



**Work Area Clearance for the Woodmurra Project, a Drilling  
Program within EL 5514, on Allandale and Macumba  
Stations, near Oodnadatta, South Australia**

A Report to the  
**Arabana Aboriginal Corporation RNTBC**  
and **BHT Minerals Pty Ltd**

**ABN 84 600 381 468**  
146 Mount O'Reilly Road  
Samford, QLD 4520

Report prepared by: **Sean Freeman** B.A.(Flinders) Grad.Dip.Arch.(Flinders) and **Taryn Debney** B.A.( Hons) (La Trobe University)

**Australian Heritage Services Pty Ltd**  
**ABN 34 105 485 845**      **ACN 105 485 845**  
*Cultural Heritage Consultants*  
GPO Box 2990  
Adelaide SA 5001

**Telephones:**  
(08) 8223 3480 (office)  
(08) 8223 3485 (facsimile)  
(0428) 848 043 (mobile)

**Email:** [admin@australianheritageservices.com.au](mailto:admin@australianheritageservices.com.au)

***Draft Report***

***March 2016***



## **Summary**

This report documents cultural heritage examinations for a drilling program within a section of Exploration Licence (EL) 5514 conducted by BHT Minerals Pty Ltd as part of the Woodmurra Project on Allandale and Macumba Stations, located to the east of Oodnadatta, in the Far North of South Australia (see Figures 1-5).

Two separate Work Area Clearances, cultural heritage surveys and archaeological assessments were undertaken during December 2015 and February 2016 to examine the areas that are to be affected by the proposed drilling program within EL5514. The northernmost clearance location is the access to Drillhole II which is situated approximately 48.39 kilometres east of Oodnadatta, approximately 202.76 kilometres north east of Coober Pedy and approximately 859.8 kilometres north north-west of the city of Adelaide, in the far north of South Australia. The southernmost clearance location is Drillhole GT6 which is situated approximately 58.03 kilometres east of Oodnadatta, approximately 199.86 kilometres north east of Coober Pedy and approximately 846.85 kilometres north north-west of the city of Adelaide, in the far north of South Australia.

The survey by the field crew concentrated on assessing the areas within the boundaries of the eight drilling sites with associated accesses and one drilling team campsite Work Area Clearance locations. All the proposed activities will take place within the Arabana People's Native Title Determination area boundaries (see Figures 2&3). All aspects of the work were conducted jointly with representatives of the Arabana People's Native Title holders' organisation, namely the Arabana Aboriginal Corporation Registered Native Title Body Corporate (RNTBC).

The areas were examined by two groups of four representatives from the Arabana Aboriginal Association RNTBC and up to two archaeologists; Sean Freeman on the 20<sup>th</sup> of December 2015 and Sean Freeman and Taryn Debney on the 6<sup>th</sup> of February 2016. The first clearance was interrupted by heavy rains and the second day had to be postponed until the 6<sup>th</sup> of February 2016. The Arabana representatives were, in alphabetical order, Robert Barnes, Ken Buzzacott, Robert Forrest and Joseph Hull on the 20<sup>th</sup> of December 2015 and Ken Buzzacott, Robert Forrest, Amy Khan and Jodie Warren on the 6<sup>th</sup> of February 2016. Mark Dugmore (Director, BHT Minerals) and David Edgecombe (Consultant Geologist of Kelpie Explorations working on behalf of BHT Minerals) represented BHT Minerals Pty. Ltd. on the December 2015 survey. Mark Dugmore and Andrew Brockhoff (earth works contractor) accompanied the team on the February 2016 survey. The company representatives accompanying the team on both the December 2015 and the February 2016 surveys explained the practicalities of carrying out the drilling program to the heritage assessment teams as well as identifying the position of a suitable campsite and all of the required access tracks. All areas of the survey were located with the assistance of the company representatives using handheld GPS (Global Positioning System) units, utilising UTM coordinates

using the Australian Geocentric Datum 1994 (GDA94) with spatial data supplied by BHT Minerals. All spatial data that were recorded in the field used hand-held Garmin GPS units with an accuracy of approximately  $\pm 5$  metres.

A GIS search of the Register of Aboriginal Sites *and* Objects, maintained by Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development, has been conducted. In two letters dated the 4<sup>th</sup> of February 2016, which are included in Appendix 2, AAR advised that there are two legally protected (under the South Australian *Aboriginal Heritage Act* [1988] as amended) Aboriginal Sites included on the Register located within the vicinity of the general study areas in EL5514, in which the drilling program is intended. Neither of these sites are located within the areas surveyed during this Work Area Clearance.

As a result of the Work Area Clearance, **no (0) archaeological sites** were discovered within the study areas; no places were identified that contained significant archaeological material and/or were places of cultural significance to the Arabana representatives within the prospect intended for mineral exploration. The majority of the prospects are situated on a flat lowland gibber plains in an environment where the archaeological potential for Indigenous sites is mostly low.

It should be noted that as a general rule culturally sensitive landforms comprising the edges of claypans, sand ridges, creeks, hills and ranges are to be avoided, as much as practicable, during all exploration and development activities. In the present case, it is advised that the drill team avoid all claypans and creek banks, which may be of archaeological significance and mythological significance to the Arabana.

### **Recommendations**

A series of Conditions of Clearance were specified by the Arabana Aboriginal Corporation stakeholders on the surveys for the proposed activities. These are presented overleaf.

The December 2015 and February 2016 surveys for BHT Minerals were undertaken with the permission and involvement of the Arabana Aboriginal Association RNTBC. The Arabana Aboriginal Association RNTBC and their legal representatives Camatta Lempens have been supplied copies of this draft report and will supply, if they see fit, an endorsement of its findings and recommendations to the consultant after they have examined it.

## **Recommendations**

1. The Arabana Aboriginal Association RNTBC has recommended that the proposed BHT Minerals drilling program for the proposed clearance areas within EL5514 should go ahead subject to BHT Minerals and their contractors' compliance with the locations recommended in Appendix 1 to this report.
2. It is recommended that all activities and access are restricted only to those areas given clearance and that all personnel access the drilling areas using only the cleared access tracks from established roads, tracks or fence lines.
3. Culturally sensitive landforms comprising claypans, water-holding sandy depressions, sand ridges and dunes, creek lines and banks, hills, outcropping stone sources including silcrete gibber boulders, breakaways and ranges are to be avoided during all exploration and development activities.
4. It is recommended that if BHT Minerals conduct any future works after their exploration drilling program within the area given clearance, those areas be subject to further Work Area Clearances in order to assess them for impacts to cultural heritage.
5. As the South Australian *Aboriginal Heritage Act (1988)* (as amended) provides possible protection for any previously unknown sites or archaeological material that may be discovered during the development process, it is advisable that any earthworks or excavations be conducted with the exercise of due care by the machine operators conducting the work.
6. In the event of Aboriginal cultural material being exposed it is advised that all development work that could impact on any material of cultural or scientific significance should cease immediately. In South Australia an assessment must then be made either by staff of the Aboriginal Heritage Team of Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development, or an independent archaeologist, and the relevant Aboriginal Heritage organisation, in this instance the Arabana Aboriginal Association. A site card would then be provided documenting the site. If the site could not be avoided from further impact, or if the site was disturbed or destroyed, a determination under Section 12 of the *Aboriginal Heritage Act (1988)* should be sought, in order to determine what appropriate action should be taken.

## **Telephone Contacts:**

### **Arabana Aboriginal Corporation RNTBC**

**Chairperson** Aaron Stuart

Care of Stephen Kenny

### **Camatta Lempens Pty Ltd**

Lawyers

Level 1, 345 King William Street

Adelaide SA 5700

Mobile: (0419) 842 464

Email: [nullar45@gmail.com](mailto:nullar45@gmail.com)

### **Legal Representatives**

#### **Camatta Lempens**

Contact Person: Stephen Kenny or Emma Riggs

(08) 8410 0211

### **State Aboriginal Heritage Committee**

Contact Person: Chairperson

(08) 8226 8900

# **Contents**

<b>Summary</b>	i
<b>Recommendations</b>	iii
<b>Contents</b>	v
<b>List of Figures</b>	vi
<b>List of Plates</b>	vii
<b>Acknowledgments</b>	vii
<b>1.0 Introduction</b>	1
1.1 The Study Areas	4
1.2 Physiography	4
1.3 Aims	7
1.4 Legislation for the Protection of Heritage Sites	7
1.4.1 Aboriginal Heritage Act (1988)[as amended] (South Australia)	7
1.4.2 Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Commonwealth)	9
1.4.3 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	9
1.4.4 Native Title Act 1993 (Commonwealth)	12
1.4.5 Native Title (South Australia) Act 1994	12
1.4.6 Heritage Places Act 1993 (South Australia)	13
<b>2.0 The Proposed Developments</b>	14
2.1 Extent, nature and timing of the developments	14
<b>3.0 Consultation</b>	25
3.1 Consultation with BHT Minerals	25
3.2 Consultation with Arabana Aboriginal Association RNTBC	25
3.3 Consultation with Aboriginal Affairs and Reconciliation	26
<b>4.0 Archaeology</b>	27
4.1 Background Research	27
4.1.1 The Site Register	27
4.1.2 Previously Reported Sites in the Study Area	28
4.1.3 Literature Search	28
4.1.4 Site Prediction Model	31
<b>5.0 The Survey</b>	32
5.1 Survey design and method	32
5.2 Constraints on the survey	33
<b>6.0 Survey Results</b>	35
6.1 Previously Registered or Reported Sites on the AAR Central Archive	35
6.2 Cultural and Archaeological Sites and Issues	35
<b>7.0 Assessment of significance</b>	39
7.1 Criteria for significance assessment	39
7.2 Effects of proposed mineral exploration activity on Cultural Heritage	39
<b>8.0 Recommendations</b>	40
<b>8.0 Bibliography</b>	42
<b>Appendix 1: BHT Minerals</b>	43
<b>December 2015 and February 2016 Work Area Clearances,     BHT Minerals Prospect, Woodmurra Project,     EL5514 Exploration Areas</b>	
<b>Appendix 2: Relevant Communications</b>	47
<b>Appendix 3: Sections 12, 20, 21, 22 and 23 of the South Australian     <i>Aboriginal Heritage Act 1988 (as amended)</i></b>	61

## List of Figures

<b>Figure 1:</b> Relief map of Australia, showing the location of the study areas	1
<b>Figure 2:</b> The regional location of the BHT Minerals developments near Oodnadatta with the Native Title boundary in red, shown on NATMAP 1:5,000,000 mapping	2
<b>Figure 3:</b> The regional location of the BHT Minerals developments near Oodnadatta with the Arabana Native Title Determination boundary in red, shown on NATMAP Landsat 7 satellite imagery	2
<b>Figure 4:</b> The location of the BHT Minerals developments near Oodnadatta with the Arabana Native Title Determination boundary in red, shown on NATMAP 1:1,000,000 mapping	3
<b>Figure 5:</b> The location of the BHT Minerals developments near Oodnadatta with the Arabana Native boundary in red, shown on NATMAP Landsat 7 satellite imagery	3
<b>Figure 6:</b> The study area within the black border outlining the geology of the BHT drilling area, shown on an enlargement of the relevant section SG5315 Oodnadatta Geological Map	6
<b>Figure 7:</b> The location of the BHT Minerals developments on Allandale and Macumba Stations Title boundary in red, (map provided by BHT Minerals)	21
<b>Figure 8:</b> Close-up of the location of the BHT Minerals developments on Allandale and Macumba Stations near Oodnadatta (map provided by BHT Minerals)	22
<b>Figure 9:</b> The location of the BHT Minerals drilling site areas, shown on NATMAP 1:250,000 mapping	23
<b>Figure 10:</b> The location of the BHT Minerals drilling site areas, shown on NATMAP Landsat 7 satellite imagery	23
<b>Figure 11:</b> Close-up of the location of the BHT Minerals drilling site areas, shown on NATMAP 1:250,000 mapping	24
<b>Figure 12:</b> Close-up of the location of the BHT Minerals drilling site areas, shown on NATMAP Landsat 7 satellite imagery	24
<b>Figure 13:</b> BHT Minerals developments and the two heritage AAR listed heritage sites, shown on NATMAP 1:250,000 mapping	29
<b>Figure 14:</b> BHT Minerals developments and the two heritage AAR listed heritage sites, shown on NATMAP Landsat 7 satellite imagery	29
<b>Figure 15:</b> Routes traversed by WAC teams, December 2015 in blue and February 2016 in red, shown on NATMAP 1:250,000 mapping	36
<b>Figure 16:</b> Routes traversed by WAC teams, December 2015 in blue and February 2016 in red, shown on NATMAP Landsat 7 satellite imagery	36
<b>Figure 17:</b> Routes traversed by WAC teams, December 2015 in blue and February 2016 in red shown on NATMAP 1:250,000 mapping	37
<b>Figure 18:</b> Close-up of the routes traversed by WAC teams, December 2015 in blue and February 2016 in red, shown on NATMAP Landsat 7 satellite imagery	37
<b>Figure 19:</b> Close up of WAC survey routes, December 2015 in blue and February 2016 in red, shown on NATMAP 1:250,000 mapping	38

## List of Plates

<b>Front Cover:</b> Drillhole E1, with the approaching cold front that caused significant rainfall (SF2220)	Front Cover
<b>Plate 1:</b> BHT Minerals Drill Hole E1, looking north from 595724/6951723	(SF2214) 16
<b>Plate 2:</b> BHT Minerals Drill Hole I1, looking south from 593095/6956731	(SF2226) 16
<b>Plate 3:</b> BHT Minerals Drill Hole B1, looking south from 597769/6947682	(SF2250) 17
<b>Plate 4:</b> BHT Minerals Drill Hole D2, looking south from 599038/6949194	(SF2250) 17
<b>Plate 5:</b> BHT Minerals Drilling Campsite, looking north from 600112/6950775	(SF2253) 18
<b>Plate 6:</b> BHT Minerals Drill Hole D1, looking west from 601406/6949161	(SF2261) 18
<b>Plate 7:</b> BHT Minerals Drill Hole G1, looking east from 599174/6954127	(TD995) 19
<b>Plate 8:</b> Minerals Drill Hole GT6, looking east from 602069/6946133	(TD13) 19
<b>Plate 9:</b> BHT Minerals Drill Hole L1, looking north from 603829/6952934	(TD22) 20
<b>Plate 10:</b> BHT Minerals Drill Hole L1 access, looking south from near 603932/6952733	(TD29) 20
<b>Plate 11:</b> BHT Minerals December WAC, looking west from 595724/6951723	(SF2218) 34
<b>Plate 12:</b> BHT Minerals Drill Hole I1 clearance area, looking north from near 593051/6956862	(SF2231) 34

## Acknowledgments:

Australian Heritage Services would like to thank the following people for their help on the project:

Robert Barnes, Ken Buzzacott, Robert Forrest and Joseph Hull who are all members of the Arabana Aboriginal Corporation, acted as cultural heritage representatives and community consultants during the on the 20<sup>th</sup> of December 2015 Work Area Clearance. Ken Buzzacott, Robert Forrest, Amy Khan and Jodie Warren acted as cultural heritage representatives and community consultants during the 6<sup>th</sup> of February 2016 Work Area Clearance. Aaron Stuart, Chairperson, appointed the members of both of the Work Area Clearances. All of the aforementioned people are members of the Arabana Aboriginal Association RNTBC and acted on its behalf as cultural heritage representatives and community consultants during this Work Area Clearance.

Stephen Kenny, Alice Lucas and Emma Riggs, of Camatta Lempens, legal representatives for the Arabana Aboriginal Association RNTBC for their assistance in liaising with BHT Minerals and organising the WAC.

Mark Dugmore (Director, BHT Minerals Pty. Ltd.), for his help in organising, facilitating and conducting both of the Work Area Clearances. Dave Edgecombe (contract field geologist of Kelpie Exploration) who accompanied the team on the December 2015 WAC and Andrew Brockhoff (earth works contractor) who accompanied the team on the February 2016 WAC; for their participation in the field and information on the proposed drilling program within the survey area.

Perry Langeberg, Senior Information Officer (Heritage) and Tim Rogers, GIS Officer (Heritage), Aboriginal Heritage Team of Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development, for very helpful provision of information on heritage issues within the exploration area under survey.

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*

## 1.0 Introduction

This study reports on a Work Area Clearance (WAC) survey that was undertaken within Exploration Licence (EL) 5514, immediately to the east of Oodnadatta South Australia's Arckaringa Basin and adjacent to the Warburton Basin, situated in northern South Australia (see Figures 1-5). The WAC was undertaken on behalf of the Arabana Aboriginal Association RNTBC, with the consultant(s), for a drilling program to be undertaken by BHT Minerals Pty. Ltd. All aspects of the drilling program will be located and all activities will be carried out within the boundaries of the Arabana People's Native Title Determination area. The Arabana appointed archaeological consultants Sean Freeman (December 2015 and February 2016) and Taryn Debney (February 2016) to aid them in the heritage assessment process.



Figure 1: Relief map of Australia, showing the location of the study area

Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia



Figure 2: The regional location of the BHT Minerals developments near Oodnadatta with the Arabana Native Title Determination boundary in red, shown on NATMAP 1:5,000,000 mapping

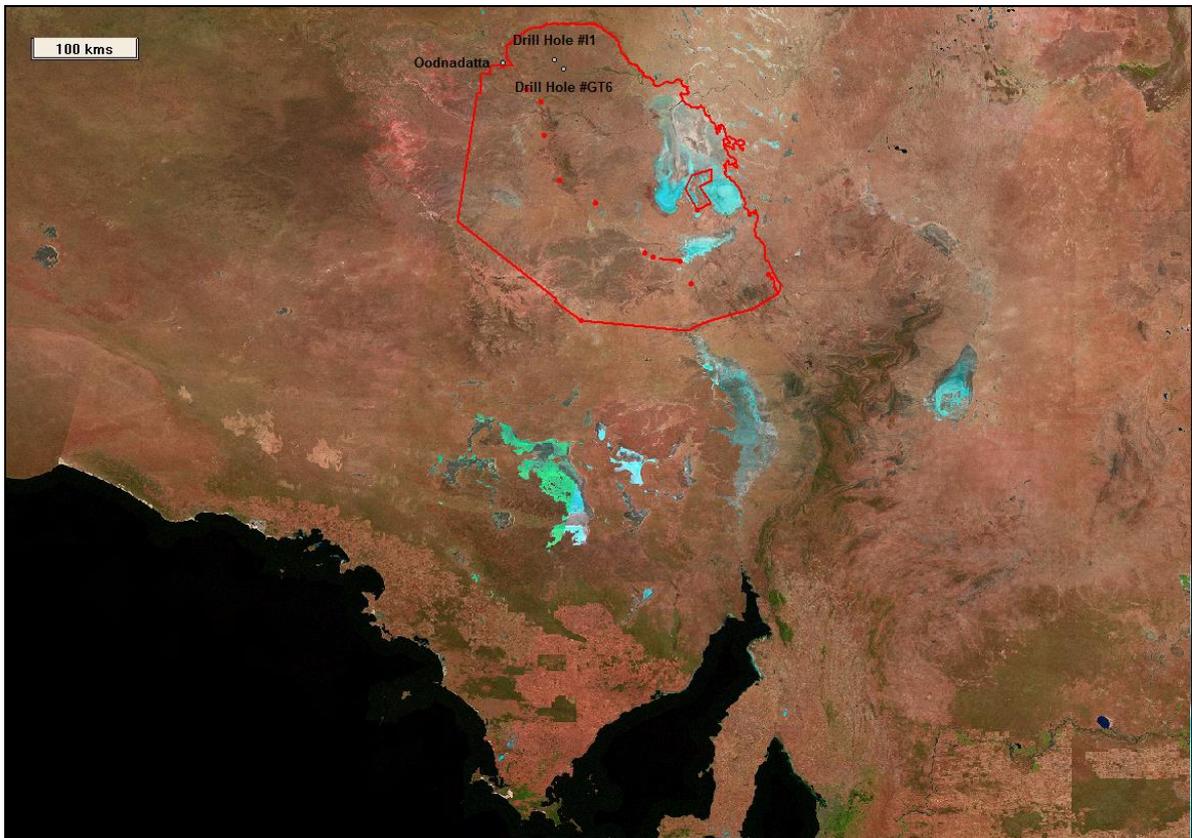
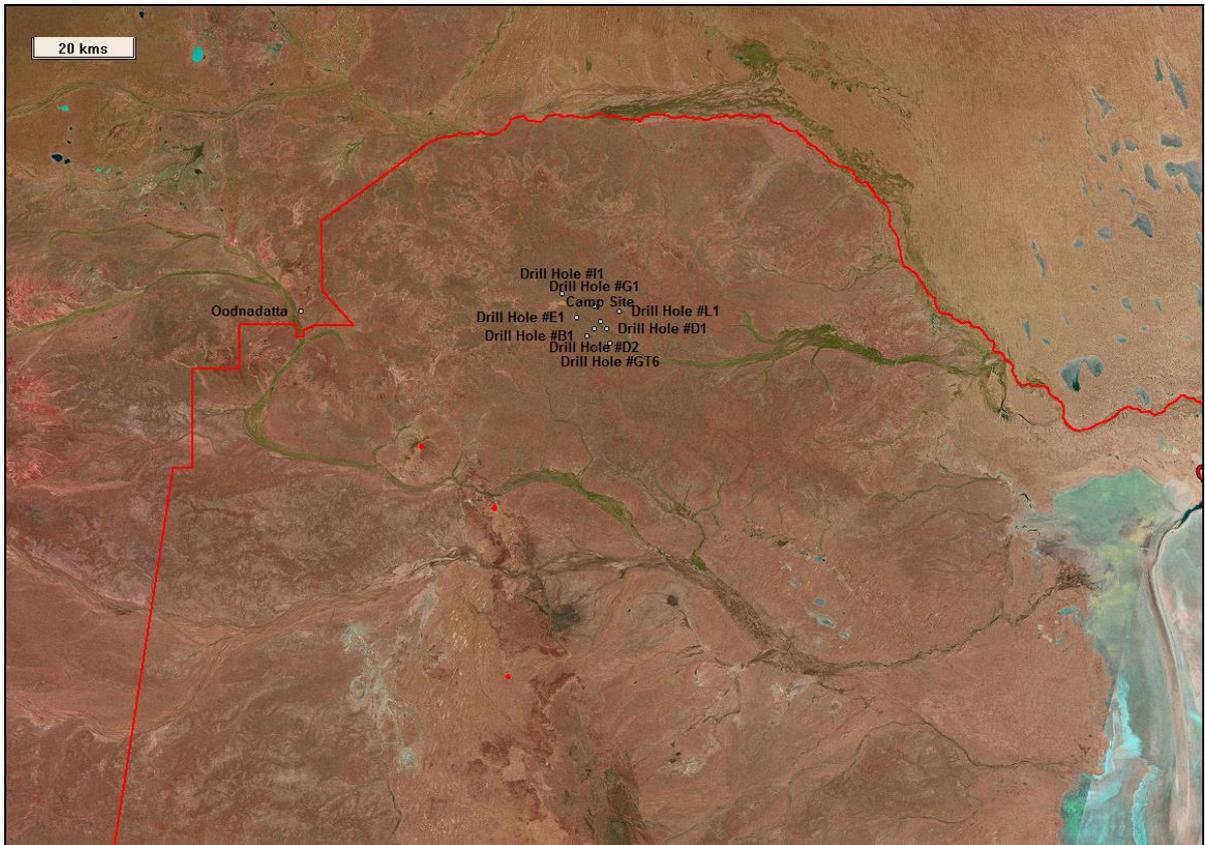


Figure 3: The regional location of the BHT Minerals developments near Oodnadatta with the Arabana Native Title Determination boundary in red, shown on NATMAP Landsat 7 satellite imagery

Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia



**Figure 4:** The location of the BHT Minerals developments near Oodnadatta with the Arabana Native Title Determination boundary in red, shown on NATMAP 1:1,000,000 mapping



**Figure 5:** The location of the BHT Minerals developments near Oodnadatta with the Arabana Native Title Determination boundary in red, shown on NATMAP Landsat 7 satellite imagery

## **1.1 The Study Areas**

This Work Area Clearance (WAC) is concerned with the survey of eight drilling site locations and an associated drilling campsite within a prospecting area that has been identified by BHT Minerals Pty. Ltd. as having mineral resource potential for silver, lead and zinc. The study locations are within the EL5514 tenement. The northernmost study area location is the Drillhole I1 which is situated approximately 48.39 kilometres east of Oodnadatta, approximately 202.76 kilometres north east of Coober Pedy and approximately 859.8 kilometres north north-west of the city of Adelaide, in the far north of South Australia. The southernmost study area location is Drillhole GT6 which is situated approximately 58.03 kilometres east of Oodnadatta, approximately 199.86 kilometres north east of Coober Pedy and approximately 846.85 kilometres north north-west of the city of Adelaide, in the far north of South Australia. The area subject to this Work Area Clearance is part of an environment characterised by a physiographic unit known as the Oodnadatta Land System.

### **BHT Minerals Prospect, Woodmurra Creek Project, EL5514**

The current BHT Minerals prospect containing the eight drilling targets and one drilling camp site extends over an area approximately 12 kilometres east-west and 8.4 kilometres north-south, with its western boundary running diagonally in a north-west – south-east direction. This prospect is wholly within the Arabana Native Title Determination Boundary.

## **1.2 Physiography**

The **Oodnadatta Land System**, in which the study areas are located, is the largest and most extensive land system found in the Marla-Oodnadatta Soil Conservation District.

“This land system is made up of extensive undulating plains with a lag of silcrete and quartzite gibbers and with numerous well-developed gilgais and occasional plateaus. It has an extensive drainage system with large braided watercourses such as the Neales River and Arckaringa Creek.

Soils are saline and dispersive, being either deep red clays or clay loams. Gilgais vary in size from only a few metres to approximately 10 metres in diameter. The densest vegetation occurs in gilgais or along watercourses. The stony shelves between the gilgais are often bare or covered only with a few bindyis or sparsely distributed samphire. Gidgee is common along creek lines in northern parts of the land system and mulga grows along creek lines throughout the land system. Coolibah grows along the larger watercourses, often in association with gidgee and sometimes in association with river red gums.

Trees and tall shrubs are usually absent from the gibber tableland because of limited water storage, underlying salinity and excessive gypsum that is not leached out because of poor water penetration into the underlying soil. In contrast, gilgais are the most productive component of this land system. They are able to trap water run-off from the impervious stony flats that surround them. This water is then retained for extended periods by the clayey soil.

The main land unit is dominated by low shrublands of Oodnadatta saltbush, with bladder saltbush, grey samphire, ball bindyi (cannonball), short-wing bindyi (shortwing copperburr), tangled bindyi (pale bindyi) and barley Mitchell grass also common. Slender glasswort, salt

bindyi, bottletree spurge, bush minuria, pale ploverdaisy, cotton-bush, woolly bluebush, neverfail (bristly love-grass) and spreading scurf-pea are also widespread but are not common overall. Most species are more abundant and attain their largest size in gilgais where they receive water subsidies from the surrounding plain. After rain, the gilgais also grow a high proportion of annual and ephemeral grasses and herbs. The most common annual grasses are umbrella grasses, Australian cupgrass, Flinders grasses and bottle-washers.

Areas where Oodnadatta saltbush is not present or occurs only infrequently are dominated by bladder saltbush, with low bluebush, satiny bluebush and black bluebush also being common. Barley Mitchell grass, bush minuria, short-wing bindyi (short-wing copperburr), salt bindyi (salt copperburr), ray grass (katoora) and common bottle-washers are common in the understorey. Pin sida, jointed bottlewashers, bristly love-grass (neverfail), spiny saltbush, mulga grass and tangled bindyi are widespread in the understorey but are not common overall.

Coolibah woodlands with river red gum, gidgee and river cooba dominate large watercourses, with old-man saltbush dominant on the floodplains. Red mulga (mineritchie) occurs in the north of the District. Queensland bluebush (golden goosefoot), lignum, spotted emubush, cotton-bush and cane-grass (swamp cane-grass) are common. Splendid flat-sedge, silky brown-top and perennial cupgrass are common along creek banks. The floodplain understorey commonly includes tall scurf-pea (verbine), ruby saltbush, thyme sea-heath (bristly sea-heath), goathead bindyi, barley Mitchell grass, bristly love-grass, swamp wanderrrie and common nardoo. Although river red gums are present in the upper reaches of some creeks and can be locally common in such places, they do not occur in lower parts of the creeks where soil salinity is higher. Claypans with heavy brown clays are generally bare other than at their margins”

(Marla-Oodnadatta Soil Conservation Board District Plan 2002: 36&37).

The study area is located in the Woodmurra and Geranium Creek drainage areas and mostly consists of the Oodnadatta Formation geological unit which was formed during the Cretaceous period, dating from 145 to 66 million years ago (see Figure 6). The Oodnadatta Formation consists of claystone and siltstone layers interspersed with layers of sandstone with limestone and iron oxide inclusions (SG5315 Oodnadatta Geological Map). The climate during the Cretaceous period was relatively warm which resulted in high global sea levels and creating numerous shallow inland seas. There are some low angle alluvial fan and plain sediment with occasional undifferentiated Pleistocene gypcrete (containing gypsum cemented together with other materials) landscape units within the study area that date from the Pleistocene-Holocene period (SG5315 Oodnadatta Geological Map). The Pleistocene dates from 2.5 million years ago to approximately 12,000 years ago with the Holocene period spanning the period from the end of the last glacial period dating from approximately 12,000 years ago to the present. The creek systems within the study area are the most recent of the geological formations and consist of present day Holocene alluvium which makes up the current stream bedload (SG5315 Oodnadatta Geological Map).

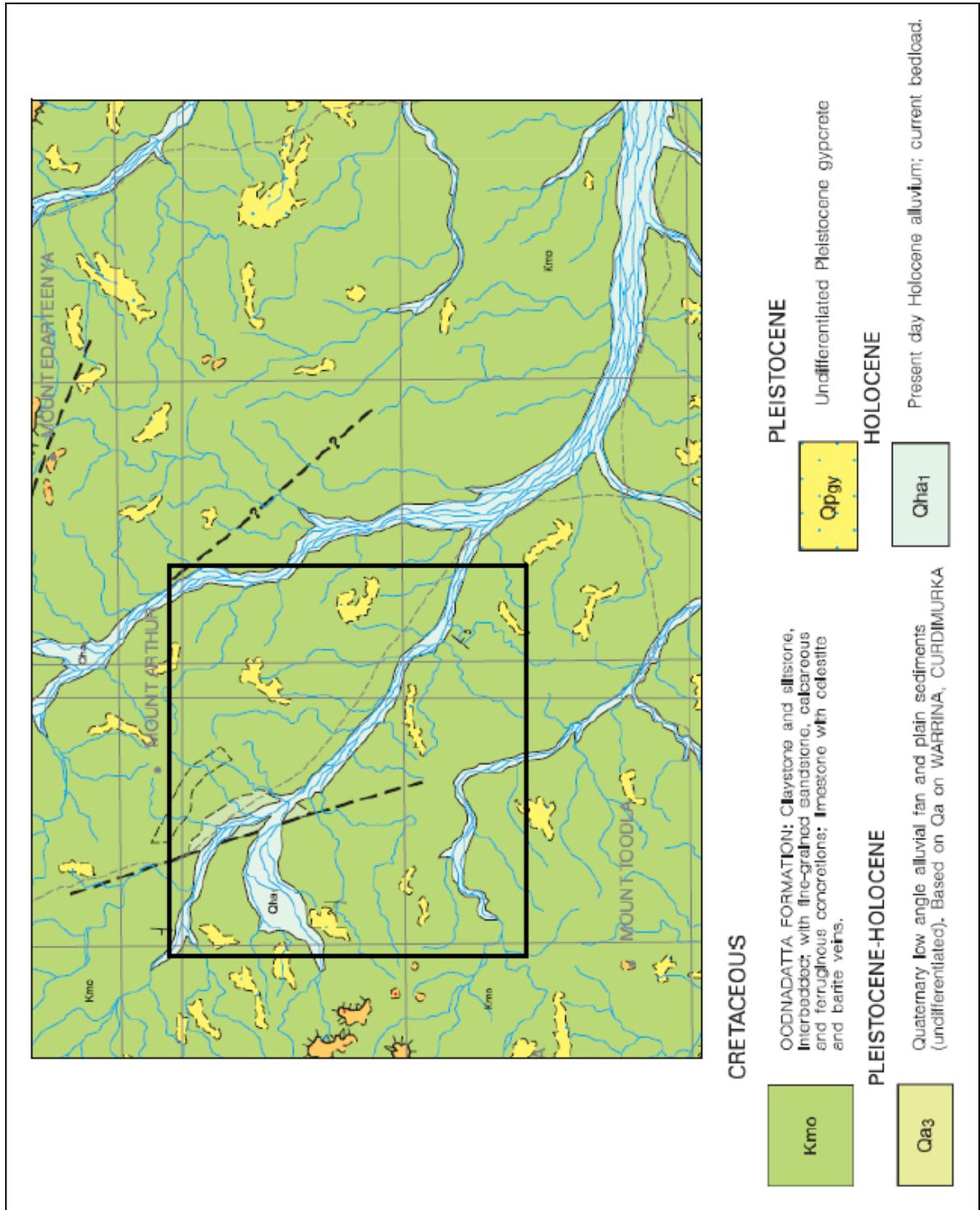


Figure 6: The study area within the black border outlining the geology of the BHT drilling area, shown on an enlargement of the relevant section SG5315 Oodnadatta Geological Map

### **1.3 Aims**

The intention of this report is to assist BHT Minerals in meeting its legislative obligations relating to Aboriginal heritage sites under relevant legislation as it progresses with exploration within tenement EL5514.

This report documents the results of the Work Area Clearance completed by the Arabana with the consultants for BHT Minerals. The clearance is specifically for the assessment of eight locations intended for drilling and a campsite location within EL5514 within an area approximately 12 kilometres east-west and 8.4 kilometres north-south (refer to Figures 2-5).

The purpose of the clearance is to identify, record and assess any sites and places of Aboriginal heritage significance within the BHT Minerals prospect area, in order that they might be avoided and protected whilst BHT Minerals' exploration proceeds.

Only clearance for works within the BHT Minerals prospect area has been completed and issued by the Arabana.

### **1.4 Legislation for the Protection of Heritage Sites**

This section outlines information on the relevant State and Commonwealth Aboriginal and European heritage protection legislation.

#### **1.4.1 *Aboriginal Heritage Act (1988)[as amended] (South Australia)***

This Work Area Clearance and survey was carried out in accordance with a formal request from BHT Minerals as the licence holder of EL5514, under the provisions of the South Australian *Aboriginal Heritage Act (1988)* (as amended) and with the involvement, advice and co-operation of the relevant Aboriginal organisation, in this instance the Arabana Aboriginal Association RNTBC (see Appendix 2: Relevant Communications). Advice was also sought from the Aboriginal Heritage Team of Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development, the government department charged with administering and enforcing this *Act*.

The South Australian *Aboriginal Heritage Act (1988)[as amended]* legally protects registered Aboriginal Sites or Objects and gives guidelines when dealing with possible items or areas of significance to Aboriginal Heritage.

Section 3 of the South Australian *Aboriginal Heritage Act (1988)* defines an Aboriginal site as being an area of land:

- a) that is of significance according to Aboriginal tradition; or
- b) that is of significance to Aboriginal archaeology, anthropology or history.

Section 3 of the *Act* also defines Aboriginal tradition as:

...traditions, observances, customs or beliefs of the people who inhabited Australia before European colonisation and includes traditions, observances, customs and beliefs that have evolved or developed from that tradition since European colonisation.

Section 23 of the South Australian *Aboriginal Heritage Act (1988)* (as amended) gives legal protection to all registered Aboriginal sites and objects in South Australia. The *Act* makes it a legal offence attracting a fine and/or imprisonment to damage, disturb or interfere with Aboriginal sites or objects without the permission and written authorisation of the appropriate Minister.

This protection is accorded when the site or object has been determined to be of significance according to Aboriginal tradition, or of significance to Aboriginal archaeology, anthropology or history. If this has been determined, under Section 12 of the *Act*, then the site can be registered as an Aboriginal site on the Register of Aboriginal Sites and Objects, which is maintained by the Department of Aboriginal Affairs and Reconciliation.

Section 20 of the *Act* puts an onus of responsibility on landowners and occupiers of private land to inform the Minister if Aboriginal sites or objects are discovered on the landscape. Potential Aboriginal sites or objects (in regard to the definition set out in Section 3 of the *Act*) that may be discovered during a Work Area Clearance, Cultural Heritage survey or in site development work need to be assessed by the Minister in order to determine whether the newly discovered site or object should be included on the Register of Aboriginal Sites and Objects. A determination can be requested from the appropriate Minister under Section 12 of the *Act*, if the person (the developer in this instance) who proposes to take action in relation to the newly discovered site or object and feels that that action may constitute an offence under Section 23 of the *Act*.

If registered sites or objects are to be impacted upon or destroyed in the process of a development a permit to destroy (under Section 23 of the *Act*) must be gained from the Minister. The *Act* also could protect previously unknown sites or archaeological material that may be discovered during the development process if they are subsequently be determined to be an Aboriginal site or object under Section 12 of the *Act* and therefore eligible for inclusion on the Register of Aboriginal Sites and Objects. Therefore it is advisable that any earthworks or excavations be conducted with due care by the machine operators doing the work in order to prevent a possible breach of Section 23 of the *Act*.

The full text of some of the sections of the *Act* has been included as an appendix to this report for information and reference by the stakeholders in this process (see Appendix 3: Sections 12, 20, 21, 22 and 23 of the South Australian *Aboriginal Heritage Act 1988* [as amended]).

#### **1.4.2 *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Commonwealth)***

Whereas the State Act provides legal protection for all the physical evidence of past Aboriginal occupation, the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* deals with Aboriginal cultural property in a wider sense. Such cultural property includes any places, objects and folklore that ‘are of particular significance to Aboriginals in accordance with Aboriginal tradition’. Aboriginal tradition is defined as the body of traditions, observances, customs and beliefs of Aboriginals generally or of a particular community or group of Aboriginals, and includes any such traditions, observances or beliefs relating to particular persons, areas, objects or relationships’.

There is no cut-off date and the Act may apply to contemporary Aboriginal cultural property as well as ancient sites. The Commonwealth Act takes precedence over State cultural heritage legislation where there is conflict. In most cases, Aboriginal archaeological sites registered under the State act will also be Aboriginal places subject to the provisions of the Commonwealth act.

The Commonwealth Act provides a mechanism for the Minister for the Environment to protect an Aboriginal site or place from potential destruction where it is considered that State or Territory law is insufficient to the task. Under Section 21H of the *Act* it is an offence bringing fines of \$10,000 or 5 years’ imprisonment for an individual or \$50,000 and up to 2-year prison sentence to contravene a Ministerial declaration where an Aboriginal place is concerned.

#### **1.4.3 *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)***

The *Environment Protection and Biodiversity Conservation Act 1999* provides a national framework for the protection of heritage and the environment and the conservation of biodiversity. The Act is administered by the Australian Department of the Environment. The Australian Heritage Council, established under the *Australian Heritage Council Act 2003*, assesses whether or not a nominated place is appropriate for listing on either the National or Commonwealth Heritage Lists and makes a recommendation to the Minister on that basis, i.e. whether it is of outstanding heritage value to the nation. The Minister for the Environment makes the final decision on listing (see [www.environment.gov.au/heritage](http://www.environment.gov.au/heritage) for further details).

The objectives of the *EPBC Act* are:

- to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;

- to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- to promote the conservation of biodiversity;
- to provide for the protection and conservation of heritage;
- to promote a cooperative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;
- to assist in the cooperative implementation of Australia's international environmental responsibilities;
- to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge.

The *EPBC Act* protects heritage from actions by the Commonwealth and it protects places on the National Heritage List, the Commonwealth Heritage List, and on Commonwealth land. All proponents, not just the Commonwealth, are required to seek approval for actions that could have a significant impact on the heritage values of these places.

The National Heritage List was established to list places of outstanding heritage significance to Australia. It includes natural, historic and Indigenous places that are of outstanding national heritage value to the Australian nation. When heritage experts assess if a National Heritage List nominated place is considered to have heritage value they will check to see if the place meets one or more of the following criteria:

- (a) The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.
- (b) The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.
- (c) The place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history;
- (d) The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of:
  - (i) A class of Australia's natural or cultural places; or
  - (ii) a class of Australia's natural or cultural environments.
- (e) The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.

- (f) The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.
- (g) The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- (h) The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.
- (i) The place has outstanding heritage value to the nation because of the place's importance as part of Indigenous tradition.

The Commonwealth Heritage List comprises natural, Indigenous and historic heritage places which are either entirely within a Commonwealth area, or outside the Australian jurisdiction and owned or leased by the Commonwealth or a Commonwealth Authority; and which the Minister is satisfied have one or more Commonwealth Heritage values. The List can include places connected to defence, communications, customs and other government activities. A place meets the Commonwealth Heritage listing criterion if the place has significant heritage value because of one or more of the following:

- (a) The place's importance in the course, or pattern, of Australia's natural or cultural history.
- (b) The place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.
- (c) The place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history.
- (d) The place's importance in demonstrating the principal characteristics of:
  - i. A class of Australia's natural or cultural places; or
  - ii. a class of Australia's natural or cultural environments.
- (e) The place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- (f) The place's importance in demonstrating a high degree of creative or technical achievement at a particular period.
- (g) The place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- (h) The place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.
- (i) The place's importance as part of Indigenous tradition.

The Department of Environment also administered the Register of the National Estate. This list was closed in 2007 and all references to the Register were removed from the *EPBC Act* on 19 February 2012 and it no longer has a statutory basis.

#### **1.4.4 *Native Title Act 1993 (Commonwealth)***

The main purpose of the Commonwealth *Native Title Act 1993* is to recognise and protect native title. Native title is the rights and interests in land and waters that Aboriginal and Torres Strait Islanders have under their traditional laws and customs. Further general information about native title can be obtained from the National Native Title Tribunal ([www.nntt.gov.au](http://www.nntt.gov.au)). The *Act* results from the Commonwealth's reaction to the High Court's decision in *Mabo v Queensland (No.2)* and adopts the common law definition of native title, defined as the rights and interests that are possessed under the traditional laws and customs of Aboriginal people in land and waters, and that are recognised by the common law. These rights may exist over Crown Land but do not exist over land held as freehold title.

The *Native Title Act 1993* recognises the existence of an Indigenous land ownership tradition where connections to country have been maintained and where acts of government have not extinguished this connection.

There is a native title determination over the land that is the subject of this report (Federal Court Number(s): SAD6025/1998; NNTT Number: SCD2012/002) which came into effect on the 22<sup>nd</sup> of May 2012. The Arabana Aboriginal Corporation RNTBC are native title holders and they have native title rights and interests recognised in relation to parcels of land identified in their consent determination: *Dodd v State of South Australia* [2012] FCA 519. In addition, an Indigenous Land Use Agreement (ILUA) also applies in relation to the area, and pursuant to its terms, the Arabana Peoples are recognised as traditional owners of land.

#### **1.4.5 *Native Title (South Australia) Act 1994***

As stated above, the Commonwealth *Native Title Act 1993* is a part of the Commonwealth's response to the High Court's decision in *Mabo v Queensland (No. 2)* and adopts the common law definition of native title defined as the rights and interests that are possessed under the traditional laws and customs of Aboriginal people in land and waters, and that are recognised by the common law. Provisions with the Commonwealth *Native Title Act 1993* allow for the States to develop their own native title legislation provided the State legislation does not conflict with the Commonwealth Act.

South Australia has enacted an alternative State right to negotiate scheme as authorised by the Commonwealth under *Native Title Act 1993* Section 43. This scheme is operative and to date

comprises the *Native Title (South Australia) Act 1994*; *Land Acquisition (Native Title) Amendment Act 1994*; *Mining (Native Title) Amendment Act 1994*; *Opal Mining Act 1995* and the *Environment, Resources and Development Court (Native Title) Amendment Act 1995*. Regulations are in force for all these Acts together with Rules of Court for the Environment, Resources and Development Court (ERD).

#### **1.4.6 *Heritage Places Act 1993 (South Australia)***

The *Heritage Places Act 1993* is the main European heritage protection legislation in South Australia. This Act includes the SA Heritage Register (Part 3 of the Act), which consists of a list of ‘State Heritage Places’ and ‘State Heritage Areas’. This list has been searched as part of the desktop research for this report. Section 16 of this Act establishes a set of criteria to be used to assess whether a place qualifies for listing on the SA Heritage Register. Buried cultural material (i.e. archaeological artefacts) have relevance under this Act as a component of a listed ‘State Heritage Place’ or ‘State Heritage Area’, and also it is a requirement under Section 27(2) that the discovery of any ‘archaeological artefact’ of ‘heritage significance’ is reported to the South Australian Heritage Council. Section 36 makes it an offence to damage a heritage place entered onto the SA Heritage Register.

The South Australian Heritage Register contains a description or notes with respect to places of heritage value in South Australia. It includes places and related objects of State significance and records other categories of heritage places in South Australia (including local, national and world heritage places) which are protected under legislation.

The Register is administered by the South Australia Heritage Council. The Council will provisionally enter a place that is deemed to be of State significance and based on the outcome from the public consultation will either confirm or remove the entry.

There are over 2,280 confirmed State heritage places entered in the Register. In addition, 17 State heritage areas have been designated.

The *Heritage Places Act 1993* also requires that the Register includes:

- local heritage places designated by a development plan
- local heritage zones and policy areas designated by a development plan (ie Contributory local heritage)
- places within the State entered in any register of places of natural or historic significance kept under the law of the Commonwealth (ie the Commonwealth Heritage List, National Heritage List and declared World Heritage Properties)
- State heritage areas
- heritage agreements made under the *Heritage Places Act 1993*

## **2.0 The Proposed Developments**

### **2.1 Extent, nature and timing of the developments**

BHT Minerals are currently planning to conduct a drilling program within the cleared sections of the study area on EL5514 to better determine its mineral resources, particularly the presence of silver, lead and zinc deposits. The Work Area Clearance completed for the drilling program assessed the suitability of an initial eight hole drilling program including drill sumps, accesses and a drilling camp (see Plates 1-10 and Figures 7-12). However it is intended to drill five of these holes in the first round of drilling due to commence in late March 2016.

The drill holes are intended to be drilled to depths of between 200 metres to 300 metres totalling 1,500 metres dependent on drilling conditions and budget constraints. The expected duration of the drilling program is six weeks and each hole will be initially drilled using the rotary mud technique through the younger cover sequence followed by the final 50 metres (approximately) in each hole being drilled using NQ sized (outside hole diameter 75.7 millimetres, inside hole diameter 47.6 millimetres) diamond coring (BHT letter, dated 9<sup>th</sup> of October 2015; see Appendix 2). All drilling and other activities will be located within the Arabana People's Native Title Determination boundary (see Figures 2-5).

The following text is taken from the Work Area Clearance request letter written by Mark Dugmore to Stephen Kenny, dated the 9<sup>th</sup> of October 2015:

**BHT holds Exploration Licence 5514, which is located approximately 60km east of Oodnadatta, as shown in Figure 1. EL5514 is located in the northern part of the Arabana People's SCD2012/002. The EL was granted on 28 November 2014 for a term of one year and a renewal will be sought.**

#### *Mining Exploration Operations*

The details of the proposed work program include;

- (a) exploring this area for silver, lead and zinc using an exploration model similar to the Broken Hill deposit in NSW and Cannington deposit in Qld. Interpretation of airborne magnetic and gravity data has identified numerous targets warranting drill testing through a younger cover sedimentary rock sequence to potential host rocks at depths below 150m. Approximately 5 holes will be drilled to depths of 200m – 300m (approx. total 1,500m) depending on drilling conditions and budget;
- (b) the estimated duration of the drilling program will be six weeks. If possible, the drilling program could comprise a small portion of drilling before Christmas 2015 followed by completion of the entire program in March/April 2016;
- (c) using the rotary mud drilling technique through the younger cover sequence followed by approximately 50m in each hole of NQ-size diamond coring;
- (d) a mobile self-contained camp will be located central to the drilling area as shown on Figure 2. This camp site will be located on/near to the main Macumba road (subject to confirmation by field inspection) and clear of any native vegetation.

Access to the camp site within EL5514 will be on existing tracks either via Macumba Station to the north-west or Mount Dutton the south-west. The number of people involved in the work program is expected to comprise 4 drilling crew and one geologist. Equipment is likely to be one drilling rig mounted on an 8x8 MAN truck, one support truck, one water truck, one fuel trailer and two light 4WD vehicles. The existing road access into the area may require upgrading at several creek crossings. Several new access tracks totaling approximately 4km will be required to drill several holes. Wherever possible new tracks will be created without the use of heavy machinery by driving vehicles across unprepared terrain. Where access preparation is necessary tracks will be sited to minimise the amount of vegetation disturbance and will pass around larger trees. Disturbance to the soil surface will be kept to a minimum (eg. walking the loader) so that plant roots are left in place to facilitate natural regeneration and minimise the potential for erosion. Track preparation will be kept to a minimum and will only be sufficient to meet the needs of the exploration vehicles (ie track width will approximate that of the drilling trucks). Tracks will remain clear of lake beds and potentially swampy areas. A single access track will be created from the existing main access route into each drill site;

- (e) a self-contained camp to have on-board water, containment tanks for grey waste and other effluent. General waste will be removed from the area.
- (f) Water supply for the duration of the drilling program to be sourced from two existing water bores (6042-52 on Allandale Station; Duckhole 2 on Macumba Station) shown in Figure 2;
- (g) Completion of a comprehensive Exploration Program for Environment Protection and Rehabilitation (PEPR) to minimise the environmental impact and disturbance to heritage sites;
- (h) The likely contracting (tenders are in progress) of Thompson Drilling Company to carry out the proposed drilling and David Edgecombe (Kelpie Exploration geologist) to manage and supervise the on-site operations;
- (i) The estimated site area required for drilling to include a potential disturbance of up to 600 square metres (30m x 20m) per drill hole. In addition, approximately 4 line km of new access tracks (width approximately that of drilling trucks) may be required for equipment.
- (j) topography of the land the subject of the Exploration Clearance Area comprises mostly silcrete gibber flats, undulating plains and extensive areas of self-mulching clay loams with exposed gypsum. The plains are devoid of trees and characterised by a gilgai micro-relief of low mounds and hollows covered by sparse low vegetation. The general drilling area takes in Woodmurra Creek. There is low topographic relief from ~80mASL up to a maximum of ~105mASL.

On Figure 2, the location of ten potential drill sites are shown however, it is anticipated that only 5 to 6 of these will be required to be cleared during the requested Exploration Clearance Survey.

Excerpt from a letter from Mark Dugmore to Stephen Kenny, dated the 9<sup>th</sup> of October 2015

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*



**Plate 1:** BHT Minerals Drill Hole E1, looking north from 595724/6951723



**Plate 2:** BHT Minerals Drill Hole I1, looking south from 593095/6956731



**Plate 3:** BHT Minerals Drill Hole B1, looking south from 597769/6947682



**Plate 4:** BHT Minerals Drill Hole D2, looking south from 599038/6949194

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*



**Plate 5:** BHT Minerals Drilling Campsite, looking north from 600112/6950775



**Plate 6:** BHT Minerals Drill Hole D1, looking west from 601406/6949161

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*



**Plate 7:** BHT Minerals Drill Hole G1, looking east from 599174/6954127



**Plate 8:** BHT Minerals Drill Hole GT6, looking east from 602069/6946133

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*



**Plate 9:** BHT Minerals Drill Hole L1, looking north from 603829/6952934



**Plate 10:** BHT Minerals Drill Hole L1 access, looking south from near 603932/6952733

Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia

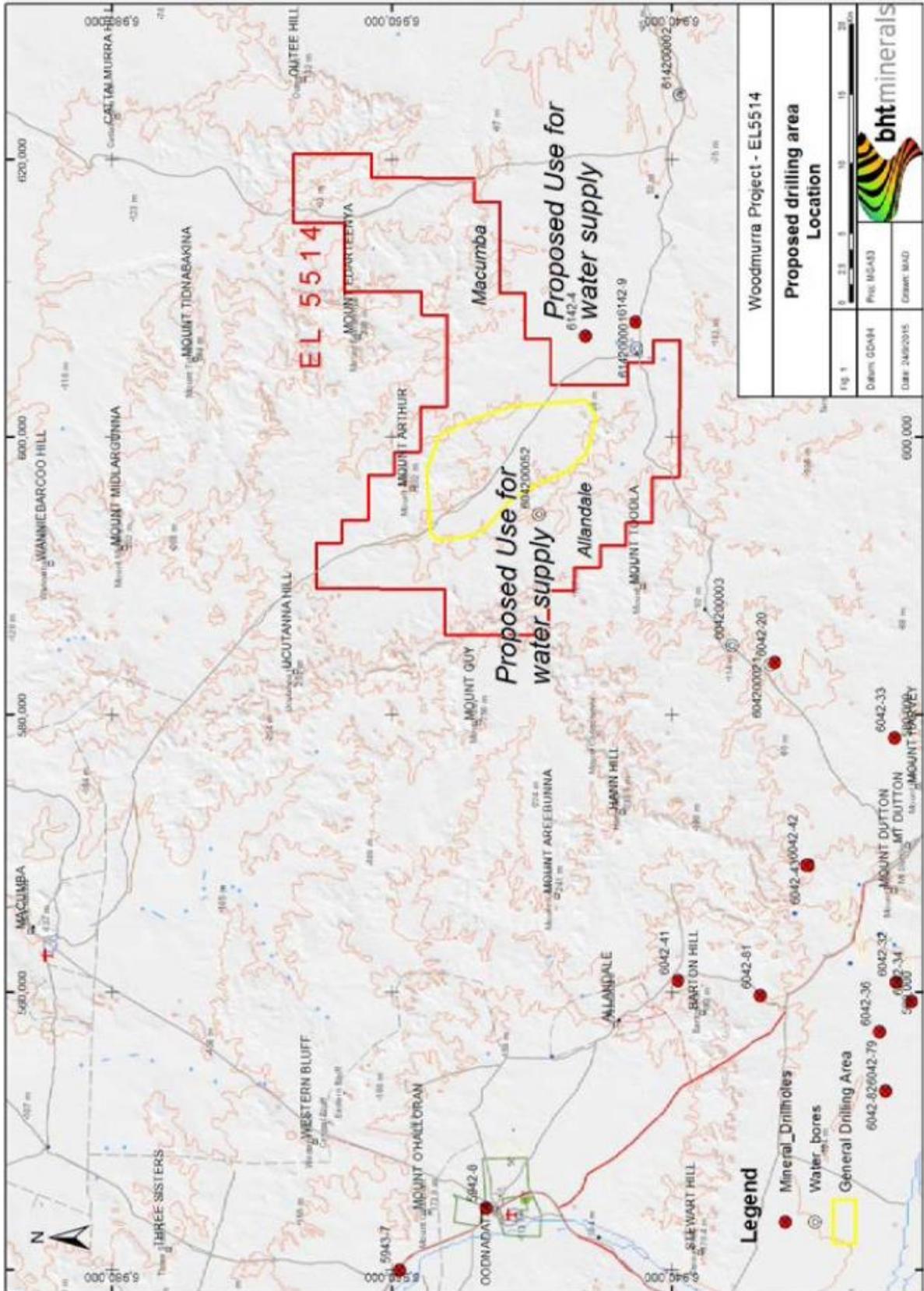
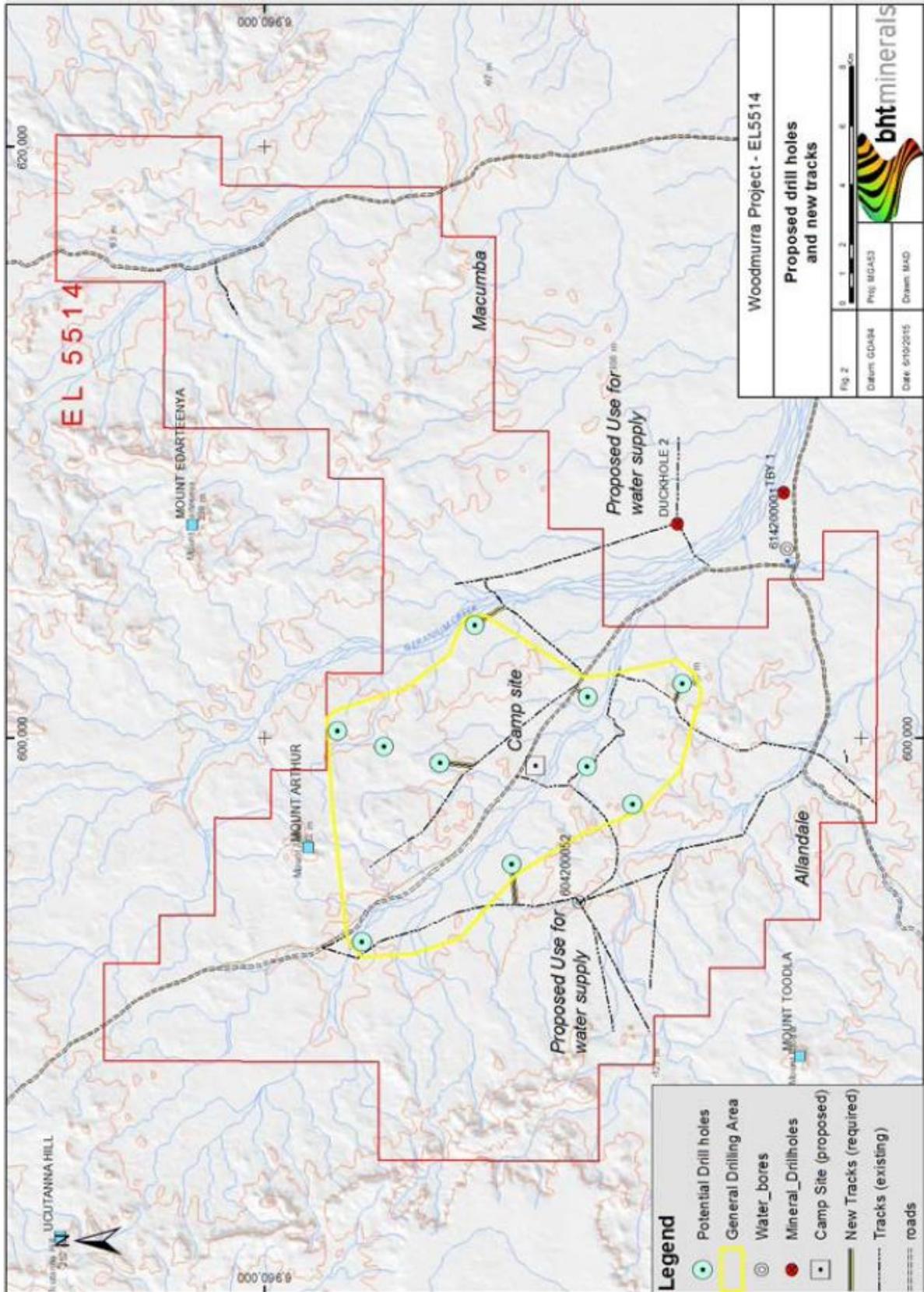


Figure 7: The location of the BHT Minerals developments on Allandale and Macumba Stations near Oodnadatta (map provided by BHT Minerals)



**Figure 8:** Close-up of the location of the BHT Minerals developments on Allandale and Macumba Stations near Oodnadatta (map provided by BHT Minerals)

Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia



Figure 9: The location of the BHT Minerals drilling site areas, shown on NATMAP 1:250,000 mapping

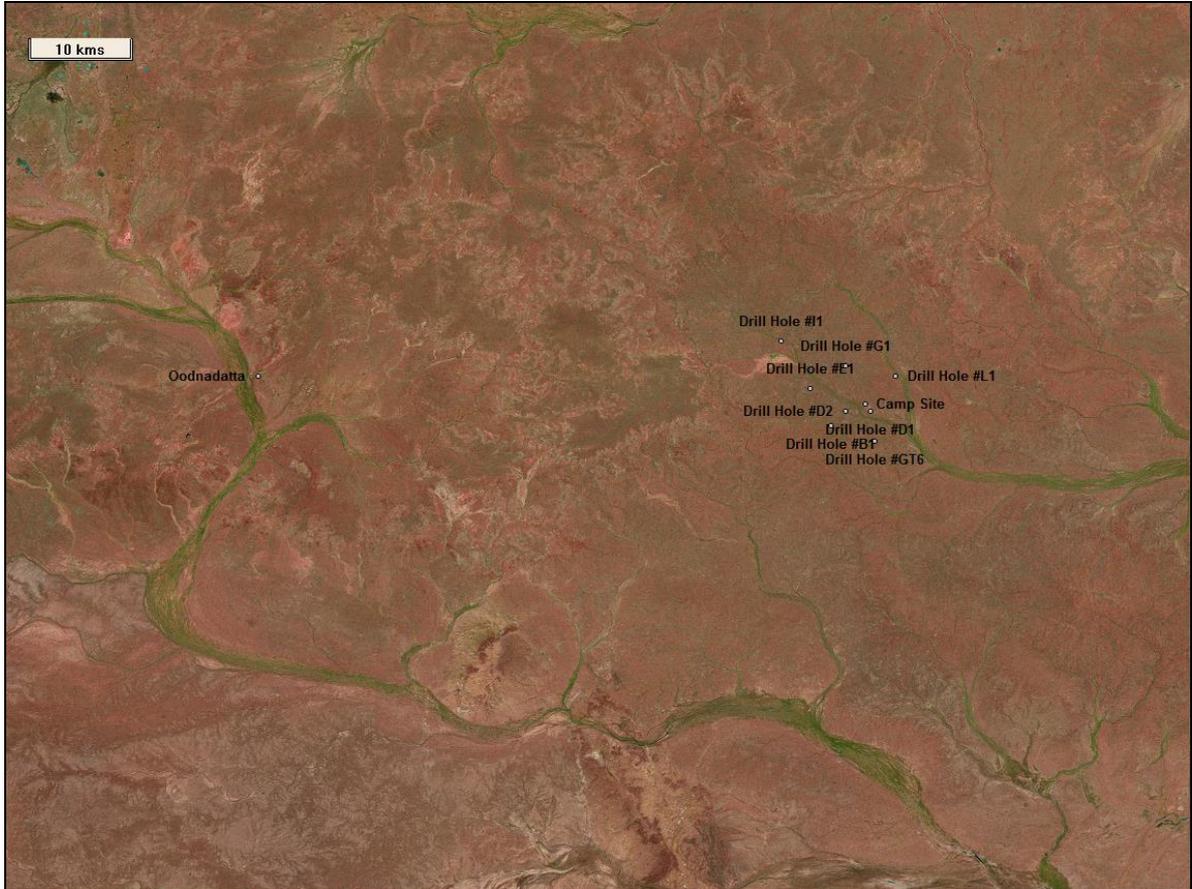


Figure 10: The location of the BHT Minerals drilling site areas, shown on NATMAP 1 Landsat 7 satellite imagery

Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia

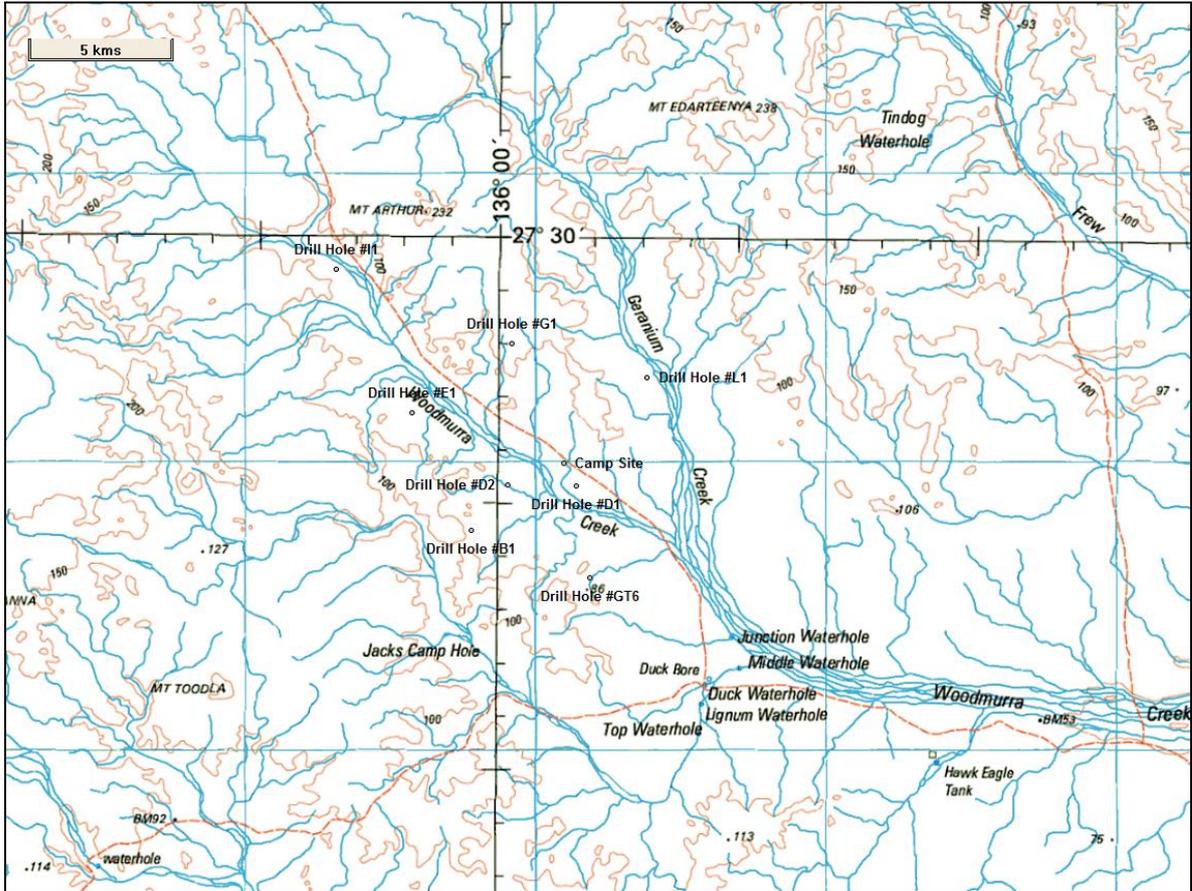


Figure 11: Close-up of the location of the BHT Minerals drilling site areas, shown on NATMAP 1:250,000 mapping



Figure 12: Close-up of the he location of the BHT Minerals drilling site areas, shown on NATMAP Landsat 7 satellite imagery

### **3.0 Consultation**

This section outlines information concerning the relevant consultation processes that were conducted as a part of this project.

#### **3.1 Consultation with BHT Minerals**

This Work Area Clearance and surveys were carried out in accordance with a formal request from BHT Minerals as the licence holders for exploration in tenement EL5514, in accordance with Schedule 3 of the draft Native Title Mining Agreement. The Work Area Clearance and surveys were also conducted under the provisions of the South Australian *Aboriginal Heritage Act (1988)* (as amended) and with the involvement, advice and co-operation of the relevant Aboriginal organisation, in this instance the Arabana Aboriginal Corporation (see Appendix 2: Relevant Communications). Advice was also sought from the Aboriginal Heritage Team of Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development, the government department charged with administering and enforcing this *Act* (see Appendix 2: Relevant Communications).

Australian Heritage Services were engaged by the Arabana Aboriginal Corporation to assist them with conducting the Work Area Clearance and by providing them with professional cultural heritage services.

#### **3.2 Consultation with the Arabana Aboriginal Association RNTBC**

BHT Minerals Pty Ltd consulted with the Arabana Aboriginal Corporation and their legal representative prior to the consultancy being awarded for this project. This Work Area Clearance was formally requested by BHT Minerals under the terms of the Arabana Native Title Mining Agreement.

This Native Title Mining Agreement outlines the rights and responsibilities of all parties involved in the Work Area Clearance process. This process included consultation that was conducted in order to explain the exact nature of the development, to organise the survey and the participation of representatives of the Arabana Aboriginal Corporation to act as community consultants in regard to the impacts (if any) of this project on Aboriginal cultural heritage. The consultation process also allows the Aboriginal stakeholders to inform, as far as possible, the consultants and the developers whether there are any Aboriginal sites in the development areas that are identified by Tradition or have other cultural significance and are therefore not cleared for development activities.

Prior to and during the site clearance maps and topographic maps at the scale of 1:250,000 of the proposed development area were shown to the Arabana clearance team and the exact nature of the developments in each area was discussed. The clearance team was accompanied for the Work Area Clearance by Mark Dugmore (Director, BHT Minerals), Andrew Brockhoff (earth works

contractor) and David Edgecombe (Consultant Geologist of Kelpie Explorations working on behalf of BHT Minerals) during the surveys. The nature and impacts of the development in each area surveyed were discussed and their potential impacts on heritage sites were considered as a part of this process (see Plates 11&12).

Robert Barnes, Ken Buzzacott, Robert Forrest and Joseph Hull who are all members of the Arabana Aboriginal Corporation, acted as cultural heritage representatives and community consultants during the December 2015 Work Area Clearance. Ken Buzzacott, Robert Forrest, Amy Khan and Jodie Warren Hull acted as cultural heritage representatives and community consultants during the February 2016 Work Area Clearance. Aaron Stuart, Chairperson, appointed the members of both of the Work Area Clearances. The first survey was conducted on the 20<sup>th</sup> of December 2015 with Sean Freeman, archaeologist. Taryn Debney and Sean Freeman, archaeologists, together with the Arabana representatives, formed the survey team and conducted the second survey on 6<sup>th</sup> of February 2016, with a day either side for travel.

The Arabana Aboriginal Corporation has been supplied copies of this draft report for their comment. A response from the Aboriginal stakeholders is usually supplied to the consultant concerning the draft report, in order to state their opinion concerning the proposed development and its impact (if any) on the Aboriginal heritage of an area. This information is then included in the final report to the developer so that all activities on the ground will not impact on any areas of significance found during the Work Area Clearance surveys. Upon receipt of the draft, Aaron Stuart, Chairperson of the Arabana Aboriginal Association RNTBC, approved the draft. The report was then finalised.

### **3.3 Consultation with Aboriginal Affairs and Reconciliation (AAR)**

Advice was also sought from the Aboriginal Heritage Team of Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development. A letter from the consultants was written to Aboriginal Heritage Team of Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development on the 21<sup>st</sup> of January 2016 to enquire about whether there were any existing records for Indigenous archaeological or anthropological sites within any of the study areas, or in close proximity. Two letters were provided by Perry Langeberg, Senior Information Officer (Heritage) on the 4<sup>th</sup> of February 2016, advising that two previously recorded sites were present in close proximity to the general study area. Further information on these sites is included in Section 4.1.2; see Appendix 2 to view a copy of the letters received by the consultants from AAR.

## **4.0 Archaeology**

### **4.1 Background Research**

To understand the regional archaeology and assist with the development of a site prediction model for the study area, background research was carried out. This involved an AAR-assisted search of the Central Archives and Site Register (see Section 4.1.1 below), as well as a literature search and examination of published material on regional archaeological studies.

#### **4.1.1 The Site Register**

An examination of the Central Archive (including the Site Register), which is maintained by Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development is usually conducted prior to embarking on field work in this type of Aboriginal Heritage survey.

The Central Archive houses site cards, consultancy reports and other documentation for all registered and reported Aboriginal sites.

“There are more than 6,427 Aboriginal heritage sites recorded in the Central Archive. Of those 3,429 have been entered on the Register of Sites and Objects, 2,996 have been reported to the Central Archive, and two sites have been archived.”

DAIS Annual Report 2004: 24

The Central Archive contains information about the types of Heritage sites that have been recorded in the state of South Australia and are protected by the *Aboriginal Heritage Act (1988)* (as amended). A study of these records indicates whether a registered site or object is present in a proposed development area and also helps to predict the types of Aboriginal sites that might be found in an area of proposed developments. This information is then used in determining the potential of a proposed development to impact on registered or previously unrecorded Aboriginal sites and other areas of cultural significance.

Access to non-confidential reports held in the Central Archive and access to non-confidential site cards is available on application, with the written approval of the relevant Aboriginal heritage organisation or individual.

Under Section 12(3) of the *Act* on application for activities that may impact on Aboriginal sites the Minister must provide the applicant the location of sites that may be impacted by the development. The Minister must also provide sufficient information on confidential sites to the applicant in order to avoid damage to sites but does not necessarily have to provide the exact location of the site (under Section 10 [1c] of the *Act*).

A GIS search of the Register of Sites and Objects was conducted in order to determine whether the proposed BHT Minerals exploratory activities in the study area within EL5514 will affect any

reported or registered Aboriginal Sites. An emailed enquiry was sent to AAR on the 21st of January 2016 along with consent forms signed by Aaron Stuart, Chairperson for the Arabana, to permit the consultants to gain access to the AAR Central Archive including the Register for Sites and Objects. Two letters were received from AAR on the 4<sup>th</sup> of February 2016 and stating that two sites have been recorded or registered within the study areas within EL5514. These letters are included in Appendix 2.

#### **4.1.2 Previously Reported Sites in the Study Area**

There are two reported or registered sites listed on the AAR Register for the study areas, both of these are mythological sites (see Figures 13&14 and Appendix 2). None of the proposed developments are located near these sites. The exact location of these sites has been masked in Figures 13&14 in order to comply with the confidentiality provisions of the *Act*.

It is an offence to damage, disturb or interfere with any Aboriginal site or damage any Aboriginal object (registered or not) without the authority of the Minister for Aboriginal Affairs and Reconciliation (the Minister). If the planned activity is likely to damage, disturb or interfere with a site or object, authorisation of the activity must be first obtained from the Minister under Section 23 of the *Act*.

#### **4.1.3 Literature Search**

Numerous archaeological studies have been made of the region, with major attention to the mound springs groups including those of Lake Eyre and Lake Frome completed by Kinhill-Sterns in 1985 for the Olympic Dam EIS, Florek (1993) on the Lake Eyre group mound springs, and Lampert (1985a, 1985b) on the Dalhousie group of springs. In general it has been observed that artesian springs were reliable water sources and hence foci of human occupation at least during the Holocene, as reflected in the density and variety of artefact types present. The nature and proximity of two important factors, sand to camp on and suitable raw materials for artefact manufacture, were regarded as influential in the nature and distribution of sites associated with mound springs. Hughes and Lampert (Kinhill-Sterns 1985) demonstrated that the largest and most significant sites were those which were adjacent to springs of good quality spring water where the flow was strong and distant from other springs, where there are sand dunes adjacent to the springs, and where good sources of raw material are close by the spring for the manufacture of stone artefacts.

The importance of water sources, sand dunes for comfortable camping and close proximity to good quality stone sources in the mound springs studies can also be extrapolated to more westerly areas within Arabana territory. Reports on archaeological investigations of the arid zone of central Australia, such as Hughes' 1980 and 1983 studies of the Strzelecki Desert and the Moomba Gas

Work Area Clearance for the Wudmura Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia

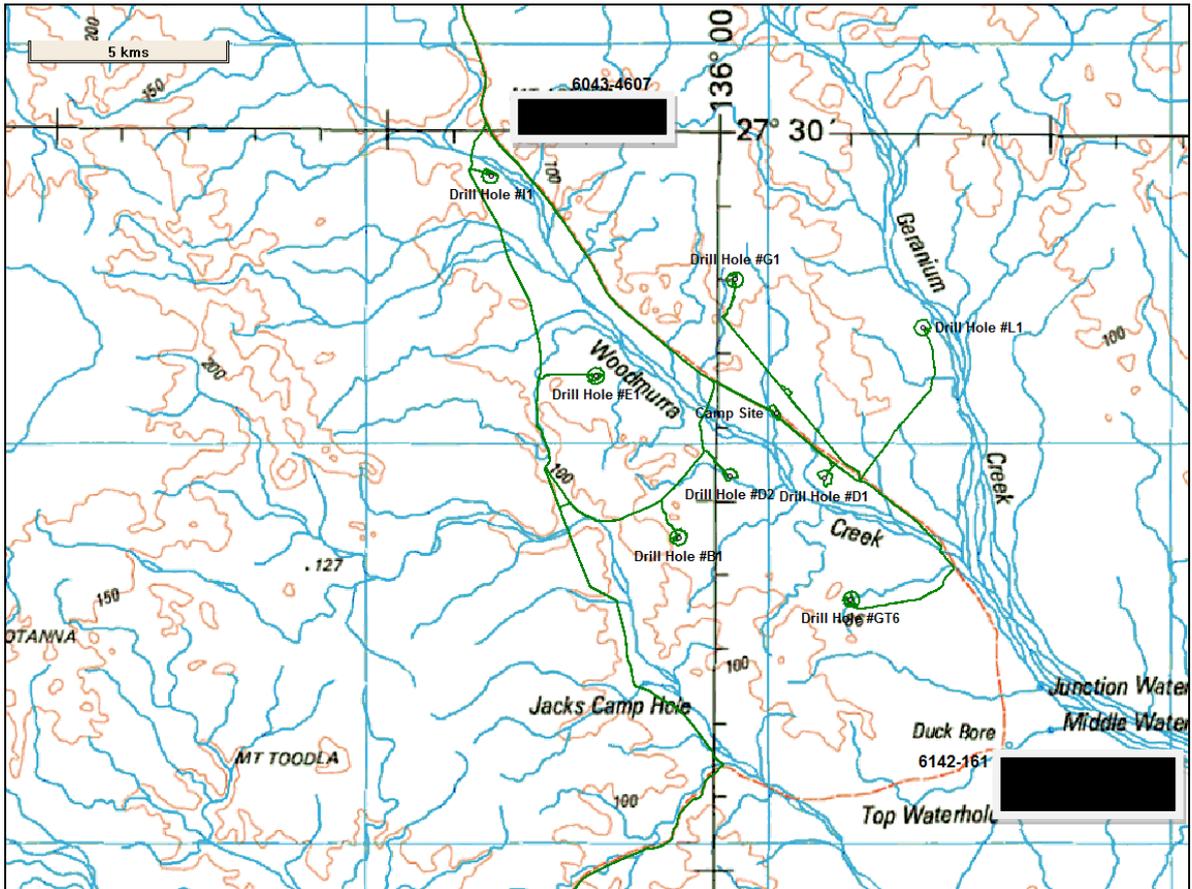


Figure 13: BHT Minerals developments and the two heritage AAR listed heritage sites, shown on NATMAP 1:250,000 mapping

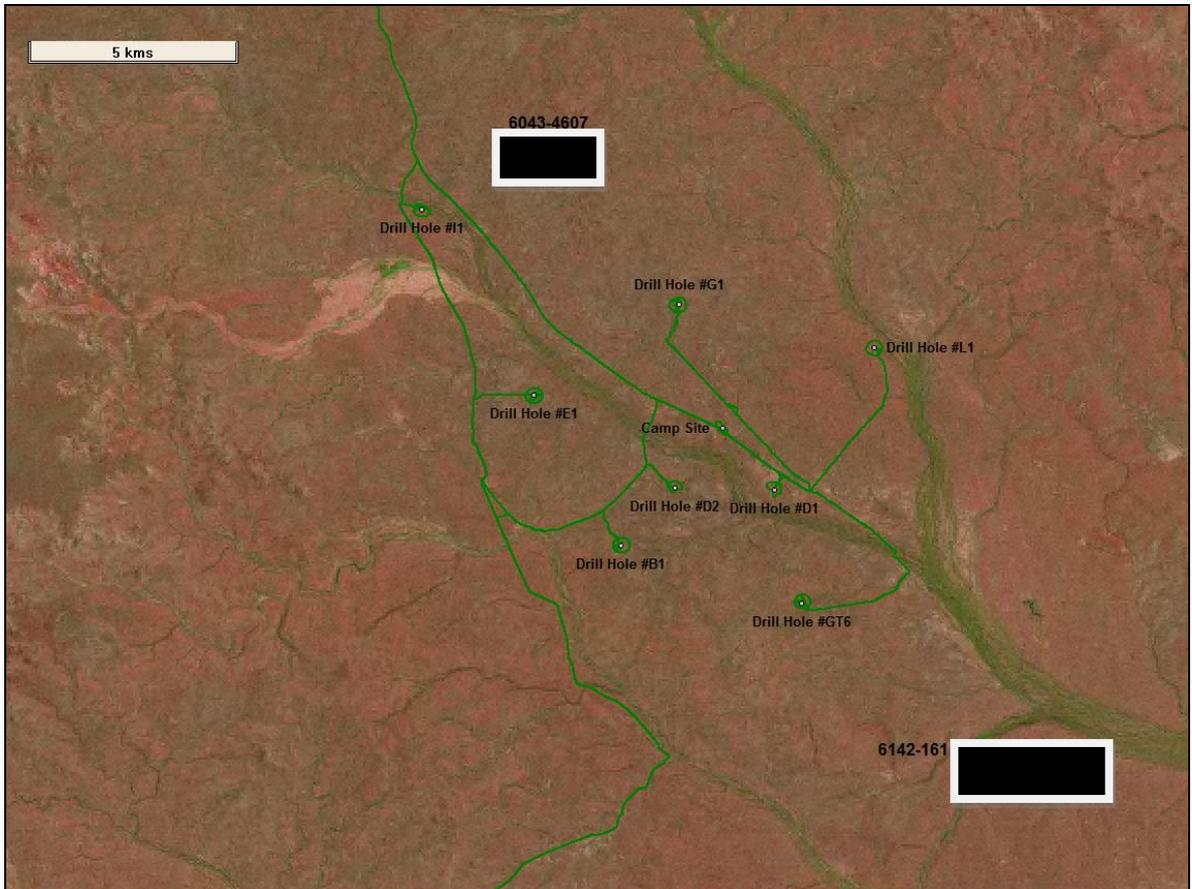


Figure 14: BHT Minerals developments and the two heritage AAR listed heritage sites, shown on Landsat 7 satellite imagery

Field and numerous studies (Hughes 1980, 1981, 1983; Hughes and Hiscock 1981; Hughes, Hiscock and Rhoads 1982; Hughes and Lampert 1980) are relevant here. These surveys all observed that the nature and interplay of stone artefact scatters and quarries were strongly influenced by three interconnected factors: proximity to fresh water, raw materials for flaking and a wide range of artefact types (Hughes et al 1986:9).

Specifically concerning mound springs, Hughes and Lampert (1985:28) noted that two-thirds of mound springs sites examined (32 in total) were considered major significant sites. A total of 21 sites were at least 2,500 square metres in area but were commonly much larger, had a maximum density of 150-600 artefacts per square metre, with minimum densities of not less than 10 per square metre, and with minimum numbers of artefacts of at least 100,000 with average numbers of approximately 1,000,000.

In general all the studies reporting on the nature and distribution of archaeological sites in the arid north of south-Australia found that:

- The largest and archaeologically most significant sites occur on sand dunes next to large water-holding depressions and creeklines. These sites commonly have high artefact densities with a wide range of artefact types. Nearby quarries add another perspective and result in the presence of knapping floors being present in the sites.
- Where there are dunefields with widely spaced dunes, similar but less dense and frequent sites occur, particularly on the dune crests. Where dunes are adjacent to water-holding claypans sites occur more frequently, featuring higher artefact densities, and greater variability in tool types and raw materials. Where sites are adjacent to sources of raw material, sites mostly comprise knapping floors with low artefact diversity.
- The densest archaeological sites occur on dunes adjacent to areas where water-holding claypans or depressions, and quarries occur in close proximity.
- Where dunes merge to form sandsheets sites are less frequent, and smaller, due to the lack of water and raw material sources.
- On stony country away from dunes, claypans and depressions, sites occur very infrequently and are usually small localised quarries and knapping floors. Where sites are present their size and density reflect the frequency with which the raw material has been utilised.
- The vast majority of sites are likely to date to within the last 5000 years.
- Burials are possible in sand dunes, however it should be noted that in arid northern South Australia burials are very uncommonly recorded. Hughes et al 1986 note that this is likely to be a function of the lack of carbonate in desert dunes in the region, and the minimal amount of carbonate is quickly leached to the dune core (1986:8), meaning that skeletal material is not well preserved in this environment.

A literature search was also carried out of all available reports written on mythological site types in the study area. These reports included numerous reports by Luise Hercus together with maps held by the Arabana Aboriginal Association and the consultant that document known mythological sites of significance. No sites were recorded within the study area.

#### **4.1.4 Site Prediction Model**

Archaeological site investigations in arid northern South Australia are valuable in helping to develop a site prediction model for sites in the present study areas. The model for the study areas is closely based on the findings described above and linked to the environmental zones that are going to be impacted by the developments; it is as follows:

##### **Gibber Plains**

- On stony country such as the gibber-strewn plains which are covered in fine sediments and gibber cobbles, archaeological potential is likely to be much lower. Possible site types might include localised examples of knapping floors or quarries if silcrete gibbers have been used as stone sources, or if there are outcropping Bulldog Shale boulders. Gibbers may also have been used for stone arrangements. Where these plains intersect with creek lines however, the likelihood is much greater for artefact scatters to occur along the boundary of the waterway. Water scouring can also expose layers of otherwise buried quartzites which are exposed in section along creek corridors, enabling knapping of material in dry creek channels.

##### **Creeks**

- Creeks in the study area, which include the Geranium and Woodmurra Creek systems and their tributaries may feature sites strewn along their margins if certain conditions are met. These are typically close proximity to potable water such as would be found at a waterhole, and/or suitable stone for quarrying. Bulldog shale silcretes and quartzites may have been exposed where creeklines have cut down through and exposed silcrete capping, so possible campsites, localised knapping events or quarries are a possibility. A number of the proposed drilling site locations, such as Drill Hole #L1 (located next to Geranium Creek); Drill Hole #D1, Drill Hole #D2, Drill Hole #G1, Drill Hole #GT6, Drill Hole #I1 and the drilling campsite (all located next to Woodmurra Creek systems and its' tributaries) are close to such water channels.

## **5.0 The Survey**

### **5.1 Survey design and method**

Prior to the commencement of the survey the work area clearance team examined the project brief and topographic maps showing the study areas. On the first survey in December 2015 Mark Dugmore and Dave Edgecombe gave a short presentation to the crew showing numerous maps of the study areas in order to explain the reasoning behind the drilling program. Mark Dugmore gave a similar short presentation to the crew on the second survey in February 2016. The nature and extent of the drilling program were also discussed. The company representatives also indicated to the clearance team the boundaries of the study areas, campsite location and the access track to and from the drilling areas.

The approach used for conducting this work area clearance was modelled on Bird (1992) and focuses on understanding the connection between pre-contact Aboriginal societies and their environment, and reconstructing past land-use patterns in light of this. It allows predictions to be made about the potential location of cultural material based on cultural factors, such as human dependence on water, and environmental factors, such as the location and position of water and other habitable landform types, which can be tested and refined through systematic field survey (Bird 1992).

Unfortunately there has not been a great deal of published archaeological investigations focussing specifically on the western Lake Eyre region, with the more easterly mound springs being the subject of more focussed research. The presence of the mound springs, being a permanent water source in an environment of extreme aridity, is significant however and would have been a major influencing factor in the seasonal movement of people.

Whilst there is a lack of detailed, published archaeological survey results in these areas, it is reasonable to expect that the density and complexity of sites will be highest when these landform units are in close proximity, within the study areas that are the subject of this work area clearance. The site prediction model developed in Section 4.1.4 reflects the compiled site data from similar environments in arid northern South Australia. A landform-based field survey was therefore considered the most relevant to the survey results in this case, as it can test the site prediction model given the absence of available detailed archaeological survey data, a limited archaeological record within the region of the study areas.

At the commencement of the WAC the two vehicles carrying the WAC group carried out the survey. In each team the vehicles would drive slowly, with all passengers scanning the ground surface for archaeological material (see Plate 11). The teams conducted pedestrian surveys of all areas that were likely to contain sites or archaeological material. The development areas that were

examined on foot those were that were located close to creeklines or drainage channels of the Geranium and Woodmurra Creeks (see Plate 12). If cultural heritage material had been detected the group would have then stopped the vehicles and have conducted a detailed ground survey to determine the density and extent of any sites that were encountered. If sites had been found the archaeologist would then record the site with a hand-held GPS, take photographs and discuss the conditions attached to each site with the group. The group would then determine an appropriate buffer zone around sites to protect them from the drilling program. Detailed instructions together with waypoints and track file data would then be included in Appendix 1 of the report for the project to ensure that each identified site would be avoided and protected.

Discussions were held with the Arabana representatives during and after the survey in order to gain their opinions concerning the importance of the proposed drilling program to Aboriginal Heritage and effects that the development would have on any places of significance.

## **5.2 Constraints on the Survey**

There were no significant constraints to the Work Area Clearance being carried out fully, although there was some native vegetation present in most of the clearance areas which may have partially obscured the ground surface. The survey was designed on a landform-based predictive model, hence it is possible that there are unrecorded sites present in the study area. Any such sites are expected to conform to the site prediction model and survey results.

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*



**Plate 11:** BHT Minerals December WAC, looking west from 595724/6951723



**Plate 12:** BHT Minerals Drill Hole I1 clearance area, looking north from near 593051/6956862

## **6.0 Survey Results**

*The Arabana Aboriginal Association RNTBC has recommended that the drilling program within the cleared area on EL5514 that was undertaken by the clearance team on the 20<sup>th</sup> of December 2015 and the 6<sup>th</sup> of February 2016 with Mark Dugmore (Director, BHT Minerals), Andrew Brockhoff (earth works contractor) and David Edgecombe (Consultant Geologist of Kelpie Explorations) from and on behalf of BHT Minerals, proceed, upon BHT Minerals' compliance with the locations specified in Appendix 1.*

There were no archaeological or other cultural sites identified during the Work Area Clearance Program of the exploration area on EL5514 that contained cultural material and/or were places of significance to the Arabana native title representatives (see Appendix 1).

### **6.1 Previously Registered or Reported Sites on the AAR Central Archive**

There are no recorded or registered archaeological or mythological sites recorded on the Central Archive for these development areas within EL5514. There were two mythological sites registered within the vicinity but they are both located some distance away from the work areas. Neither of these sites will be impacted by the drilling program proposed by BHT Minerals within the study areas.

### **6.2 Cultural and Archaeological Sites and Issues**

There were no sites identified during the Work Area Clearance Program that contained archaeological material and/or were places of significance to the Aboriginal representatives on the site inspections.

There were no places that were identified during the Work Area Clearance Program that contained archaeological material and/or were places of significance to the Aboriginal representatives on the site inspections found in, or adjacent to, the study area locations. The extent of the cleared area was recorded during the Work Area Clearance and the details are included in Appendix 1 to this report. The route of the WAC team during the Clearances in relationship to the development areas is shown in blue (December 2015) and red (February 2016) on the following mapping (see Figures 15-19).

Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia

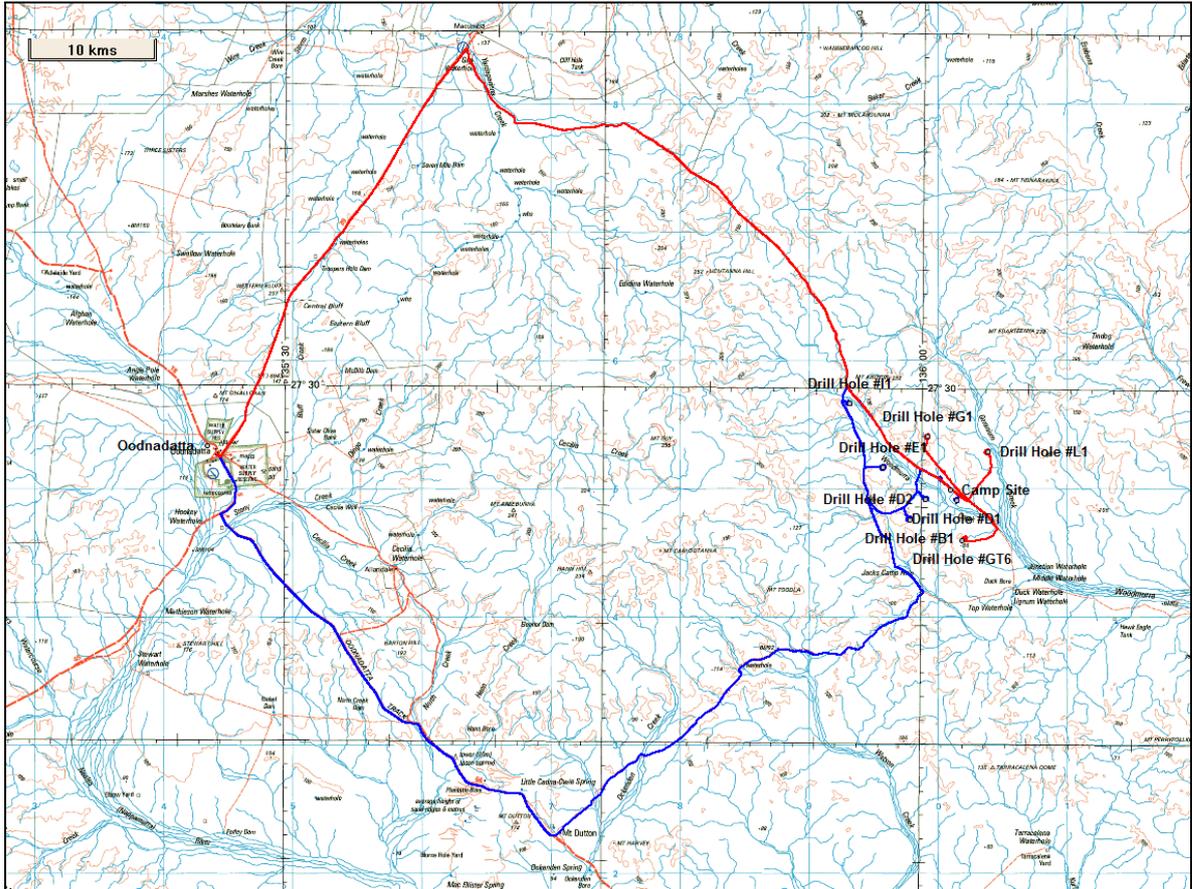


Figure 15: Routes traversed by WAC teams, December 2015 in blue and February 2016 in red, shown on 1:250,000 mapping

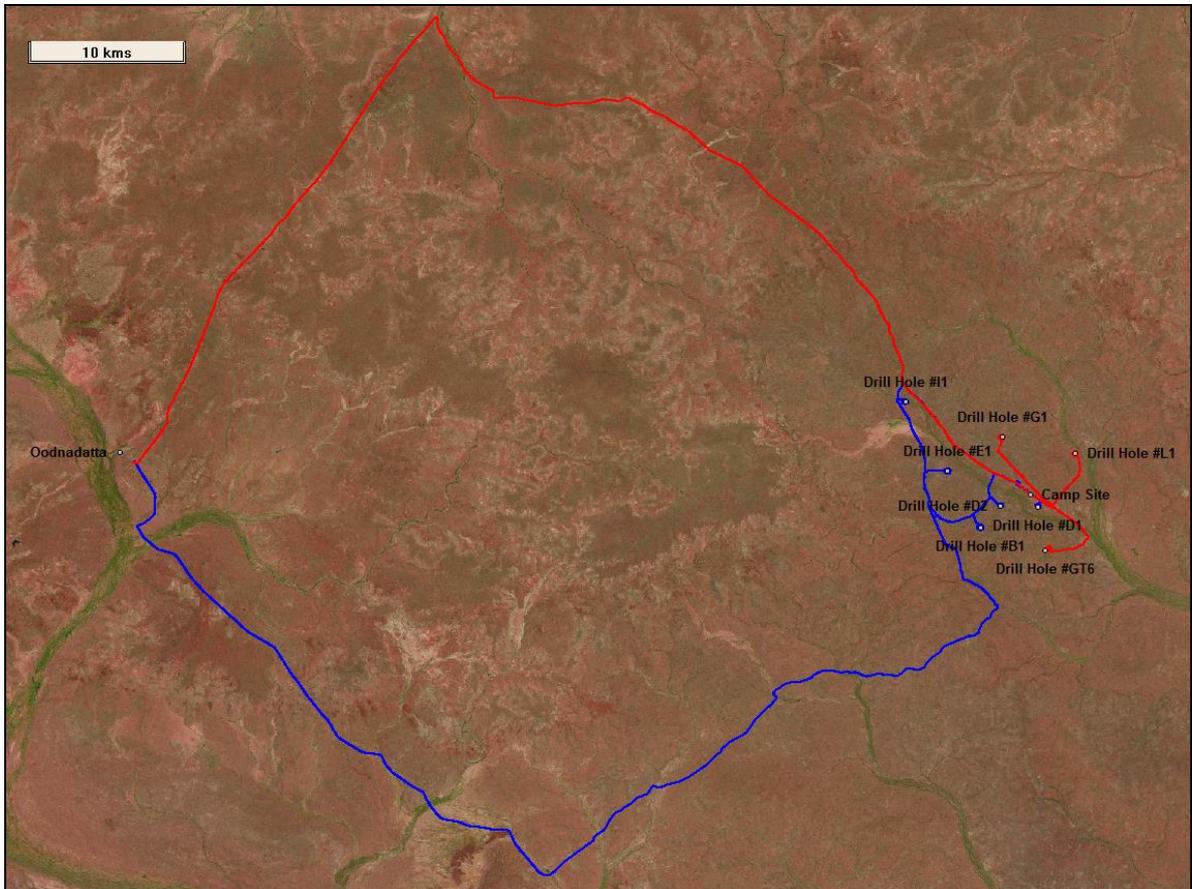


Figure 16: Routes traversed by WAC teams, December 2015 in blue and February 2016 in red, shown on Landsat 7 satellite imagery

Work Area Clearance for the Wudmura Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia

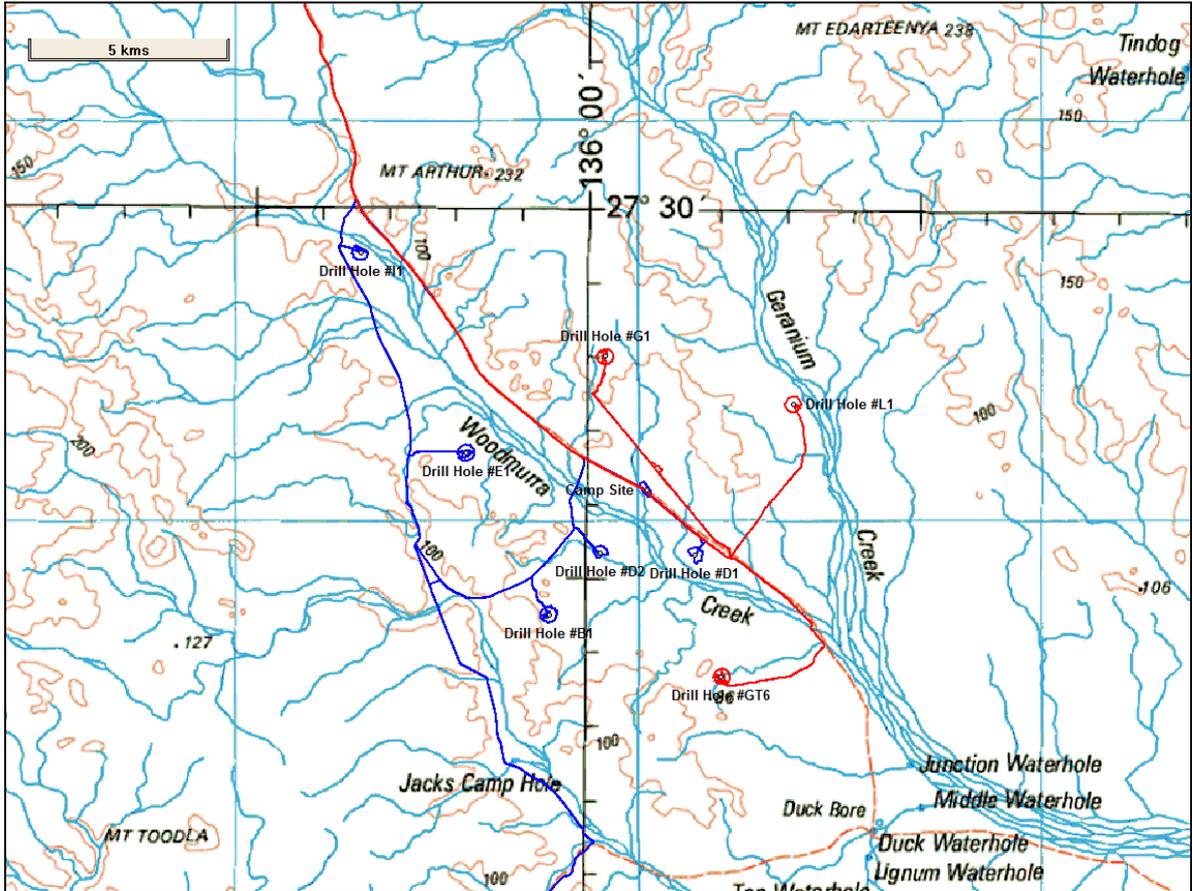


Figure 17: Close-up of the routes traversed by WAC teams, December 2015 in blue and February 2016 in red

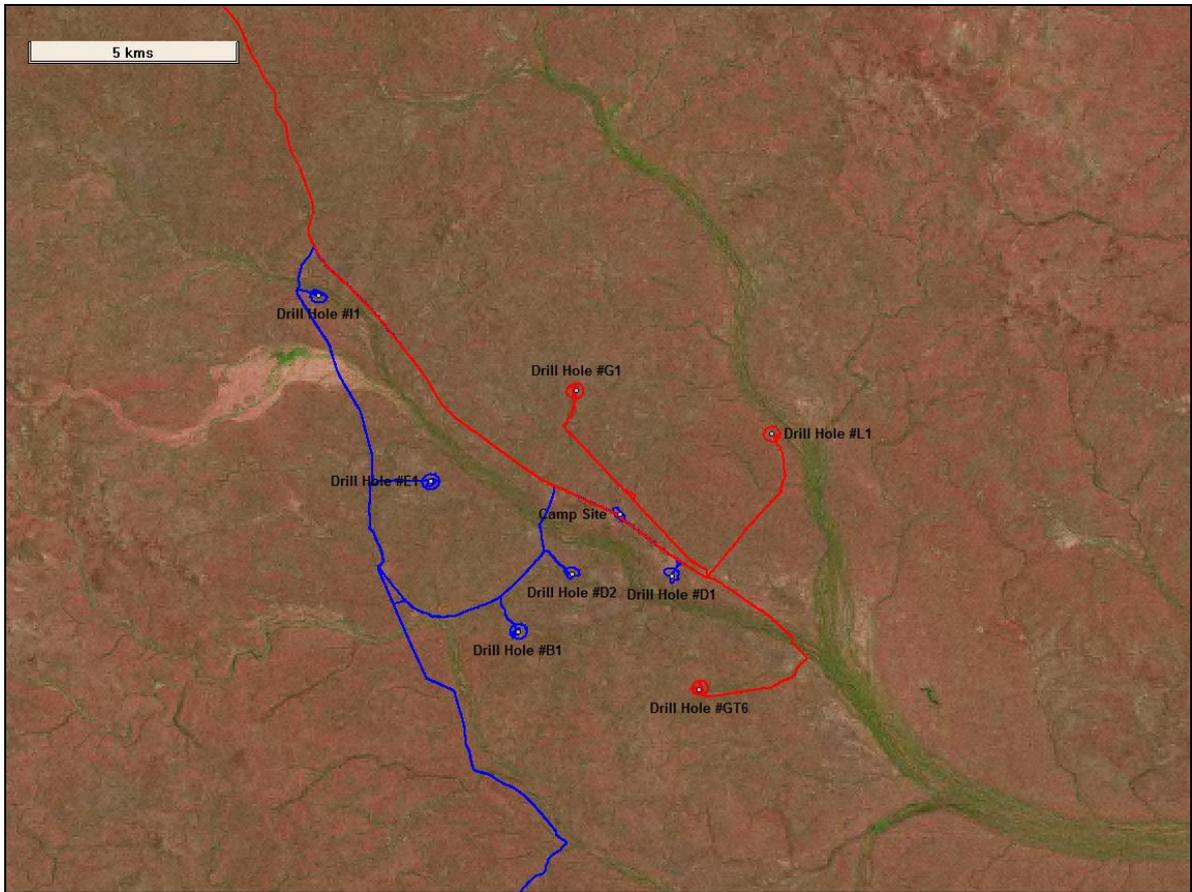


Figure 18: Close-up of the routes traversed by WAC teams, December 2015 in blue and February 2016 in red

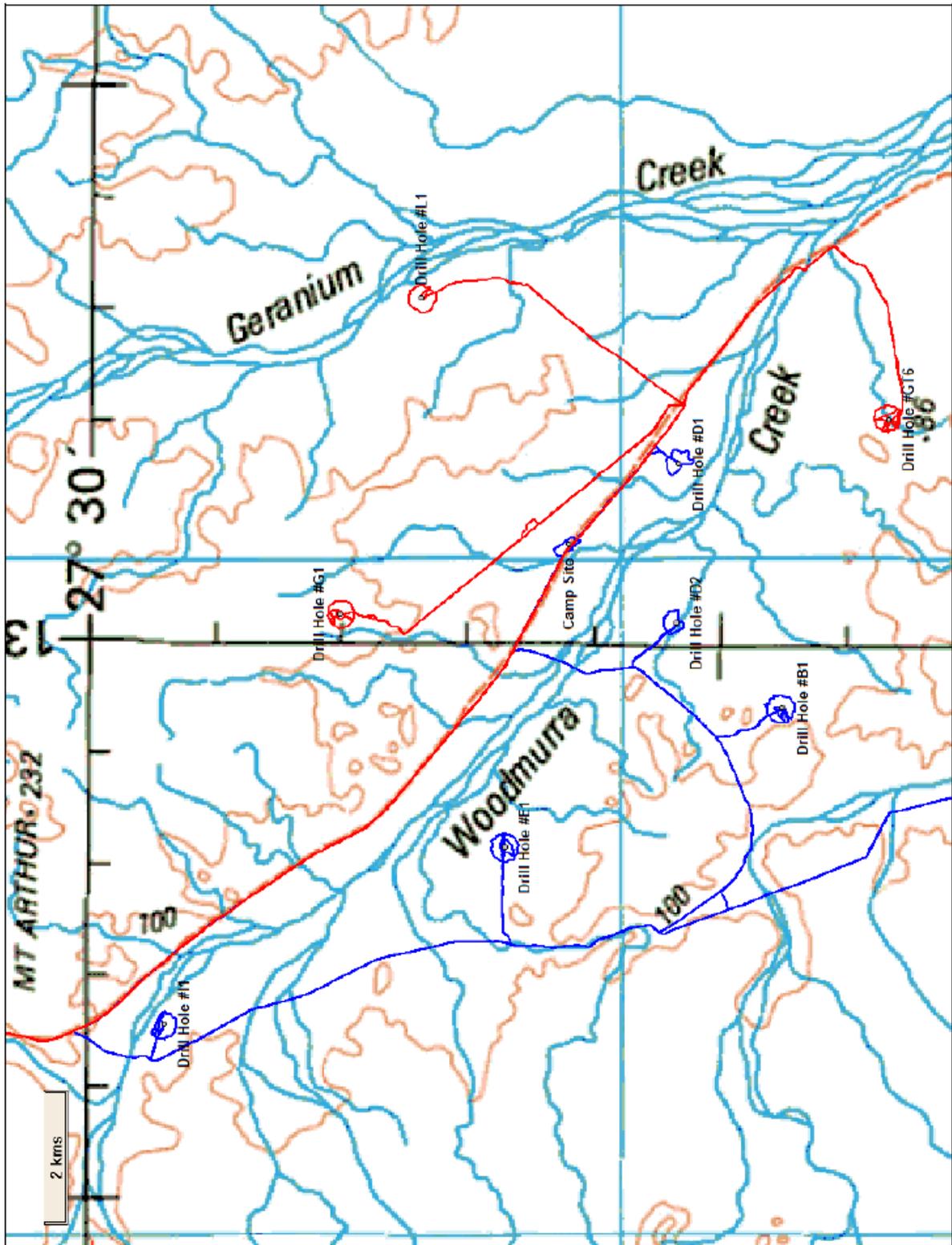


Figure 19: Close up of WAC survey routes, December 2015 in blue and February 2016 in red, shown on NATMAP 1:250,000 mapping

## **7.0 Assessment of Significance**

There were no places discovered during this survey that required assessment in terms of cultural or scientific significance. If sites had been found they would have been assessed in accordance with accepted significance criteria under the *Aboriginal Heritage Act 1988*, hence a brief summary of the terminology and the process for reference for all of the stakeholder parties is included below.

It is possible that other previously unknown Aboriginal sites or cultural material may be discovered during the development process and if this occurs the following set of criteria will need to be applied.

### **7.1 Criteria for significance assessment**

The South Australian *Aboriginal Heritage Act (1988)* defines a site as being an area of land:

- "a) that is of significance according to Aboriginal tradition;
- or
- b) that is of significance to Aboriginal archaeology, anthropology or history"

The *Act* defines 'Aboriginal tradition' as

"...traditions, observances, customs or beliefs of the people who inhabited Australia before European colonisation and includes traditions, observances, customs and beliefs that have evolved or developed from that tradition since European colonisation."

There are a number of different considerations that affect the assessment of the significance of cultural heritage:

- Aboriginal significance - how the site/area is viewed in terms of significance by the local Aboriginal community, in this case the Arabana Aboriginal Corporation
- Research/scientific potential of a site or an area, this is based on a number of considerations including the site's contents, structure and integrity
- Heritage value - the value that a site has to benefit the general public aesthetically or educationally.

### **7.2 Effects of proposed mineral exploration activity on Cultural Heritage**

There will be no impacts by this project on any cultural or archaeological sites, or landforms of archaeological sensitivity, if a strategy of avoidance based on the results of this Work Area Clearance is adhered to.

If an archaeological site or cultural material is encountered during the construction of this development it will then be necessary for the developer to inform the Arabana Aboriginal Association RNTBC and possibly to apply to the Minister of Aboriginal Affairs for a determination under Section 12 of the South Australian *Aboriginal Heritage Act (1988)* (as amended). If the site is determined to be an Aboriginal Site and subsequently registered it is still possible to continue development activities if an authorisation by the Minister under Section 23 of the *Act* is issued in order to continue activities that may damage or destroy that site.

## **8.0 Recommendations**

1. The Arabana Aboriginal Association RNTBC has recommended that the proposed BHT Minerals drilling program for the proposed clearance areas within EL5514 should go ahead subject to BHT Minerals and their contractors' compliance with the locations recommended in Appendix 1 to this report.
2. It is recommended that all activities and access are restricted only to those areas given clearance and that all personnel access the drilling areas using only the cleared access tracks from established roads, tracks or fence lines.
3. Culturally sensitive landforms comprising claypans, water-holding sandy depressions, sand ridges and dunes, creek lines and banks, hills, outcropping stone sources including silcrete gibber boulders, breakaways and ranges are to be avoided during all exploration and development activities.
4. It is recommended that if BHT Minerals conduct any future works after their exploration drilling program within the area given clearance, those areas be subject to further Work Area Clearances in order to assess them for impacts to cultural heritage.
5. As the South Australian *Aboriginal Heritage Act (1988)* (as amended) provides possible protection for any previously unknown sites or archaeological material that may be discovered during the development process, it is advisable that any earthworks or excavations be conducted with the exercise of due care by the machine operators conducting the work.
6. In the event of Aboriginal cultural material being exposed it is advised that all development work that could impact on any material of cultural or scientific significance should cease immediately. In South Australia an assessment must then be made either by staff of the Aboriginal Heritage Team of Aboriginal Affairs and Reconciliation (AAR) of the SA Department of State Development, or an independent archaeologist, and the relevant Aboriginal Heritage organisation, in this instance the Arabana Aboriginal Association. A site card would then be provided documenting the site. If the site could not be avoided from further impact, or if the site was disturbed or destroyed, a determination under Section 12 of the *Aboriginal Heritage Act (1988)* should be sought, in order to determine what appropriate action should be taken.

## **Telephone Contacts:**

### **Arabana Aboriginal Corporation RNTBC**

**Chairperson** Aaron Stuart

Care of Stephen Kenny

### **Camatta Lempens Pty Ltd**

Lawyers

Level 1, 345 King William Street

Adelaide SA 5700

Mobile: (0419) 842 464

Email: [nullar45@gmail.com](mailto:nullar45@gmail.com)

### **Legal Representatives**

#### **Camatta Lempens**

Contact Person: Stephen Kenny or Emma Riggs

(08) 8410 0211

### **State Aboriginal Heritage Committee**

Contact Person: Chairperson

(08) 8226 8900

## **9.0 Bibliography**

Bird, C.F.M. 1992, 'Archaeology of the Goulburn River Basin. A Background Study', unpublished report prepared by Victoria Archaeological Survey, Melbourne.

Bird, C.F.M. and Frankel, D. 1991, 'Chronology and Explanation in western Victoria and south-east Australia', *Archaeology in Oceania*, vol. 26, pp. 1-16.

Cowley, W.M. and Martin, A.R., 1991 Geology of the Kingoonya 1:250,000 Map Sheet Area, Report Book 91/41, Regional Geology. Department of Mines and Energy, South Australia.

Florek, S.M. 1993. Archaeology of the mound spring campsites near Lake Eyre in South Australia. Unpublished PhD Thesis University of Sydney, 1994.

Hercus, L. n.d. *The Lake Eyre Basin as a Cultural Landscape*.

Hercus, L. And Sutton, P., 1985 *The Assessment of Aboriginal Cultural Significance of Mound Springs in South Australia*. South Australian Department of Environment and Planning.

Hughes, R., 1980 Aboriginal archaeological sites in the Santos development areas at Redcliff and in the Cooper Basin. A report to Santos Ltd through Natural Systems Research P/L, Port Melbourne, Victoria.

Hughes, R., 1981 Olympic Dam Project: regional testing of the baseline archaeology predictive statement. A report to Roxby Management Services P/L through Kinhill P/L, Adelaide.

Hughes, R., 1983 An archaeological survey of the replacement Moomba-Wilton Gas Pipeline, Strzelecki Desert, SA., Anutech, Canberra.

Hughes, R. and Hiscock, P., 1981 Olympic Dam Project – baseline archaeology study. A report to Roxby Management Services P/L through Kinhill P/L, Adelaide.

Hughes, R., Hiscock, P. and Rhoads, J., 1982 Olympic Dam project archaeology study: the 1982 project area, townsite and pipeline corridor surveys – methodology and results (Vol. 1). A report to Roxby Management Services P/L through Kinhill P/L, Adelaide.

Hughes, P. And Lampert, R.J., 1980 Pleistocene occupation of the arid zone of Australia: research prospects for the Cooper Creek-Strzelecki Desert region. *Australian Archaeology* 10:52-67.

Hughes, P.J. and Lampert, R.J. 1985. Cultural and natural heritage survey of mound springs in South Australia: assessment of Aboriginal archaeological significance. Unpublished report to Kinhill Stearns.

Hughes, P., Lampert, R., English, B. And Sim, R., 1985 *The Assessment of Aboriginal Archaeological Significance of Mound Springs in South Australia*. South Australian Department of Environment and Planning.

Kingoonya 1:250,000 geological map sheet, Department of Mines and Energy, Geological Survey.

Lampert, R., 1981 Archaeological Reconnaissance on a Field Trip to Dalhousie Springs *Australian Archaeology*, No. 21 (Dec., 1985), pp. 57-62.

Laut, P., Heyligers, G., Keig, G., Loffler, E, Margules, C. and Scott, R.M., 1977 *Environments of South Australia Handbook*. Canberra, CSIRO.

Marla-Oodnadatta Soil Conservation Board (SA) & Natural Heritage Trust (Australia) & South Australian Department of Water, Land and Biodiversity Conservation. 2002 *Marla-Oodnadatta Soil Conservation Board District Plan*

## **Appendix 1:**

### **BHT Minerals**

### **December 2015 and February 2016 Work Area Clearances**

### **BHT Minerals Prospect, Woodmurra Project, EL5514 Exploration Areas**

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*

<b>Feature</b>	<b>Waypoint</b>	<b>Easting GDA94</b>	<b>Northing GDA94</b>	<b>Elevation metres</b>	<b>Comments</b>
<b>Drill Hole #E1 Access</b>	SF4	594295	6951635	83	Start of access to Drill Hole #E1, centreline of 50 metre wide clearance corridor
	trackpoint	594348	6951642	N/A	Bend point on access
	trackpoint	594420	6951683	N/A	Bend point on access
	trackpoint	594463	6951734	N/A	Bend point on access
	trackpoint	595538	6951738	N/A	Access near drill hole clearance area boundary
<b>Drill Hole #E1</b>	SF5	595724	6951723	81	Hole centre picket, clearance area radius of 200 metres from this point
<b>Drill Hole #I1 Access</b>	SF8	592593	6956917	84	Start of access to Drill Hole #I1, centreline of 50 metre wide clearance corridor
	trackpoint	592725	6956866	N/A	Point on access
	trackpoint	592898	6956819	N/A	Access near drill hole clearance area boundary
<b>Drill Hole #I1</b>	SF9	593095	6956731	85	Hole centre picket, clearance area radius of 200 metres to the south and to the edge of creek to the north
	SF10	593051	6956862	85	Northern boundary point of clearance area
<b>Drill Hole #B1 Access</b>	SF11	597356	6948631	85	Start of access to Drill Hole #B1, centreline of 50 metre wide clearance corridor
	trackpoint	597382	6948380	N/A	Bend point on access
	trackpoint	597414	6948313	N/A	Bend point on access
	trackpoint	597458	6948257	N/A	Bend point on access
	trackpoint	597492	6948074	N/A	Bend point on access
	trackpoint	597552	6947987	N/A	Bend point on access
	trackpoint	597598	6947967	N/A	Bend point on access
	trackpoint	597673	6947861	N/A	Access near drill hole clearance area boundary
<b>Drill Hole #B1</b>	SF12	597769	6947682	92	Hole centre picket, clearance area radius of 200 metres from this point
<b>Drill Hole #D2 Access</b>	PP33	598398	6949830	N/A	Start of access to Drill Hole #D2, centreline of 50 metre wide clearance corridor
	trackpoint	598429	6949841	N/A	Bend point on access
	trackpoint	598533	6949787	N/A	Bend point on access
	trackpoint	598547	6949752	N/A	Bend point on access
	trackpoint	598637	6949659	N/A	Bend point on access
	trackpoint	598681	6949574	N/A	Bend point on access
	trackpoint	598781	6949459	N/A	Bend point on access
	trackpoint	598853	6949405	N/A	Bend point on access
	trackpoint	598896	6949352	86.9	Access near drill hole clearance area boundary
<b>Drill Hole #D2</b>	SF13	599038	6949194	85	Hole centre picket, clearance for 200 metres from this point to the north and east. No activity in creek line to the south

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*

<b>Feature</b>	<b>Waypoint</b>	<b>Easting GDA94</b>	<b>Northing GDA94</b>	<b>Elevation metres</b>	<b>Comments</b>
<b>Drilling Campsite</b>	SF14	600112	6950775	73	Drilling campsite picket, Clearance for 200 metres from this point to the north and east. No activity in creek line to the south
<b>Drill Hole #D1 Access</b>	SF15	601651	6949502	68	Start of access to Drill Hole #D1, centreline of 50 metre wide clearance corridor
	trackpoint	601503	6949345	N/A	Access near drill hole clearance area boundary
<b>Drill Hole #D1</b>	SF16	601406	6949161	68	Hole centre picket, clearance area radius of 200 metres from this point
<b>Drill Hole #G1 Access</b>	TD627	602260	6949096	69	Start of access to Drill Hole #G1, clearance extends 25 metres on the northern side of the fence line
	trackpoint	602272	6949283	N/A	Bend point on access
	trackpoint	602259	6949312	N/A	Bend point on access
	trackpoint	601859	6949573	N/A	Bend point on access
	trackpoint	600493	6951207	N/A	South west corner of extended access clearance area
	TD628	600375	6951373	86	Western boundary point on extended access clearance area
	TD632	600314	6951457	79.9	North eastern corner of extended access clearance area
	TD633	600356	6951466	80.8	Northern boundary point of extended access clearance area
	TD634	600400	6951441	81.1	Northern boundary point of extended access clearance area
	TD635	600438	6951389	84.7	Northern boundary point of extended access clearance area
	TD636	600471	6951409	78.9	Northern boundary point of extended access clearance area
	TD637	600489	6951399	82	Northern boundary point of extended access clearance area
	TD638	600510	6951379	81.7	Northern boundary point of extended access clearance area
	TD639	600580	6951308	80.2	South east corner of extended access clearance area
	TD629	598868	6953210	94	Bend point on access, centreline of 50 metre wide clearance corridor north to Drillhole #G1 clearance area
	trackpoint	598991	6953293	N/A	Bend point on access
	trackpoint	598998	6953390	N/A	Bend point on access
	trackpoint	599074	6953457	N/A	Bend point on access
	trackpoint	599095	6953592	N/A	Bend point on access
trackpoint	599142	6953808	N/A	Bend point on access	
trackpoint	599196	6953937	N/A	Access near drill hole clearance area boundary	
<b>Drill Hole #G1</b>	TD631	599174	6954127	107	Hole centre picket, clearance area radius of 200 metres from this point
<b>Drill Hole #GT6 Access</b>	TD640	604616	6946905	65	Start of access to Drill Hole #GT6, centreline of 50 metre wide clearance corridor
	trackpoint	604407	6946691	N/A	Bend point on access
	trackpoint	604344	6946548	N/A	Bend point on access
	trackpoint	604297	6946452	N/A	Bend point on access
	trackpoint	603752	6946138	N/A	Bend point on access
	trackpoint	602374	6945909	N/A	Bend point on access
	trackpoint	602219	6945914	N/A	Bend point on access
	trackpoint	602122	6945950	N/A	Access near drill hole clearance area boundary

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*

<b>Feature</b>	<b>Waypoint</b>	<b>Easting GDA94</b>	<b>Northing GDA94</b>	<b>Elevation metres</b>	<b>Comments</b>
<b>Drill Hole #GT6</b>	TD641	602068	6946133	73	Drill Hole #GT6, clearance area radius of 200 metres from this point
<b>Drill Hole #L1 Access</b>	TD643	604052	6951404	74	Start of access to Drill Hole #L1, centreline of 50 metre wide clearance corridor
	trackpoint	604067	6951639	N/A	Bend point on access
	trackpoint	604146	6951819	N/A	Bend point on access
	trackpoint	604051	6952504	N/A	Bend point on access
	trackpoint	603932	6952733	N/A	Access near drill hole clearance area boundary
<b>Drill Hole #L1</b>	TD645	603829	6952934	75	Hole centre picket, clearance area radius of 200 metres from this point

## **Appendix 2:**

# **Relevant Communications**

## **Correspondence from BHT Minerals**



9 October 2015

Mr Stephen Kenny  
Director  
Camatta Lempens Lawyers  
Via email: [skenny@camattalempens.com.au](mailto:skenny@camattalempens.com.au)

cc. Emma Riggs [eriggs@camattalempens.com.au](mailto:eriggs@camattalempens.com.au)

Dear Stephen,

**RE: REQUEST FOR ECS**

This letter is a request for an Exploration Clearance Survey (ECS) as per Schedule 3 of the draft Native Title Mining Agreement. Details of the Work Program as proposed under the Mining Exploration Operations (MEO) are listed below.

BHT holds Exploration Licence 5514, which is located approximately 60km east of Oodnadatta, as shown in Figure 1. EL5514 is located in the northern part of the Arabana People's SCD2012/002. The EL was granted on 28 November 2014 for a term of one year and a renewal will be sought.

*Mining Exploration Operations*

The details of the proposed work program include;

- (a) exploring this area for silver, lead and zinc using an exploration model similar to the Broken Hill deposit in NSW and Cannington deposit in Qld. Interpretation of airborne magnetic and gravity data has identified numerous targets warranting drill testing through a younger cover sedimentary rock sequence to potential host rocks at depths below 150m. Approximately 5 holes will be drilled to depths of 200m – 300m (approx. total 1,500m) depending on drilling conditions and budget;
- (b) the estimated duration of the drilling program will be six weeks. If possible, the drilling program could comprise a small portion of drilling before Christmas 2015 followed by completion of the entire program in March/April 2016;
- (c) using the rotary mud drilling technique through the younger cover sequence followed by approximately 50m in each hole of NQ-size diamond coring;
- (d) a mobile self-contained camp will be located central to the drilling area as shown on Figure 2. This camp site will be located on/near to the main Macumba road (subject to confirmation by field inspection) and clear of any native vegetation.



Access to the camp site within EL5514 will be on existing tracks either via Macumba Station to the north-west or Mount Dutton the south-west. The number of people involved in the work program is expected to comprise 4 drilling crew and one geologist. Equipment is likely to be one drilling rig mounted on an 8x8 MAN truck, one support truck, one water truck, one fuel trailer and two light 4WD vehicles. The existing road access into the area may require upgrading at several creek crossings. Several new access tracks totaling approximately 4km will be required to drill several holes. Wherever possible new tracks will be created without the use of heavy machinery by driving vehicles across unprepared terrain. Where access preparation is necessary tracks will be sited to minimise the amount of vegetation disturbance and will pass around larger trees. Disturbance to the soil surface will be kept to a minimum (eg. walking the loader) so that plant roots are left in place to facilitate natural regeneration and minimise the potential for erosion. Track preparation will be kept to a minimum and will only be sufficient to meet the needs of the exploration vehicles (ie track width will approximate that of the drilling trucks). Tracks will remain clear of lake beds and potentially swampy areas. A single access track will be created from the existing main access route into each drill site;

- (e) a self-contained camp to have on-board water, containment tanks for grey waste and other effluent. General waste will be removed from the area.
- (f) Water supply for the duration of the drilling program to be sourced from two existing water bores (6042-52 on Allandale Station; Duckhole 2 on Macumba Station) shown in Figure 2;
- (g) Completion of a comprehensive Exploration Program for Environment Protection and Rehabilitation (PEPR) to minimise the environmental impact and disturbance to heritage sites;
- (h) The likely contracting (tenders are in progress) of Thompson Drilling Company to carry out the proposed drilling and David Edgecombe (Kelpie Exploration geologist) to manage and supervise the on-site operations;
- (i) The estimated site area required for drilling to include a potential disturbance of up to 600 square metres (30m x 20m) per drill hole. In addition, approximately 4 line km of new access tracks (width approximately that of drilling trucks) may be required for equipment.
- (j) topography of the land the subject of the Exploration Clearance Area comprises mostly silcrete gibber flats, undulating plains and extensive areas of self-mulching clay loams with exposed gypsum. The plains are devoid of trees and characterised by a gilgai micro-relief of low mounds and hollows covered by sparse low



vegetation. The general drilling area takes in Woodmurra Creek. There is low topographic relief from ~80mASL up to a maximum of ~105mASL.

On Figure 2, the location of ten potential drill sites are shown however, it is anticipated that only 5 to 6 of these will be required to be cleared during the requested Exploration Clearance Survey.

Please let me know if you need any further details. I look forward to working with you and the Arabana during our exploration program and completing the ECS so that we may commence drilling in November.

Yours sincerely,

A handwritten signature in blue ink that reads "M.A. Dugmore". The signature is fluid and cursive.

Mark Dugmore  
Director

Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514, located on Allandale and Macumba Stations, near Oodnadatta, South Australia

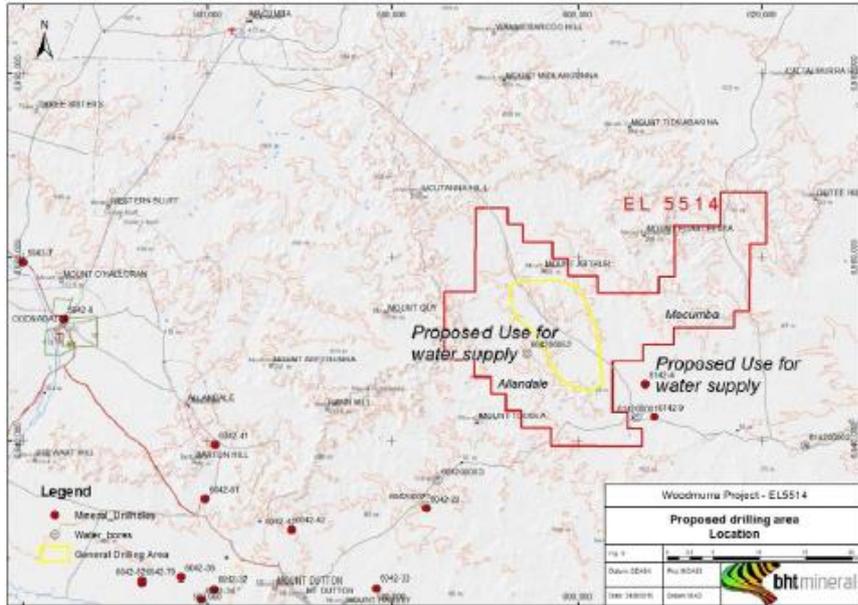


Figure 1. Location of EL5514

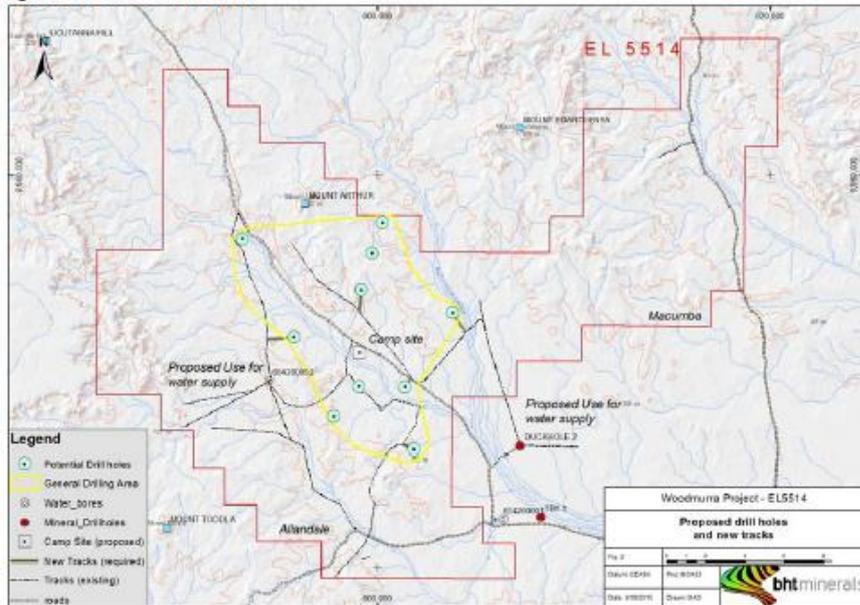


Figure 2. Proposed locations of drill holes and new access tracks

A 146 Mount O'Reilly Road, Samford, Qld 4520 M +61 407 132 975 F +61 7 3289 6959  
 E [markdugmore@bigpond.com](mailto:markdugmore@bigpond.com) ABN 84 600 381 468

## **Correspondence from AAR**

Physical Id. AHRCA16D0044  
File No. AHRCA16/00114

Taryn Debney  
Archaeologist and Cultural Heritage Consultant  
Australian Heritage Services Pty Ltd  
GPO Box 2990  
ADELAIDE SA 5001



Dear Taryn

Thank you for your correspondence (email) dated 21 January 2016, regarding a proposed cultural heritage survey located in the Mount Arthur area approximately 60km east of Oodnadatta. The search area is based on the spatial data that you provided.

I advise that the central archive, which includes the Register of Aboriginal Sites and Objects (the Register), administered by the Department of State Development, Aboriginal Affairs and Reconciliation (DSD-AAR), has entries for Aboriginal sites within this tenement.

These entries for Aboriginal sites are described as two cultural sites. The enclosed map identifies the approximate site locations. It should be noted however that the site indicator does not reflect the actual area of the sites, as this will vary from site to site, depending on the site information contained in the central archive.

The applicant is advised that sites or objects may exist in the proposed development area, even though the Register does not identify them. All Aboriginal sites and objects are protected under the *Aboriginal Heritage Act 1988* (the Act), whether they are listed in the central archive or not. Land within 200 metres of a watercourse (for example the River Murray and its overflow areas) in particular, may contain Aboriginal sites and objects.

Pursuant to the Act, it is an offence to damage, disturb or interfere with any Aboriginal site or damage any Aboriginal object (registered or not) without the authority of the Minister for Aboriginal Affairs and Reconciliation (the Minister). If the planned activity is likely to damage, disturb or interfere with a site or object, authorisation of the activity must be first obtained from the Minister under Section 23 of the Act. Section 20 of the Act requires that any Aboriginal sites, objects or remains, discovered on the land, need to be reported to the Minister. Penalties apply for failure to comply with the Act.

It should be noted that this correspondence only addresses Aboriginal heritage matters in the context of the *Aboriginal Heritage Act 1988* and does relate to any native title considerations that may, or may not, be relevant to the land area over which you have requested information.

Please be aware in this area there are various Aboriginal groups/organisations/traditional owners that may have an interest, these may include:

**ARABANA ABORIGINAL CORPORATION**

Chairperson: Aaron Stuart  
Telephone: (08) 8641-2379 (Chair)  
Email: [astuart@centacarecdpp.org.au](mailto:astuart@centacarecdpp.org.au)

Aboriginal Affairs and Reconciliation  
Level 7, 11 Waymouth Street | GPO Box 320 Adelaide SA 5001  
Tel (+61) 08 8226 8900 | Fax (+61) 08 8226 8999 | [www.statedevelopment.sa.gov.au](http://www.statedevelopment.sa.gov.au) | ABN 83 524 915 929





Government  
of South Australia

Department of  
State Development

**Terms and conditions for use of information derived from the central archive:**

- Information derived from the central archive may not be re-utilised and/or copied (whether electronic or hard copy format) for any commercial or business purpose including but not limited to, trading, building commercial databases, reselling or redistribution of such information.
- The reproduction, copying, downloading, storage, recording, broadcasting, retransmission, distribution, decompilation, or disassembly of any part of the information derived from the central archive is not permitted without prior written consent from the traditional informant and must be in accordance with any associated copyright.
- It is the responsibility of any person provided with information derived from the central archive to:
  - Ensure that the information accessed is not made available, either in electronic or in hard copy format, to any third party.
  - Inform DSD-AAR immediately if they become aware of a third party using information derived for the central archive in contravention to these terms and conditions

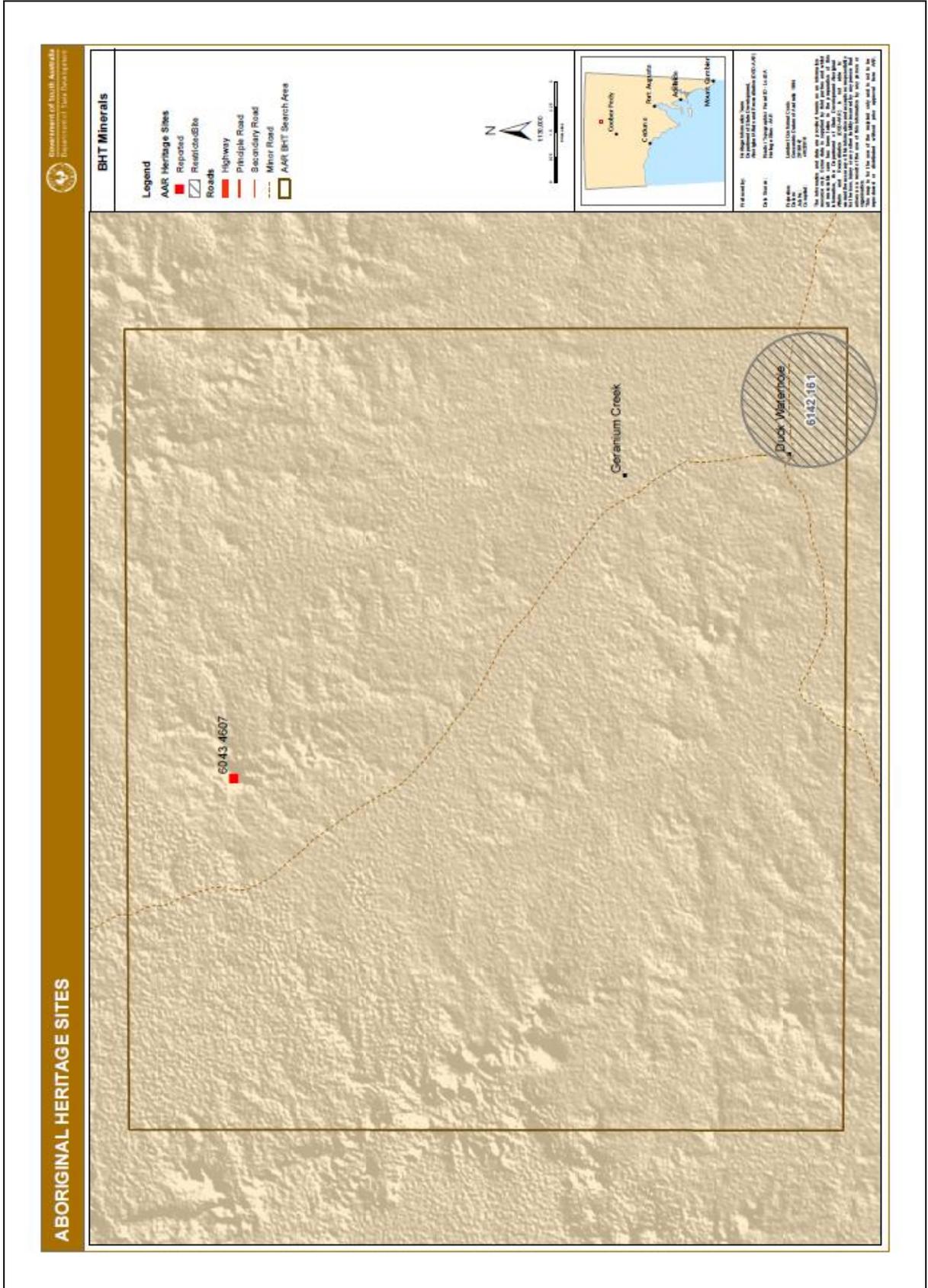
For further information please contact the Aboriginal Heritage Team on telephone (08) 8226 8900.

Yours sincerely

Perry Langeberg  
SENIOR INFORMATION OFFICER (HERITAGE)  
ABORIGINAL AFFAIRS & RECONCILIATION DIVISION

4 February 2016







**Government  
of South Australia**

Department of  
State Development

**Terms and conditions for use of information derived from the central archive:**

- Information derived from the central archive may not be re-utilised and/or copied (whether electronic or hard copy format) for any commercial or business purpose including but not limited to, trading, building commercial databases, reselling or redistribution of such information.
- The reproduction, copying, downloading, storage, recording, broadcasting, retransmission, distribution, decompilation, or disassembly of any part of the information derived from the central archive is not permitted without prior written consent from the traditional informant and must be in accordance with any associated copyright.
- It is the responsibility of any person provided with information derived from the central archive to:
  - Ensure that the information accessed is not made available, either in electronic or in hard copy format, to any third party.
  - Inform DSD-AAR immediately if they become aware of a third party using information derived for the central archive in contravention to these terms and conditions

For further information please contact the Aboriginal Heritage Team on telephone (08) 8226 8900.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Perry Langeberg'.

Perry Langeberg  
SENIOR INFORMATION OFFICER (HERITAGE)  
ABORIGINAL AFFAIRS & RECONCILIATION DIVISION

4 February 2016



Physical Id. AHRCA16D0041  
File No. AHRCA 16/00115



Taryn Debney  
Australian Heritage Services Pty Ltd  
GPO Box 2990  
ADELAIDE SA 5000

Dear Taryn

I am writing to you in regard to your request for site card information pertaining to a proposed cultural heritage survey for BHT Minerals, located in the Mount Arthur area approximately 60km east of Oodnadatta.

The applicant is advised that sites or objects may exist in the proposed development area even though the Register does not identify them. All Aboriginal sites and objects are protected under the *Aboriginal Heritage Act 1988* (the Act), whether they are listed in the Register or not.

Department of State Development, Aboriginal Affairs and Reconciliation (DSD-AAR) is in receipt of a signed access form from Aaron Stuart, Chairperson of the Arabana Aboriginal Corporation, authorising you to obtain the following site cards requested by you on 21/01/2016.

According to DSD-AAR's Access guidelines, the following site cards listed are being provided to you:

- 6043 – 161 'Karingala' (Duck Waterhole)
- 6042 – 4607 'Pakalta' (Mount Arthur)

**Terms and conditions for use of information derived from the central archive:**

- Information derived from the central archive may not be re-utilised and/or copied (whether electronic or hard copy format) for any commercial or business purpose including but not limited to, trading, building commercial databases, reselling or redistribution of such information.
- The reproduction, copying, downloading, storage, recording, broadcasting, retransmission, distribution, decompilation, or disassembly of any part of the information derived from the central archive is not permitted without prior written consent from the traditional informant and must be in accordance with any associated copyright.
- It is the responsibility of any person provided with information derived from the central archive to:
  - Ensure that the information accessed is not made available, either in electronic or in hard copy format, to any third party.
  - Inform DSD-AAR immediately if they become aware of a third party using information derived for the central archive in contravention to these terms and conditions.

If you require any further information please don't hesitate to contact the Aboriginal Heritage Team, email [dsgaarheritagesites1@sa.gov.au](mailto:dsgaarheritagesites1@sa.gov.au) or telephone (08) 82267981.

Aboriginal Affairs and Reconciliation  
Level 7, 11 Waymouth Street | GPO Box 320 Adelaide SA 5001  
Tel (+61) 08 8226 8900 | Fax (+61) 08 8226 8999 | [www.statedevelopment.sa.gov.au](http://www.statedevelopment.sa.gov.au) | ABN 83 524 915 929



Yours sincerely



Perry Langeberg  
**SENIOR INFORMATION OFFICER (HERITAGE)**  
**ABORIGINAL AFFAIRS & RECONCILIATION**

04 February 2016



**Government  
of South Australia**

Department of  
State Development

Aboriginal Affairs and Reconciliation

Level 7, 11 Waymouth Street | GPO Box 320 Adelaide SA 5001

Tel (+61) 08 8226 8900 | Fax (+61) 08 8226 8999 | [www.statedevelopment.sa.gov.au](http://www.statedevelopment.sa.gov.au) | ABN 83 524 915 929



*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*

## **Appendix 3:**

### **Sections 12, 20, 21, 22 and 23 of the South Australian *Aboriginal Heritage Act* 1988 (as amended)**

**ABORIGINAL HERITAGE ACT 1988 - SECTION 12**

**Determination of whether site or object is an Aboriginal site or object**

12. (1) If a person proposes to take action in relation to a particular object and that action may constitute an offence against this Act if the object is an Aboriginal object, the person may apply to the Minister under this section.

(2) On an application under subsection (1), the Minister must

- (a) if the object is entered in the Register of Aboriginal Sites and Objects, give the applicant written notice that it is so entered;
- (b) if the object is not entered in the Register, determine whether it should be so entered and give the applicant written notice of the determination.

(3) If a person proposes to take action in relation to a particular area and that action may constitute an offence against this Act if the area is, is part of or includes an Aboriginal site or if an Aboriginal object is located in the area, the person may apply to the Minister under this section.

(4) On an application under subsection (3), the Minister must

- (a) determine whether any entries should be made in the Register of Aboriginal Sites and Objects in relation to sites or objects in the area that are not so entered and give the applicant written notice of the determination; or
- (b) subject to subsection (5), give the applicant written notice of the location of each Aboriginal site or object in the area that is entered, or that the Minister has determined should be entered, in the Register.

(5) The Minister must not disclose the exact location of a site or object if, in the Minister's opinion, the disclosure is likely to be detrimental to the protection or preservation of the site or object or to be in contravention of Aboriginal tradition.

(6) The Minister may, within 20 working days after receiving an application, require an applicant to provide information in connection with the application or to engage an expert acceptable to the Minister to do so.

(7) Where the Minister requires information to be provided under subsection (6), the Minister must determine the application within 30 working days of receiving that information.

(8) The Minister may refuse to entertain an application under this section on the grounds

- (a) that the area or object is insufficiently identified; or
- (b) that the application is not genuine; or
- (c) that the Minister does not have the resources to determine the application.

**ABORIGINAL HERITAGE ACT 1988 - SECTION 20**  
**Discovery of sites, objects or remains**

20. (1) An owner or occupier of private land, or an employee or agent of such an owner or occupier, who discovers on the land

- (a) an Aboriginal site; or
- (b) an Aboriginal object or remains,

must, as soon as practicable, report the discovery to the Minister giving particulars of the nature and location of the site, object or remains.

Penalty: (a) in the case of a body corporate \$50 000;  
(b) in any other case \$10 000 or imprisonment for 6 months.

(2) This section does not apply to the traditional owner of the site or object or to an employee or agent of the traditional owner.

(3) The Minister may direct a person making a report to take such immediate action for the protection or preservation of the remains as the Minister considers appropriate.

(4) A person must not, without reasonable excuse, fail to comply with a direction of the Minister under this section.

Penalty: \$2 000 or imprisonment for 3 months.

**ABORIGINAL HERITAGE ACT 1988 - SECTION 21**  
**Excavating sites, objects or remains**

21. A person must not, without the authority of the Minister, excavate land for the purpose of uncovering any Aboriginal site, object or remains.

Penalty: (a) in the case of a body corporate \$50 000;  
(b) in any other case \$10 000 or imprisonment for 6 months.

**ABORIGINAL HERITAGE ACT 1988 - SECTION 22**  
**Access to and excavation of land by authorised persons**

22. (1) Where the Minister has reason to believe that any Aboriginal site, object or remains have been or may be found on or under any land (including private land), the Minister may authorise a person

- (a) to enter the land; and
- (b) to search for the site, object or remains; and
- (c) to excavate the land.

(2) Before entering any land pursuant to an authorisation under this section, the authorised person must give reasonable notice in writing to the owner and occupier (if any) of the land identifying the land affected.

(3) Where any Aboriginal object or remains, or any object or remains that may be an Aboriginal object or Aboriginal remains, is or are found on the land, the Minister, if satisfied that it is necessary to do so for the protection or preservation of the object or remains, may take possession of the object or remains.

(4) The Minister must make good any damage done to land by a person acting in pursuance of this section.

(5) A person must not, without reasonable excuse, hinder or obstruct

*Work Area Clearance for the Wudmurra Project, a Drilling Program within EL 5514,  
located on Allandale and Macumba Stations, near Oodnadatta, South Australia*

a person acting pursuant to an authorisation under this section.  
Penalty: \$2 000 or imprisonment for 3 months.

**ABORIGINAL HERITAGE ACT 1988 - DIVISION 2**

**DIVISION 2 PROTECTION OF ABORIGINAL SITES, OBJECTS AND REMAINS**

**ABORIGINAL HERITAGE ACT 1988 - SECTION 23**

**Damage, etc., to sites, objects or remains**

23. A person must not, without the authority of the Minister
- (a) damage, disturb or interfere with any Aboriginal site; or
  - (b) damage any Aboriginal object; or
  - (c) where any Aboriginal object or remains are found
    - (i) disturb or interfere with the object or remains; or
    - (ii) remove the object or remains.

Penalty: (a) in the case of a body corporate \$50 000;  
(b) in any other case \$10 000 or imprisonment for 6 months.