 42 heritage reports for the OKDUGA Project, with 14 reports each for the Kokatha, Barngala, and Kuyani survey periods. In total, 2378 sites were identified in the total survey area (2,500ha) and 1604 in the Application Area (916 hectares) (including sites identified with overlapping site boundaries). A summary of the 42 AHS reports is provided in Table 2 and Figures 9 and 10.

If you require access to the reports, please contact the relevant Aboriginal representative body or the Olympic Dam Native Title Parties Representative Corporation Ltd ⁷.

⁷ If a Traditional Owner would prefer that AAR contact the respective body or ODNTPRC on your behalf, please contact AAR using the details provided in section 7 of this document. Contact details for the ODNTPRC are available here: [Olympic Dam Native Title Representative Corporation | SAcommunity - Connecting Up Australia](#).

Table 2: Australian Heritage Services OKDUGA Project Survey Reports – summary

*note: In Table 2, ‘misc’ refers to areas surveyed for likely future development that were later excluded from the Application Area. The entire zone was not necessarily surveyed in one site visit. Some areas were resurveyed on subsequent site visits and resulted in additional sites identified within Zones.

Report	Survey period	Nation	Zone (Fig ?)	Sites
490-05	June 2022	Kokatha	Access corridor, Hub, Decline, misc	161
490-06	March 2023	Kokatha	Decline, misc	94
490-09	May 2023	Kokatha	Surface infrastructure, misc	54
490-10	Aug-Dec 2022	Kokatha	Access corridor, Hub, Decline, Surface infrastructure, misc	333
490-37	Jan 2023	Kokatha	Access corridor, Hub, Decline, misc	40
490-44	July 2023	Kokatha	Access corridor	55
490-47	Aug 2023	Kokatha	Access corridor, Decline, Surface infrastructure, misc	110
490-51	Aug-Sept 2023	Kokatha	Access corridor, Hub, Decline, Surface infrastructure, misc	115
490-61	Nov 2023	Kokatha	Hub, Decline, Surface infrastructure, misc	24
490-69	Nov 2023	Kokatha	Access corridor, Hub, Decline, misc	22
490-77	Jan-Feb 2024	Kokatha	All zones – ethnographic survey	6 ⁸
490-86	April 2024	Kokatha	Water pipeline	15
490-95	August 2024	Kokatha	Greenfield access road, misc	20
490-97	August 2024	Kokatha	Misc (alternative access routes out EL5491, not selected for use)	4
Kokatha				1053
490-11	March-April 2023	Barngarla	Surface infrastructure	174
490-12	April 2023	Barngarla	Decline	123
490-38	February 2023	Barngarla	Decline, Hub, misc	77
490-45	July 2023	Barngarla	Decline, Access corridor, Hub, misc	100
490-48	August 2023	Barngarla	Surface infrastructure, misc	102
490-55	Sept 2023	Barngarla	Surface infrastructure, Hub, Access corridor, misc	59
490-59	Oct 2023	Barngarla	Surface infrastructure, Hub, Access corridor, misc	96
490-63	Nov 2023	Barngarla	Access corridor	51
490-67	Sept 2023	Barngarla	Whole of EL5941	- ⁹
490-68	Dec 2023	Barngarla	Decline, misc	11
490-75	February 2024	Barngarla	All zones (with an emphasis on Greenfield Access Road)	28

⁸ Ethnographic survey to identify ethnographic/intangible cultural values.

⁹ Ethnographic survey as above.

Report	Survey period	Nation	Zone (Fig ?)	Sites
490-81	March 2024	Barngarla	All zones	_10
490-93	August 2024	Barngarla	Water pipeline	25
490-110	November 2024	Barngarla	Misc (alternate road alignments)	_11
Barngarla				846
490-07	March 2023	Kuyani	Surface Infrastructure	33
490-08	May 2023	Kuyani	Decline	75
490-36	January 2023	Kuyani	Decline, Access corridor, Hub, misc	34
490-39	May 2023	Kuyani	Surface Infrastructure, Hub, misc	51
490-43	July 2023	Kuyani	Surface infrastructure, Hub, Access corridor, Decline, misc	27
490-46	September 2024	Kuyani	Access corridor, misc	78
490-50	August 2023	Kuyani	Surface infrastructure, Hub	57
490-54	September 2023	Kuyani	All zones, misc	18
490-56	October 2023	Kuyani	Decline, Hub, misc	20
490-74	February 2024	Kuyani	All zones	39
490-76	February 2024	Kuyani	Misc	12
490-94	August 2024	Kuyani	Water pipeline	13
490-98	August 2024	Kuyani	Misc (alternate access routes)	_12
490-100	Aug-Sept 2024	Kuyani	Misc (alternate access routes) -	22
(490-60)	October 2023	Kuyani	Special ethnographic report by Scribe; not in the AHS series	-
Kuyani				479
TOTAL				2378

¹⁰ Ethnographic survey.¹¹ Ethnographic survey.¹² Ethnographic survey.

3.3.iv Identified heritage sites – maps

*Note: due to the density of sites in the Application Area and overlapping surveys the full extent of cultural heritage cannot be easily represented in a single page map. A zoomable interactive map with various layers forms part of the online consultation and will be provided on AAR's webpage during the consultation period.

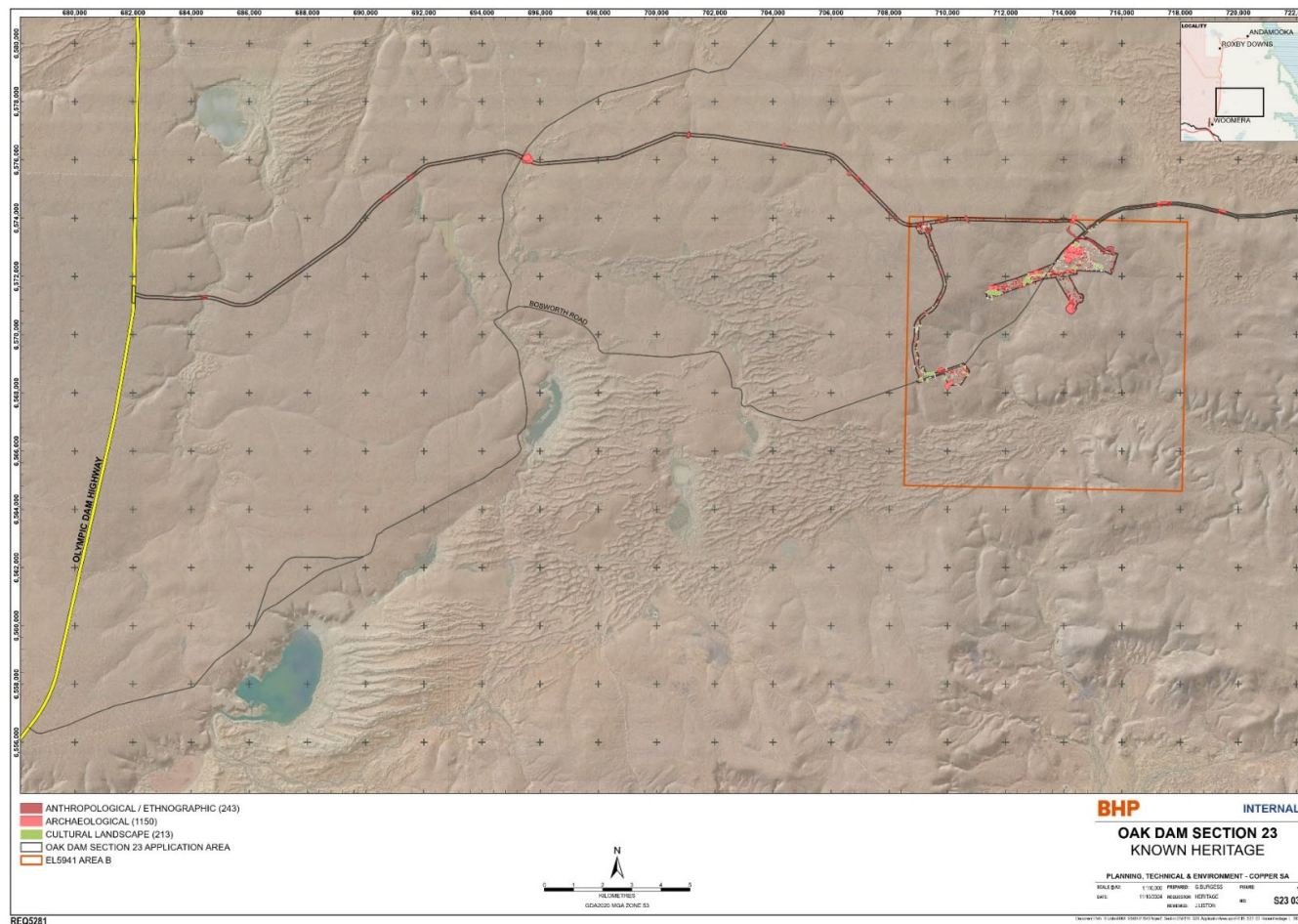


Figure 9: Heritage sites identified in the Oak Dam Archaeological and Ethnographic Survey in the Application Area.

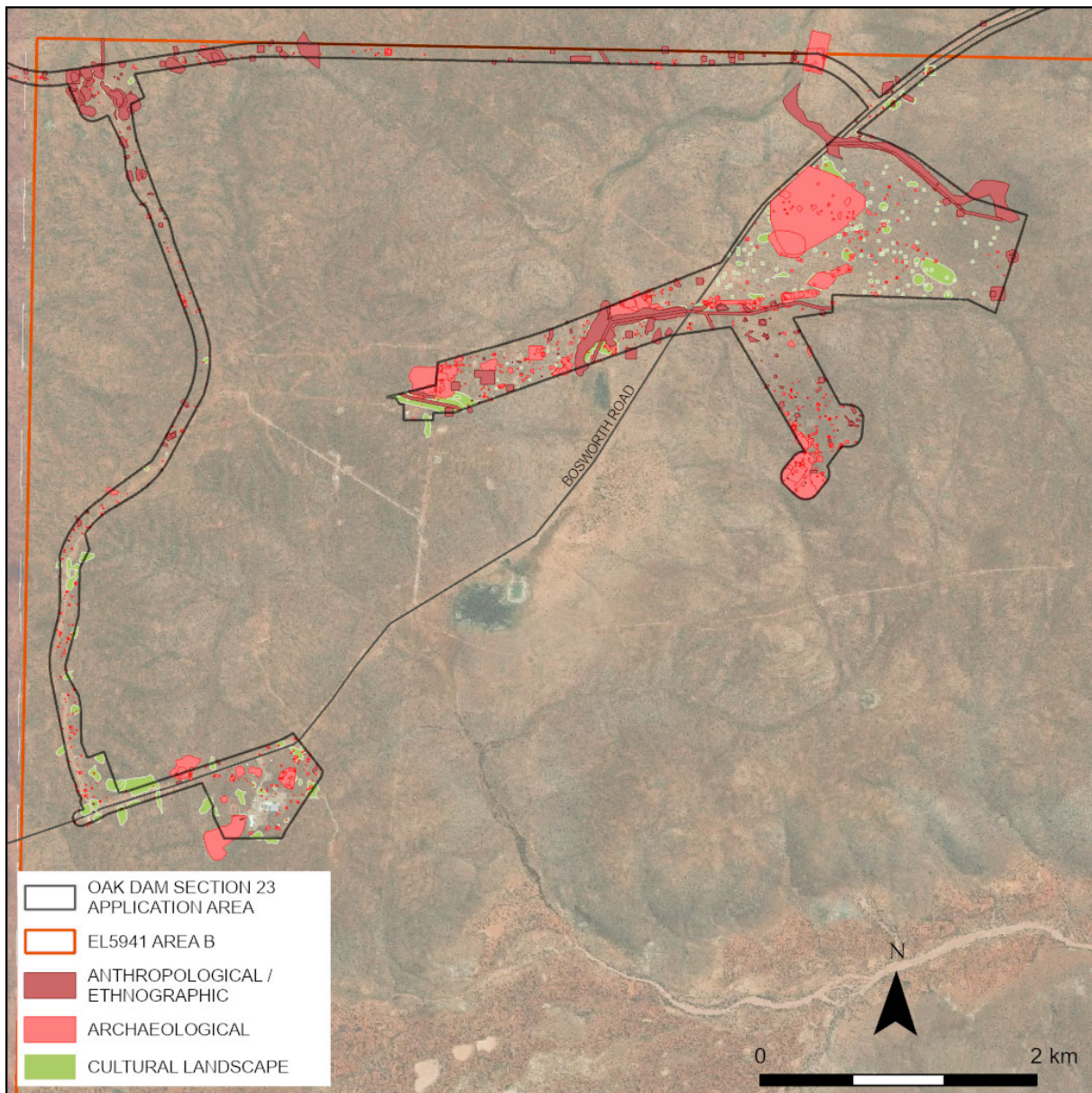


Figure 10: Heritage sites identified in the Oak Dam Archaeological and Ethnographic Survey in the Application Area, zoomed to the Oak Dam Retention Lease area. See key on previous figure.

3.4 Cultural heritage – summary

As described in the AHS survey reports, cultural heritage sites within the Application Area fall into three categories:

- **Tangible or archaeological:** Refers to sites containing physical evidence of human use and occupation (e.g., knapping floors).
- **Intangible or ethnographic:** Refers to sites associated with stories, history, or cultural practices under Aboriginal tradition. These sites may or may not contain material evidence of human occupation and are typically associated with natural features in the landscape (e.g., a rock outcrop associated with a traditional storyline).
- **Culturally significant landscape / natural site:** Indicates sites containing natural landscape features of importance to subsistence and traditional practices (e.g., a cane grass swamp).

BHP states the cultural heritage site types above are differentiated in the survey documents to facilitate improved management of cultural heritage. In many cases, sites are of one type only. However, tangible, intangible, and cultural landscape sites may also occur together. For example, an archaeological deposit may occur in an area with significant ethnographic or intangible values, within a cultural landscape, or both.

Notably, while archaeological deposits are easily identifiable by people who are not Aboriginal (e.g., by archaeologists), and cultural landscapes can be inferred by relation to known Aboriginal subsistence practices, only Aboriginal Traditional Owners can identify ethnographic sites or sites with intangible cultural heritage values. In addition, ethnographic and cultural landscape sites usually pose greater challenges for salvage and relocation of site components during ground disturbing works, due to such sites being composed of embedded and immovable landscape features (e.g., a rocky outcrop) and/or knowledge of a such sites held by the relevant Aboriginal community being of a secret or restricted nature that cannot be shared with certain classes of individuals (such as an archaeological consultant).

Only a brief outline of the survey documents is provided in this CIP. If you are an Aboriginal person with an interest in the OKDUGA Project, and you seek access to the survey reports, please contact the ODNTRPC or your relevant native title group¹³.

¹³ If a Traditional Owner would prefer that AAR contact the respective native title body or ODNTPRC on your behalf, please contact AAR using the details provided in section 7 of this document. Contact details for the ODNTPRC are available here: [Olympic Dam Native Title Representative Corporation | SAcommunity - Connecting Up Australia](#).

3.4.i Tangible (archaeological sites) in the Application Area

In South Australia, protection of tangible cultural heritage sites is provided by the *Aboriginal Heritage Act 1988* (SA), which states that it is unlawful to damage, disturb or interfere with Aboriginal sites, objects or remains without authorisation from the Minister, subject to significant penalties. Most of the heritage sites identified in the AHS survey documents as existing in the Application Area are tangible archaeological sites consisting of stone artefacts and other evidence of human occupation across time.

The most common type of object found in archaeological sites within the Application Area are stone artefacts, and the most common type of archaeological site identified were 'artefact scatters'. Such artefact scatters are places where Aboriginal people either walked through while hunting or travelling, discarding stone material on the way, or places where they stopped for longer periods and knapped core stones into blades, points, and choppers, for use in the preparation of food and medicine, or to make clothes, ceremonial items, and wooden tools.

The survey outlined criteria for the categorisation of sites that contain only stone artefacts (i.e., no burials, or rock art) with the minimum threshold for categorisation as a site as >5 flaked stone artefacts at a minimum average density of 0.05/m² (one artefact per 20m²). Within the Application Area, the survey results described archaeological sites/scatters as being common, predominantly consisting of smaller sites of less than 40 artefacts. However, sites containing thousands of artefacts were also observed in the Application Area. The low-density sites generally reflect the discard of stone tools by people while travelling, while high density sites are likely to represent places where people stopped for a prolonged period and/or revisited seasonally for various purposes.

3.4.ii Intangible (ethnographic sites) in the Application Area

Aboriginal sites of significance to Aboriginal anthropology associated with an 'area of land' are protected under the Act from unauthorised damage, disturbance or interference.

Many sites in the Application Area are described in the survey as containing intangible or ethnographic heritage values. These intangible values are often associated with a physical site, such as a landscape feature, rock art (engraved stone slab), or stone cultural marker(s).

Largely, ethnographic sites and intangible heritage values in the Application Area are connected to song or story lines that travel within and through the Oak Dam area. Five of the survey reports (listed in Table 1 above) were primarily concerned with identifying these intangible values in the Application Area, although ethnographic sites are indicated in all survey reports.

In general, the survey reports identify 'prominent landscape features linked to major storylines that are a significant part of the intangible cultural heritage of the Application Area and frequently connect to sites and storylines well outside the Application Area. These sites remain highly significant to Aboriginal groups; and would be impacted during Project implementation if authorisation to impact Aboriginal heritage sites is granted by the Minister.

Largely, survey participants chose not to record the specific details of stories and songlines connected to the ethnographic sites. However, survey participants repeatedly stressed the spiritual, cultural, and material importance of heritage sites within the surveyed area that includes the 1604 sites within the Application Area.

In addition to song and story lines, survey participants identified numerous sites restricted by gender. Such gender restrictions, as well as the ceremonial function of sites, is part of the intangible cultural heritage of the Application Area.

3.4.iii Culturally significant landscapes / Natural site

Culturally significant landscapes/Natural sites are sites described in the survey documents as containing natural features or resources that are important to Aboriginal people, usually due to their importance as hunting and gathering areas or specialised ecological zones. Natural sites may or may not show evidence of human occupation (archaeological material) and may or may not have ethnographic significance. The types of culturally significant landscapes identified by survey participants in the Application Area are:

- sand dunes
- cane grass swamps
- claypans
- watercourses and water catchment areas
- gilgais
- rock outcrops
- some lines/clusters of trees
- clearings containing large red stones
- Plains Mouse habitat areas.

These landscapes may or not be Aboriginal heritage sites of significance to Aboriginal archaeology, anthropology, tradition or history as defined in the Act but are listed and described in this CIP as they were identified as of significance by Traditional Owners during the surveys. BHP also seeks authorisation to impact these areas during OKDUGA Project works.

3.4.iv Environmental impact

This consultation information pack does not address the environmental impacts of the OKDUGA Project. The environmental values and impacts of the OKDUGA Project were assessed as part of the granting of the Oak Dam Retention Lease and Miscellaneous Purposes Licenses (see 2.2). The Management Plans for these leases and licenses include extensive environmental impact assessments and can be located here: <https://energymining.sa.gov.au/industry/minerals-and-mining/mining/major-projects-and-mining-activities/developing-projects/oak-dam>.

The OKDUGA Project has been approved under South Australia environmental impact assessment processes, resulting in grant of the RL and MPLs. BHP additionally referred the project to the Commonwealth Department for Climate Change, Energy, the Environment and Water (DCCEEW) to determine if an environmental impact assessment was required under federal law (*Environment and Biodiversity Protection Act 1996*). DCCEEW determined the OKDUGA Project was not a controlled action and did not require an Environmental Impact Assessment and/or Federal environmental approvals to commence¹⁴. Should a mine be proposed at Oak Dam in the future, development will be subject to a separate environmental impact assessment process.

The environmental impacts of the OKDUGA Project have been approved, however areas of environmental significance that are also Aboriginal heritage sites remain protected under the Act and subject to any decision by the Minister for Aboriginal Affairs on this application, and any conditions that may be imposed, if an authorisation is granted.

¹⁴ See Oak Dam Underground Access Project, SA, EPBC Number: 2023/09696, <https://epbcpublicportal.environment.gov.au/all-referrals/project-referral-summary/?id=70b9e45d-9677-ee11-8179-000d3a7943d3>.

4. Impacts to heritage

The Oak Dam Archaeological and Ethnographic Survey identified 1604 cultural heritage sites within the 916-hectare Application Area. In addition, a substantial amount of intangible cultural heritage is recorded as being associated with those sites. As noted, due to field surveys being conducted separately by Kokatha, Barngarla, and Kuyani representatives, several sites – and much of the intangible heritage – was identified independently by all groups. AAR estimates that approximately 700 sites have been identified as having site boundaries that overlap with the boundaries of other sites identified by two or more of the above groups.

Of the 1604 sites recorded in the AHS survey documents within the Application Area 622 were identified by Kokatha representatives, 640 by Barngarla, and 342 by Kuyani. **When you are considering this application to impact Aboriginal heritage sites, and under what conditions, it is damage to these sites, and associated intangible heritage, that is being discussed.**

The 1604 (~700) sites from the initial survey identified by the three groups within the Application Area may be subject to impact if authorised by the Minister, noting that the extent and occurrence of impacts will vary depending on detailed design, including application of avoidance and minimisation measures aligned with the PHMP. Impacts will occur in all six Project development zones and may include:

- Complete or partial **damage** to sites (e.g., a site may be completely excavated for road construction). Damage constitutes significant physical harm to a site up to and including a site's complete physical destruction.
- Minor or significant **disturbance** to a site (e.g., some material objects such as grindstones may need to be moved from one part of a site to another for development purposes). Disturbance will not generally destroy an entire site; however, disturbance may change the nature of a site physically and spiritually.
- Minor or significant **interference** to a site (e.g., development near and around a site, such as construction of roads or buildings, that impact access and amenity of a site but do not otherwise physically damage the site). Interference will not generally destroy an entire site; however, interference may change the nature of a site physically and spiritually.

Damage, disturbance and/or interference to a site within the Application Area may occur in multiple ways.

Specifically, BHP states that:

The OKDUGA Project would involve extensive ground disturbing works through machinery excavation and trenching. The proposed ground disturbances include:

- Clearing and grubbing of ground surface. Removal of topsoil and subsoil within portion[s] of the Application Area up to a depth of 1.2m to support the development of surface infrastructures including utility facilities, accommodation villages, access roads, diesel generation plant, refrigeration plant, crushing and screening plant, administration buildings, temporary maintenance and workshop buildings, laydown area, concrete batch plant, explosives storage, waste rock landform, stockpiles, drainages, dams, ponds, communication cables, and other recreational facilities.
- Establishment of drill pads and water sumps to support hydrogeological and geotechnical drilling activities.
- Construction of a 11m-wide, 2-way traffic access road.
- Construction of water supply pipeline and pumping infrastructures in a 15-20m wide disturbance corridor.

For further details of the ground disturbing activities per development zone, see Table 1.

Aboriginal people with interests in the Oak Dam area are being asked to provide advice to the Minister regarding potential impacts to 1604 (~700) heritage sites in the Application Area, and whether these impacts to heritage should be authorised under sections 21 and 23 of the *Aboriginal Heritage Act 1988 (SA)* and if so, under what conditions.

Should authorisation to impact Aboriginal heritage be authorised by the Minister, BHP proposes the impacts will be managed under the *OKDUGA Project Heritage Management Plan* (PHMP). Within the PHMP, mitigation measures are proposed by BHP to manage the level of impact to both tangible and intangible heritage. The PHMP will operate subject to any conditions of authorisation applied by the Minister. A summary of these management approaches is provided below.

5. Proposed management of Aboriginal heritage

In addition to identifying Aboriginal heritage sites during the AHS surveys, Kokatha, Barngarla, and Kuyani representatives, in association with the Olympic Dam Native Title Party Representative Corporation, were asked to recommend conditions for management of cultural heritage during OKDUGA Project delivery. Since that time, the Project design has been refined and the PHMP has been further developed and updated, including to reflect and respond to cultural heritage management considerations. Below is a summary of conditions proposed by survey participants and included in the survey reports.

5.1 Previous heritage management recommendations

In the survey documents, the 1604 identified heritage sites are described by all representative groups as 'Exclusion Zone(s)' or 'Condition Area(s)' sitting within otherwise 'Cleared Areas', as per Figure 11. The recommendation of Traditional Owners was that, within Cleared Areas, the work proposed for the OKDUGA Project may be largely undertaken without conditions. Within the Exclusion Zones, however, survey participants recommended that:

the proposed [OKDUGA Project] may proceed, subject to... there [being]... no pedestrian or vehicular access to any Exclusion Zone [and that] the proposed activities will cause no impacts on any areas or objects that are known to be of cultural importance.

For Condition Areas, there may be some provisions for access not extending to damage, largely matching the proposed condition above.

In addition, survey participants and the ODNTPRC recommended that:

- BHP Olympic Dam and its contractors must endeavour to minimise their impact footprint during the construction and maintenance phases of this project.
- All activities and access are restricted only to those areas given clearance and that all personnel access the Advanced Exploration [OKDUGA] Application Areas only using the cleared access tracks from established roads, tracks or fence lines.
- No development activities within 25 metres of the banks or edges of all creek lines, and no natural watercourse are to be drilled, modified, or impacted upon.
- All eroded areas, the edges of claypans, sand dunes and sand ridges be avoided, as much as possible.
- BHP Olympic Dam must not conduct works within 200 metres of waterbodies or watercourses without further consultation with the ODNTPRC.
- Exclusion Zones must be flagged or bunted off prior to development activities, under the guidance of heritage monitors.
- Cultural heritage monitors must be present and engaged during ground disturbing works (Ground disturbing works include any works that penetrate up to 1.5 metres from the topsoil or until the calcrete layer is hit).
- BHP and ODNTPRC should consider implementing different 'levels of protection' for cultural heritage sites and culturally sensitive areas as part of regular cultural heritage management mitigation measures (see Report 490-05, p.v for an example of 'levels of protection').
- In the event of previously unidentified Aboriginal cultural material being exposed, all development work that could impact material must cease and the ODNTPRC informed immediately to decide on how to appropriately manage the find.
- If human skeletal remains are discovered, all works must stop, and BHP Heritage must be contacted and informed about the discovery. BHP Heritage will subsequently contact the South Australian Police (SAPOL). If the Police or the Coroner determine that the remains are Aboriginal and not a concern for the police, BHP Heritage will work with the ODNTPRC to facilitate the relocation or reburial of the Aboriginal ancestral remains in a culturally appropriate manner.

The conditions above were developed in an early phase of planning for the OKDUGA Project and represent outcomes for Traditional Owners that avoid impacts to heritage sites during Project works. In subsequent phases of OKDUGA Project development BHP state that it became clear avoidance of all sites (Exclusion Zones) was not feasible, and that heritage management approaches would need to be altered to account for proposed impacts to heritage.

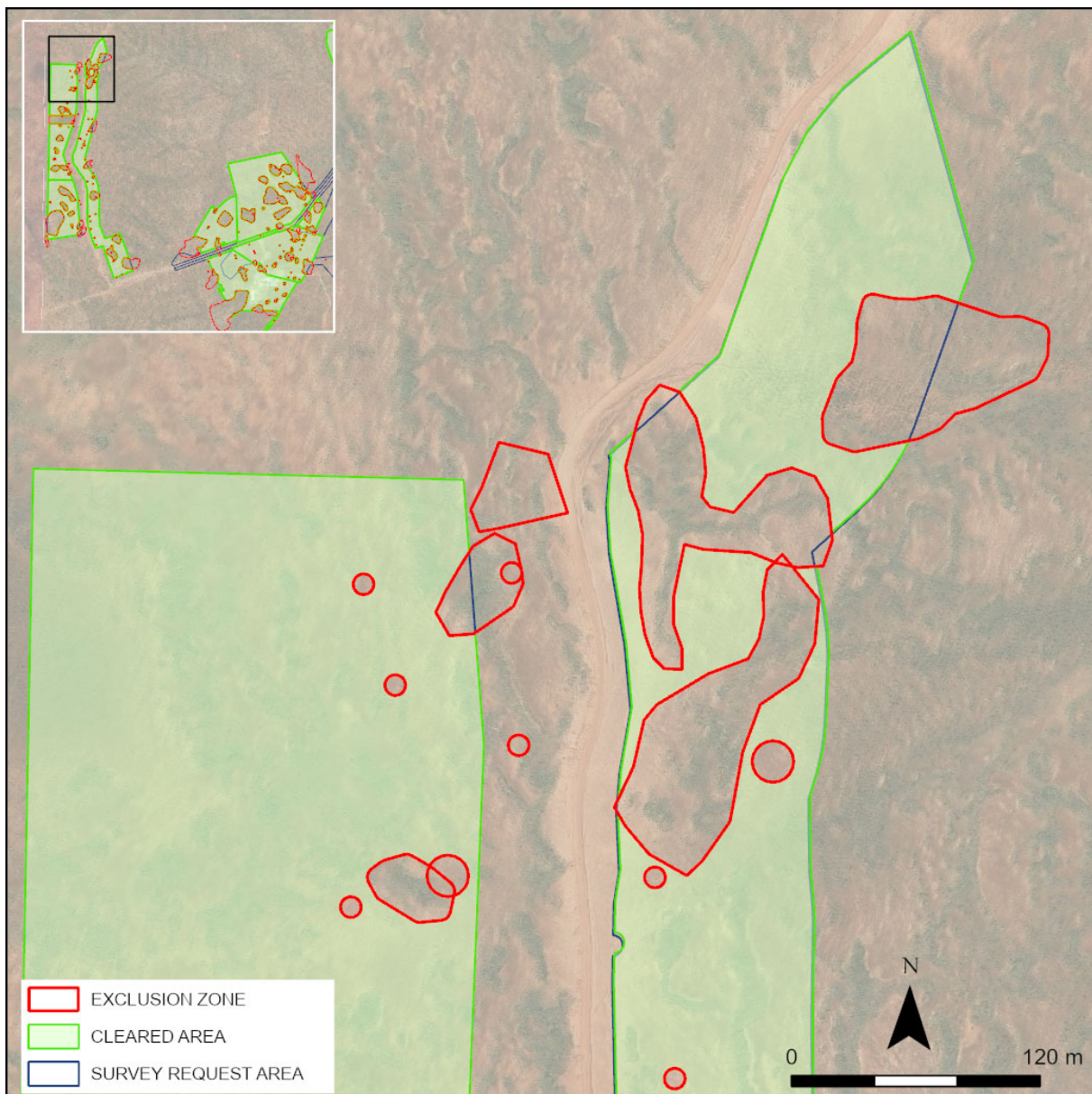


Figure 11: In the survey documents, ‘Exclusion Zones’ appear as red-bounded polygons with ‘Cleared Areas’ (green). Within Cleared Areas, work can proceed as proposed; however, no activity should occur in Exclusion Zones. Under the current proposal submitted to AAR by BHP, all Exclusion Zones may be subject to damage, disturbance, or interference, where Project activities are not reasonably be avoided.

5.1.i Change to earlier management recommendations

The cultural heritage recommendations made by Aboriginal heritage monitors and the Olympic Dam Native Title Party Representative Corporation in the survey documents relate to an early and preliminary development phase of the OKDUGA Project. BHP advise that not all the previously recommended management actions can be implemented during the Project, specifically the application of Exclusion Zones or Condition Zones to all heritage sites. These changes are reflected in the current OKDUGA Project Heritage Management Plan.

The ODNTPRC has been advised of these changes in Project design and the KAC, BDAC, and KYA Board have been provided with the updated PHMP. The entire PHMP is available by application to the ODNTPRC or relevant native title body¹⁵. An outline of the PHMP mitigation measures is provided below.

5.2 Current cultural heritage management provisions

The OKDUGA Project Heritage Management Plan developed by BHP sets out cultural heritage management procedures for the life of the OKDUGA Project. The first component of cultural heritage management was to reduce the size of the proposed OKDUGA Project to the current Application Area to avoid as many heritage sites as possible, as follows:

- Based on the surveys, BHP reduced the initially proposed OKDUGA Project Area from the 2500-hectare surveyed area to the current 916-hectare Application Area. The purpose of this change was to avoid impacts to Aboriginal heritage. In doing so, a total of 1250 sites were avoided.
- The Greenfield Access Road was realigned on three occasions to avoid significant Aboriginal sites, including those associated with intangible cultural heritage (storylines).
- A 1378ha sand dune formation noted by survey participants for its cultural and environmental significance was selected as a Dedicated Heritage Protected Zone (Figure 12).

¹⁵ If a Traditional Owner would prefer that AAR contact the respective native title body or ODNTPRC on your behalf, please contact AAR using the details provided in section 7 of this document.

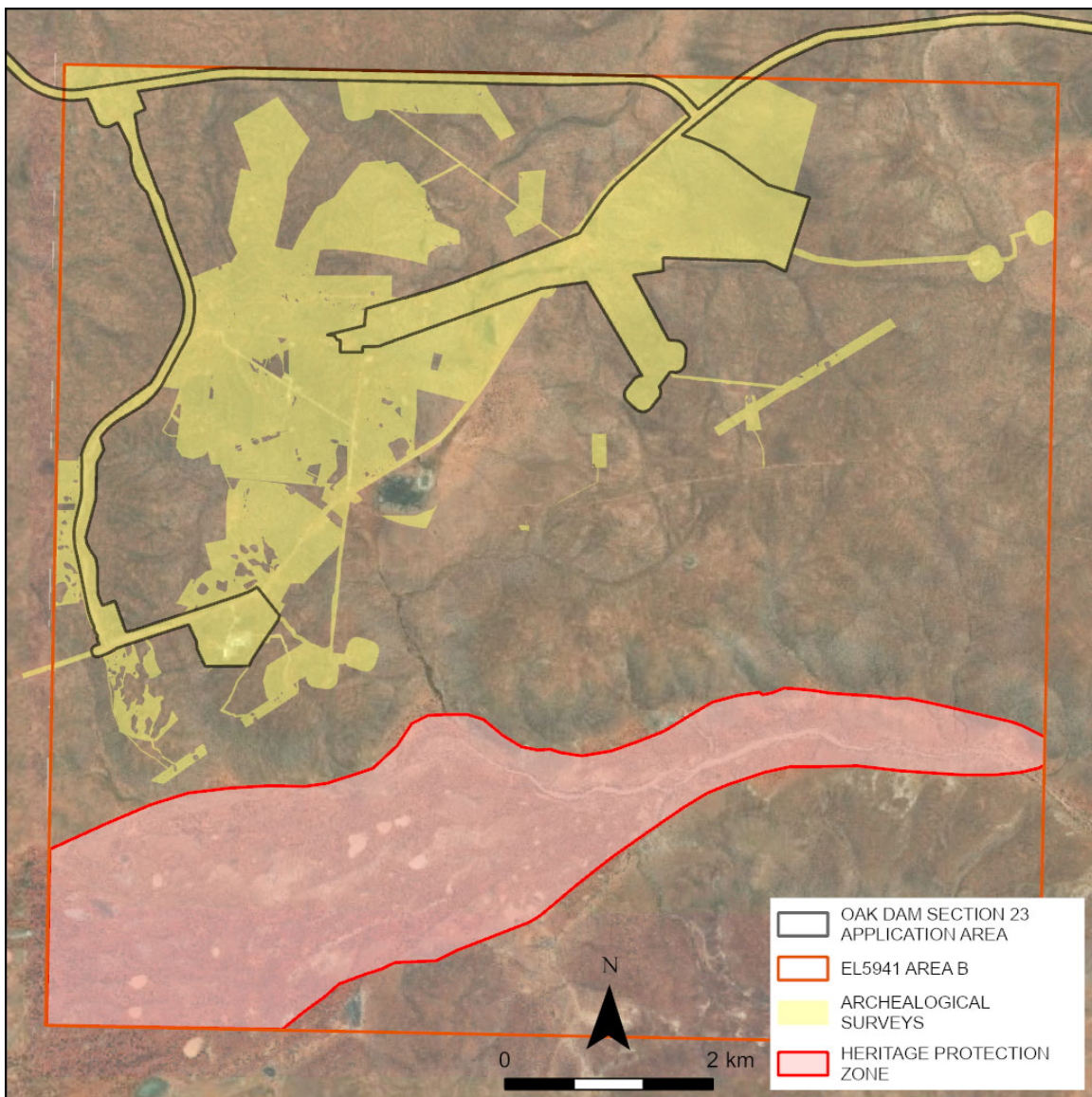


Figure 12: The Dedicated Heritage Protected Zone sand dune formation (red polygon) within EL5491. The Protection Zone falls outside the Application Area (blue polygon). The Yellow shading indicates the extent of the AHS archaeological surveys.

Notwithstanding BHP's Project redesign and reduction of the OKDUGA Project footprint to the Application Area, the OKDUGA Project may damage, disturb, or interfere with up to 1604 (~700) Aboriginal heritage sites, noting impacts will vary depending on implementation. Most of this impact, if authorised by the Minister, will occur during initial ground disturbing works. This will include, for example, impacts to cultural heritage due to road grading; the excavation of sites while removing topsoil, trees, and other vegetation; the burial of sites under rock piles; or the excavation of a site to facilitate infrastructure development. To mitigate impacts to cultural heritage during such ground disturbing works across the life of the project, BHP proposes the following ten mitigation procedures.

5.2.i Mitigation measures:

A summary of the mitigation measures proposed to be employed by BHP over the life of the Project should authorisation to impact Aboriginal heritage sites be granted is provided below¹⁶:

1. Avoid impact to Aboriginal heritage including through decisions made in the field by Aboriginal heritage monitors that may permit avoidance of a site if possible.
 - a. Note: BHP have advised there is very low likelihood of avoiding impacts to heritage within the Application Area.
2. Heritage monitoring is provided during initial ground disturbance activities by representatives of Kokatha, Barngarla and Kuyani in the Application Area.
 - a. Note: the number and selection of heritage monitors is provided for in the Olympic Dam Agreement (Heritage Management Protocols) and other agreements between BHP and relevant Aboriginal Groups (e.g., Oak Dam Indigenous Land Use Agreement). Some of this information cannot be shared due to commercial in confidence restrictions. Selection of heritage monitors is made via the ODNTPRC.
 - b. BHP will engage 1 monitor from each ODNTPRC group (3 in total), to support the activities for each individual work front.
 - c. KAC, BDAC and KYA members will survey separately but the salvage and monitoring work will be conducted collectively via the ODNTPRC. Any differences of opinion between monitors will be referred to the ODNTPRC.
 - d. Monitors are generally expected to provide input into the management of heritage onsite during Project activities (this could include potential site avoidance, salvage recommendations, recommending that stories associated with a site are recorded, identify new sites during ground disturbing works).
 - e. Heritage monitors will only be present during initial ground disturbing works.
3. Under guidance of Aboriginal heritage monitors, detailed site recording and salvage of artefacts from archaeological and ethnographic sites with moveable heritage objects will occur prior to impact and be conducted by professional archaeologists
4. Development of a thorough inventory of salvaged artefacts.
5. Rehabilitation (repository) of cultural materials in a culturally appropriate manner including restrictions on their display.
 - a. Two temporary cultural heritage repositories will be established on site, near the Oak Dam village, and maintained by BHP in consultation with the relevant Aboriginal groups.

¹⁶ Note: the mitigation measures described in section 5.2.i are taken from the *OKDUGA Project Heritage Management Plan* and correspondence between BHP and AAR in May 2026

- b. Develop a protocol for access to the cultural materials / repository by Aboriginals with an interest in salvaged materials, by application to the ODNTPRC.
 - c. The location and type of each cultural object will be systematically recorded, with items carefully collected, bagged, and labelled. A salvage report documenting the methodology and details of all salvaged artefacts and materials will be prepared and provided to the ODNTPRC, native title groups, and BHP.
 - d. Establishment of a permanent keeping place or repository will be considered through future agreement-making processes.
6. Sites in the ethnographic and culturally significant landscapes categories, in many cases, are not capable of physical salvage. In these cases, prior to impact, opportunities will be provided for nominated Aboriginal representatives to further inspect these sites to:
- a. conduct cultural ceremonies by the relevant cultural authority prior to impact
 - b. record stories and other cultural information by audio and/or video media (restrictions can be placed on this material)
 - c. determine if 3D modelling of a site is warranted.
7. Interested Aboriginal people and groups will continue to be able to access heritage sites in the Application Area, subject to health and safety requirements.
8. All BHP personnel and contractors working across BHP assets are required to complete two mandatory cultural heritage awareness training modules. A dedicated cultural heritage awareness briefing will be delivered to OKDUGA Project personnel.
9. In the event of a new discovery of an Aboriginal site, or new information about an existing site, adopt AAR Discovery Protocols and report the new discovery per section 20A of the *Aboriginal Heritage Act 1988* (SA) (see 7.3).
- a. Discovery of new sites is supported by BHP's internal Global Land Use Permit (GLUP) process, which maps heritage values in the Application Area and is available to monitors and BHP staff.
10. In the event of new discovery, the BHP Heritage Manager will consult with Aboriginal representatives to assess the new information and its impact on activities.

As an Aboriginal person with an interest in the Oak Dam area, AAR seeks your input on the mitigation measures described above. In addition to BHP-developed mitigation measures, BHP must also adhere to additional cultural heritage management requirements under the Act.

5.3 Heritage management requirements under the Act

5.3.i Heritage discovery procedures

Aboriginal Sites Discovery Protocol

Pursuant to sections 20A(1), 21(2) and 23(3) of the *Aboriginal Heritage Act 1988* (SA), if an authorisation to impact Aboriginal heritage is granted and an Aboriginal site not previously recorded in heritage surveys is subsequently identified in the Application Area, or if new information is uncovered about an existing site, BHP must comply with the Act and the AAR *Aboriginal Sites Discovery Protocol*, attached as Appendix B.

In the event of the discovery of a new site or new information about an existing site, BHP must:

- stop all activities in the associated development zone
- establish a 3m radius around the visible extent of the discovery
- notify AAR and relevant Aboriginal groups to provide the Minister with a reasonable opportunity to act, if required to protect the discovery
- seek the views of relevant Aboriginal groups and qualified professionals if necessary (e.g., archaeologist)
- develop a plan about how to manage the new heritage in the context of the existing authorisation
- provide AAR and the relevant Aboriginal groups with a method for managing the discovery.

Following the above works may proceed under the existing conditions of the section 21 and 23 authorisations, if granted.

Aboriginal Remains Discovery Protocol

Pursuant to sections 20A(1), 21(2) and 23(3) of the *Aboriginal Heritage Act 1988* (SA), if an authorisation to impact cultural heritage is granted for a Project and suspected, previously unrecorded Aboriginal remains, or new information about known/existing remains, is subsequently uncovered during Project works, the Applicant must enact the *Aboriginal Remains Discovery Protocol* (being part of the Aboriginal Sites Discovery Protocol, Appendix B). Broadly, in the event of the discovery of Aboriginal remains, or in light of new information about existing remains, the Applicant must:

- stop all activities in the development zone
- establish a 3m radius around the visible extent of the discovery
- notify SA Police (call 131 444)
- SA Police investigation to determine the status of the remains
- if the remains are determined to be Aboriginal remains of a historical nature, activities are to remain ceased in the development area and the following steps implemented:
 - notify AAR and the relevant Aboriginal groups about the remains
 - develop a plan about how to manage the remains based on the in/ability to avoid the site

- if the site cannot be avoided, implement the AAR 'Method for managing Aboriginal remains' contained within the Aboriginal Remains Discovery Protocol (Appendix 4).

Following the above works may proceed under the existing conditions of the s21/23 authorisation.

6. Project summary

BHP is proposing to undertake advanced exploration drilling of a previously identified ore body at a location known as Oak Dam, on Arcoona Station within the Kokatha native title determination area (Part A, SCD2014/004). The purpose of the exploration is to establish whether the ore body is a viable prospect to mine, primarily for copper.

Identification of the mineral deposit at Oak Dam will be made via the Oak Dam Underground Access Project, which proposes to access the resource body via two downward sloping tunnels (twin declines) extending at least 800m underground. Via the declines, advanced exploration drill rigs will be able to access the ore body and determine its mineral characteristics with precision.

A significant volume of infrastructure development and ground disturbing works are required within the 916-hectare Application Area to establish the underground tunnels and support the exploration drilling. This includes, but is not limited to, construction of the tunnels; expansion of the existing Oak Dam Exploration Hub Village to accommodate up to 310 workers; and construction of new, or expansion of existing, access roads and water pipeline corridors. During the development of the infrastructure, as many as 1604 cultural heritage sites may be impacted. AAR estimates that approximately 700 of these sites have one or more overlapping boundaries.

In total, the infrastructure establishment and exploration drilling program at Oak Dam will run for 10 years at which time the OKDUGA Project will end. Should the Project reveal a geologically and economically viable mineral deposit, any establishment of a mine at Oak Dam will be subject to a separate approval process.

The OKDUGA Project has development and environmental impact approval under State and Federal legislation. However, the Project cannot proceed without authorisation by the Minister of Aboriginal Affairs under the *Aboriginal Heritage Act 1988* (SA) to impact Aboriginal heritage sites.

In order to assess BHP's application to impact Aboriginal heritage under the Act, section 13 requires that the Minister consult with relevant Traditional Owners and interested Aboriginal parties to obtain their views. In addition, section 14 allows Traditional Owners to propose conditions on any authorisation granted.

Per the conditions of the Olympic Dam Agreement, the primary Traditional Owner groups that must be consulted on the OKDUGA Project are Kokatha, Barngarla, and Kuyani; however, other individuals and nations may have an interest in the matter.

AAR is conducting this consultation on the Minister's behalf. AAR is seeking your views on whether the Minister should grant the requested authorisation and if so, under what conditions.

7. Consultation process

Before considering whether to give any authorisation under the Act in relation to the OKDUGA Project, section 13 of the Act requires the Minister to take all reasonable steps to consult with the State Aboriginal Heritage Committee¹⁷, Traditional Owners, and any other Aboriginal parties that may have an interest in the matter.

Under section 14 of the Act, the Minister may grant an authorisation subject to conditions that the Minister considers appropriate. As a relevant interested Aboriginal party, you are invited to make a submission on the Project including any conditions you would like to see placed on any authorisation.

The consultation period for the Oak Dam Underground Access Project will close on Friday 18 September 2026.

This consultation information pack provides information about the Project and has been sent to you as an Aboriginal person who may have an interest in the Oak Dam area.

7.1 Aboriginal Community Information Meeting

A community information meeting will be held for Traditional Owners and any other interested Aboriginal parties at **10:00am-4:00pm on Friday 17 July 2026 at the Central Oval, Port Augusta, SA, 5700**. Morning tea and lunch will be provided.

To RSVP to attend the Aboriginal Community Information meeting, please call (08) 7322 7821 or email aar.heritagesubmissions@sa.gov.au.

¹⁷ The State Aboriginal Heritage Committee is established under Section 7 of the *Aboriginal Heritage Act 1988* (SA) to provide advice to the Minister under the Act. This includes providing advice on applications for authorisation to impact cultural heritage. The Committee is comprised of 11 Aboriginal members from across different regions of South Australia.

7.1.i Individual group meetings

The community information meeting is an opportunity for any interested Aboriginal party to make submissions on the OKDUGA Project. However, given the complexity of the Project and the involvement of at least three Aboriginal nations per the conditions of the Olympic Dam Agreement, it may be desirable for some nations, representative bodies, small/family groups, or individuals to have separate consultation meetings to discuss the Project. In this case, the initial open invitation community information meeting may be considered an information sharing session to inform future consultation processes and submissions.

Aboriginal Affairs and Reconciliation is happy to arrange and facilitate additional meetings with interested parties following the initial community information meeting. Should your organisation or family wish to arrange an individual, private meeting to discuss the OKDUGA Project with AAR staff, please make contact using the details provided below. AAR will then tailor a consultation meeting to meet your requirements.

7.2 Invitation for submissions from interested Aboriginal parties

Submissions on the OKDUGA Project are open now and may be made any time during the 10-week consultation period (10 July – 18 September) by any interested Aboriginal party. Aboriginal people and organisations may make a submission to AAR in person, or by phone, letter or email. Anyone who receives this consultation information pack is encouraged to make a submission and to share the pack with other Aboriginal parties who may have an interest in the Oak Dam area and OKDUGA Project. The consultation information pack is also available online at [Current applications under the Aboriginal Heritage Act 1988 | Attorney-General's Department](#).

All Aboriginal people and organisations with an interest are encouraged to contact AAR to learn more about the Project and to lodge a submission. All consultation feedback, RSVPs, submissions and/or requests for further information should be addressed to:

Stella Kassapidis

Senior Project Officer (Heritage), AAR

Mail: GPO Box 464, ADELAIDE SA 5001

Email: aar.heritagesubmissions@sa.gov.au

Telephone: (08) 8208 2448

7.3 Consultation considerations

Section 13 of the Act requires the Minister to consult with relevant Aboriginal people about all applications to impact Aboriginal heritage. Under section 14 of the Act, the Minister may grant an authorisation subject to conditions that the Minister considers appropriate. As such, the consultation process does not only seek the views of interested groups about authorisation to

impact heritage but also **allows Traditional Owners to propose conditions on heritage management.**

When making a submission, consultees should consider and respond to the following questions:

- 1. What are your views on this request for authorisation?**
- 2. If the authorisation were granted, would you seek that the authorisation be conditioned in any way? Please provide example conditions.**
- 3. What are your views on the project proceeding as proposed, including:**
 - the impacts to Aboriginal heritage that are proposed?
 - the proposed protection and management of Aboriginal heritage?
- 4. Do you have any other views you wish to share with the Minister before the application is decided?**

AAR is available to answer questions or provide further information about the application at any time prior to consultation closing on **Friday 18 September 2026.**

7.4 How your submission will be used

All submissions will be forwarded to BHP to respond should it choose, unless you request that any cultural information you have provided be kept confidential. AAR will discuss with you any request you may make for your submission to be considered on a confidential basis.

Once the consultation period has closed, all submissions and the Applicant's responses to them (if any) will be provided to the Committee, and the Committee's advice will then be sought. This advice, along with all consultation submissions and the Applicant's responses to them, will be provided to the Minister to assist the Minister to decide about the application. All parties who have made a submission will be personally notified of the application outcome.

Consultation closes on Friday 18 September 2026.

Thank you for taking the time to consider BHP's application to impact Aboriginal heritage during the proposed Oak Dam Underground Access (OKDUGA) Project. If you are an interested Aboriginal party, AAR encourages you to make a submission about this application and can assist with preparing your submission.

8. Appendices

Appendix A: BHP Oak Dam Underground Access Project Description



Oak Dam Underground Access Project (OKDUGA)

Project Description

November 2025

Acronyms and Terms

Abbreviation	Description
3D	three dimensional
AEM	aerial electromagnetic survey
AEP	annual event probability
ANE	ammonium nitrate emulsion
ANFO	ammonium nitrate-fuel oil
ATV	acoustic televiewers
BHP	BHP Olympic Dam Corporation Pty Ltd
BHP Group	BHP Group Limited
DCP	dynamic cone penetrometer
DEM	Department for Energy and Mining
DIT	Department for Infrastructure and Transport
EL	exploration licence
EMS	Environmental Management System
EPA	Environment Protection Authority
EPEPR	Exploration Program for Environment Protection and Rehabilitation
FIFO	fly-in/fly-out
HDPE	high-density polyethylene
HEMQ	hydrothermal breccia
HV/LV	high voltage/low voltage
ICMM	International Council on Mining and Metals
IOCG	iron oxide copper-gold
mbgl	Metres below ground level
MLP	Mining Lease Proposal
MNES	Matters of National Environmental Significance
MP	Management Plan
mRL	Metres relative level
NMR	nuclear magnetic resonance
NORM	naturally occurring radioactive materials
NWP	Northern Water Project
OKDUGA	Oak Dam Underground Access
PAF	potentially acid forming
PEPR	Program for Environment Protection and Rehabilitation
RAR	return air rise
RL	Retention Lease

Abbreviation	Description
RL Proposal	Retention Lease Proposal
RMR	rock mass rating
RO	reverse osmosis
SWD	stormwater collection dam
TDS	total dissolved solids
TSF	tailings storage facility
VWP	vibrating wire piezometer
WIC	water infrastructure corridor
WRL	waste rock landform

Glossary of Key Terms

Key term	Description
Portal	A horizontal passage that provides entry to the underground mine
Box cut	The initial cut made in the ground to create an entrance to the underground mine
Decline	Inclined tunnel or ramp used to access underground mine
Waste Rock Landform (WRL)	Large pile of unused rock and soil that has been removed during decline development and mining operations.
Orebody	Natural concentration of valuable minerals to be extracted via mining.
Resource definition	Details of the total amount, location and grade of the minerals to be extracted
Drill platforms	A structure that supports the machinery and equipment used for drilling

Contents

1.	Introduction.....	1
1.1	Oak Dam and Project Context	1
1.2	OKDUGA Section 21 and Section 23 Application Area	5
1.3	Oak Dam – Existing Exploration Disturbance	8
2.	OKDUGA Project – Proposed Activities	11
2.1	Zone 1 – Surface Infrastructure	11
2.2	Decline (Underground Tunnels)	15
2.3	Access Corridor – “Bosworth Connector” (Inside Oak Dam Retention Lease).....	17
2.4	Hub and Village	17
2.5	Greenfield Access Road	18
2.6	Water Pipeline	18
3.	Management of Construction Activities	19
3.1	Type of Mining Equipment	19
3.2	Scheduling and hours of operation	21
3.3	Waste Management	21
3.4	Workforce and Economic Opportunities.....	26
4.	OKDUGA Project – Closure.....	31
4.1	Closure and Rehabilitation Strategy.....	31
4.2	Rehabilitation methodology	38

Tables

Table 1-1 Key OKDUGA Project elements and characteristics.....	3
Table 1-2 Key Alternative SIC MPL Project Area elements and characteristics	4
Table 1-3 Summary of activities associated with each OKDUGA development zone.....	5
Table 3-1 Fleet by activity	19
Table 3-2 Estimated waste generation rates and types	23
Table 3-3 Workforce profile.....	26
Table 3-4 Estimated electricity demand	29
Table 4-1 Closure objectives	32
Table 4-2 Closure domains.....	34
Table 4-3 Rehabilitation (design, construction and operation) considerations	38
Table 4-4 Exploration and groundwater drill hole rehabilitation considerations	44

Figures

Figure 1-1 Project regional locality	1
Figure 1-2 OKDUGA Project Overview	2
Figure 1-3 Six Development Zones within the OKDUGA Project Area.	5
Figure 1-4 Existing Exploration Disturbance in Oak Dam	10
Figure 2-1 Conceptual box cut layout	12
Figure 2-2 WRL Design Features	13
Figure 2-3 Typical decline cross-sections	16
Figure 2-4 Conceptual Plan of Oak Dam Underground Access.....	16
Figure 2-5 Indicative site access road cross-section.....	17
Figure 4-1 BHP Closure Planning Process	32

1. Introduction

1.1 Oak Dam and Project Context

Oak Dam is located in the far north of South Australia, located 65 km south-east of the existing BHP Olympic Dam operations. The Oak Dam deposit is a deep iron oxide copper-gold (IOCG) mineralised system. BHP owns Exploration Licence (EL) 5941 over the site and is currently undertaking surface exploration works under Exploration Program for Environment Protection and Rehabilitation (EPEPR) (2022-031) approved under the *Mining Act 1971* (SA) associated with Area B (Retention Lease 139 (RL139)) (See Figure 1.1). Exploration drilling at Oak Dam indicates the presence of high-grade copper and associated minerals that may be economically viable to mine, at an approximate depth of 800 m below surface.

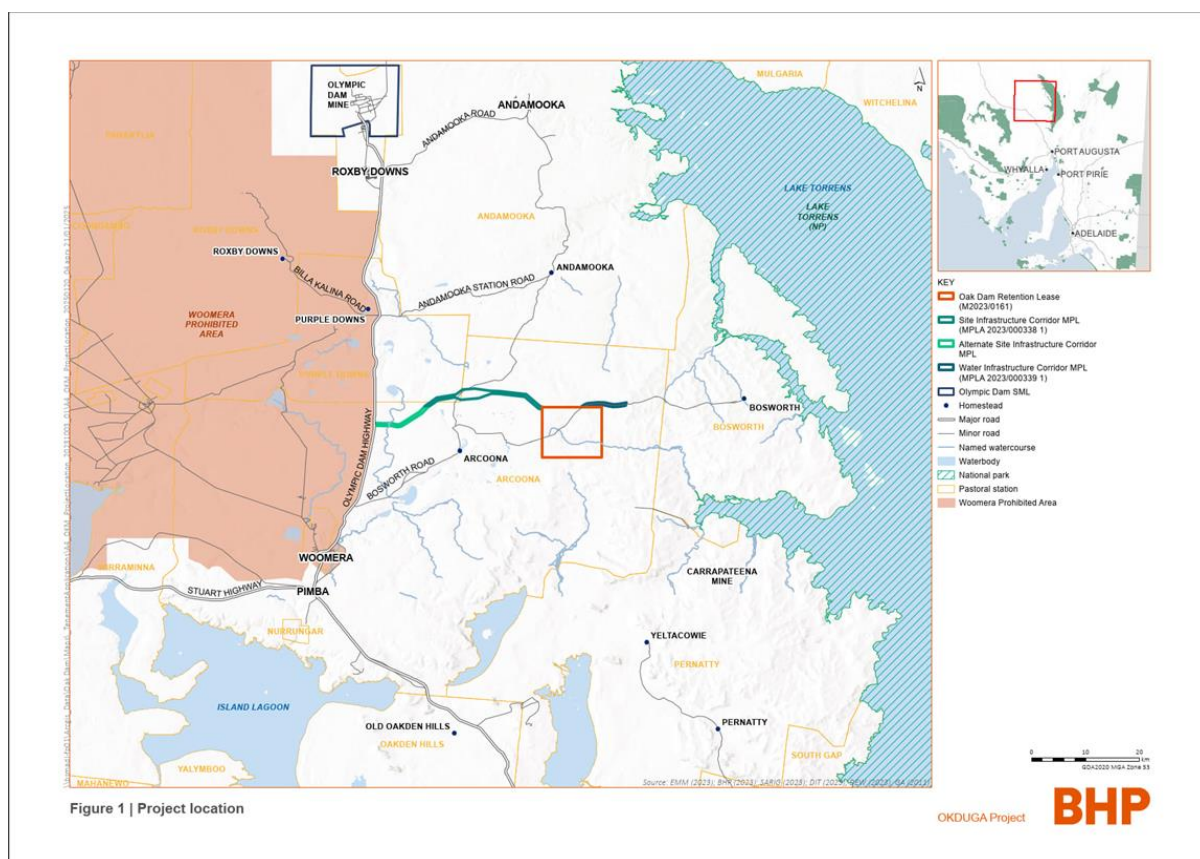


Figure 1-1| Project regional locality

The purpose of the Oak Dam Underground Access (OKDUGA) Project is to progress exploration drilling from underground, to provide accelerated resource definition and reduce surface drilling and development costs. BHP has determined from engineering and feasibility studies to proceed with the Project using a twin decline (parallel tunnels) design.

The OKDUGA Project will build a tunnel entrance (box cut) for access to the underground, with supporting service surface infrastructure to develop the incline to include utility facilities, diesel generation plant,

refrigeration plant, administration buildings, temporary maintenance buildings, laydown area, concrete batch plant, waste rock stockpiles created from the material left over after mining operations, borrow pit(s), stockpiles, surface dams, and ponds. The Oak Dam Village, explosives storage, fibre optics and water pipelines will also be established on the surface.

The key project infrastructure is shown on Figure 1.2. The key project characteristics are summarised in Table 1.1.



Figure 1-2 | OKDUGA Project Overview

Access to the site is proposed via construction of a new access road from the Olympic Dam Highway (Alternative Site Infrastructure Corridor (SIC)) and Water Infrastructure Corridor (WIC) under new Miscellaneous Purpose Licenses (MPLs) (See Figure 1.1, Table 1.2)

Table 1-1 | Key OKDUGA Project elements and characteristics

Project element	Summary
Within EL 5941 (RL)	
Underground exploration activities	Development of twin declines to access the Oak Dam deposit via traditional drill and blast development methods, with an associated box cut and portal decline access
Decline dimensions	Access decline approximately 6.2 m wide and 6.2 m high and conveyor decline approximately 6.7 m wide and 6.0 m high, with each decline approximately 6.0 km long
Extraction rate	Development is scheduled to progress at an average of approximately 270 m/month, resulting in approximately 1,200,000 tonnes (t) of waste rock being generated
Project life	Decline construction could take up to approximately 6 years, followed by approximately 2.5 years of underground exploration activities. Closure would nominally take approximately 2 years following the cessation of exploration activities, for a total project life of 10 years
Processing	No onsite minerals processing is proposed
Waste rock storage	Waste rock generated during decline development would be stored within a surface WRL, which would subsequently become a permanent landform at closure
Surface infrastructure	Supporting surface infrastructure includes: • offices • mechanical workshops • explosives magazines • core farm and sample storage areas (upgrade of existing or new infrastructure) • accommodation village (expansion of existing village) • access roads • renewables generation • borrow pit(s) • crusher • wastewater treatment plant • refrigeration plant • concrete batch plant • laydown areas
Electricity demand, supply and distribution	Up to 20 megawatts (MW) of onsite electricity generation via diesel generator sets (gensets) with the potential for onsite renewable generation via solar photovoltaic. Distribution via above-ground electricity distribution lines. Total annual electricity demand would be approximately 160 gigawatt hours (GWh) per annum
Water demand, supply and distribution	A water demand of up to 740 megalitres (ML) would be required over the life of the OKDUGA Project, with daily demand peaking at approximately 0.9 ML per day (ML/d) during the later development stages as decline refrigeration becomes necessary. Water supply to meet external (raw and potable) demand would be met through, in whole or part, the capture of decline dewatering inflows, a dedicated water supply wellfield, the supply of water from the existing Northern Wellfield (MPL 156) and/or the import of potable water from the South Australian potable water network, subject to the completion of the

Project element	Summary
	Department for Infrastructure and Transport's (DIT) Northern Water Project (NWP)
Material quarrying	Borrow material would be required for construction which may be sourced from either an onsite borrow pit(s) and/or from existing regional borrow sources. Nominal material demand would be approximately 242,000 t/month during the initial infrastructure construction phase
Workforce	Peak workforce would be up to approximately 310 people onsite at any one time. Workforce would be fly-in/fly-out via Olympic Dam, where a bus service would transfer personnel to site, collecting local residents on the way as required
Accommodation	Oak Dam Village – the existing accommodation would be upgraded to accommodate approximately 310 people, and would include dining halls, ablutions, laundry and recreational facilities
Exploration	Exploration activities and surface infrastructure approved under EPEPR (2022-031) associated with EL 5941 Area B Exploration development (e.g. surface exploration, resource definition drilling, core storage facility, hydrogeological and geotechnical investigations), including deep and surface geotechnical investigation (drilling) and test pitting

Table 1-2 | Key Alternative SIC MPL Project Area elements and characteristics

Project element	Summary
New site access road	A new all-weather site access road would be constructed under a dedicated Alternate SIC MPL tenement, intercepting the Olympic Dam Highway approximately 15 km north of the existing Bosworth Road intersection connecting the OKDUGA Project to the Olympic Dam Highway.
Water supply pipeline	A water supply pipeline (lateral) may be constructed within the Alternate SIC MPL tenement as a component of the Office of Northern Water Development (ONWD) Northern Water Project (NWP). This would supply water from a seawater desalination plant located on the Eyre Peninsula to site.
Water bores	Water supply to meet external (raw) demand during construction and operation would be met through, in whole or part, two dedicated water supply bores and associated ancillary infrastructure (e.g. headworks, water storage dam, access track) within the Alternate SIC MPL tenement.
Electricity transmission line and substation	Transmission line and substation may be constructed within the Alternate SIC MPL tenement to connect to the South Australian electricity network at the Olympic Dam Highway. The transmission line design would be based on the use of steel poles of approximately 26 m height at a spacing of approximately 250 m.
Optic fibre	Optic fibre and supporting infrastructure may be constructed within the Alternate SIC MPL tenement to connect to the OKDUGA Project to the existing network at the Olympic Dam Highway. The optic fibre would be either direct buried or installed aerially between transmission line poles.

1.2 OKDUGA Section 21 and Section 23 Application Area

Development of the OKDUGA Project is expected to have a disturbance footprint of 916 hectares inside EL 5941 (RL139) and associated MPL areas. It will not be possible to avoid all impact to identified heritage sites within the Project area, and the OKDUGA Project will require Ministerial Authorisation under s.21 and s.23 of the *Aboriginal Heritage Act* 1988 (SA) to proceed.

The Application Area measures 916 hectares and covers the maximum development footprint (MDF) of the Oak Dam Underground Access Project (OKDUGA). The Application Area represents approximately 10% of the total 8,823ha Oak Dam tenure area (Retention Lease plus MPLAs) (Map 2), with the disturbance footprint comprises six (6) development zones described in Figure 1.3, and Table 1.3 below.

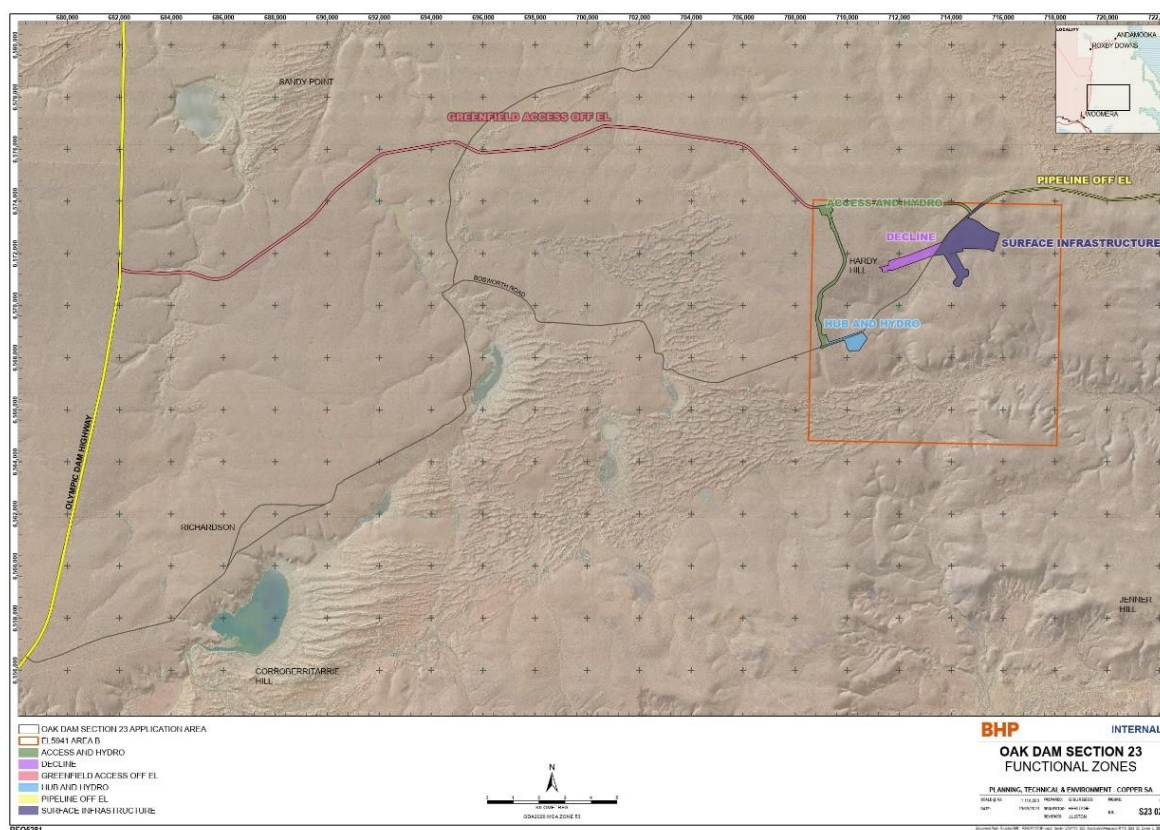


Figure 1-3 | Six Development Zones within the OKDUGA Project Area.

Small areas within the Application Area are currently used for exploration activities under EL5941 to support development of the OKDUGA Project. Exploration activities on EL5941 to date have occurred on areas where cultural heritage surveys have been undertaken, and have avoided all identified heritage locations/sites. This has included for development of the Exploration Hub (village and accommodations), access tracks, communication towers, and surface areas used during mineral exploration, hydrogeological and geotechnical investigation activities (e.g., drill pads). An overview of current activities on Oak Dam is set out in Section 1.3 below.

Table 1-3 | Summary of activities associated with each OKDUGA development zone.

OKDUGA Development Zone	Summary Activities
Surface Infrastructure	This area will host the entry point to the underground tunnels and the development of power and water systems, buildings and storage areas. It includes drilling pads, maintenance facilities, and waste rock management. Prior to construction the land would be cleared of vegetation where necessary and all topsoil removed (first 150-200mm of soil). Up to 1.2m of additional subsoil will also be removed where required and stockpiled for use in rehabilitation. Additional development components within this zone includes: • Establishment of access to the underground tunnel (decline) via a box cut and portal development. • Development of utility facilities, diesel generation plant (up to 20 megawatts), refrigeration plant, crushing and screening plant, administration buildings, temporary maintenance and workshop buildings, laydown area, concrete batch plant, explosives storage, access roads, waste rock landform (WRL), stockpiles, dams, and ponds. • Establishment of hydrogeology drilling pads and drill holes • Establishment of geotechnical drilling pads and drill holes • Establishment of geotechnical test pits
Decline	This is where the underground tunnels are developed. Activities here focus on drilling, ventilation, and water management. Development of the decline will be underground with no additional surface disturbance. The decline is developed from the boxcut and portal within Zone 1 to enable underground exploration activities. Additional development components within this zone includes: • Establishment of hydrogeology drilling pads and drill holes • Establishment of geotechnical drilling pads and drill holes • Establishment of geotechnical test pits
Access Corridor (Bosworth Connector)	A new all-weather site access road would be constructed within this zone, including access roads and intersections to Bosworth Road and the Exploration Hub. This is to allow for safe access to the operational areas and are part of Traffic Management. The new road would be 11m wide and would require vegetation to be cleared and soil removed (up to 1m). Additional development components within this zone includes: • Establishment of hydrogeology drilling pads and drill holes • Establishment of geotechnical drilling pads and drill holes • Establishment of geotechnical test pits

Hub and Village	This development zone includes upgrading the Oak Dam Village to accommodate up to 310 workers, with facilities like dining halls, laundry, and recreation areas. Project will endeavor to design to avoid impact to heritage within this zone.
Greenfield Access Road	A new 34km access road will be built to connect the site to nearby highways. It will support safe transport and include communication lines and water pipelines. The new road would be 11m wide and would require vegetation to be cleared and soil removed (up to 2m). The road would be constructed of compacted gravel with a total disturbance footprint of 48.37 Ha. Additional development components within this zone includes: • The proposed new site access road would be constructed of formed, graded and compacted imported crushed material, with either a cross-fall or crown. • Road surface to be gravel, imported to site and/or from local borrow pit(s) where suitable materials are identified/available. • Carriageway approximately 11 m wide (3.0 m wide traffic lanes plus shoulders 0.5 m wide and surface drainage 2.0 m wide) to allow for two-way traffic.
Water Pipeline	A 17 km pipeline will be installed to connect the Oak Dam RL to the existing Carrapateena Northern Wellfield pipeline. This pipeline will allow Oak dam to send excess groundwater to Carrapateena for use in their mine operations. The pipeline would be laid on the surface along existing access tracks and buried under creek crossings. The pipeline will tie into the existing Carrapateena owned transfer station within MPL 156. Prior to construction the pipeline corridor (~5m wide) would be cleared of vegetation where necessary and all topsoil removed (first 150-200mm of soil).

1.3 Oak Dam – Existing Exploration Disturbance

Exploration activities to progress development of OKDUGA Project have been ongoing since 2021 (Figure 1.4) and include establishment of the Exploration Hub (village with ~150 accommodation), new access tracks, and surface areas used during-hydrogeological and geotechnical investigation activities (e.g., drill pads). All exploration activities completed have avoided impacts to known heritage locations identified through heritage surveys.

Surface exploration and resource definition drilling works will continue during construction of the OKDUGA Project underground declines. These activities will only be conducted on areas that have been heritage surveyed by the Traditional Owners, and all activities designed to avoid impact to heritage.

Key exploration activities that are continuing at Oak Dam include:

a) *Mineral exploration drilling*

The surface exploration drilling program aims to identify copper and gold mineralisation of potential targets typically associated with IOCG deposits. Targets are drilled to an approximate depth of 2,500 m, and exploration drilling will include up to 15 diamond drill rigs with drill hole spacing between 20 and 300 m. The minimum line spacing will be 100 m with lines/tracks and pads delineated in the field. The drilled rock samples will undergo a variety of geotechnical tests to determine the characteristics of the underground rock.

b) *Hydrogeological (groundwater) drilling*

Hydrogeological drilling using a reverse circulation (RC) drill rig to:

- Investigate local groundwater sources for potential production wells and water storage solutions for the OKDUGA Project.
- Collect and testing data on the hydraulic characteristics of the local aquifers.
- Assist airborne (e.g., drone) and surface geophysics to identify geological features with suitable permeability for groundwater production, and understand local geological and hydrogeological systems.
- Convert suitable groundwater targets into monitoring bores to assist with baseline, impact assessment, and compliance.

c) *Geotechnical drilling*

Geotechnical drilling will support infrastructure requirements and inform engineering design for future mining studies, and will use vehicle-mounted push tube methodology for drilling. This method relies on the weight of the vehicle and hydraulic force to advance the hole and minimises disturbance to the environment as it produces fewer drill cuttings and leaves the site cleaner. Geotechnical holes will be required to inform underground access options and location of the box cut. Geotechnical boreholes will be scanned using acoustic televiewers (ATV) and other methods, as applicable, to determine rock jointing and other rock mass properties. There may be a total of 50 holes tested.

d) *Geotechnical sampling*

The geotechnical drilling assesses the quality and the structure of the rock by sampling the rock and testing in the lab. Some of the rock samples are sent to the lab for testing to find out how strong the

rock is. These tests include measuring how much pressure the rock can handle (UCS), how it behaves under different stress conditions (triaxial and tensile strength), and how abrasive it is.

In addition, a stress measurement program is conducted using a technique called acoustic emission to understand the stress levels in the rock.

e) *Geophysical surveys*

The following geophysical survey methods may be used to assist with development of the hydrogeological conceptual model and provide more defined target areas for groundwater drilling exploration.

- Aerial Geophysics: This involves flying instruments over an area to take measurements from a distance (i.e. electrical conductivity of the ground can be determined, which helps identify different rock types or water filled zones).
- Downhole geophysics: Instruments are lowered into pre-existing boreholes to take measurements. This is done using an Acoustic Televier which uses sound waves to create a detailed image of the borehole walls, helping to identify fractures or rock layers.
- Surface Geophysics: This involves taking measurements from the grounds surface by using sound waves to create images of subsurface.

These surveys will not involve any ground disturbing works, and the aim of the surveys is to reduce the number of drill holes required.

f) *Geochemical sampling*

Diamond drilling will take place to collect samples of the rocks below the ground. These samples, called cores, will be taken starting 20 meters above the bottom layer of rock. The samples will be tested for 33 different elements to see what minerals are present. Samples will be taken in 1 meter sections where minerals are found and in 2 meters sections where they aren't. The samples will be tested for weathering (how they hold up against natural elements like rain and sun). This information will help us figure out how to best handle and store the rock that is dug up during decline development and mining.

g) *Seismic surveys*

A seismic survey is a way to create a picture of what's underground without having to dig or drill. This is done by creating a controlled vibration at the surface by a vibrating truck. These vibrations (seismic waves) travel down into the ground and bounce off different layers of rock, and then travel back up to the surface. The returning waves are picked up by sensors spaced 10m apart on the surface. By recording the time it takes for the wave to travel down and back, and the strength of the returning signal, we are able to create a 3D map of the rock layers and any important geological features beneath the surface. This survey will require approximately 8,000 to 10,000 receivers and 4,000 to 8,000 vibrations. This process will use existing roads and tracks to minimise our impact on the area.



Figure 1-4 | Existing Exploration Disturbance in Oak Dam

2. OKDUGA Project – Proposed Activities

The OKDUGA Project has a total project life of 10 years. Construction of decline will take approximately 6 years, followed by 2.5 years of underground exploration activities, and 2 for closure following cessation of exploration activities.

This chapter summarises the development activities associated with the OKDUGA Project, by development zone (see Figure 1.3).

2.1 Zone 1 – Surface Infrastructure

This area will host the entry point to the underground tunnels and the development of power and water systems, buildings and storage areas. It includes drilling pads, maintenance facilities, and waste rock management. Prior to construction the land will be cleared of vegetation where necessary and all topsoil removed (first 150-200mm of soil). Up to 1.2m of additional subsoil will also be removed where required and stockpiled for use in rehabilitation.

Topsoil (including growing medium and gibber (where these are collected)) and subsoil, are to be collected and stockpiled separately to waste rock and to each other. Consistent with the outcomes of the soil investigations undertaken onsite, topsoil generally consists of the first 150 to 200 mm of the soil profile, with subsoils from this horizon to approximately 1.2 m. Nominally, all topsoil would be removed, together with as much subsoil as is considered necessary with respect to the infrastructure to be constructed. Any material below this subsoil would be stockpiled in the Waste Rock Landform (WRL).

A summary of service infrastructures proposed for Zone 1 is as follows:

a) Box Cut and Portal Development

A box cut located on the ground surface down to a depth of approximately 20 to 35 meters below ground has been proposed to access the twin underground decline. Included in the box cut portal (opening) are concrete portals entering the declines for ventilation purposes. During development, the exhaust decline would be equipped with two ventilation doors. Alternatively, a second box cut may be established for access to the second decline subject to ongoing design and optimisation studies. A conceptual box cut layout is presented in Figure 2.1.

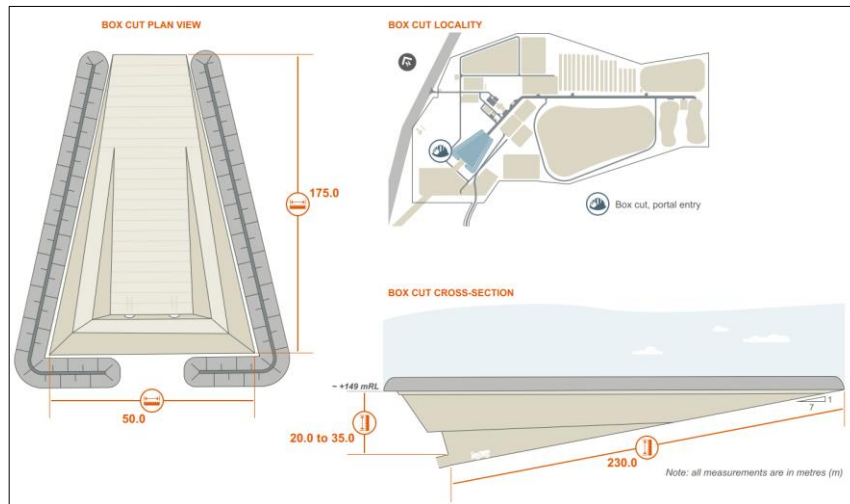


Figure 2-1 | Conceptual box cut layout

b) Waste Rock Landform (WRL)

The proposed area identified for the WRL is to the north-east of the box cut portal location, with a heavy vehicle service road leading to and from the area (See Figure 2.1). The WRL is near the portal location to reduce the overall site and disturbance footprint and to avoid excessive distances to be travelled by the underground haul trucks.

The area is relatively flat compared to other potential locations within the RL Project Area, and avoids known environmental constraints such as waterways, gilgais (waterholes) and heritage exclusion areas. The location accommodates a one-way traffic loop, avoiding risks associated with pedestrian and mobile equipment cross travel. The WRL is planned to cater for material generated because of proposed OKDUGA Project activities, specifically from excavations related to the:

- box cut
- declines
- underground drill drives
- non-mineralised and mineralised drilling muds. All these materials will be stored in a lined surface sump pending transport offsite to Olympic Dam for management or disposed of to dedicated mineralised material cells within the proposed WRL. Any such cell would be restricted to less than 160 tonnes of naturally occurring radioactive materials (NORM) material and be contained 2.5 m from the surface of the WRL.

The WRL would have a foundation designed to limit the potential for enhanced infiltration through the base of the WRL into the underlying soil. On the basis of geochemical test results of underground water and rock and leaching test results in the existing Oak Dam EL area, the base of the WRL is not proposed to be lined.

The WRL would have an approximate total height of 6m. In addition, safety berms at the edge of the platform would need to be progressively constructed as the earthworks platform is built. This would be revisited at the next stage of the study once geotechnical parameters are received, and stability analysis can be undertaken.

On surface water management at WRL - Drainage channels would be required along the toe of the perimeter of the landform to capture runoff. The channels drain to collection ponds that would be used to treat the sediment-laden water before it would be pumped to the activity-affected water dam for further clarification, treatment and re-use.

Allowance has been made for the drainage channels and collection ponds to be high-density polyethylene (HDPE) lined at this stage in the design. However, refinement and update of this would occur in the next phase of the design, when testing results, including an update of geochemical and geotechnical results (along with stakeholder engagement activities) has occurred.

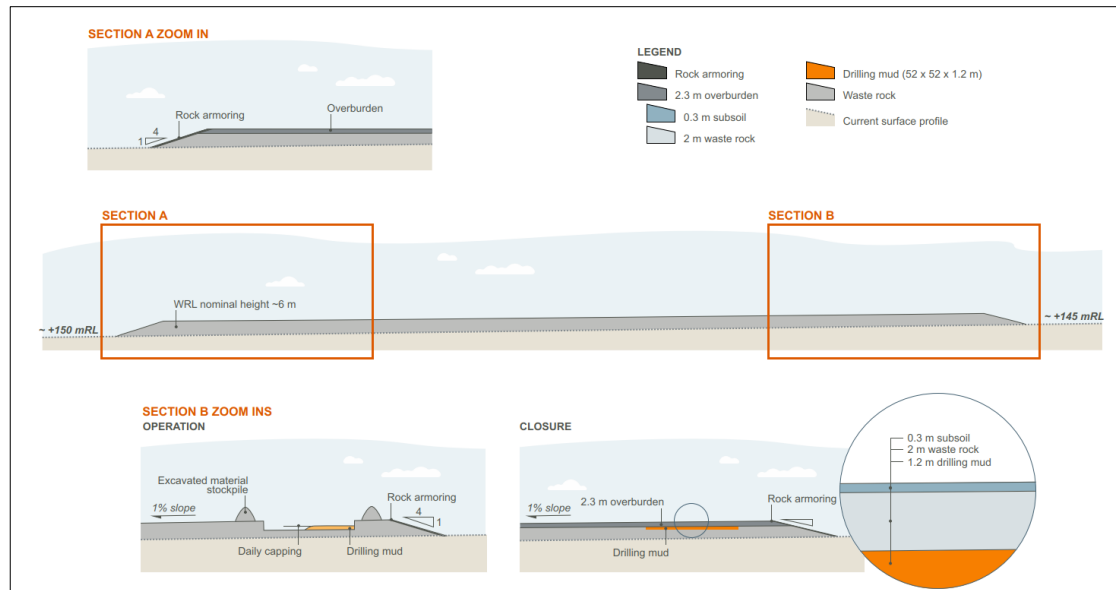


Figure 2-2 | WRL Design Features

Construction of WRL

Waste rock removed from the box cut and subsequent development operations would be loaded on, and transported with, haul trucks to the WRL location and tipped. It is likely the waste rock would be dumped using either paddock dumping or end tipping. A dozer would be situated on the top of the landform, constantly flattening and shaping the dump to suit the landform design.

c) Refrigeration Plant

A nominal 10 megawatts thermal (MWt) refrigeration system would be required to support the peak heat loads estimated to occur during advanced exploration development works. This refrigeration system would remain in place to support the advanced exploration drilling activity. All refrigeration infrastructure would be located on surface.

d) Explosives magazine

The underground operation may use a variety of explosives to optimise development. An explosives magazine is proposed to support the development of OKDUGA Project. An explosive receiving, storage, and batching area is located to the south-west of the surface infrastructure area. Additional storage would be provided for the management of related oxidising agents, and that

storage facility would be licensed to store bulk emulsion (270 t) and ammonium nitrate (120 t) plus other support chemicals.

An access road to both the magazine and ammonium nitrate emulsion (ANE) storage tank would be provided. Power would be provided using solar panels with battery back-up. Storage for the emulsion mix would be provided in concrete tanks and a potable water supply pipeline from the main potable water storage tanks to the area is anticipated.

The explosive storage facilities have been designed and located in accordance with AS 2187.1 (Standards Australia, 1998) with appropriate separation distances in accordance with the standard. The magazine compounds, to be managed by a licensed contractor, would have features including:

- specifically designed and fabricated explosives magazines.
- dedicated access roads.
- exclusion fencing and lockable gates.
- appropriately signed vehicles and signage.

e) Borrow Pit

To meet the OKDUGA Project construction material needs, a borrow pit(s) may be established within the RL Project Area. Indicative materials demand has been calculated through engineering investigations. It is expected that the borrow pit(s) would be a surface (open pit) quarrying operation consisting of drilling, blasting, hauling and crushing material from the borrow pit(s) reserve.

f) Crushing Plant

To minimise the requirement for blasting, the area of the borrow pit(s) has been designed with consideration to allowing the stripping of material across a wider area to a shallower depth. Blasting of the production benches, where required, would be fired at the end of dayshift. Blasted material is transported to a temporary stockpile and subsequently reclaimed to a mobile crusher circuit which may consist of:

- primary crusher
- secondary crusher
- tertiary crusher
- stackers.

The crushed material would be stockpiled pending use in construction activities. Mobile and fixed plant that is independent of that used in the advanced exploration operations would be used in the borrow pit(s) operations.

The number and size of the individual stockpiles is determined by the product requirement for construction, with each of the stockpiles fluctuating in size to match production requirements. The as-blasted rock material in the stockpile would be dumped by haul trucks and then shaped by the loader. The crushed material stockpile would also shaped by the loader to ensure efficient use of stockpiling space.

g) Concrete Batch Plant

A temporary concrete batch plant would be established to produce fibrecrete to be used for lining the declines. Utilities to be provided to the batch plant include service water (depending on quality) or potable water for fibrecrete mix and power to operate the batch plant. Cement, sand and aggregate for the fibrecrete would be imported to site and stored in suitable raw material storage silos or impoundments.

h) Internal Roads

Single lane site haul roads have been provided from the box cut to the WRL. A nominal width of 12 m has been applied to the haul road at this stage in the design. The haul roads would be built after the site has been prepared (bulk earthworks). As such, the underlying foundation of the haul road would be subject to ground surface treatment and subsequent layers of compacted fill from the bulk earthworks operation. After bulk earthworks is complete, the haul road would be capped with 300 mm of crushed rock to be extracted of the box cut development.

i) Other ancillary facilities – Store yards, warehouse, laydown areas and other management facilities

A contractor laydown area would be provided. These would be supplied with potable water and power by the OKDUGA Project. Preparation of the area includes removal of the topsoil (including growing medium and gibber (where these are collected)) to a depth of 200 mm followed by importation, placement and compaction of imported gravel or borrow pit material to a depth of 200 mm. Laydown areas would be fenced with gated access.

A smaller workshop laydown area would be provided for equipment and spares used in the workshops and repair shops. This facility would be fenced off with an access gate and would be adjacent to the workshop and service areas.

Surface maintenance facilities will be established for the OKDUGA Project that includes a heavy and light vehicle maintenance workshops. Further the site will include heavy and light vehicle wash-ways that will be bunded with sumps and oil separator for recycling water.

Construction, industrial and commercial waste will be managed as per waste management plan(s) that will be developed as part of the Applicant's Environmental Management System (EMS). Waste generated will be managed in-line with the EPA's waste hierarchy, to ensure that the OKDUGA project can maximise the reuse and recycling of waste materials.

2.2 Decline (Underground Tunnels)

This development zone predominantly focuses on the construction of an underground decline (tunnel). The twin declines/tunnels would be accessed via the box cut and are developed towards the exploration drive at a 1:7 gradient (slope), reaching a depth of approximately 800m underground. Access decline approximately 6.2 m wide and 6.2 m high and conveyor decline approximately 6.7 m wide and 6.0 m high, with each decline approximately 6.0 km long.

A typical decline cross-section is provided in Figure 2.3 and shows how the constraints of ducting and the selected development fleet influences drive dimensions.

Underground drilling platforms, transfer station, refuge bay, and areas for temporary services will be established underground. Figure 2.4 shows the conceptual schematic if Oak Dam Underground Access.

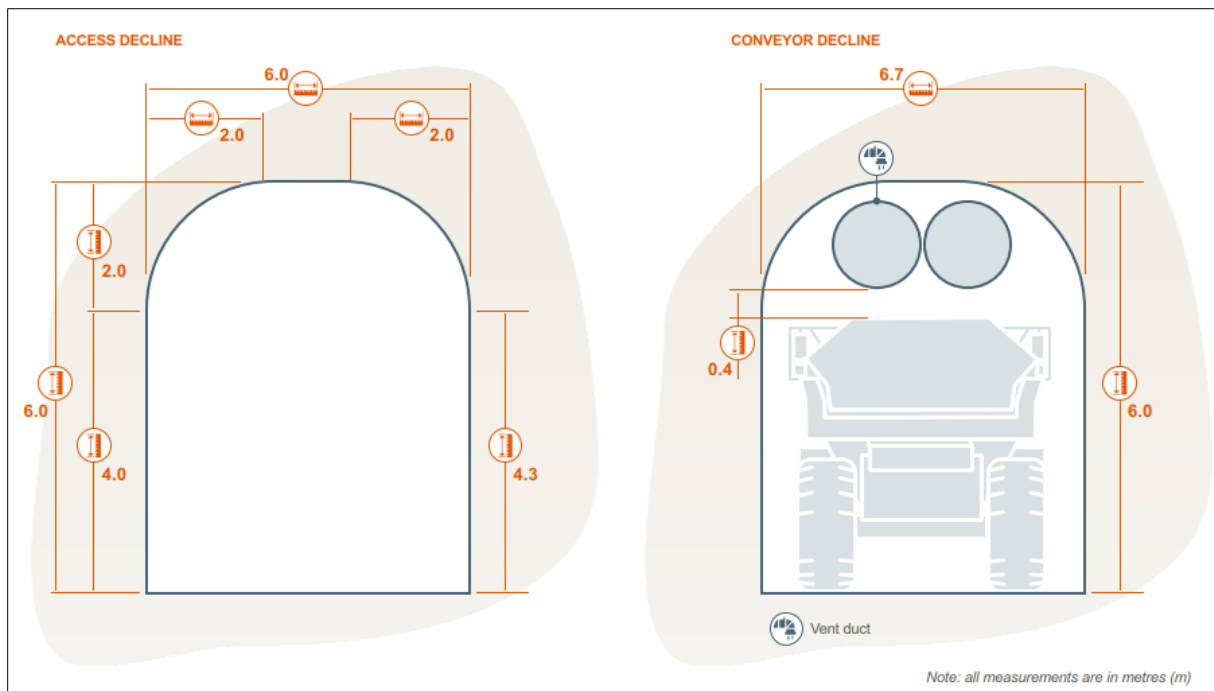


Figure 2-3 | Typical decline cross-sections

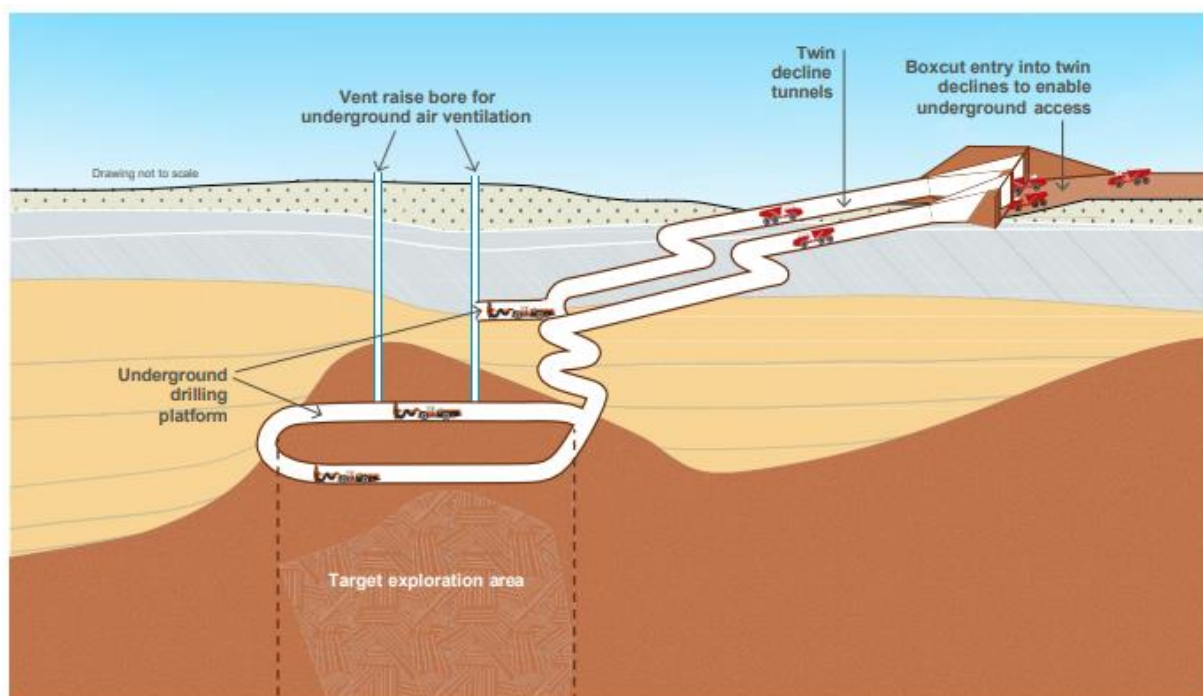


Figure 2-4 | Conceptual Plan of Oak Dam Underground Access.

2.3 Access Corridor – “Bosworth Connector” (Inside Oak Dam Retention Lease)

The OKDUGA Project is currently accessed via the existing (public) Bosworth Road and is maintained by BHP under a Deed of Agreement with Department of Infrastructure and Transport (DIT) to manage the road. To support traffic management, it is proposed to install a connector access road from the new access road to the west to allow for direct access to the exploration hub that avoids use of the Bosworth Road and interaction with public traffic as managed by DIT. This inside RL access corridor is labelled the “Bosworth Connector” (see Figure 1.2, No.3). All new roads will include appropriate intersection design based on Traffic Management requirements and agreed with DIT.

The proposed new site access road would be constructed of formed, graded and compacted imported crushed material, with either a cross-fall or crown (Figure 2.5). The proposed new access road would include:

- Road surface to be gravel (up to 1 meter deep), imported to site and/or from local borrow pit(s) where suitable materials are identified/available.
- Carriageway approximately 11 m wide (3.0 m wide traffic lanes plus shoulders 0.5 m wide and surface drainage 2.0 m wide) to allow for two-way traffic.
- Road to be suitable for heavy vehicular traffic including fully loaded semi-trailers and road trains.
- Information and warning signage and guideposts would be installed.

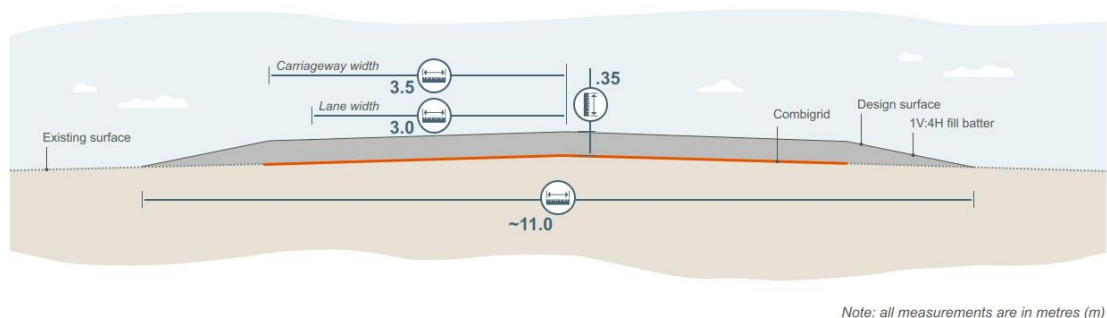


Figure 2-5 | Indicative site access road cross-section

2.4 Hub and Village

This development zone includes upgrading the existing accommodation Oak Dam Village to accommodate up to 310 workers, with facilities like dining halls, laundry, and recreation areas.

The accommodation and central facilities are located on stilts with elevated walkways above the gibber plain, and there is no requirement for underground trenching for power, water and technology services as they are attached under walkways. Ground penetrating anchors would be considered subject to design needs and code compliance. If required, these ground anchors would be drilled into the ground, not excavated. Precast concrete would be used where practicable to ensure ease of rehabilitation.

Compacted hardstand areas have been minimised and where required would be imported to site. Rainwater captured from the Oak Dam Village would be recycled for use as service water and for dust suppression and vehicle washdown water.

Project will endeavour to design to avoid impact to heritage within this zone.

2.5 Greenfield Access Road

A new 34km access road will be built to connect the site to nearby highways. It will support safe transport and include communication lines and water pipelines. The new road would be 11m wide and would require vegetation to be cleared and soil removed (up to 2m). The road would be constructed of compacted gravel with a total disturbance footprint of 48.37 Ha (see Figure 2.5).

Additional development components within this zone includes:

- The proposed new site access road would be constructed of formed, graded and compacted imported crushed material, with either a cross-fall or crown.
- Road surface to be gravel, imported to site and/or from local borrow pit(s) where suitable materials are identified/available.
- Carriageway approximately 11 m wide (3.0 m wide traffic lanes plus shoulders 0.5 m wide and surface drainage 2.0 m wide) to allow for two-way traffic.

2.6 Water Pipeline

To manage the groundwater inflows during decline development, a 17km water disposal pipeline will be constructed. The pipeline will tie-in to Carrapateena's existing Northern Wellfield pipeline at Transfer Station 3 (Carrapateena owned). Surplus groundwater from Oak Dam will be pumped from the settling ponds to Carrapateena mine for use as production water. The pipeline will have capacity to transport a maximum of 50 L/s of water.

The pipeline will primarily be laid on the surface, alongside existing roads and tracks to reduce ground disturbance. Effort has been made to reroute the pipeline to avoid culturally significant areas. The pipeline will be buried in sections within the Oak Dam site and under creek crossings. A series of water storage ponds (scour ponds) will also be constructed along the route of the pipeline (six on Bosworth Road and four on the Northern track section). Scour ponds are required so that sections of the pipeline can be drained for maintenance purposes. The scour ponds are sized to accommodate the volume of the pipeline either side of the pond to be drained plus 50% and will be HDPE lined.

Prior to construction the pipeline corridor (~5m wide) would be cleared of vegetation where necessary and all topsoil removed (first 150-200mm of soil).

3. Management of Construction Activities

3.1 Type of Mining Equipment

3.1.1 Development fleet

The mining fleet varies depending on the stage and progression of advanced exploration activities, as described in Table 3.1. including details of the noise outputs.

Ignition sources associated with the development fleet are related to the combustion of diesel and electrical arcing, and emission outputs for diesel engines would be approximately:

- CO₂: 2.617 kilogram per litre (kg/L)
- CO: 5 to 1500 volumetric parts per million (vppm)
- SO₂: 10 to 150 vppm
- NOx: 50 to 2,500 vppm
- Hydrocarbons: 20 to 400 vppm
- Diesel particulate matter: variable

Table 3-1 | Fleet by activity

Construction specific fleet			
Mobile crane (40 t)	Liebherr LTM 1040	1	100
Mobile crane (100 t)	Liebherr LTM 1100	1	104
Truck-mounted concrete boom pump (28 m)	Wallace WCP028	1	108
Plate compactor	Paddock – SPC0330	1	103
Diesel vibrator poker	Paddock – Yanmar	3	99
Box cut and portal development fleet			
Haul truck	CAT 730 ADT	5	105
Excavator	CAT 374	2	107
Mobile crusher	Lokotrack LT116	1	105
Explosive transporter	Bulkmaster (Volvo FM440)	1	108
Dozer	CAT D9	1	116
Wheel loader	CAT 972M XE	1	108
Grader	CAT 140	1	110
Water truck	CAT CA8000C	1	107
Construction water cart	ADT 10kL	1	107
Roller compactor	CAT CB15	2	113
Telehandler	CAT TH408D Ag Handler	1	106
Skid steer loader	Bobcat S450	1	98

Surface drill rig	Sandvik Ranger DX800	1	113
Cable bolter	Sandvik DS422i	1	100
Shotcrete truck	Jacon Maxijet X3 or Spraymec Normet DF050	1	115
Fuel and lube truck	Normet Ultimec LF 1000F	1	107
Concrete truck	Normet LF700	1	109
Service light truck	Isuzu FTS800	2	106
Light towers	Atlas Copco V5+	2	86
Minivan	Toyota HiAce	1	106
Mobile compressor	CAT 900CFM	1	76
Mobile batch plant	Karoo	1	105
Underground development fleet			
Jumbo	Sandvik DD4221i DC	2	100
Load-Haul-Dump (LHD) truck	Sandvik Lh621i Loader	2	120
LHD (electric)	LH518B	2	NA
Cable bolter	Sandvik DS422i	1	100
Haul trucks (63T)	Sandvik TH663i	3	118
Haul trucks (50T, electric)	Sandvik TH550B	3	NA
Long hole drill	DL421-15C Solo	1	127
Shotcrete truck (electric)	Normet Spraymec SF050	2	NA
Emulsion charge unit	Normet Charmec MC605	1	108
Concrete truck	Normet LF700	1	109
Scissor lift	Scissor Lift RT3369	1	88
Grader	Komatsu GD-555	1	114
Fuel/lube truck	Ultimec LF 1000F	1	107
Bus	Volvo	1	88
Exploration drill	LM90	10	113
Raisebore rig	Epiroc Robbins 92R	1	104
Light truck	Isuzu FTS800	1	90
Light vehicles	Toyota Landcruiser	9	85
Agi truck	Elphinstone WR820	1	105
Surface fixed plant and equipment			
Refrigeration plant	Water-cooled	1	105
Concrete batching plant	Karoo batching plant	1	85
Underground fixed plant and services			
8 kilowatt (kW) submersible pump	Minetuff 8 kW	2	85
20 kW submersible pump	PumpEng "Raptor" 20 kW	2	86
37 kW submersible pump	Minetuff 37 kW	2	87
90 kW helical rotor pump	G type single screw helical	1	52

Type	Description/example	Number	Noise (decibels a (dBA))*
260 kW primary vent fan	MINETEK high output axial	2	105
90 kW secondary vent fan	MINETEK high output axial	1	105
55 kW secondary vent fan	Hengding Fan	1	105
45 kW secondary vent fan	K45	1	105
Main compressor	Senator LSV75 Rotary Screw Air Compressor	1	75
Workshop compressor	Ingersoll Rand R-series rotary screw compressor	1	74
Emulsion Pump	To be confirmed during detailed design	1	85

* Decibels (adjusted)

** Powered by the main power generation unit

3.1.2 Operational fleet

The operating fleet is comprised of the mobile equipment used for the drilling program after all advanced exploration development has been completed. The fleet includes the use of similar equipment as shown in the previous section for these primary categories:

- diamond drill rigs
- personnel transportation including light vehicles (for underground and surface), buses or larger people movers (e.g. vans, etc.)
- light maintenance and utility vehicles
- fuel and water trucks to/from site and onsite
- mobile maintenance cranes for temporary workshops
- material delivery vehicles (e.g. flatbeds, b-doubles provided by external suppliers)
- forklifts or telehandlers
- earthmoving equipment for stockpile, landform, and road maintenance.

3.2 Scheduling and hours of operation

The OKDUGA Project would operate continuously, 24 hours per day, seven days per week, day and night.

3.3 Waste Management

Non-mining waste management is described in the following sections. All non-mining wastes will be removed from site to appropriately licenced facilities. No non-mining wastes will be permanently disposed of within the RL area

3.3.1 Construction waste

Construction wastes are expected to be generated during the construction period. The volumes would vary depending on the requirements and intensity of the works. As such, contractors would be required to develop and submit a waste management plan as a part of their Construction Environmental Management Plan to BHP's satisfaction prior to works.

This document would form part of their contract and would be reviewed, and approved, for completeness, by the environmental coordinator for construction. Each contractor would be required to provide a detailed inventory of the waste they would generate during their specific scope of work and are expected to be in-line with South Australian EPA industry guideline on construction environmental management plans and any other BHP requirements.

Construction activities are likely to generate inert waste and waste segregation would be a significant focus for the storage and handling of waste during this period. These waste streams, and the associated waste segregation, would be required to be strictly managed in-line with the EPA's waste hierarchy, to ensure that the project can maximise the reuse and recycling of waste materials.

3.3.2 Industrial and commercial wastes

Industrial and commercial wastes would be generated as a result of OKDUGA Project activities and the provision of onsite accommodation. Estimates of waste generation rates, storage and management measures are presented in Table 3.2. .

3.3.3 Contaminated and low-level radioactive wastes

There are two general forms of radioactive waste that may be produced during the OKDUGA Project activities, specifically:

- waste from exploration and associated decline and drive development activities that contain radionuclides from the orebody
- plant and equipment that has been contaminated with radionuclides from the orebody during advanced exploration activities.

Naturally occurring radioactive materials (NORM) arising from decline development and exploration activities (including drilling muds) will be directed to the WRL for disposal.

Where practical, potentially contaminated waste would be decontaminated (via washing and/or abrasive blasting) and disposed of via normal waste disposal methods. Where this is not possible and depending on the nature of the waste, several disposal options may be implemented. These include:

- disposal to an appropriately licenced offsite facility
- temporary storage in a dedicated area followed by disposal into the underground decline workings at the end of the OKDUGA Project activities
- disposal in an approved onsite landfill (subject to further approvals).

Table 3-2 | Estimated waste generation rates and types

Waste category	Description	Generation rate		Storage location(s)	Maximum storage amount	Engineering controls
		t/annum	kg/day			
General	General waste, including non-recyclable plastics and packaging, rubber, leather, textiles, other non-recyclable, or hazardous wastes	75.0	205.5	Colour-coded wheelie bins throughout the site (underground, within admin/office buildings, heavy duty vehicle (HDV) and light duty vehicle (LDV) workshops) feeding into waste transfer area (WTA) bulk bins	15 m ³	Isolation engineering controls employed ensuring waste is securely stored away from people and water sources
Putrescible and compostable waste	Compostable organics	20.4	55.8	Hot Rot 1206 organic composter, to be located within the WTA or at another suitable location close to the waste source, or transported offsite for disposal	Process 0.3–0.4 t/d (dry waste)	Hot rot system to reduce volumes and enable reuse of waste stream
	Paper and cardboard	15.0	41.1	Small bins throughout site (underground, within admin/office buildings, HDV and LDV workshops) to then either be shredded and placed in organic composter within WTA or transported offsite for recycling		
	Sewage (solid component only, 1% of wastewater)	146.0	400.0	Septic storage tank	50 m ³	Wastewater treatment system with trucking to transfer solids waste away from site
Steel, timber and other potential recyclables	Cans and bottles	2.3	6.4	Small bins throughout high foot-traffic areas (lunchrooms, offices, etc) to a designated bin in WTA	10 m ³	Separate storage to enable easy recycling
	Scrap steel	24.0	65.8	Designated bin in WTA	15 m ³	Separate storage to enable easy recycling
	Timber pallets	8.0	21.9	Designated laydown area within WTA	310 kg (transported offsite fortnightly)	Untreated timbers can be placed in hot rot system to eliminate waste stream, treated timbers transported offsite

Waste category	Description	Generation rate		Storage location(s)	Maximum storage amount	Engineering controls
		t/annum	kg/day			
	Plastic mixed	0.5	1.4	Designated bin in WTA	10 m ³	Management techniques to reduce waste generation (e.g. buying goods in bulk) would be developed in accordance with the waste minimisation hierarchy
	Copper cables	3.0	8.2	Designated bin in WTA	10 m ³	Management techniques to reduce waste generation (e.g. reuse) would be developed in accordance with the waste minimisation hierarchy
Oils and other hydrocarbons	Waste oils (hydrocarbons), greases, lubricants	13.2	36.2	Intermediate bulk containers within bunded area within WTA	510 kg (transported offsite fortnightly)	Elimination of risk of groundwater contamination by holding hazardous liquids in a bunded area
Hazardous wastes	Hazardous material (e.g. solids contaminated with oil or other liquid chemical residues)	9.0	24.7	Designated bin in WTA	10 m ³	Any hydrocarbon-contaminated soil would be stockpiled in a place with an impermeable base. To rehabilitate this soil a bio-farm method may be employed to reduce hydrocarbon concentrations and/or the contaminated material removed from site to an appropriate EPA-licensed facility as soon as practicable
	E-waste and batteries (light vehicle and heavy vehicle)	1.9	5.2	Designated bin in WTA sheltered from weather exposure	10 m ³	A closed bin protected from the elements needs to be used for E-waste to reduce the risk of mobilising chemicals, additionally transport needs to be controlled and secure to minimise breakage risk
Tyres	Light vehicle and heavy vehicle tyres	4.3	11.8	Designated laydown area within WTA	10 m ³	Leachate minimised by not storing tyres onsite for extended periods, with disposal occurring offsite
Total		322.6	884.0			

3.3.4 Wastewater

Decline water

Water is a scarce resource, and as a result, an active attempt would be made to preserve and reuse as much of the water as possible. Water that is not re-usable without treatment or that must be disposed of is expected to come from the following sources on the site:

- underground (decline dewatering water)
- surface wash bays (light and heavy vehicle wash bays).

Water from these sources is expected to be muddy, containing significant quantities of suspended solids, and would require some clarification before future reuse. The maximum estimated water quantities from the surface wash bays and from underground activities are expected to be 4,100 kL/day (47.45 L/s) in total, with the bulk coming from underground activities.

A wide variety of clarification methods and technologies exist, all of which have demonstrated ability to clarify water and mud (with a varying moisture content). Settling ponds/dams would be considered and the clarification process may be supported by the use of flocculants to enable water re-use at Carrapateena, should this option be progressed. Settled solids from the return service water would be left in the ponds, and ad-hoc cleaning may be required should it have a significant effect on the pond capacities, with solids disposed of to the WRL. The expected composition of these settled solids is waste rock particles from development drilling and may potentially contain elevated NORM when mineralised material is intersected, possibly in the latter part of the development phase and when drilling into the orebody. This is the case for drilling muds in particular. Where testing demonstrates that the sediments contain levels of NORM requiring management, these sediments would be directed for disposal to the WRL under procedures detailed in a Radiation Management Plan.

In the case where high groundwater inflows are expected or when local wellfields are used as a source, high salinity levels would likely limit the potential reuse options. Once further composition detail of this water is known, reuse and treatment (if required) would be determined and outlined.

During the first two to three years of underground development activities, return water from the light and heavy vehicle wash bays is expected to follow the same clarification process as water from underground (after oil separation). From approximately two and a half years onwards, at the point where mineralised material is potentially intersected in the development drives, the dust and mud from the underground vehicles may be exposed to elevated NORM. Pending confirmation via testing, the sediment from these wash bays would be reclaimed as required and directed to the WRL under procedures detailed in a Radiation Management Plan, with remaining water to evaporate.

3.3.5 Waste management facilities

Waste would be generated at various facilities including change houses, administration buildings, muster area, workshops, lamp room, parking areas and stores. Segregated remote bins would be placed in and along these facilities (depending on waste types expected) for disposal. These remote bins would be a combination of 120 L and 240 L wheelie bins and would be colour-coded according to the waste stream which they are intended for.

3.4 Workforce and Economic Opportunities

3.4.1 Workforce profile

Peak workforce for the OKDUGA Project is approximately 310 personnel. The peak workforce profile is summarised in Table 3.3. and the workforce profile over time is illustrated in Figure 4.23.

Table 3-3 | Workforce profile

Role/activity	Workforce
Surface drill rigs	73
Oak Dam Village expansion	20
Bosworth Road upgrade	20
New access road construction (if required)	24
Box cut	25
Underground Development	77
Underground diamond drilling	35–55
Raisebore shafts – earthworks and concrete	21
Raisebore shafts – raiseboring	49
Ventilation fans and refrigeration plant	30
Surface construction	47
Operation of surface facilities	17–54
Engineering, Procurement and Construction Management (EPCM) contractor	4–7
BHP	2–14
Total Personnel	92–310

3.4.1.1 Workforce transfer and accommodation

The workforce may reside in Roxby Downs, Woomera or other Far North communities, or may reside in Adelaide or interstate. FIFO arrangements would transfer Adelaide and interstate workers from Adelaide to Olympic Dam, where a bus service would transfer personnel to site, collecting local residents on the way.

While onsite, the workforce would nominally be accommodated in the onsite Oak Dam Village but may be accommodated in existing mine accommodation in Roxby Downs and/or Olympic Dam on occasions where the peak workforce exceeds the available number of beds in the Oak Dam accommodation village.

During operations, some of the workforce may fly into Carrapateena (MPL 149) and would transfer between Carrapateena and the OKDUGA Project via the Northern Wellfield (MPL 156) and WIC MPL 168.

3.4.1.2 Workforce training

Personnel employed to undertake OKDUGA Project-related activities would be appropriately skilled and trained with reference to the requirements of their roles. Where necessary, training would be provided.

All personnel (contractors and employees) are required to abide by the BHP Our Code, which provides clear guidance on how the BHP values of sustainability, integrity, respect, performance, simplicity and accountability can be put into practice. All personnel also require completing the Cultural Awareness Training prior to working on Oak Dam RL.

3.4.1.3 Economic contribution

BHP is committed to maximising economic benefits for the region wherever possible. The OKDUGA Project would contribute to this by:

- directly employing or contracting up to 310 people
- provisioning capital expenditure for infrastructure, plant and equipment, a proportion of which would be sourced from local and regional providers
- payment of State and Federal fees and taxes.

In addition, BHP would continue with regional community events, training and education programs established to support the existing Olympic Dam operations. These programs would assist in up-skilling local communities and providing employment opportunities that would help maintain regional populations.

3.4.2 Water demand and supply

3.4.2.1 Water demand

Water demands arise from operations such as drilling, road construction, and refrigeration for cooling, together with potable water requirements associated with accommodation and ablution facilities. A total of 740 ML of raw water is anticipated to be required, to be supplied from one or a combination of off-site potable water network supply, local wellfield supply and/or decline dewatering water treatment.

3.4.2.2 Water supply

External (raw) water demand may be met through a number of water supply options, specifically:

- trucking water to site from an offsite source (e.g. Woomera and/or Port Augusta)
- the development of a local raw water wellfield
- the provision of a water supply connection to the existing Northern Wellfield (MPL 156) saline wellfield
- the provision of water from DIT's NWP pipeline.

During initial OKDUGA Project activities water would be trucked to site while water exploration activities and/or alternative water supply infrastructure is established. As water supply infrastructure is completed, a transition from trucked water to the alternative water supply would occur, together with the establishment of onsite water treatment (a package reverse osmosis (RO) plant) to produce the various grades of water needed across the activities if and as required and subject to receipt of the relevant approvals.

Trucking of water

Assuming 20 kL per truck, a total of 57 truck deliveries per day would be required during times of peak water demand, with water being obtained from an existing water network such as from Port Augusta or Woomera via the SA Water potable water network.

Local saline wellfield

Subject to the outcomes of groundwater investigations, a local saline wellfield may be established to meet the OKDUGA Project water demand. Assuming a groundwater abstraction rate of up to 15 L/s (1.3 ML/d), approximately 4 wells would be required to meet the water demand. The wells would be connected by HDPE pipelines and directed to the main infrastructure area for storage and use.

Northern Wellfield (MPL 156)

A HDPE water export pipeline would be constructed within WIC MPL 168 connecting the existing Northern Wellfield (MPL 156) to the RL 139 to manage excess groundwater inflows. The export of water between the RL 139 to MPL 156 boundary will be subject to conditions set out by a Cross-Boundary Coordination Agreement between the tenement holders. The agreement will set out the terms of management and use of the water infrastructure corridor from RL 139 to MPL 156, and other related matters.

The supply of water from the Northern Wellfield to the OKDUGA Project is not currently proposed or approved. Pumping infrastructure supporting this water supply would need to be installed within MPL 156 subject to the provision of approvals associated with that tenement.

Northern Water Project

The DIT is proposing to construct the NWP – a water supply pipeline stretching from a desalination plant located on the Eyre Peninsula to Olympic Dam, supplying potable water to regional industries and communities. In the event that the OKDUGA Project were to progress use of the NWP, it is likely that it would be via a water supply pipeline from Mt Gunson to Carrapateena, the Northern Wellfield and WIC MPL 168 to Oak Dam.

3.4.3 Energy demand and supply

3.4.3.1 Electricity demand

The total electrical load required to power equipment for OKDUGA Project is estimated to be approximately 20 MW, to be delivered in two phases:

- Phase A, Electrical System (including power generation and distribution) for surface and underground infrastructure and auxiliary systems during development up to the first exploration level.
- Phase B, Electrical System (including additional power generation and distribution network) for development of exploration levels including auxiliary services (e.g. ventilation, cooling, dewatering, etc.).

Total electricity consumption is estimated at 160 GWh/annum assuming an average of 90% availability of the project electrical loads. Table 3.4 lists the major electrical loads considered to support both phases of the OKDUGA Project.

Table 3-4 | Estimated electricity demand

Equipment	Demand (kW)
Bulk air cooler (2 x 300 kW intake fans)	600
Control room and communications infrastructure (radio, OT/IT/control systems)	250
Change house (including lamp room and laundry)	1,250
Offices and access control (including training, gate house, CCTV facilities)	150
Surface workshops (including refuelling, wash bay and compressed air)	1,500
Batch plant (potential/contractor supply)	500
Explosives magazine	50
Surface lighting and small power	100
Temporary/construction power	500
Fire water pump station (diesel backup pump)	250
Water management (potable and decline service water reticulation)	250
Sewage treatment plant	50
Refrigeration plant (including pumps and auxiliary loads)	3,000
Crib room, office, workshops, utilities (lighting and small power (LSP))	250
Ventilation (24 x 200 kW fans)	4,800
Dewatering pumps and infrastructure	1,000
Development and exploration drill rigs	2,000
BEV charging units (potential supply)	2,160
Desalination plant (potential supply)	1,000
Total	19,660

3.4.3.2 Electricity supply and distribution

Electricity would be supplied via a power plant and associated 11 kilovolt (kV) electricity distribution system, described in the following sections.

Power plant

The power plant would be designed such that it can be delivered as a stand-alone entity with facilities to allow for the integration of diverse sources of power (i.e. solar, wind or battery energy storage) to feed directly into the plant whether installed as a part of the original package or added at a later stage.

It is anticipated that a single outgoing 11 kV feeder from the power plant would supply the main surface substation from where all surface and underground loads would be reticulated.

Fuel storage

Diesel fuel would be delivered to site by road transport where it would be received at a bunded unloading station. A fuel unloading skid would be provided to receive the fuel from tankers and pump it into the power plant's storage tanks.

The power plant concept includes up to six 110 kL above-ground storage tanks. This volume allows the power plant to operate at a maximum output for a period of about six days. The tanks are located in a bunded area capable of retaining the combined volume in the case of spillage. Facilities for managing stormwater build-up in the bund areas would be included in the design along with consideration of fire detection and suppression requirements.

Diesel fuel would be delivered to each of the eleven generators through a common mains distribution network. Day tanks in each generator enclosure would be automatically re-filled from this system as required. Fuel forwarding pumps maintain flow to the fuel main from the storage tanks.

Substation

A main 11 kV surface substation (high voltage/low voltage (HV/LV) Switch Room)) would be provided to distribute electrical power to the whole of the site. It would house an indoor 11 kV switchboard that is fed from the power plant and distributes this power to a number of load centres around the site via an 11 kV reticulation system (i.e. underground service trenches). These include the following:

- administration substation
- surface workshop substation
- refrigeration plant substation
- underground substation.

An 11 kV/400 V auxiliary transformer would provide LV power to facilities in the vicinity of the main surface substation. This includes supply to the main store and various water reticulation pumping stations or auxiliary loads.

In addition to the main surface substation, there are a number of reticulation substations across the site, including:

- refrigeration system substation
- underground substation
- administration substation.

4. OKDUGA Project – Closure

This chapter provides a summary of the completion and closure strategy for the OKDUGA Project.

4.1 Closure and Rehabilitation Strategy

The overarching completion and closure objective is to rehabilitate all disturbed areas to their pre-exploration land use (i.e. grazing) and approximate surrounding conditions, with the exception of the final WRL, unless otherwise agreed with stakeholders.

Opportunities would be identified to undertake progressive rehabilitation throughout construction and operation, to allow methods to be tested and refined.

4.1.1 Approach

The closure and rehabilitation approach involves four defined stages (Figure 4.1):

- scoping – defining the strategic direction for closure including collection of relevant baseline information, development of closure objectives in the context of internal and external standards and guidelines, understanding of the risks associated with successful closure and identification of closure options.
- planning – development of detailed closure plans and designs
- implementation – execution of the defined closure strategy
- review and feedback – monitoring and review of closure performance in the context of closure objectives and criteria and identification of improvement opportunities.

In practical terms, BHP has undertaken the following scoping and planning activities for the OKDUGA Project:

1. Drafting a set of closure objectives, considering the guidance provided in the Minerals Regulatory Guideline MRGM30 Developing Objectives for Quarrying and Mining.
2. Workshopping proposed closure objectives with BHP's multidisciplinary project team and external stakeholders (i.e. KAC and pastoralists).
3. Identification of all areas to be disturbed during the OKDUGA Project activities and structures to remain following closure and completion.
4. Identification of rehabilitation activities required to meet the agreed completion and closure objectives.
5. Completing a material balance to confirm the completion and closure objectives are able to be achieved.

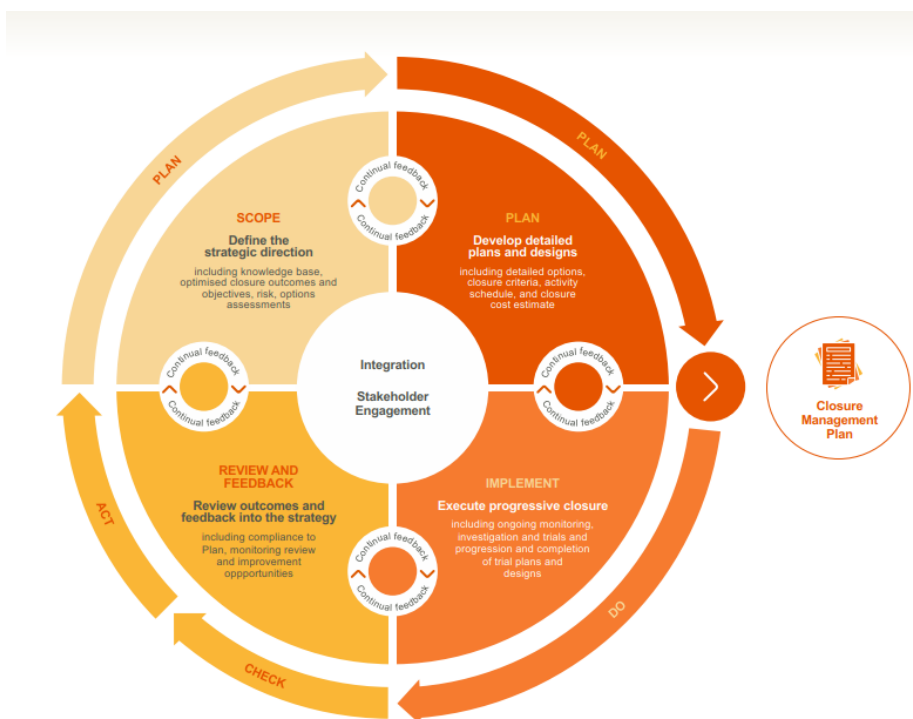


Figure 4-1 | BHP Closure Planning Process

4.1.2 Closure Objectives

Closure objectives were developed following a series of workshops held with BHP's multidisciplinary project team and are presented in **Error! Reference source not found.**

Table 4-1 | Closure objectives

Closure aspect	Closure objectives
Public safety	BHP must demonstrate that post closure, the risks to the health and safety of the public so far as they may be affected by exploration operations, are as low as reasonably practicable
Sterilisation of resources	Closure does not sterilise the resource from future exploration and mining
Land use	BHP must ensure the land is progressively and finally rehabilitated to support the agreed future land use (e.g. grazing)
Amenity	BHP must ensure the final landform, contrasting aspects and reflective aspects of exploration operations are visually softened to blend in with the surrounding landscape
Equipment and infrastructure	BHP must remove all equipment and infrastructure, unless agreed with stakeholders (e.g. landholder, KAC), to ensure the land is progressively and finally rehabilitated to support the agreed future land use (e.g. grazing)
Landform stability	BHP must ensure the landform is chemically safe and physically stable to support the agreed future land use (e.g. grazing)
Soil	BHP must ensure there is no contamination of land and soils either on or off the RL and MPL tenements post completion as a result of the exploration operations

Closure aspect	Closure objectives
Biodiversity	BHP must ensure the land is progressively and finally rehabilitated to support the agreed future land use (i.e. grazing)
Air	BHP must ensure there are no public health or environmental impacts from dust, particulate matter, and/or radionuclides (e.g. radon) as a result of exploration operations
Groundwater	BHP must ensure there is no significant adverse impact to the quantity or quality of groundwater within the aquifers outside of the RL and MPL tenements caused by authorised exploration operations
Surface water	BHP must ensure there is no significant adverse impact to the quantity or quality of surface water outside of the RL and MPL tenements as a result of the redirection or capture of flows caused by authorised exploration operations
Radiation	BHP must ensure, post completion, there are no adverse public health or environmental impacts from radionuclides (including radon) as a result of exploration operations
Weeds and pests	BHP must ensure no introduction of new species of environmental weed, plant pathogens or pests (including feral animals), nor sustained increase in abundance of existing weed or pest species on the land
Cultural heritage	BHP must ensure that there is no disturbance to Aboriginal heritage sites, objects or remains of significance unless approval under the relevant legislation has been obtained

4.1.3 Closure Domains

To facilitate closure, the OKDUGA Project has been divided into four domains, each with several sub-domains, as described in Table 4.2, where each domain represents a feature or group of features with similar decommissioning, rehabilitation and closure requirements and outcomes.

Table 4-2 | Closure domains

Domain No.	Domain name	Sub domain	Description
1	Underground infrastructure	Underground access	Twin decline developed from a box cut, cross-section dimensions approximately 6.2 m wide and 6.2 m high, approximately length 6.0 km, to be constructed using drill and blast methods
		Underground services	• Exploration drilling platforms • Stage 1 – Development to -600 mRL • Stage 2 – Development to -750 mRL • Dewatering pump station • Drilling water supply • Power distribution • Compressed air distribution • Secondary ventilation
		Underground facilities	• Emergency refuge • Maintenance facility • Crib facilities • Emergency egress • Explosives storage magazine • Water management
2	Surface infrastructure	Topsoil stockpiles	• Topsoil storage (including growing medium and gibber (where these are collected))
		Overburden stockpiles	• Subsoil stockpiles • Quartzite stockpile for construction material and concrete batching
		Waste rock storage	• No ore or mineralised material would be extracted • Waste rock utilised, wherever suitable and subject to timing and availability, to support infrastructure construction and subsequent closure activities to the extent possible • Waste rock generated during decline development would be stored within a WRL, designed for 1,200,000 t of material, which would subsequently become a permanent landform at closure • Encapsulation cell for elevated NORM (including PAF, if required)
		Drilling muds, cores and chips	• A pond would be constructed adjacent to the WRL for drying the drilling muds prior to placement within the WRL

Domain No.	Domain name	Sub domain	Description
		Ventilation	- Two ventilation shafts to surface - Refrigeration plant
3	Non-process infrastructure	Water infrastructure	- Raw and potable water supply to meet external demand would initially be trucked to site from Port Augusta, this may be supplemented/replaced by an onsite wellfield or from treatment of groundwater extracted during dewatering activities - A water supply pipeline may be constructed connecting the existing Northern Wellfield MPL 156 (to the east) to meet construction water demands - A water export pipeline may be constructed to allow decline dewatering water that is excess to water demands to be directed to the existing Northern Wellfield MPL 156 (to the east) - Water storage to be adequately sized for groundwater inflow volumes from all sources - Water and stormwater storage designed with compliant bunding and liner systems (e.g. high-density polyethylene geomembrane liner) - Decline dewatering water would be reclaimed in construction and decline development activities - Stormwater storage – captured surface water and settled decline dewatering water would be: - directed to the site SWD for reuse as service water - runoff collection dams would collect runoff from surface stockpiles and disturbed areas within the RL 139 - Groundwater monitoring bores - Wastewater treatment facility (sewage treatment plant including soakage mound area) - Reverse Osmosis Plant
		Electricity supply	- Diesel power generation - Self-bunded type diesel storage tanks (i.e. plant/equipment, power supply) - Power distribution from onsite diesel generation, switch room and transformers, between surface infrastructure and village.
		Access roads and tracks	- Initial site access via existing Bosworth Road and Northern Access Track, including upgraded intersections with Olympic Dam Highway - Roads/tracks within RL 139 for light vehicles and surface mobile equipment transport.
		Communications	- Communications tower(s) - Communications equipment room - Radio system.

Domain No.	Domain name	Sub domain	Description
		Facilities	- Onsite borrow pit(s) for optionality - Contingency to truck construction and operation material in from nearby existing borrow pit(s) areas in Roxby Downs - Site-wide civils - Laydown areas - Waste management segregation and offsite disposal to licenced waste facility (i.e. there would be no onsite landfill) - Concrete batch plant - Firewater system - Crushing and screening plant.
		Buildings	- Existing accommodation village would be upgraded to accommodate up to 310 people - Buildings to be located on stilts with elevated walkways above the gibber plain to minimise surface disturbance. - No requirement for underground trenching for power, water and technology services as they would be attached under buildings and walkways. - Workforce would be fly-in/fly-out via Olympic Dam, where a bus service would transfer personnel to site, collecting local residents on the way. - Explosives magazine receiving, storage, and batching area located outside of the exclusion radius to permanent surface infrastructure, in accordance with SafeWorkSA. - Other buildings include: - Offices/crib/ablutions - Recycled water is expected to return at an acceptable quality to be reused as site service water or dust suppression - Sewage to be piped to the wastewater treatment plant at the accommodation village - Emergency response facilities - Surface maintenance facility - Compressor house - Security fencing around underground, surface, and non-process infrastructure.
		Borrow pit	To meet construction material needs, a borrow pit(s) may be established within the RL 139. This may be supplemented and/or substituted with imported construction materials from offsite (third-party) quarries

Domain No.	Domain name	Sub domain	Description
4	Exploration	Exploration	• Mineral exploration drilling (i.e. testing and defining deposit limits and mineralisation continuity). • Groundwater exploration drilling (i.e. installation of production and groundwater monitoring wells, groundwater testing and characterisation). • Geotechnical investigations (i.e. drilling and test pits to define local resources). • Geophysical surveys and seismic surveys.

4.1.4 Post-closure land use

Following closure all OKDUGA Project-related land disturbance is proposed to be returned to pastoral use, namely grazing, unless otherwise agreed with stakeholders.

The OKDUGA Project is zoned as Remote Area (Far North) in the Development Plan – Land Not within a Council Area Eyre, Far North, Riverland and Whyalla. The Remote Area Zone envisages a range of development, including industry associated with mining, prescribed mining activities, pastoral, grazing and farming activities and mining settlements.

This zone encompasses a significant proportion of the remote areas of the State, and includes land rich in minerals, fossil fuels and groundwater. It contains extensive areas that are of cultural significance to Indigenous people and many areas of non-Indigenous heritage. Established pastoral and grazing activities take place within this zone and significant growth and development in the mining industry is anticipated.

The OKDUGA Project covers a small portion of Remote Area Zone and Arcoona Pastoral Station and there are no identified plans for significant changes in existing land use by other parties within the area surrounding the RL 139 and WIC MPL 168.

4.1.5 Rehabilitation timing

Completion of closure and rehabilitation would be achieved within ten years after the completion of the OKDUGA Project.

4.2 Rehabilitation methodology

4.2.1 Design, construction and operation phases

Closure and rehabilitation activities would commence during project design and would continue progressively throughout the construction and operation phases.

The gibber mantle is essential for limiting erosion and maintaining the structural integrity of the underlying clay soils. Wherever possible, disturbance to the gibber mantle would be avoided and/or minimised. Closure and rehabilitation considerations that would be applied to the design, construction and operation phases are described in Table 4.3

Table 4-3 | Rehabilitation (design, construction and operation) considerations

Rehabilitation considerations
General areas
When choosing infrastructure locations, avoid environmentally and culturally sensitive and restricted areas, avoid disturbance of important native vegetation and fauna habitat where possible
Wherever possible, it is recommended that all disturbances be staged and progressively rehabilitated to help control total dust levels and limit erosive potential
Where earthworks are required for new access roads, hardstand, laydown areas, or other infrastructure, the disturbance of gibber and vegetation will be limited as far as practicable
Where new temporary disturbance is required, gibber and vegetation will be rolled wherever possible. Rolling of gibber terrain means that the roots of small vegetation are retained helping to stabilise the soils and potentially speed up rehabilitation

Rehabilitation considerations

Minimise vegetation removal by trimming limbs rather than removing entire trees or bushes, and leave rootstock in the ground to assist revegetation and to stabilise the soil

Where vegetation clearance is required, a raised blade would be used to keep vegetation roots intact and only graded with a down blade where strictly necessary, such as where sharp gibber presents an ongoing hazard to vehicle tyres or the work environment is unsafe due to holes or trip hazards. Alternatively, leave existing natural surface, over-cap large rocks and wearing areas with borrow material that contains clay and stone

Natural drainage lines should not be blocked

The creation of windrows is to be minimised. Where windrows are required, remove gibber mantle to install windrows where necessary, grade underlying surface smooth

If gibber cover is to be removed, it will be stockpiled and set aside for later use in rehabilitation

Avoid situating pads, tracks, sumps, or other infrastructure on slopes wherever possible

Where this cannot be avoided, the procedures for limiting erosion on slopes (such as the creation of bunds) should be utilised

Erosion controls must be implemented during and after construction, paying particular attention to flood and surface water flow areas

Stockpile vegetative cuttings for respreading as soil protection and seed material for regeneration on completion

Access roads

Existing access roads and fence lines will be utilised, where possible, to limit disturbance and reduce construction and rehabilitation costs

Should new accesses be required, vehicles should be driven across the unprepared terrain (i.e. 'surface trafficking') wherever possible, particularly in areas of low or sparse vegetation, gibber, or scree surfaces

Where there are no established access tracks and it is intended to traverse the same ground more than once, the same wheel tracks should be used each time

The surface should be rolled (i.e. tow a roller behind a dozer) if it is too rocky and a access road is required

If rolling is not practical, the dozer should be walked to remove only the largest obstacles to enable the passage of vehicles

Should new tracks be required, align the access road and fence lines across slopes, rather than up/down slopes, wherever possible

Access road preparation should only be sufficient to meet the needs of OKDUGA Project vehicles

Blade work for access roads should be kept to a minimum

The width of access road shall be kept to the minimum required

Use blading at drainage channel intersections only if it is unavoidable

Drill pads

The selection of non-sloping areas is preferable which minimises the need for large cut and fill or importation of borrow material to level the site, and minimises erosion risks

Where there is a margin of flexibility in locating a drill site, site drillholes within close proximity to main access roads and tracks to limit subsequent disturbance

If a drill pad is required to be constructed on a slope, the site must first be levelled. This can involve excavation of the site where the drill rig wheels are to be positioned

If gibber is to be removed when working on a slope, drainage diversion will be created to limit erosion and gullyng. This would be achieved through the creation of bunds around sumps on the downhill side to ensure water runoff doesn't occur

Excavation is to be minimised and any soil would be stockpiled for later use in rehabilitation

Topsoil (including growing medium and gibber (where these are collected) would be separated from subsoil and reinstated in reverse order during rehabilitation

The same excavation procedures would be utilised when creating sumps

4.2.2 Closure and rehabilitation phase

Rehabilitation of OKDUGA Project-related land disturbance would be undertaken in accordance with the considerations described in the following sections.

4.2.2.1 All domains

The following rehabilitation strategies would apply to all domains identified in Table 4.1:

- Removal of all equipment and surface infrastructure (with the exception the WRL), or as otherwise agreed with stakeholders.
- Appropriate cleaning and screening procedure to be developed and implemented for all equipment or infrastructure in contact with materials with elevated radiation to appropriately licensed facilities for treatment and disposal (if NORM is encountered).
- Shaping of landscape to ensure no slopes greater than 1-vertical-in-4-horizontal would remain upon closure.
- Hardstand areas would be inspected for any contamination (e.g. hydrocarbon spills) and removed if found, before the ground is ripped and covered with gibber.
- Remove all hazardous substances, including fuels and chemicals, for disposal at appropriately licensed waste disposal facility.
- Shallow ripping of heavily compacted areas including hard stand areas and trafficked access roads.
- Spreading of gibber and topsoil across disturbed areas, excluding those areas where assets are to be retained, such as some access roads.
- No vegetation seeding would be undertaken as the rehabilitated surfaces would be left to seed organically to reflect the surrounding areas.
- Monitoring and management plans to be developed for closure during the operational stage for revegetation, weed and feral pest management and sediment and erosion control, including establishing reference sites to enable comparison to rehabilitated areas and the achievement of the closure objectives.

4.2.2.2 Domain 1 (underground infrastructure)

The following rehabilitation strategies would be used to close the underground infrastructure:

- Plugging of ventilation shafts and shaping of surrounding surface, as required
- Plugging of the portal and backfilling of the box cut
- Retention of underground ground support infrastructure, electrical cabling and piping associated with the underground workings that are greater than one metre below ground level
- Removal of all infrastructure from the underground operations with the potential for chemical spills (including hydrocarbons) and confirm any spills that occurred during operations have been appropriately remediated (including removal from site and disposal at an appropriately licenced facility) to prevent contamination to groundwater when dewatering ceases and the underground workings flood. All other underground infrastructure, including ground support to remain

- Due to the size of the decline and shafts, there is not expected to be surface expression following any potential collapse in the post closure period. However, modelling would be conducted during the rehabilitation phase incorporating site specific data to confirm this expectation. In the unlikely event modelling indicates surface expression may occur, rehabilitation options such as abandonment bunding to prevent sterilisation of the potential resource would be considered and implemented
- Once dewatering has ceased, groundwater pressures within the underground workings would increase, and the underground workings would be flooded, ultimately to the pre-mining groundwater level following groundwater recovery. There are two aquifers at the site which would be intersected by the underground workings. It is uncertain whether the aquifers are different quality and/or would require separation post closure, refer to uncertainty analysis below. Following completion of these works the closure plan would be updated and if necessary, mitigation measures to prevent cross contamination of the aquifers included such as grouting or creation of a hydraulic barrier between the aquifers.

4.2.2.3 Domain 2 (surface infrastructure)

Stockpiles

The topsoil, gibber and subsoil (overburden) stockpiles would not be retained post-closure as they would be used for general shaping, ripping of heavily trafficked areas, respreading of gibber, and topsoiling in disturbed areas.

Box cut and portal

The first 50 m of each decline would be backfilled with competent rock, then cemented with concrete and stabilised sand. Demolition rubble would be deposited within the box cut, before backfilling of the remaining box cut void with waste rock. The former portal area will be covered with a shallow 1 m high mound of waste rock to allow for settlement before covering with topsoil.

Waste rock landform

The WRL would be retained post-closure and would be constructed using paddock dumping and ramping of excavated material from outside the limit of the WRL towards the middle, to establish a tip head. The following rehabilitation strategies would be used to close the WRL:

- It is likely the waste rock would be dumped using either paddock dumping. A dozer would be situated on the top of the landform, constantly flattening, and shaping the dump to suit the landform design. The WRL could be dumped in five approximate 1.0 m lifts to the ultimate height of approximately 6.0 m. A ramp would be developed as the tipping area increases in height.
- Drill cuttings extracted from the exploration drives would be placed into a drying pond within the Surface Infrastructure area to dry before being placed into the WRL. Once all core/chips have been removed from the pond, the pond would be backfilled and rehabilitated as per other disturbed areas.
- NORM (including PAF and high salinity materials, if required) would be contained within a cell 2.5 m from the surface of the WRL to meet South Australia regulations for radiation containment; however, the remaining WRL surface would not require the capping layer.

- The WRL SWD and associated stormwater drainage channels would be retained following closure before being allowed to integrate naturally into the surrounding environment (i.e. no active rehabilitation of the stormwater drainage channels is proposed).
- Progressive rock armouring of the WRL batters for erosion and sedimentation protection.

Ventilation infrastructure

The following rehabilitation strategies would be used to close the decline ventilation infrastructure:

- Above-ground ventilation infrastructure would be removed.
- Underground ventilation infrastructure would be retained and capped.
- The refrigeration plant would be dismantled and removed from site.
- Inspection of surface material for any leaks or spills, if identified these would be removed, remediated onsite or disposed of at a licenced waste disposal facility.
- Removal of any liner from the dewatering settling ponds and transport offsite for disposal at an appropriately licensed waste facility.

4.2.2.4 Domain 3 (non-process infrastructure)

General non-process infrastructure

The following rehabilitation strategies would be used to close the Non-Process Infrastructure domain:

- Initially, all services (e.g. water, wastewater, electricity, telecommunications) would be disconnected, and internal fixings and equipment/plant (e.g. televisions, fridges, air conditioners etc.) removed for reuse.
- Connected area fixings and materials (e.g. walkway decking, common roofing) would be removed and transported offsite for disposal or recycling.
- Accommodation units would be loaded onto vehicles for transport and re-use offsite.
- Buried services below a depth of 1 m would be abandoned in situ, otherwise would be exposed and disposed of to an appropriately licenced waste facility.
- Package wastewater treatment plant(s) would be disconnected and loaded to trucks for transport offsite.
- The telecommunications tower would be toppled and cut up for scrap, unless agreed with stakeholders.
- Concrete areas (e.g. footpaths, common areas, sporting courts/grounds) would be broken up and the concrete removed for disposal or as fill material offsite.
- Removal of all demountable buildings and infrastructure and from site, unless agreed with the landholder to remain for the post development land use (e.g. tanks, dams, roads).
- Borrow pit(s) faces to be mined on batter of 1-vertical-in-3-horizontal or shallower, shaping, ripping in heavily trafficked areas, spreading of gibber and topsoil, and revegetation.
- Removal of security fencing.

- All surface infrastructure associated with the water supply system (e.g. wells, pipelines, staging tanks, turkey's nests) would be removed, unless otherwise requested by stakeholders. If requested by stakeholders (e.g. pastoralists and/or other mining companies), and subject to regulatory authorisation, infrastructure may be retained, and management of the asset transferred to another entity.
- Infrastructure and imported soil removed from septic soakage areas, sludge pumped for septic tanks and disposed of at an appropriately licensed waste facility, septic tanks removed, spills checked for and removed to a licenced facility, then the tank area would be backfilled, shaped, ripped and revegetated.
- Appropriate cleaning and screening procedure to be developed and implemented for infrastructure or equipment in contact with materials with elevated radiation to divert equipment with elevated radiation to appropriately licensed facilities for treatment and disposal.
- Removal of all hazardous substances including fuels and chemicals for disposal at appropriately licensed waste disposal facility.
- Inspection of surface material for any leaks or spills, if identified these would be removed, remediated or disposed of at an appropriately licenced waste facility.
- Removal of core to the SA Government Core Library, Olympic Dam facility for appropriate storage or placed in the ore stockpile.

Access roads

Access roads would be rehabilitated to a condition equivalent to the pre-exploration land condition as described via the baseline surface water, land and ecological investigations undertaken in support of the RL Proposal, and/or surrounding natural analogues, to allow the continuation of the pre-exploration land use (i.e. grazing), unless otherwise agreed with stakeholders. These access roads include existing pastoral tracks that were upgraded to allow activities under the EPEPR (BHP 2022), RL Proposal (BHP 2023) or the RL Proposal Response Document (BHP 2024a, 2024b), the existing BHP-operated access tracks, and any new access tracks developed to enable the approved activities.

Access roads (or sections thereof) that required the removal of topsoil and gibber would be reshaped where surface water overland flow have been significantly altered, in accordance with the following:

- resspreading windrows across the width of the disturbance
- recontouring gullies where possible
- constructing erosion control banks at the head of active erosion gullies (the edges of small erosion gullies should be infilled with gibber sourced from windrows)
- the edges of small or moderate gullies are to be formed to a stable angle
- contour banks or off-take drains are to be constructed at the head of gullies to redirect surface run-off onto undisturbed gibber or into natural drainage lines.

The final surface would be shallowly ripped or scarified to encourage natural vegetation recruitment, and the topsoil or vegetation that was stockpiled during initial development works resspread to encourage natural recruitment of vegetation.

Barriers would be installed at suitable locations to prevent access by vehicles to the closed access road alignments.

If requested by stakeholders (e.g. landholder, KAC and/or other mining companies), and subject to regulatory authorisation, the access road may be retained and management of the asset transferred to another entity.

Borrow pit(s)

The area of the borrow pit(s) would be restored upon completion of material excavation to a standard consistent with the surrounding land use, in consultation with stakeholders. Rehabilitation would include:

- backfilling of any remaining stockpiled extractive materials to the pit.
- removal of any plant, equipment and waste onsite.
- removal of any contaminated soils to an appropriately licenced waste disposal facility.
- grading and battering pit slopes to a gradient of 1-in-3 or shallower.
- ripping the floor and sides of the pit.
- ripping borrow pit-related access roads, crusher hardstand areas and stockpile footprints to relieve compaction.
- resspreading stockpiled topsoil, gibber and vegetation.

Following rehabilitation and, eventually, natural revegetation, the land is expected to be suitable for the recommencement of the pre-exploration operation (i.e. pastoral grazing) land use.

4.2.2.5 Domain 4 (exploration areas and infrastructure)

Exploration and groundwater drill holes and pads

All bores and surface drill sites would be rehabilitated and closed in accordance with Minerals Information Sheet M21 Mineral Exploration Drillholes – General specifications for construction and backfilling (DSD 2012), as described in Table 4.4.

Table 4-4 | Exploration and groundwater drill hole rehabilitation considerations

Infrastructure	Consideration
Drillholes which penetrate a single unconfined aquifer	Backfill with drill cuttings, clean fill containing clay, or cement
Drillholes which penetrate a single confined aquifer	Plug from the level at which the aquifer was penetrated with cement grout back to a minimum of 15 m into the confining bed above; and then backfill as above

Infrastructure	Consideration
Drillholes which penetrate more than one aquifer	Separate each aquifer by a cement grout plug and then backfill as above. The length of plug used will be dependent on aquifer pressure and thickness. The plug should extend through the aquifer back into the confining bed above, with a total minimum length of 20 m of grout. In an intermediate aquifer the plug should be emplaced from 15 m below the aquifer and extend upwards through the aquifer and to a distance of 15 m above the aquifer. Generally, a minimum of 20 m of cement should be positioned between aquifers. Shallow holes (less than 200 m) can be backfilled from the bottom back to surface with grout
Drillholes which penetrate artesian aquifers	Abandon in such a way that the flow of water to surface or to other aquifers is prevented. The length of plug used to achieve this is dependent on the aquifer 'shut-in' pressure at surface. Normally allow 1 m of grout above top of aquifer for every 7 kilopascal (kPa) of head, with a minimum of 20 m of plug
Drillholes that do not penetrate aquifers	Backfill with drill cuttings or clean fill. Casing should be removed from the drillhole to ensure placement of effective seals. Where possible, obstructions should also be removed prior to sealing. If casing cannot be removed or has been pressure cemented in position, the drillhole should be securely capped at or below ground level as agreed with the landholder
Cement grouting	Cement used to plug, backfill or secure the casing in a drillhole must be fresh, of good quality and mixed as a neat slurry with not more than 30 L of fresh water per 40 kg sack of cement, and be positively placed to reach the required position without contamination or dilution. A drilling inspector may approve the expansion of standard grout by the addition of up to 10% API-grade bentonite by weight of cement mixed with not more than 11 L of fresh water per kilogram of bentonite added
Exploration or groundwater holes intended for future use	Exploration drillholes intended for future re-entry must be completed with casing of adequate strength installed, and the casing cemented so that all aquifers are isolated to prevent the movement of any fluids behind the casing. Where possible, casing should be severed below ground level, and covered with a steel plate, to ensure maximum site safety and to allow future relocation with a metal detector, when the further work is required. A standpipe is suitable in locations where its positioning does not present a problem

Core processing facility

Decommissioning of the core processing facility would involve the following:

- de-energising equipment.
- conducting hazardous materials surveys and removing any identified hazardous materials.
- relocation/removal of collected core materials, either backfilled to drill holes, appropriately buried, transported to Olympic Dam for disposal to the tailings storage facility (TSF) or transported to Olympic Dam for long-term storage.
- removing all fuels and oils from storage facilities and purging from any service lines and equipment as required.
- disposal of remnant reagents, chemicals and chemical drums.
- cleaning tanks, pipes, and other storage facilities to remove any residual material as required.
- cleaning and decontamination of the core processing facility.

Following decommissioning and removal of surface infrastructure and samples, the disturbed land would be rehabilitated in accordance with Domain 1 and/or Domain 8.

Geotechnical test pits

Any geotechnical test pits constructed would be backfilled, with soil units and sub- and topsoils replaced in reverse order, before being lightly rolled and scarified to facilitate natural vegetation recruitment.

Exploration and groundwater drill pads and hardstand laydown areas

Hardstand areas such as laydowns and other cleared areas would be reshaped and ripped to promote natural recruitment of vegetation. Groundwater and exploration drill pad closure and rehabilitation would follow these general steps:

- allow sumps to dry before backfilling, sumps would be barricaded/bunted to prevent fauna intrusion during rehabilitation.
- remove or rip liners.
- mound excess material over sumps to allow for compaction.
- it may be necessary to remove drilling mud prior to backfilling, depending on the characteristics of the mud.
- backfill all excavations and replace sub- and topsoil in the correct order.
- remove all rubbish, contaminated soil or work debris and dispose at an approved dump.

If imported material was used to establish the hardstand areas or drill pads, this would be removed and transported offsite for disposal. The disturbed land would have topsoil and subsoils respread and would be lightly scarified to promote natural revegetation.

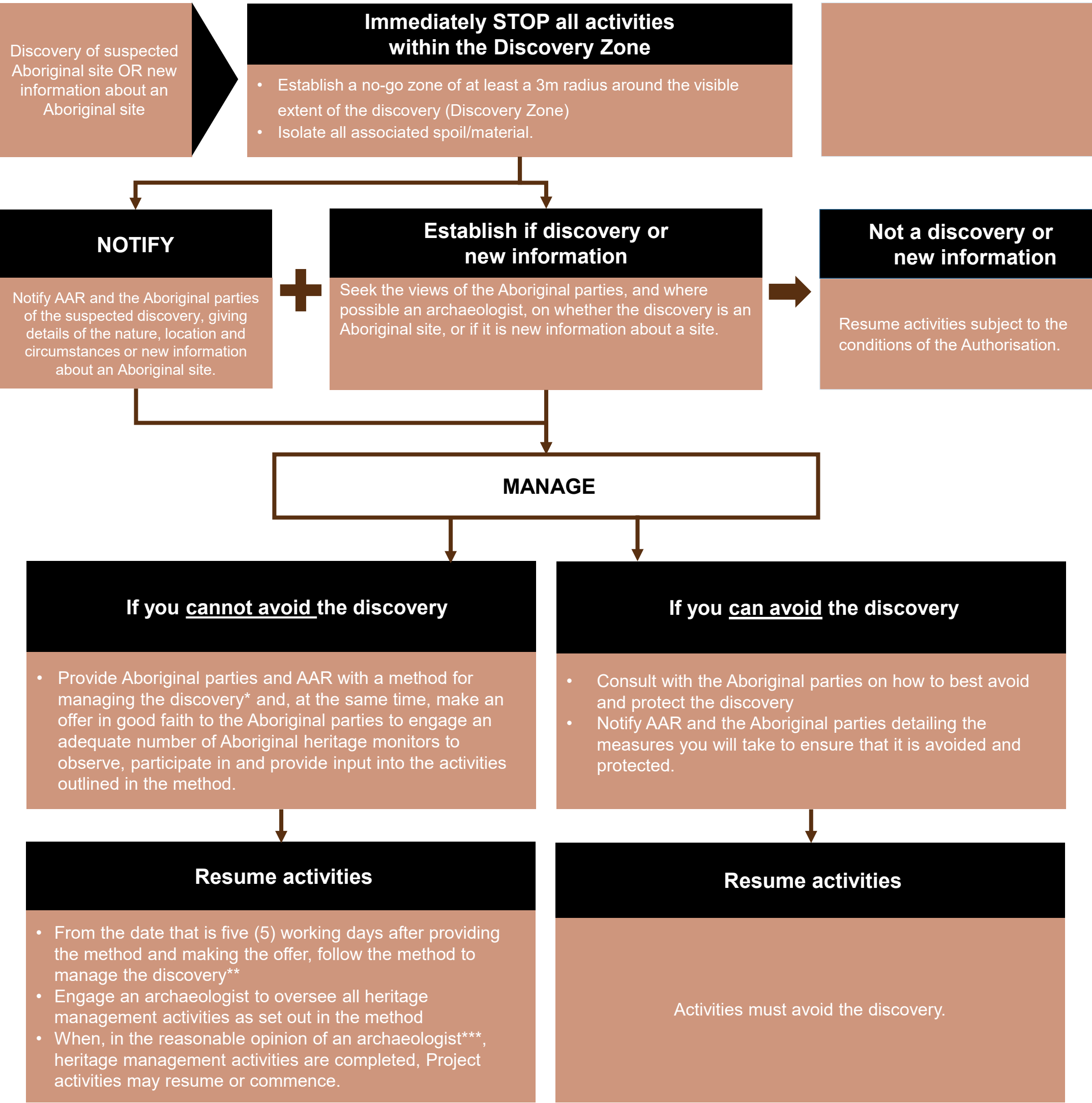
BHP

Appendix B: Aboriginal Sites Discovery Protocol

Aboriginal Sites Discovery Protocol

Pursuant to sections 20A(1), 21(2) and 23(3) of the Aboriginal Heritage Act 1988 (SA)

- The purpose of this document is to provide a ‘stop – notify – manage’ process.
- Where impacts to Aboriginal sites are unavoidable, they should be mitigated to the extent possible.
- For discoveries of Aboriginal objects that do not form part of an Aboriginal site, refer to the Authorisation.
- Aboriginal parties are Traditional Owners and/or Aboriginal organisations specified by AAR for the purposes of the Authorisation.
- Defined terms in the Act and the Authorisation have the same meaning in this protocol.
- If there is any disagreement about the application or interpretation of this protocol, or any part of it, AAR will definitively decide the matter.



*This method should be prepared by an archaeologist in consultation with the Aboriginal parties. The method must comply with this protocol, the Authorisation and the Act. Guidance may be sought from AAR. AAR may provide feedback on any proposed method, which must be considered by the Authorised Parties.

**AAR may advise in writing that activities may commence earlier.

***Where there is a dispute about whether heritage management activities are completed, AAR will definitively decide the matter.

Aboriginal Remains Discovery Protocol

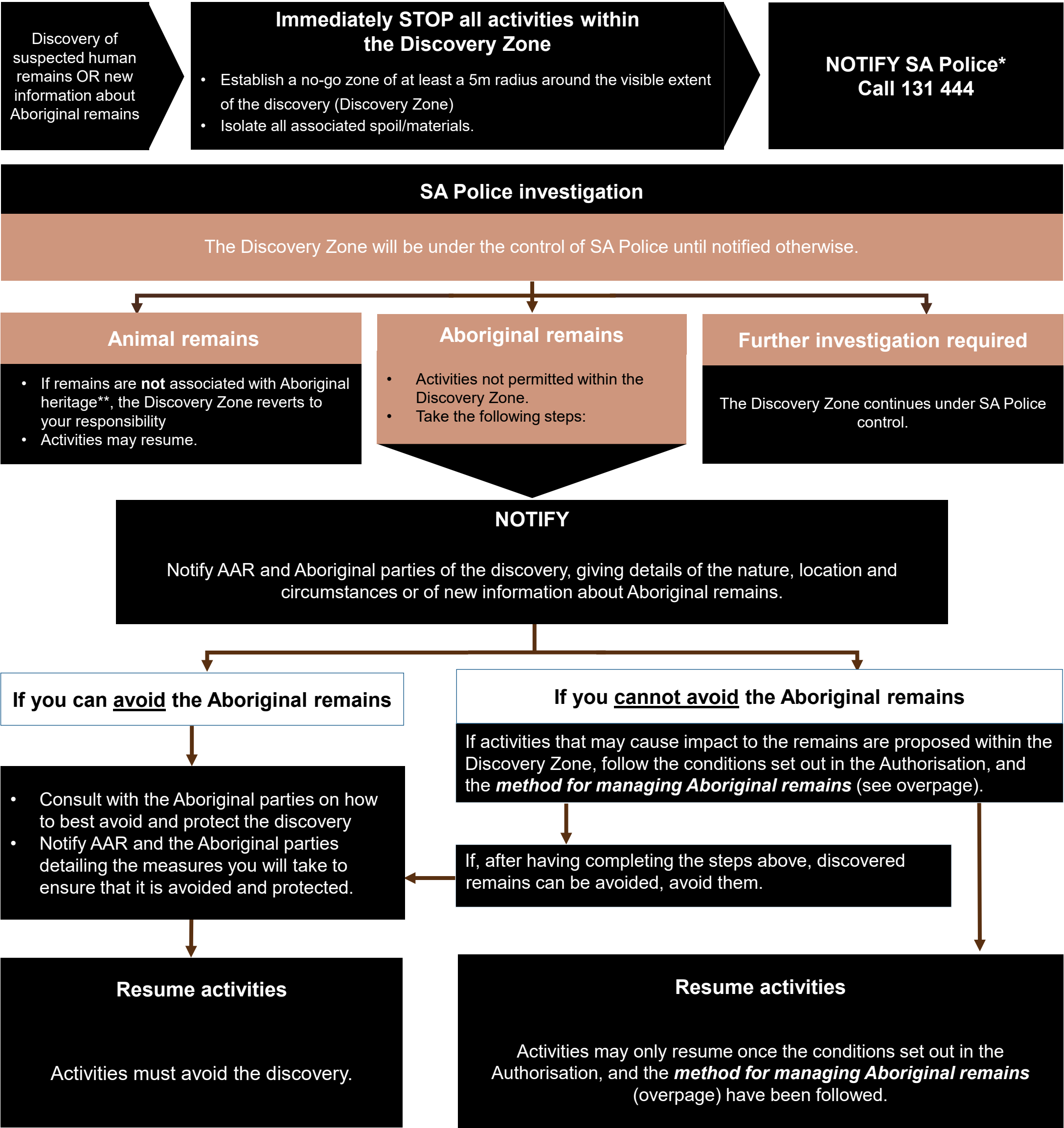
Pursuant to sections 20A(1), 21(2) and 23(3) of the Aboriginal Heritage Act 1988 (SA)

- The purpose of this document is to provide a ‘stop – notify – manage’ process.
- In all cases where human remains are discovered, this must be immediately reported to SA Police. Do not interfere with the remains.
- Human remains must be always treated with dignity and respect.
- Where impacts to remains are unavoidable, this should be mitigated to the extent possible.
- Aboriginal parties are Traditional Owners and/or Aboriginal organisations specified by AAR for the purposes of the Authorisation.
- Defined terms in the Act and the Authorisation have the same meaning in this protocol.
- If there is any disagreement about the application or interpretation of this protocol including the method overpage or any part of them, AAR will definitively decide the matter.

Responsible parties

You - Authorised party

SA Police



*If it is new information about previously-reported Aboriginal remains, notification to SA Police is not required

Animal remains, particularly those of native animals, found in association with Aboriginal objects (e.g. stone tools) and/or other cultural materials (e.g. charcoal, shell material, burnt stones) may indicate the presence of an Aboriginal site. If such a discovery is made, use the **Aboriginal Sites Discovery Protocol.



Method for managing Aboriginal remains

Where discovered Aboriginal remains cannot be avoided, or where some impacts to remains will likely occur, an Authorised Party must:

1. Consult with the Aboriginal parties about the proposed management of the remains that may be impacted.
2. Advise AAR and the Aboriginal parties in writing:
 - that you have assessed that avoiding the remains is not reasonably possible
 - of the justification for your decision
 - of the outcomes of your consultation with the Aboriginal parties in deciding how the remains will be managed.
3. Provide Aboriginal parties and AAR with a method for managing the discovery and make an offer in good faith to the Aboriginal parties to engage an adequate number of heritage monitors to observe, participate in and provide input into the heritage management activities outlined in the method. The method should be prepared by an archaeologist in consultation with the Aboriginal parties. The method must comply with this protocol, the Authorisation and the Act and must include the following:
 - careful excavation and removal of soil in layers of no more than approximately 10 cm deep using hand trowel, shovel or small excavator within the Discovery Zone. This excavation must occur until – in the view of an archaeologist – culturally sterile layers or bedrock is reached.
 - provision for an archaeologist to be engaged to oversee all heritage management activities.
4. From the date that is not less than five (5) working days from the date of the provision of the method and making of the offer outlined in Step 3, follow the method to manage the discovery. AAR may advise in writing that heritage management activities may commence earlier.
5. When, in the reasonable opinion of an archaeologist, heritage management activities set out in the method are completed, Project activities may resume or commence.

Note:

- Guidance may be sought from AAR in preparing any proposed method. AAR may provide feedback on any proposed method, which must be considered by the Authorised Parties.
- In the event of a dispute between the parties in relation to whether the heritage management activities are completed AAR will conclusively decide the matter.