

ATLAS-CAMPASPE

Mineral Sands Project

ENVIRONMENTAL IMPACT STATEMENT



APPENDIX E › ABORIGINAL AND NON-ABORIGINAL CULTURAL HERITAGE ASSESSMENT



Atlas-Campaspe Mineral Sands Project Aboriginal and Non-Aboriginal Cultural Heritage Assessment

November 2012

Local Government Area: Balranald/Central Darling


Nearest Town: Balranald/Ivanhoe

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List of Abbreviations

ACHCRs	Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010)
AHIMS	Aboriginal Heritage Information Management System
DECCW	NSW Department of Environment, Climate Change and Water
OEH	Office of Environment and Heritage
PAD	Potential Archaeological Deposit
the Code	Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a)

*All measurements are abbreviated as per standard metric notation.

Summary

Niche Environment and Heritage Pty Ltd was commissioned by Cristal Mining Australia Limited to conduct an Aboriginal and Non-Aboriginal Cultural Heritage Assessment of the proposed Atlas-Campaspe Mineral Sands Project (the Project). The Project would involve two main development components:

1. Construction and development of infrastructure for mining operations at the Atlas and Campaspe deposits (the proposed Atlas-Campaspe Mine).
2. Construction and operation of the Ivanhoe Rail Facility (the proposed Ivanhoe Rail Facility).

The proposed Project area did not contain any previously identified heritage sites, despite being in close proximity to the Mungo National Park and Willandra Lakes Region World Heritage Area. The Ivanhoe Rail Facility area is in close proximity to the locally significant Ivanhoe Station Precinct.

A survey of the Atlas-Campaspe Mine Area (including the section of the proposed mineral concentrate transport route that would be upgraded as part of the Project) and the Ivanhoe Rail Facility areas were conducted, identifying 78 Aboriginal heritage sites at the Atlas-Campaspe Mine area (including the section of the proposed mineral concentrate transport route that would be upgraded as part of the Project) and 22 Aboriginal heritage site at the Ivanhoe Rail Facility area. All these sites were Aboriginal archaeological sites. Two items of historical interest identified during the surveys satisfy the criteria for local heritage significance. These sites are located adjacent to the proposed mineral concentrate transport route and would not be impacted by the Project.

The surface development footprint was modified to allow the conservation of some areas of high and moderate Aboriginal heritage value. With the implementation of appropriate mitigation strategies there are no constraints to the proposed development.

The following recommendations were made:

It is recommended that a Cultural Heritage Management Plan be developed for the Project to formalise the management and mitigation measures. This plan should be developed in consultation with the New South Wales Office of Environment and Heritage, the registered Aboriginal parties and a suitably qualified individual such as an archaeologist. The Cultural Heritage Management Plan should be developed prior to any works which would harm Aboriginal or historical cultural heritage sites. The Cultural Heritage Management Plan should include protocols for:

1. Continued consultation with the registered Aboriginal parties throughout the life of the Project.
2. The maintenance of a record of known Aboriginal heritage sites, their location and status including the timely update of relevant sites and plans and the lodgement of Aboriginal Heritage Information Management System (AHIMS) site cards and AHIMS impact recording forms.
3. The identification and recording of authorised impacts to sites.
4. The management of unexpected Aboriginal objects or sites identified during the lifespan of the Project, including protocols for the amendment of the proposed works (if practicable) if new sites or areas of high significance are identified.
5. The discovery of burials and ancestral remains.
6. The management of any culturally sensitive information provided by the registered Aboriginal parties.

7. The development of a surface salvage programme associated with the required upgrades to the proposed mineral concentrate transport route and the Ivanhoe Rail Facility prior to disturbance. The salvage programme should be limited in scope to areas of proposed impact. The purpose of the surface salvage would be to salvage surface archaeological material prior to disturbance. Archaeological material should be stored and managed in accordance with the wishes of the registered Aboriginal parties. This may include storage of the salvaged material on-site in a fenced area or at an appropriate educational centre such as the Ivanhoe library, or a combination of both.
8. The development of a surface salvage programme of Aboriginal objects associated with the Atlas-Campaspe Mine footprint, and a record of those objects, from areas proposed for impact. The collection should be staged as part of the mine campaign clearance programmes prior to infrastructure, pit or stockpile development.
9. The accurate recording of the location of the collected artefacts, and a framework for their analysis developed with the registered Aboriginal parties.
10. Retrieval of samples from hearths (such as samples for dating of charcoal and collection of heat retainers) wherever they are located within a disturbance footprint associated with the Atlas-Campaspe area, the mineral concentrate transport route and in particular at the Ivanhoe Rail Facility disturbance footprint, in consultation with the Aboriginal community.
11. Management of all salvaged material in consideration of the Aboriginal community's wishes.
12. The inclusion of Aboriginal heritage and cultural awareness training as part of the induction programme. The cultural awareness training should have direct input from the registered Aboriginal parties.
13. The ongoing protection and maintenance of areas set aside for conservation, in particular the Campaspe 2 to Campaspe 5 sites, for which the Project disturbance area was modified to avoid.
14. Performance, compliance, review and maintenance of the Cultural Heritage Management Plan, that is the Management Plan must be a living document able to adapt throughout the construction and operation of the Project.

1. Introduction

1.1 Background

The proponent, Cristal Mining Australia Limited (Cristal Mining), is seeking approval under Part 4.1 of the New South Wales (NSW) *Environmental Planning and Assessment Act, 1979* for the Atlas-Campaspe Mineral Sands Project (the Project).

Niche Environment and Heritage Pty Ltd (Niche) has been commissioned by Cristal Mining to undertake an Aboriginal and Non-Aboriginal Cultural Heritage Assessment for inclusion in an Environmental Impact Statement (EIS) for the Project.

1.2 Project Brief and Objectives

Niche proposes to complete an Aboriginal and Non-Aboriginal Cultural Heritage Assessment Report for inclusion in the EIS for the Project. The proposal is being assessed as a State Significant Project. To ensure there is no significant departure from the appropriate requirements for items of Aboriginal Heritage, the assessment for the Project would be conducted in consideration of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (NSW Department of Environment, Climate Change and Water [DECCW] 2010a) (the Code), the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (NSW Office of Environment and Heritage [OEH] 2011), the *Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation* (NSW Department of Environment and Conservation, 2005) and in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the ACHCRs) (DECCW 2010b).

1.3 Subject Area

The Project would involve two main development components:

1. Construction and development of infrastructure for mining operations at the Atlas and Campaspe deposits (the proposed Atlas-Campaspe Mine).
2. Construction and operation of the Ivanhoe Rail Facility (the proposed Ivanhoe Rail Facility).

The proposed Atlas-Campaspe Mine is located within Exploration Licence 5359 within the Balranald Shire Local Government Area and the Balranald Local Aboriginal Land Council (LALC) area, approximately 30 kilometres (km) west of Hatfield and 80 km north of Balranald in western NSW (Figure 1). The Atlas-Campaspe Mine is approximately 10 km east of the Willandra Lakes Region World Heritage Area and 5 km east of Mungo National Park.

2. Investigator and Contributors

This investigation was led by Jamie Reeves (BA [Hons], 14 years experience) with research and report writing assistance from Clare Anderson (BA [Hons], 5 years experience) and Amanda Atkinson (BA, 4 years experience). A summary of the contributors to the Project is listed in Table 1.

Contributor	Affiliation	Role
Ray Murray	Balranald LALC	Cultural advice and survey participant
Ronald Murray	Balranald LALC	Cultural advice and survey participant
Danny Kelly Jnr	Mutthi Mutthi Nations	Cultural advice and survey participant
Ryan Brunton	Mutthi Mutthi Nations	Cultural advice and survey participant
Marcus Murray	Balranald LALC	Cultural advice and survey participant
Ali Maher	Kullila Site Consultants	Cultural advice and survey participant
Jeffrey Maher	National Koori Site Management	Cultural advice and survey participant
Ronny	Balranald LALC	Cultural advice and survey participant
Julian	Balranald LALC	Cultural advice and survey participant
Michael Kelly	Ngilyampaa Traditional Owner	Cultural advice and report review
Badger Bates	Barkandji Traditional Owner	Cultural advice and report review
Faye Johnstone	Ivanhoe Community Working Party	Cultural advice and report review
Joan Slade	Ivanhoe Community Working Party	Cultural advice and report review
Peter Kennedy	Ivanhoe Community Working Party	Cultural advice and report review
Warren Clarke	Willandra Lakes 2 Traditional Tribal Groups Elders Council	Cultural advice and report review
Arthur Kirby	Barkandji Elders Council	Cultural advice and report review
Danny Kelly Snr	Mutthi Mutthi Nations	Cultural advice, liaison and report review
Wendy Thomson	Balranald LALC	Advice and liaison
Andrew Rose	Aboriginal Affairs, Bourke	Advice and liaison
Jamie Reeves	Niche	Project Manager, survey participant
Clare Anderson	Niche	Author, survey participant
Amanda Atkinson	Niche	Author, survey participant
Giles Hamm	Niche	Survey participant
Georgia Roberts	Niche	Research assistance
Fiona Leslie	Niche	Peer review

Table 1. Contributors to this Aboriginal and Non-Aboriginal Cultural Heritage Assessment Report

3. Description of Development Proposal

3.1 The Proposal

The activities associated with the two main development components of the Project are summarised below and are shown on Figures 2a and 2b.

Atlas-Campaspe Mine

- ☐ Ongoing exploration activities.
- ☐ Sequential development and operation of two separate mineral sands ore extraction areas within the Mining Lease Application (MLA) 1 area.
- ☐ Use of conventional mobile equipment to mine and place mineral sands ore into dry mining unit(s)^[1] (DMU) at a maximum ore production rate of up to 7.2 million tonnes per annum.
- ☐ Mineral processing infrastructure including the primary gravity concentration unit, salt washing facility and a wet high intensity magnetic separation circuit.
- ☐ Mineral concentrate stockpiles and materials handling infrastructure (e.g. towers and stackers).
- ☐ Progressive backfilling of mine voids with overburden behind the advancing ore extraction areas or in overburden emplacements adjacent to the mine path.
- ☐ Placement of sand residues and coarse rejects (and Broken Hill Mineral Separation Plant [MSP] process wastes^[2]) following mineral processing to either the active mining area (behind the advancing ore extraction area) or in sand residue dams.
- ☐ Development of a groundwater supply borefield at the Atlas deposit and progressive development of a groundwater spearfield at the Campaspe deposit, including associated pump and pipeline systems.
- ☐ Reverse osmosis plant to supply the salt washing facility and potable water.
- ☐ Progressive development of water storage dams, sediment basins, pumps, pipelines and other water management equipment and structures.
- ☐ Administration/office buildings, car parking facilities, workshop and stores.
- ☐ On-site accommodation camp.
- ☐ Sewage treatment plant.
- ☐ Diesel powered generators, electricity distribution station and associated internal electricity transmission lines.
- ☐ Site access road, internal access roads and haul roads.
- ☐ Roadworks along the proposed mineral concentrate transport route to the Ivanhoe Rail Facility.
- ☐ Transport of mineral concentrates along the mineral concentrate transport route to the Ivanhoe Rail Facility.

^[1] Mining would use conventional open pit methods and would not involve dredge mining.

^[2] Following cessation of operations at the Ginkgo and Snapper Mines (approximately Year 12 of the Project).

- ☐ Transport of MSP process waste^[3] in sealed storage containers from the Ivanhoe Rail Facility to the Atlas-Campaspe Mine for subsequent unloading, stockpiling and placement behind the advancing ore extraction areas.
- ☐ Development of soil stockpiles and laydown areas.
- ☐ Monitoring and rehabilitation.
- ☐ Other associated minor infrastructure, plant, equipment and activities.

Ivanhoe Rail Facility

- ☐ Development of a rail siding for:
 - loading of train wagons with mineral concentrate for rail transport to the MSP via the Orange – Broken Hill railway; and
 - unloading of MSP process waste in sealed storage containers (transported via the Orange – Broken Hill railway) from train wagons^[3].
- ☐ Site access road and internal haul roads/pavements.
- ☐ Hardstand areas for mineral concentrate and MSP process waste^[3] unloading, stockpiling/sealed container storage and loading.
- ☐ A retention basin, drains, pumps, pipelines and other water management equipment and structures.
- ☐ Site office and car parking facilities.
- ☐ Extension to existing 11 kilovolt powerline.
- ☐ Monitoring, landscaping and rehabilitation.
- ☐ Other associated minor infrastructure, plant, equipment and activities.

3.2 Likely Development Impacts

The proposed activities, as described above, have the potential to impact surface and subsurface Aboriginal objects.

Potential direct impacts of the Project would involve surface and subsurface disturbance by heavy machinery conducting vegetation clearing and ground preparations/excavations for the active mining of mineral sands, the construction and maintenance of ancillary infrastructure and the development of access roads. The approximate extent of surface development associated with the Project is referred to as the footprint. The footprint includes all of the proposed infrastructure detailed above. Ongoing road maintenance of the public road system not required by this Project (e.g. along the existing sealed Balranald-Ivanhoe Road) would be assessed and undertaken by the relevant local authority in accordance with their requirements and guidelines.

^[3] Following cessation of operations at the Ginkgo and Snapper Mines (approximately Year 12 of the Project).

Some parts of the proposed development areas have previously been subjected to clearing and crop cultivation. Rural infrastructure such as farm tracks, ground tanks, dams, fences and watering points are present across the Atlas-Campaspe Mine. The proposed Ivanhoe Rail Facility is situated adjacent to the existing rail line, and is generally disturbed through historical vegetation clearing, stocking and rail maintenance activities.

3.3 Modification to the Project Disturbance Footprint to Avoid Impacts

Subsequent to the survey, the boundary of the Campaspe deposit Project disturbance footprint was modified to avoid impact to an area of archaeological and cultural significance. Otherwise the results of the survey in the proposed Atlas and Campaspe deposit areas did not warrant modifications to the footprint for the purposes of cultural heritage avoidance and conservation.

The proposed mineral concentrate transport route is largely confined to the existing disturbance corridor of the existing public road. It departs from the pre-existing road at the corner of Boree Plains Road and Magenta Road, and at the corner of Magenta Road and Hatfield - The Vale Road. The route of the mineral concentrate transport route has been specifically designed on these corners to avoid impacts to known archaeological sites, identified during the survey.

At Ivanhoe, the proposed access track to the rail loading facility and the position of the infrastructure of the rail loading facility have been specifically designed to avoid impacts to known archaeological sites identified during the survey.

The proposed mineral concentrate transport route follows the existing public Balranald - Ivanhoe Road between the Atlas-Campaspe area and the Ivanhoe Rail Facility. There are no proposed works to this road as part of the proposed development, and there are no effects expected to occur from the proposed use of the road for transport of the mineral concentrate. Otherwise, future maintenance of the road will be subject to specific environmental assessment and approval processes as required, as with all road maintenance activities in NSW.

4. Aboriginal Community Consultation Process

In administering its statutory functions under Part 6 of the NSW *National Parks and Wildlife Act, 1974*, the OEH requires that proponents consult with Aboriginal people about the Aboriginal cultural heritage values (cultural significance) of Aboriginal objects and/or places within any given development area (DECCW 2010b). The OEH maintains that the objective of consultation with Aboriginal communities about the cultural heritage values of Aboriginal objects and places is to ensure that Aboriginal people have the opportunity to improve Aboriginal Cultural Heritage Assessment (ACHA) outcomes by:

- ☐ providing relevant information about the cultural significance and values of Aboriginal objects and/or places;
- ☐ influencing the design of the method to assess cultural and scientific significance of Aboriginal objects and/or places;
- ☐ actively contributing to the development of cultural heritage management options and recommendations for any Aboriginal objects and/or places within the proposed Project area; and
- ☐ commenting on draft assessment reports before they are submitted by the proponent to the OEH.

To assist proponents through the required consultation process, the DECCW (2010b) has prepared a guidance document, namely the ACHCRs. Consultation in the form outlined in the document is a formal requirement where a proponent is aware that his/her development activity has the potential to harm Aboriginal objects or places. The OEH also recommends that these requirements be used when the certainty of harm is not yet established but a proponent has, through some formal development mechanism, been required to undertake a cultural heritage assessment to establish the potential harm their proposal may have on Aboriginal objects and places. Consultation for this Project, has been undertaken in accordance with the ACHCRs as these meet the fundamental tenants of the 2005 consultation requirements, while meeting current industry standards for community consultation.

The ACHCRs outline a four stage consultation process that includes detailed step-wise guidance as to the aim of the stage, how it is to proceed and what actions are necessary for it to be successfully completed. The four stages are:

- ☐ Stage 1 - Notification of Project proposal and registration of interest.
- ☐ Stage 2 - Presentation of information about the proposed Project.
- ☐ Stage 3 - Gathering information about the cultural significance.
- ☐ Stage 4 - Review of draft cultural heritage assessment report.

The document also outlines the roles and responsibilities of the OEH, Aboriginal Parties including Local and State Aboriginal Land Councils, and proponents throughout the consultation process. To meet the requirements of consultation it is expected that proponents will:

- ☐ bring the registered Aboriginal parties or their nominated representatives together and be responsible for ensuring appropriate administration and management of the consultation process;

- ☐ consider the cultural perspectives, views, knowledge and advice of the registered Aboriginal parties involved in the consultation process in assessing cultural significance and developing any heritage management outcomes for Aboriginal objects(s) and/or places(s);
- ☐ provide evidence to the OEH of consultation by including information relevant to the cultural perspectives, views, knowledge and advice provided by the registered Aboriginal parties;
- ☐ accurately record and clearly articulate all consultation findings in the final cultural heritage assessment report; and
- ☐ provide copies of their cultural heritage assessment report to the registered Aboriginal parties who have been consulted.

The consultation process undertaken to seek active involvement from relevant Indigenous people followed the current NSW statutory guideline, namely, the ACHCRs. Section 1.3 of the ACHCRs describes the guiding principles of the document. The principles have been derived directly from the Principles section of the Australian Heritage Commission's *Ask First: A guide to respecting Indigenous heritage places and values* (Australian Heritage Commission 2002). Both documents share the aim of creating a system where free prior informed advice can be sought from the Aboriginal community.

The following outlines the process and results of the consultation conducted during this assessment to ascertain and reflect the Aboriginal cultural heritage values of the Project area.

4.1 The Consultation Process

Stage 1 - Notifications

In accordance with Section 4.1.2 of the ACHCRs, Project notifications were sent on 10 October 2011 (Atlas-Campaspe Mine) and 30 January 2012 (addition of Ivanhoe Rail Facility) to:

- ☐ Dubbo OEH Environmental Protection and Regulation Group Office;
- ☐ Queanbeyan OEH Environmental Protection and Regulation Group Office;
- ☐ Balranald LALC;
- ☐ Ivanhoe LALC^[4];
- ☐ Office of the Register, *Aboriginal Land Rights Act, 1983*;
- ☐ National Native Title Tribunal (NNTT);
- ☐ Native Title Services Corporation Limited (NTSCORP);
- ☐ Central Darling Shire Council;
- ☐ Balranald Shire Council;
- ☐ Lower Murray Darling Catchment Management Authority (Lower Murray Darling CMA); and
- ☐ Lachlan Catchment Management Authority.

^[4] No response was received from the Ivanhoe LALC. The NSW Office of Environment and Heritage and the NSW Aboriginal Land Council advised that, at the time of this assessment, the Ivanhoe LALC was not operating.

The purpose of the Project notification was to identify potential cultural knowledge holders for the Project area. Written responses were received from the Lower Murray Darling CMA, NTSCORP, NNTT and the OEH.

No Native Title Holders, Native Title Claimants or registered Aboriginal Owners exist for the Project area.

A list of potential cultural knowledge holders was compiled from the information collected above. Advertisements were also published in the *Sunraysia Daily* on and the *Riverine Grazier* on 9 November 2011 and in the *Sunraysia Daily* on 26 January 2012 and the *Riverine Grazier* on 25 January 2012, in accordance with Sections 4.1 and 4.2 of the consultation requirements, inviting any additional Aboriginal parties to register an interest in the Project.

As a result of the above consultation, the following persons have become registered Aboriginal parties to the Project for the purposes of the ACHCRs:

- ☐ Badger Bates;
- ☐ Balranald LALC;
- ☐ Barkandji Elders Council;
- ☐ Ivanhoe Community Working Party;
- ☐ Kullila Site Consultants;
- ☐ Michael Kelly (on behalf of Ngiyampaa people);
- ☐ Mutthi Mutthi Nations;
- ☐ National Koori Site Management; and
- ☐ Willandra Lakes 2 Traditional Tribal Groups Elders Council.

A consultation log detailing all Aboriginal community consultation undertaken for the Project is provided in Appendix 1. A copy of written correspondence sent to and received from the registered Aboriginal parties is provided in Appendix 1.

Stages 2 and 3 - Presentation of Project Information and Gathering Information about Cultural Significance

The registered Aboriginal parties were provided with a letter outlining the Project information and the proposed methodology for an ACHA in accordance with the ACHCRs (DECCW 2010b). Twenty-eight days were allowed for registered Aboriginal parties to:

- ☐ suggest any protocols to be adopted into the information gathering process and assessment methodology; and
- ☐ highlight any other matters such as issues or areas of cultural significance that might affect, inform or refine the methodology.

Comments on the proposed methodology were received from Michael Kelly (on behalf of Ngiyampaa people and the Mothers Ancestral Guardians Indigenous Corporation). Appendix 1 includes a copy of the proposed methodology that was provided to the registered Aboriginal parties and a full copy of Mr Kelly's comments. These comments are summarised and addressed below.

Mr Kelly commented that:

- *Site searches of the Aboriginal Heritage Information Management System AHIMS. The issue with the site searches on the AHIMS database is that there are Gaps' in the information on country due to lack of recording in specific areas across the state. Also the searches could give an all clear to a specific area once again due to the lack of site recordings. Just because the AHIMS database gives a specific results of sites within an area it doesn't mean that there are no other sites within the area as the initial recording of sites within an area is only a snippet of information of that country. Most sites were recorded in the earlier days when the Archaeologist were sampling sites to try and get an understanding of site types and locations. But they missed the bigger picture such as the Association & Connection between sites and places to understand what makes a cultural landscape.*

A cultural landscape joins all of the site features together to build a bigger picture of the landscape such as occupancy, use, recourses, and connections. The occupancy and use will give a quick snapshot of the areas landscape but when you include recourses and connections this then opens up the landscape to a much bigger picture of country.

The bigger picture includes Vegetation types, Soil types, Landform & Units & Water that all make up a cultural landscape to sustain life for both Humans and Animals.

Once you join the site types to land forms and closest proximity water you then get a quick idea of how people lived within a specific area. For instance a site featuring multiple types such as Hearth, Shell, Artefact, Non Human Bone materials such a fish bone and or bird bone indicates what kinds of recourses were available at the time of occupation within the area. If you have a Hearth this indicates a stable recourse such as trees to create the hearth (Fire) then if you look at the Shell and bone material contained within the Hearth this is your indicator of water recourses within this landscape as water sustains life as for the Artefacts their material types will also give an insight to where they come from and how they may have been used also some materials such as Quartz may have been traded into the area and either coming into the landscape by canoe or overland and traded in times of Ceremony evens. So after just looking at a site containing these site types you can start to build the bigger picture.

The comments regarding the Aboriginal heritage Information Management System (AHIMS) data were noted and agreed with. Therefore, the Project involved field surveys in consultation with the Aboriginal community and consultation with the Aboriginal community in regard to cultural values and significance, and past land use. Cristal Mining welcomes an open consultation programme and any input from the Aboriginal community is paramount to a detailed and robust ACHA.

As provided in Section 13.2, sites with multiple artefact types have generally been assigned a higher scientific significance. Whilst limited specific comment on cultural significance has been provided to date, Cristal Mining recognises the review of the draft ACHA as one of the key steps in which to receive this information and also recognises and appreciates Mr Kelly's comments regarding cultural values/land use processes. This information has been incorporated into Section 13.3 (cultural significance assessment).

Mr Kelly also commented that:

- Materials from site recordings should remain within the landscape and not transferred out of country for scientific purposes and should be kept in a designated keeping place on country to protect their integrity and cultural values. The reason this is mentioned is that there are huge collections of materials held within universities and museums within Australia that have been studied and recorded for many years what the people miss out on with carrying out this process in a uni other than on country is the spiritual connection to country in our beliefs as aboriginal people is that all of our tools and materials retain the spiritual connections to our ancestors through being able to sit down on country to look at our sites & feel the connection of our sitting, looking and feeling the connections you get an appreciation of what our people done to survive within their environment and what kept them in harmony with their landscape. (A Cultural Landscape) Michael (Mick) Kelly's view of cultural connection to country*

Comment noted. Management and mitigation measures (Section 15.1) and recommendations (Section 16) have been updated to reflect these requests.

Mr Kelly further commented that:

- Archaeological significance assessment of information collected by way of research and survey all of our sites are significant to our people as they hold the connection to country and tell the stories for country. Our sites such as artefact scatters and quarries are a teaching tool to show how the materials were graded and used to make items such as blades and wood working tools. If our old people didn't want us to see this material they would have either hidden it or destroyed it to protect its methods of production (Copy Right) so this is why they left it there for us understand the processes of tool making. This also applies to other site types within the landscape. These are just a couple of reasons why our sites are significant to our people and have cultural values. The value of an individual site is not measured on a monetary sense but a cultural sense you may have heard the Question (Well how much is an Aboriginal site worth?) Answer? How much is your life worth? As our people lived and died to protect our knowledge and customs this extends to the knowledge hidden within these sites so this is why there should never be a monetary value imposed on Aboriginal sites only to protect and preserve them.*

Comment noted. Cultural significance assessment (Section 13.3) has been updated to include these comments.

Representatives from the following registered Aboriginal parties were available to conduct the field survey:

- ☐ Balranald LALC;
- ☐ Ivanhoe Community Working Party;
- ☐ Kullila Site Consultants.
- ☐ Mutthi Mutthi Nations; and
- ☐ National Koori Site Management.

Stage 4 - Review of Draft Report

A draft of this report was provided to the registered Aboriginal parties for their review and comment on 7 September 2012 in accordance with the ACHCRs (DECCW 2010b). A total of 29 days were provided to each of the registered Aboriginal parties for comments to be provided.

No written responses were received from the registered Aboriginal parties within the period opened for comment in accordance with the ACHCRs (DECCW 2010b). During the review period all registered Aboriginal parties were contacted by telephone to follow up the circulation of the draft report and to offer to meet to discuss the draft report.

As a result of the telephone contact, the following meetings were held:

- ☐ David Arthur (Cristal Mining) and Jamie Reeves (Niche) attended the Ivanhoe Community Working Party meeting on 10 October 2012 and discussed the Project as a whole and the ACHA and its recommendations in particular.
- ☐ Lucas Burns (Resource Strategies) and Jamie Reeves (Niche) met with Michael Kelly (on behalf of Ngiyampaa people), Leanne Mitchell and Richard Mintern (Willandra Lakes World Heritage Area Advisory Committee) on 11 October 2012 and discussed the Project, the ACHA and its recommendations and potential effects to World Heritage values. Warren Clarke from the Willandra Lakes 2 Traditional Tribal Groups Elders Council also intended to be present for this meeting. Warren did not attend although indicated that Richard Mintern could act for him in the meeting and pass on any relevant information.

Meeting notes for each of these meetings are contained in Appendix 1.

The main outcomes of the meetings and a description of how comments received have been considered are presented below.

The Ivanhoe Community Working Party indicated their support for the recommendations made in the draft ACHA. Further to this the Ivanhoe Community Working Party recommended that the proposed Cultural Heritage Management Plan include:

- ☐ provision for any Aboriginal objects material collected to stay in Ivanhoe, potentially at the library as part of a educational package; and
- ☐ an opportunity for the Ivanhoe Community Working Party to provide direct input into the cultural awareness components of company inductions.

The Ivanhoe Community Working Party provided (at the meeting) some additional history of the Ivanhoe area relating to the Carowra Tank Reserve. This information has been included (and referenced) in Section 6.2.

At the meeting with Michael Kelly (on behalf of Ngiyampaa people), Leanne Mitchell and Richard Mintern (Willandra Lakes World Heritage Area Advisory Committee) there was also support for the recommendations of the draft ACHA. In addition, the following points were requested to be included in the Cultural Heritage Management Plan.

Michael Kelly (on behalf of Ngiyampaa people) commented that:

- ☐ in his opinion the best type of keeping place for the collected objects would be a fenced compound in the area of the sites Campaspe 2 - Campaspe 5;
- ☐ salvaged artefacts should be put back at the end of the mine life; and
- ☐ the Aboriginal community should be involved in campaign clearing works.

In addition to the above, the National Koori Site Management and Kullila Site Consultants advised via phone that they were happy with the draft ACHA and did not need to meet.

The heritage values of the Willandra Lakes Region World Heritage Area were also briefly discussed at the meetings. In regards to the World Heritage values extending beyond the Willandra Lakes Region World Heritage Area and into the Project area it was noted and agreed that there had been no cultural values consistent with the values of the Willandra Lakes Region World Heritage Area identified by either the archaeologists or the registered Aboriginal parties within the Project area. It was also noted and agreed that there had not been any archaeological values of this nature identified in the Project area.

On the basis of comments received on the draft ACHA, several recommendations included in Section 16 have been modified, as follows:

Recommendation 7 (modification in italics):

The development of a surface salvage programme associated with the required upgrades to the proposed mineral concentrate transport route and the Ivanhoe Rail Facility prior to disturbance. The salvage programme should be limited in scope to areas of proposed impact. The purpose of the surface salvage would be to salvage surface archaeological material prior to disturbance. Archaeological material should be stored and managed in accordance with the wishes of the registered Aboriginal parties. *This may include storage of the salvaged material onsite in a fenced area or at an appropriate educational centre such as the Ivanhoe library, or a combination of both.*

Recommendation 12 (modification in italics):

The inclusion of Aboriginal heritage and cultural awareness training as part of the induction programme. *The cultural awareness training should have direct input from the Registered Aboriginal Parties.*

Recommendation 13 (new recommendation):

The ongoing protection and maintenance of areas set aside for conservation, in particular the Campaspe 2 to Campaspe 5 sites, for which the Project disturbance area was modified to avoid.

5. Landscape Context

Understanding the past and present environmental contexts of a subject area is requisite in any Aboriginal archaeological and cultural heritage investigation (DECCW 2010a).

The following section provides details of the fundamental environmental characteristics of the subject area. The section concludes by briefly examining the probable controls on Aboriginal archaeological site location metered by the environmental character of the subject area.

5.1 Past Environmental Context

By 150,000 years ago, 10 km to the west of the Atlas-Campaspe Mine area, low-lying basins were collecting water to form the Willandra Lakes system. Lunettes were beginning to form on the eastern shores of the lakes. From 120,000 to 70,000 years ago, a drier climate resulted in lower water levels in the lakes. Increased precipitation from the Great Diving Range between 60,000 and 40,000 years increased water flow through the Willandra Creek channel and into the lake system.

It is possible that the wetter climate and increased waterflow through paleochannels and creeks of the Lachlan River also resulted in fuller depressions and lakes in the Hatfield area, which is traversed by the mineral concentrate transport route. Currently, the lakes are fed by collected surface water only.

Water flow through the Willandra Lakes system fluctuated between 40,000 and 22,000 years ago as the climate became drier and a dry, cold glacial period began. The landscape became less vegetated, resulting in sediment being blown across the lakes and plain from the west. Glacial melts created changes in the flow of the river. Glacial and aeolian geomorphic processes resulted in the movement of sediment across the landscape. A reduction of water flowing from the Lachlan River into the Willandra Lakes system resulted in the lakes drying out.

Climatic conditions changed again around 18,000 years ago. Sea levels rose and rainfall increased. By 10,000 years ago, the glacial period had ended and the climate was generally stable and semi-arid. The Lachlan River changed course to its current channel and the dune systems began to revegetate (OEH 2012).

The Atlas-Campaspe Mine area is comprised of Quaternary aeolian sands which form locally mobile dune fields and extensive sandplains. These sands have been intermittently deposited over the last 700,000 years, and consist of the older Woorinen formation, and the more recent and more mobile/less consolidated Lowan sands, deposited during the terminal Pleistocene and early Holocene (http://dbforms.ga.gov.au/pls/www/geodx.strat_units.sch_full?wher=stratno=10689, http://dbforms.ga.gov.au/pls/www/geodx.strat_units.sch_full?wher=stratno=20618).

5.2 The Current Environmental Context

In a broad context, the Atlas-Campaspe Mine area falls within the South Olary Murray Basins Sands subregion of the Murray Darling Depression Interim Biogeographic Regionalisation for Australia (IBRA) bioregions, while the mineral concentrate transport route falls within the Lachlan subregion of the Riverine IBRA bioregion (Figure 3). The Atlas-Campaspe Mine area lies in the dunefields and sandplains to the east of the Willandra Lakes Region World Heritage Area.

The Western Land Systems of NSW identifies five land systems across the Atlas-Campaspe Mine area and the proposed infrastructure area, namely, the Arumpo, Bulgamurra, Mandleman, Marona and Wilkurra land systems (Figure 4). The topography of this portion of the Atlas-Campaspe Mine area is generally dominated by dunefields and sandplains; featuring parallel, parabolic and unaligned dunes and low, undulating regions of irregular sandy hummocks. Small relict lake and playa basins, clay pans and depressions may occur in low-lying areas within these landscapes, such as in the mid portion of the Campaspe deposit. Archaeological sensitivity features such as source bordering dunes and lunettes, may be associated with these landforms.

The Atlas-Campaspe Mine area is located 65 km north-east of the Lachlan River and 50 km south of Willandra Creek, a paleochannel of the Lachlan and Murrumbidgee Rivers. The Marona land system, which occurs in the Atlas-Campaspe Mine area, is characterised by dry lake systems (Soil Conservation Service 1991:324,613-5). Temporary water sources such as clay pans and depressions held water after rains and were seasonally used by Aboriginal people, usually during the months when the more distant riverine systems were less likely to provide resources (Allen 1974:312).

Five land systems (Hatfield, Marma, Mulurulu, Yhoul and Wilkurra) have been mapped across the proposed mineral concentrate transport route (Figure 4). Lake and playa basins, clay pans, depressions, dunes and lunettes are common attributes of these land systems.

The Ivanhoe Rail Facility lies within the Hatfield and Manara land systems (Figure 5).

The climate within the Project area is semi-arid. Climate data retrieved from the Bureau of Meteorology's records at the Balranald weather station, approximately 80 km south of the subject area, from 1879 to 2011 show average maximum temperatures occur in January (39.5 degrees Celsius [°C]), while average minimum temperatures occur in July (12.4°C). Average annual rainfall ranges between 268 millimetres (mm) to 323 mm and is consistent throughout the year (http://reg.bom.gov.au/climate/averages/tables/cw_049002.shtml).

5.3 Geology, Soils and Geomorphic Activity

The Atlas-Campaspe Mine area lies within the Murray Basin. The following description of the Murray Basin geology is derived from Brown and Stephenson (1991) and Bemax Resources Limited (2011:3.1). The Murray Basin is defined by Cainozoic sediment which extends over 320,000 square kilometres (km²) in NSW, Victoria and South Australia. The Cainozoic sediment overlies Proterozoic and Lower Palaeozoic basement rocks over most of the basin. Devonian to Cretaceous aged rocks are present in the smaller infrabasins within the Murray Darling Basin and occur as thin erosional remnants of platform cover.

Three major depositional events form the Tertiary succession to the Cainozoic sediments, each separated by disconformity and involve marine sedimentation in the centre and south-east of the basin. The third sequence, from Upper Miocene to Pliocene, was formed in an environment of fluvial flood plain to the east, flanking a marine strand plain of beach ridges with inter ridge fluvial and estuarine quartz sand deposits to the west and south. Marine clay was deposited to form the Bookpurnong beds and Loxton Parilla sands during marine transgression.

To the east fluvial and lacustrine deposits of the Calivil D Formation formed a widespread sand sheet. Subsequent Pliocene marine regression resulted in the westward migration of the shoreline and the distribution of quartz sandsheet of the Loxton Parilla Sands, characterised by the development of extensive shoreline dune ridges. In the east, sand and gravel of the Shepparton Formation were deposited in a floodplain environment.

The Shepparton formation deposition continued into the early Pliocene and forms the ground surface of the basin in a large portion of the area and south-east. The fluvio-lacustrine Blanchetown Clay was deposited over a wide area in the west at the same time. Tertiary and early Pleistocene sediments were concealed beneath Pleistocene to early Holocene sediment formed in an arid to semi-arid environment. The most extensive deposits are recent aeolian sands. There are a number of small and widely distributed occurrences of saline lake deposits, lacustrine clay, aeolian dunes, calcrete, colluvial deposits and alluvium of relict and active river channels.

The subject area is geomorphically stable, however there are parts of the subject area where there has been accelerated erosion caused by the area's pastoral history. In these parts erosion is the primary geomorphic activity, and the resultant features include eroded pans and scalds where vegetation has been removed and the aeolian sands have deflated. Other areas of erosion are restricted to mechanical disturbance associated with rural infrastructure (ground tanks, cut lines for fences) and mineral exploration lines.

The Soil Conservation Service of NSW produced a technical report in 1991 which mapped and described the land systems of western NSW (Soil Conservation Service 1991). A land system is defined as "an area or group of areas throughout which there is a recurring pattern of topography, soil and vegetation" (Soil Conservation Service 1991:3). Land systems are particularly useful for the consideration of past Aboriginal land use because they take into consideration many of the variables which will also have patterned the archaeological record, such as the topography, local drainage, local resource availability and landscape antiquity and preservation. As a general observation for the whole subject area, Aboriginal objects (stone artefacts and ovens) are most likely to be located in these areas of disturbance or deflation, where the topsoil has been disturbed and/or removed.

The subject area occurs on the rangeland landforms and land systems presented in Table 2, and as mapped by the Soil Conservation Service (Soil Conservation Service 1991) (Figures 4 and 5).

Rangeland Landform	Land System	Subject Area	Area (km ²)	Percent (%) of Subject Area
Dunefields	Arumpo	Atlas-Campaspe Mine	20.69	31.88
	Mandleman	Atlas-Campaspe Mine	6.65	10.25
Sandplains	Bulgamurra	Atlas-Campaspe Mine	17.40	26.81
	Hatfield	Total	4.42	6.81
		Mineral Concentrate Transport Route	(2.82)	4.35
		Ivanhoe Rail Facility	(1.60)	2.46
	Mulurulu	Mineral Concentrate Transport Route	0.14	0.22
	Wilkurra	Total	9.64	14.85
		Atlas-Campaspe Mine	(9.05)	13.94
		Mineral Concentrate Transport Route	(0.59)	0.91
Playas and Basins	Youhl	Mineral Concentrate Transport Route	2.72	4.19
	Marona	Atlas-Campaspe Mine	2.61	4.02
Alluvial Plain	Marma	Mineral Concentrate Transport Route	0.39	0.60
Plains	Manara	Ivanhoe Rail Facility	0.24	0.37
Grand Total			64.9	100.00

Table 2. Proportion of the Subject Area per Land System

Brief descriptions of each land system are presented below, and where applicable particular comments are made with regard to the potential for the land systems to contain past traces of Aboriginal land use.

Dunefields

Arumpo

The Arumpo land system consists of linear east-west dunes as well as sandplains and narrow swales. The dunes comprise of deep brown soils and calcareous sands, covered in dense Mallee and Porcupine Grass (*Triodia scariosa*) and moderately dense to less dense inedible shrubs. The sandplains are made up of brown sands and calcareous red soils. Dense Mallee covers much of the sandplains but there are also occurrences of Porcupine Grass, inedible shrubs and edible chenopods. The narrow swales and flats are characterised by mostly level slopes (to 2% slope) and solonized brown soils with some occurrence of yellow and brown soils. Dense Mallee, Belah (*Casuarina crisata*) and Rosewood (*Acacia excelsa*) as well as scattered shrubs cover the swales and flats (Soil Conservation Service 1991:38-9). The parallel dunes and small swales and flats contain no landscape features which would have been a focus of past Aboriginal land use, and therefore there is low archaeological potential. This landscape may contain isolated finds of stone artefacts and resource and gathering sites.



Plate 1: Example of mallee and Porcupine Grass in the Arumpo land system



Plate 2: Example of Arumpo landsystem with vegetation transitioning to Belah woodlands

Mandleman

The Mandleman land system comprises of parabolic and unaligned aeolian dunes merging into sandplains. The dunes, covered in dense Mallee and Porcupine Grasses, are characterised by deep siliceous brown coloured sands. The sandplains consist of brown sands and red soils and are covered in dense to sparse Mallee. Both the dunes and sandplains also contain moderately dense inedible shrubs (Soil Conservation Service 1991:338-9). From an archaeological perspective the Mandleman land system contains no features which would have been a focus of past Aboriginal land use, and hence does not have notable archaeological potential. It may contain isolated finds of stone artefacts and resource and gathering sites such as Malleefowl (*Leipoa ocellata*) mounds and food or medicine plants.



Plate 3: Example of mallee and Porcupine Grass in the Mandleman land system

Sandplains

Bulgamurra

The Bulgamurra land system comprises extensive undulating sandplains with some dunes and large open flats. The sandplains are characterised by loamy and sandy brown soils with scattered to moderately dense Belah, Rosewood and Wilga (*Geijera parviflora*). White Cypress Pine (*Callitris glaucophylla*) and Sugarwood (*Myoporum platycarpum*) also occur on the sandplains. The undulating sand rises consist of deep brown siliceous soils, and are covered in moderately dense Mallee. The dunes within the Bulgamurra land system have deep brown and siliceous sands with areas of solonized brown sands. The dunes are vegetated by moderately dense Belah, White Cypress Pine and Mallee (Soil Conservation Service 1991:90-1). This flat sandplain with sandy rises and flats contains depressions and swamps, which will have been a focus for Aboriginal land use in the recent past, because such landscape features present a relatively reliable surface water source and a relative abundance and diversity of associated resources (especially compared to the otherwise undifferentiated plains and dunes of the surrounding and neighbouring land systems). Resources include the presence of Black Box (*Eucalyptus largiflorens*), invertebrates, reptiles, bird life and mammals attracted to or living in the water, and plants, such as nardoo. Swamps and depressions are likely to have source bordering dunes associated with them, and these features may contain buried archaeological remains which have the potential to be relatively old compared to the surface assemblage.

As a land system that contains a relatively high diversity of resources in an otherwise undifferentiated surrounding landscape of plains and dunes, the Bulgamurra land system has very good archaeological potential. This potential will be particularly expressed where there are swamps and water holding depressions.



Plate 4: Bulgamurra land system - example of mallee surrounding a depression with Black Box in the background



Plate 5: Wilga and Belah in the Bulgamurra land system

Hatfield

The Hatfield land system is characterised by extensive undulating plains vegetated by dense bluebush. The extensive and slightly undulating plains (slope to 2%) comprise of deep solonized brown soils and brown and red sandy soils with occurrences of calcareous red earth. The plains are densely vegetated by Black Bluebush (*Maireana pyramidata*) and speargrass with variable occurrences of Belah and Rosewood. The dunes consist of deep siliceous sands and are covered by scattered White Cypress Pine, Belah, Rosewood and Mallee. Small depressions also occur in this land system, they are usually isolated and have grey deeply cracking clays. Scattered Black Box occur in and around the depressions (Soil Conservation Service 1991:236-7). The Hatfield land system contains dunes, rises, swales, depressions and plains. Although it is generally an undifferentiated undulating plain with little relief and with few trees, its proximity to the relict lakes of the Youhl and Marma systems indicate that it has archaeological potential, especially near the transition of one land system to the other. This is because the relict lakes and floodplains would have likely been a rich resource environment in the past, and would have been a focus for Aboriginal land use. Perched above the lacustrine systems, the Hatfield landscape would have provided an excellent locality for settlement in proximity to the lakes and water sources.



Plate 6: Plains within the Hatfield land system

Mulurulu

The Mulurulu land system is characterised by level to slightly undulating sandplains comprising of red sandy earth and sandy solonized brown soils. The sandplains in this land system are vegetated by scattered Belah, Rosewood and Black Bluebush. Sandy rises and dunes also occur, they are deep siliceous red sands covered in moderately dense Mallee, White Cypress Pine and Rosewood. Depressions and swamps are characterised by compact and cracking grey clays with isolated occurrences of Black Box and Cane Grass (*Eragrostis australasica*). The swales and flats, in the Mulurulu land system, are made of sandy loamy solonized soils and covered in scattered Belah, Rosewood and Black Bluebush (Soil Conservation Service 1991:369-70). The Mulurulu system is similar to the Hatfield system in that it is an undulating plain with rises, low dunes and swales. The system may also contain depressions which will have been a focus for recent past Aboriginal land use, such as described above for Bulgamurra land system. The Mulurulu land system therefore has good archaeological potential for the same reasons described for Hatfield and Bulgamurra. To the west, at Lake Mungo, many archaeological sites have been recorded and associated with this land system.



Plate 7: Low rises within the Mulurulu land system



Plate 8: Plains within the Mulurulu land system

Wilkurra

The Wilkurra land system is characterised by level sandplains of highly calcareous brown soils and covered in dense Belah and Rosewood. Scattered Mulga (*Acacia aneura*), Wilga and inedible shrubs also exist on the Wilkurra sandplains. Dunes of brown sands, covered in dense Mallee or Belah, also occur within this land system (Soil Conservation Service 1991:567). Similar to the Mandleman land system in that it is undifferentiated sandplains with low dunes and rises, the Wilkurra land system contains no features which would have been a focus of past Aboriginal land use, and hence does not have notable archaeological potential. It may contain isolated finds of stone artefacts and resource and gathering sites.



Plate 9: An example of the Wilkurra land system with cypress pine and Belah



Plate 10: An example of the Wilkurra land system with Mallee and Belah

Playas and Basins

Youhl

The Youhl land system consists of relict lake systems adjacent to the Riverine Plains. The relict lake beds consist of grey cracking clay and red soils and are usually treeless, although abundant grasses and saltbush stands do occur. The Youhl land system also consists of sandplains, lunettes and sandy rises as well as isolated depressions. Like the dry lakes, the lunettes are essentially treeless with a generally dense coverage of Bladder Saltbush (*Atriplex vesicaria*) and Black Bluebush. The shallow depressions comprise of saline clays with red soils and non-cracking clays. Old Man Saltbush (*Atriplex nummularia*), Bladder Saltbush and Cane Grass all occur in the depressions. The sandy rises, vegetated by scattered Rosewood, Belah, Needlewood (*Hakea leuoptera*), Black Bluebush and grasses, are made of deep brown earthy sands and calcareous red earths (Soil Conservation Service 1991:613-5). Consisting of relict lakes and depressions, and lunettes and rises, this land system has good archaeological potential. The presence of depressions and ephemeral water sources suggest the area may have been utilised by Aboriginal people in the recent past. Relict lakes and associated deposits have the potential to contain older, buried archaeological deposits. Particularly sensitive areas are likely to be lunettes and areas adjacent to depressions which have a slight change on topography.

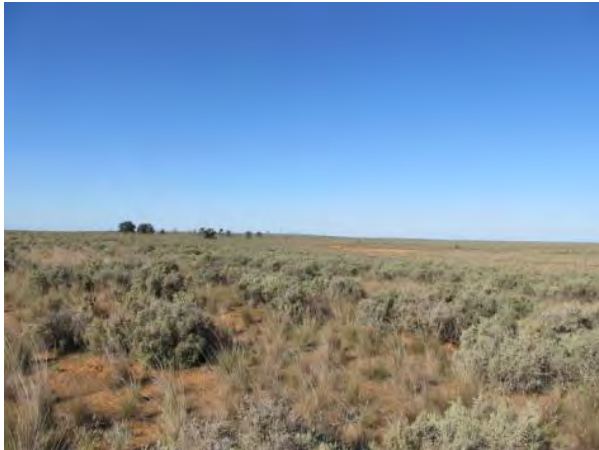


Plate 11: Dunes overlooking a basin within the Youhl land system Plate 12: Exposures within the Youhl land system

Marona

The Marona land system comprises of relict lake systems merging into dunefields. The small relict lakes are crested by lunettes made of deep red earthy sands and brown sands with isolated areas of red solonized sands. The lunettes are covered in dense Mallee and scattered shrubs. The small lakes are characterised by saline gypseous calcareous clays covered in scattered Dillon Bush (*Nitraria billardierei*) and tobacco tree (Soil Conservation Service 1991:342). Features associated with this land system that have archaeological potential include lunettes and relict basins and pans, which may have provided attractive places for settlement and resource gathering. Notably, 18 Aboriginal archaeological sites including stone artefacts and ovens have been recorded on this land system at the proposed Paxtons White Plains Gypsum Mine, approximately 20 km west of the Atlas-Campaspe lease.



Plate 13: Dunefields in the Marona land system

Alluvial plains

Marma

The Marma land system is characterised by ill-defined drainage channels associated with the relict Riverine Plain and having scalded levees associated with swamps, pans and lunettes. The open and slightly undulating sandplains are made of loamy red earths, solonized brown soils and sandy red soils. The sandplains are vegetated by isolated clumps of Belah, Rosewood and Black Bluebush and are covered in abundant grasses. The lunettes comprise of brown sandy soils and saline clays; less densely vegetated by Bladder Saltbush and Black Bluebush. The swamps and pans are made of deep grey cracking clays and are vegetated by sparse goosefoot and Dillon Bush. While the floodplains also contain deep grey cracking clays, as well as, red and brown soils. The floodplains are covered in dense grasses, Bladder Saltbush and Old Man Saltbush (Soil Conservation Service 1991:340-1). The Marma land system contains active floodplains and swamps, and includes levees and lunettes. The land system is considered to have good archaeological potential as it is an area that would have frequently contained surface water, and associated resources therefore making it an attractive place for settlement and use by Aboriginal people in the past. Stone artefact sites are the most likely site type to occur, and archaeological deposits may be present buried in lunettes. Sites are also likely to be situated on the edges of levees. The land system is severely scalded, meaning past traces of Aboriginal land use should be readily visible on the ground surface.



Plate 14: Depressions within the Marma land system



Plate 15: Dune, lunettes and pans within the Marma land system

Plains

Manara

The Manara land system consists of extensive level plains of Quaternary alluvium, with minor aeolian reworking into small dunes and low rises. There is only low relief and drainage consists of scattered small terminal drainage sinks. Vegetation on this land system consists primarily of Belah, Rosewood and Mulga, with Bimble Box (*Eucalyptus populnea*) present in association with water (Soil Conservation Service 1991:336-7). Only a very small part of the Project falls within this land system, being the western part of the Ivanhoe Rail Facility survey area. The land system is considered to be of low archaeological potential, save for those areas near sinks and gilgais, or isolated dunes. These areas of differentiation on the landscape would likely have been utilised by Aboriginal people in the past.



Plate 16: The Manara land system, near Ivanhoe

Raw Material Sources

Bowler (1998:150-1, Allen and Holdaway 2009:101) noted silcrete was widespread in the Willandra Lakes Region World Heritage Area with exposures on the western shore of Lake Mungo, west of Lake Garnpung and as gravels on the western shores of Outer Arumpo, Lake Mungo and on the Leaghur Peninsula. These silcrete sources are all located 20 km to 25 km from the western boundary of the Project (Johnston and Clark 1998:116).

Silcrete cobbles with a gibber-like varnished cortex were observed in the mid-section of the Campaspe deposit in a ploughed field. The cobbles were present at and near the soil surface in the ploughed field, and were also observed to occur naturally on the ground surface in areas where there had been no ploughing or vegetation clearing. The cobbles were irregularly shaped, rounded and sub-rounded, and ranged in size between 30 mm and 150 mm maximum dimension. Although the area is now quite heavily disturbed by ploughing, it is likely this locality, and possibly other areas not yet identified, were used by Aboriginal people in the past as a source for stone artefact raw material as artefacts of the same size range, the same shape and with the same cortex were found frequently at the nearby sites Campaspe 2 to Campaspe 5.



Plate 17: Cobbles in natural exposure



Plate 18: Flaked cobble

5.4 Flora and Fauna

The Riverine Plain and Murray Darling Depression in which the subject area is located is characterised by a combination of semi-arid communities. The vegetation communities in the subject area fall into three broad categories, dependent on the rangeland landform on which they occur. Dunefields are dominated by generally dense Mallee, with Porcupine Grass and shrubs, there are occasional and isolated occurrences of other trees, such as Belah and Rosewood in heavier soil conditions such as swales. Sandplains contain either dense communities of trees including Belah, White Cypress Pine and Wilga, with small bushes and grasses, or open areas dominated by saltbush, with scattered clumps of trees. Notably, sandplains can also contain differentiated depression areas which contain markedly different vegetation communities, such as the Black Box, as described above. Playas and basins/alluvial plains are generally treeless areas with low relief dominated by saltbush, occasionally there may be scattered trees.

The floral and faunal resources of the subject area today vary to those that would have been available in very old archaeological contexts, such as Lake Mungo. In brief, relict lake systems such as those in the Willandra Lakes Region World Heritage Area, and those traversed by the proposed mineral concentrate transport route (which follows existing public roads) would have been active lakes and floodplains during much of the terminal Late Pleistocene epoch. During this time the area was also settled by Aboriginal people as evidenced by the cultural record at Lake Mungo, which spans 50,000 years ago to the present day (Johnston *et al.* 1998). In more recent times, during the Holocene epoch (approximately 10,000 years ago to the present) the region has been characterised as semi-arid with more intermittent and ephemeral water availability in surface features such as swamps, depressions and relict lakes.

Faunal resources which would have been available to Aboriginal people in the deep and recent past would have included mussels, yabbies, fish, birds including Emus (*Dromaius novaehollandiae*) and a variety of marsupials, including now extinct megafauna (Hiscock 2008:69). Table 3 contains a list of the traditional plant and animal resources that were observed during the cultural heritage survey. The list is not exhaustive, and is based on opportunistic observations rather than targeted searching. It should be noted that the subject area likely contains further resources than just those listed (such as emu bush which is an important medicine plant), but these were not observed during the survey.

Resource	Traditional Uses	Local Observations	Information Reference
Belah	Good cooking wood, leaves used to flavour some meats.	A very common tree on the sandplains of the Project area.	Harris <i>et al.</i> 2000
Wilga	Seeds can processed to make flour.	A common tree in the sandplains and sand dunes.	Harris <i>et al.</i> 2000
White Cypress Pine	Tools: Wood from young trees used to make spears. Medicine: The sap has antiseptic properties.	Common tree on the sandplains.	Lower Murray Darling CMA 2010
Kaakala/Thupa/ Bush Banana	Fruit and roots eaten.	The vines were common in the sand dune areas.	Survey team Harris <i>et al.</i> 2000
Mallee Fringe Lily	Yam-like root can be eaten raw.	Found to be present in sandy areas of the Project area.	Survey team Harris <i>et al.</i> 2000 Lower Murray Darling CMA 2010
Nardoo	Seeds can processed to make flour.	Abundant in depressions and roadside drains.	Harris <i>et al.</i> 2000 Lower Murray Darling CMA 2010
Old Man's Weed	Medicine plant – boiled: liquid used as a balm.	Present in some depressions and dams.	Survey team Harris <i>et al.</i> 2000 Lower Murray Darling CMA 2010
Rosewood	Fruit can be eaten raw. Seeds can be processed into flour. Wood is good for tool making.	Present on the sandplains, often in groves in Belah/pine country.	Harris <i>et al.</i> 2000 Lower Murray Darling CMA 2010
Inland Pig Face	Edible succulent.	Common in depressions and swamps.	Lower Murray Darling CMA 2010
Snotty Gobble	Fruit eaten raw.	Abundant in sand dune and sandplains country.	Survey team Harris <i>et al.</i> 2000
Black Box	Wood and bark used for tools and shelter.	Abundant around depression adjacent to the Campaspe footprint.	Survey team Harris <i>et al.</i> 2000
Leopardwood	Wood used for tools and ornaments. Gum can be eaten.	Present in small numbers at Ivanhoe Rail Facility.	Survey team Harris <i>et al.</i> 2000
Old Man Saltbush	Leaves can be eaten in small quantities.	Abundant in relict lake areas.	Lower Murray Darling CMA 2010
Ruby Saltbush	Fruit eaten raw.	Abundant in relict lake areas.	Survey team Lower Murray Darling CMA 2010
Old Man's Beard	Medicine plant.	Common vine on sandplains.	Survey team
Hop Bush	Used as a broom and for fire starting.	Very common on sandplains.	Lower Murray Darling CMA 2010
Porcupine Grass	Gum from seeds used for hafting tools.	Very common on sand dunes.	Lower Murray Darling CMA 2010
Emu	Eggs and meat cooked and eaten.	Common across the Project area.	Survey team Harris <i>et al.</i> 2000
Malleefowl	Eggs cooked eaten.	Present in sand dunes.	Survey team Harris <i>et al.</i> 2000
Bearded Dragon	Eggs cooked and eaten.	Common across the Project area.	Harris <i>et al.</i> 2000
Bogeye	Animal gutted, cooked and eaten, though maybe not in southern Ngayampaa and Mutthi Mutthi country.	Common across the Project area.	Survey team Harris <i>et al.</i> 2000
Kangaroo	Meat cooked and eaten.	Common across the Project area.	Survey team Harris <i>et al.</i> 2000
Duck	Meat cooked and eaten.	Present in ephemeral depressions.	Survey team Harris <i>et al.</i> 2000

Table 3. Local Traditional Resources and their Occurrence within the Project Area

In conclusion there is no doubt that the Project area contains abundant resources, although the presence of water is ephemeral and generally restricted to the surface (rather than creeks and rivers) in small lakes and depressions. It follows that the past Aboriginal land use of the area was probably dependent to some extent on local rainfall conditions. This is not to say the area would not have been part of a settlement of the landscape except for the presence of water, but rather that we may expect that the subject area may have seen more intensive settlement and use when water and additional resources were available. The archaeological signature of such a settlement pattern and the traces of past Aboriginal land use are discussed further below.

5.5 Land Use History

Western NSW has a rich and long history of human occupation. Archaeological evidence suggests the Willandra Lakes Region World Heritage Area has been inhabited by Aboriginal people for around 50,000 years (Hiscock 2008:44).

European exploration of the region began in the late 1820s when Sturt's expedition along the Murrumbidgee River brought his party to the site of Balranald. Subsequent expeditions, led by Mitchell and then Burke and Wills, also visited the Balranald area.

Settled around 1850, the Balranald region has a history of pastoralism. The township of Ivanhoe was settled slightly later, around 1870, and was at the junction of roads leading to Balranald and Booligal, as well as Wilcannia along the Darling River.

19th Century Land Use

European use of the region began in the early 19th century when explorers such as Sturt, Mitchell and Burke and Wills set out to explore the interior of Australia. The township of Balranald was the earliest settlement on the Lower Murrumbidgee. Largest pastoral stations were also established early, the primary economy being large cattle and sheep stations.

In an attempt to complete Oxley's exploration of 1818, Captain Charles Sturt was the first European to explore the western regions of the Murrumbidgee and Murray Rivers. On a quest to locate an inland sea during two expeditions, Sturt, in 1829 and 1830, travelled along the Murrumbidgee to what is now known as Balranald and the surrounding areas (Sturt 1833). In 1835, Major Thomas Mitchell, explored the Darling, Murrumbidgee and Lachlan systems. Mitchell and his party stopped briefly at in the locality of what is now Balranald (Mitchell 1838). Burke and Wills, in their exploration of the interior, also visited the area in the 1860's (Wills 1863).

Pastoralism began in the region prior to 1850. Around 1847-1848, Commissioner James McDonald arrived in the area with a police escort. A general store and pub were built in the late 1840s. Commissioner McDonald recommended the township of Balranald be established in 1849 and in 1851 the town was gazetted. George Lee, in 1847, took up the first land lease in the area. The lease incorporated land that is part of the proposed Atlas-Campaspe Mine area. In the 19th century, the Atlas-Campaspe Mine area was partially owned by the Rowe family, who held Magenta Station and Solfernio Station (now Boree Plains Station) (Landsape 2011:10).

Ivanhoe was settled slightly later in the 1870s, when the postmaster from Booligal purchased land which was to become the current locality of Ivanhoe. The purchase of this land was made as a business venture, due to it being located at the intersection of roads leading to Balranald and Booligal and the river to Wilcannia (Central Darling Shire Council 2012). The proposed Ivanhoe Rail Facility is located on land which formed part of the Yelty homestead. Two Mile Tank is located south-west of the subject area. The Ivanhoe Railway Station was opened in 1925 and was originally used solely for freight. In 1927, a passenger service was added.

At one point in the late 19th century 17 hotels were established and operating on the Balranald to Ivanhoe Road. Many of these, such as the Homebush Hotel at Penarie (which is the only hotel still open on the road) had operated as Cobb and Co staging posts. The Hatfield Hotel and the Junction Hotel are located near to the proposed Atlas-Campaspe Mine. The Hatfield Hotel was built in 1870 and closed in the 1990s. The largely intact buildings are still standing and are prominent landmarks today along Balranald-Ivanhoe Road. The Junction Hotel also dated to the 1870s, and was situated at the corner of the Ivanhoe and Magenta Roads, to the south of the proposed mineral concentrate transport route. The ruins of the Junction Hotel were visible from the Balranald-Ivanhoe Road.

As with much of NSW and Victoria, the Balranald district had local bushrangers in the latter 19th century. The Balranald-Hatfield area gained brief notoriety in February 1879, through the activities of the Hatfield Bushrangers, whose exploits were reported in the newspapers of all the eastern colonies. The Hatfield Gang consisted of four men who were all at the time working in the Hatfield area. Thomas Gorman, a 21 year old jockey and stockman, Charles Jones, a 21 year old stockman from Queensland, William Kaye, 19 and a stockman from the local area, and William Hobbs, a 33 year old ex-sailor with a deformed right arm and right leg (The Argus 8 March 1879). The three stockman were engaged in rounding up wild horses in the area, whilst Hobbs was employed as cook at the Hatfield public house.

On 21 February 1879 a disagreement with a local landowner led to the gang having a violent altercation with the owner, Mr Grainger, and his store keeper Mr Day, during which two shots were fired at Day. The gang robbed the store of 50 pounds (£) and took two horses (The Argus 8 March 1879).

Day had managed to escape the earlier scene at the store, and rode to Balranald where he alerted the police to the gang's activities, and was made special deputy. The Hatfield Gang began to move north along the Balranald-Ivanhoe Road, robbing a hawker of £40 worth of clothing and jewellery. During this robbery the Hatfield Gang referred to themselves as "the Kellys" (at this time the actual Kelly Gang had been declared outlaws, and had robbed the Bank of NSW in Jerilderee only two weeks earlier). The Hatfield Gang continued travelling north, next holding up Till Till Station and again pretending to be the Kellys. After holding 20 people hostage the gang took six horses, ammunition and goods from the station's store and set out in the direction of Magenta Station (which is adjacent to the mineral concentrate transport route). However, the gang next appeared in Clare, staying briefly, paying for drinks and supplies and stating their intent to travel to Queensland. The gang continued travelling, overnighing at a boundary hut of Kilfera Station, and presenting at the station the next day, where they were not known or recognised. The gang once again stated that they were travelling to Queensland, bought rations from the store, and asked after the mail coach, which travelled from Ivanhoe to Balranald and was due at Kilfera the next day (The Argus 8 March 1879, The Sydney Morning Herald 24 February 1879).

Day and Balranald's only two police officers pursued the gang. Riding virtually non-stop, the police and special deputy Day were provided assistance from local stations, including 'the best horses' from Magenta Station. They were joined by an Aboriginal tracker in Clare, and preceded to Kilfera Station, where they tracked the Hatfield Gang to their camp and taking the gang into custody after a brief gunfight in which one of the police officers was shot in the shoulder (The Argus 8 March 1879, The Kerang Times and Swan Hill Gazette 7 March 1879, The Sydney Morning Herald 24 February 1879).

The Hatfield Bushrangers - Gorman, Jones, Kaye and Hobbs - were tried in Deniliquin on 18 April for shooting with intent to murder, the jury finding them guilty after 3 minutes deliberation (The Argus 19 April 1879). Death sentences were handed down the next day for all four men (despite the jury recommending Hobbs be shown mercy). The sentences were later commuted to life imprisonment (The Australian Town and Country Journal 19 May 1879).

20th Century Land Use

The land use of the Atlas-Campaspe Mine area and the surrounding region is generally limited to large cattle and sheep stations and low-intensity farming. A historic 1910 map from the board of lands, showing the western NSW land lease, identifies the area as the Kilfera lease area. A Kilfera parish map dated to 1923 shows the region was broken into large pastoral lots (Figure 6).

Although the pastoral lots have changed owners and names numerous times, the land use has generally been limited to its original use of pastoralism, predominantly the stocking of sheep. While the number of sheep stocked on the land waxes and wanes depending on rainfall, overall the numbers of sheep in the 20th century have been far lower (only about 60%) than those stocked on the lands of western NSW in the latter half of the 19th century. This is a result of continuous deterioration of the lands due to the heavy stocking of the 19th century and large droughts (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996).

5.6 Summary

The examination of the environmental context of the subject area suggests the following points regarding the nature and type of archaeological record to be found within it:

- ❑ Water availability in the subject area is likely to have fluctuated over time and may be a limiting factor to the frequency and density Aboriginal occupation in the Atlas-Campaspe Mine area.
- ❑ The vegetation mosaic described for the subject area suggests that a diverse range of exploitable plant resources were available providing numerous habitat opportunities for a range of potential animal foods.
- ❑ The close proximity of the subject area to lacustrine and potential swamp or wetland habitats suggest an abundance of exploitable shellfish and bird resources were seasonally available for exploitation throughout various points in time.
- ❑ Wind-blown sands reduces the likelihood of finding Aboriginal objects except in exposures within the subject area.
- ❑ The basement geology does not support the presence of rock shelters or overhangs and hence rock engravings, painted art and shelter deposits are precluded site types within the subject area.

- ❑ The expedient use of stone resources such as the locally available silcrete is possible and hence it is these rock types that are likely to dominate artefact assemblages.
- ❑ Past land use disturbances, such as vegetation clearance, grazing and modifying waterflow in the catchment area, will affect the potential for Aboriginal objects to occur in *in-situ* depositional contexts, and will be further compounded by natural geomorphic activity through erosion and wind-blown sediment movement.

6. Previous Archaeological Work

6.1 Heritage Register Search Results

OEH Aboriginal Heritage Information Management System

Searches of the AHIMS database have shown there are no previously recorded Aboriginal archaeological or cultural sites within the Atlas-Campaspe Mine area. This absence was due to a lack of study rather than an absence of sites. AHIMS searches of the wider landscape surrounding the proposed Atlas-Campaspe Mine show that there are 101 sites recorded in the surrounding area, situated for the most part in the Mungo National Park, Willandra Lakes Region World Heritage Area (Johnston *et al.* 1998), and the nearby proposed Paxtons White Plains Gypsum Mine (Edmonds 2002) (Figure 7 and Table 4).

No Aboriginal heritage sites have been previously recorded in the vicinity of the Ivanhoe Rail Facility.

Site Features	Frequency
Artefact	42
Artefact, Hearth	18
Artefact , Hearth , Potential Archaeological Deposit (PAD)	7
Hearth	4
Burial	3
Burial, Hearth, Artefact	3
Burial, Shell, Artefact, PAD	3
Artefact, Shell, PAD	3
Artefact, PAD	2
Burial, Artefact	2
Burial, Artefact, PAD	2
Burial, Hearth, Artefact, PAD	2
Artefact, Shell	2
Burial , Hearth , Shell, Artefact	1
Burial, Shell, Artefact	1
Hearth, Potential PAD, Shell	1
Artefact, Stone Quarry, Hearth, PAD	1
Artefact, Shell , Hearth , PAD	1
Artefact, Stone Quarry	1
Artefact , Earth Mound , Shell	1
Artefact, Hearth , Shell	1
Grand Total	101

Table 4. Aboriginal Sites in the Area Surrounding the Atlas-Campaspe Mine

Other Heritage Registers

Historical heritage sites are not uncommon in the small country towns of western NSW. Searches of relevant heritage registers were undertaken as part of the assessment of historical heritage within the Project area. The registers which were searched include:

- ☐ NSW State Heritage Register;
- ☐ NSW State Heritage Inventory;
- ☐ Australian Heritage Database;
- ☐ *Balranald Local Environmental Plan 2010* (Balranald LEP);
- ☐ *Central Darling Local Environmental Plan 2004* (Central Darling LEP); and
- ☐ Register of the National Trust of Australia (NSW).

Separate searches were completed for the Atlas-Campaspe Mine area and the Ivanhoe Rail Facility area; the searches and results are outlined below.

Atlas-Campaspe Mine

No heritage sites listed on the registers occur within the Atlas-Campaspe Mine area (Table 5). The closest listed site is Willandra Lakes World Heritage Area which is listed on the NSW State Heritage Register, NSW State Heritage Inventory, Australian Heritage Database and the Balranald LEP.

Heritage Register	Date of Search	Results
1. NSW State Heritage Register	3 May 2012	Nil for Atlas-Campaspe Mine area
2. NSW State Heritage Inventory	3 May 2012	Nil for Atlas-Campaspe Mine area
3. Australian Heritage Database	3 May 2012	Nil for Atlas-Campaspe Mine area
4. Balranald LEP	3 May 2012	Nil for Atlas-Campaspe Mine area
5. Register of the National Trust of Australia (NSW)	3 May 2012	Nil for Atlas-Campaspe Mine area

Table 5: Search results for the Atlas-Campaspe Mine Area

The Willandra Lakes Region World Heritage Area is listed on the NSW State Heritage Register, NSW State Heritage Inventory, Australian Heritage Directory and the Balranald LEP due to its cultural significance and continuous demonstration of human occupation of the region for over 40,000 years. The statement of significance recorded for this site on the NSW State Heritage Register recognises the Willandra Lakes Region World Heritage Area for its evidence of continuous human occupation and its history of inland exploration, early farming and pastoralism in western NSW. The Willandra Lakes Region World Heritage Area is also recognised for its natural heritage significance, containing the world's largest clay lunette as well as a record of a low-altitude, non-glaciated Pleistocene landscape.

A description of the World Heritage and National Heritage values for the Willandra Lakes Region World Heritage Area is provided in Section 14.3. An assessment of the potential impact of the Project on the World Heritage and National Heritage values of the Willandra Lakes Region World Heritage Area is also provided in Section 14.3.

Ivanhoe Rail Facility

No heritage sites listed on the registers occur within the proposed Ivanhoe Rail Facility area (Table 6). One heritage site of state significance (the Ivanhoe Railway Precinct, listed on the Railcorp s.170 Register) is located approximately 4.2 km to the east of the Ivanhoe Rail Facility.

Heritage Register	Date of Search	Results
NSW State Heritage Register	18 May 2012	Nil for Ivanhoe Rail Facility area
NSW State Heritage Inventory	18 May 2012	Nil for Ivanhoe Rail Facility area
Australian Heritage Database	18 May 2012	Nil for Ivanhoe Rail Facility area
Central Darling Shire LEP	18 May 2012	Nil for Ivanhoe Rail Facility area
Register of the National Trust of Australia (NSW)	18 May 2012	Nil for Ivanhoe Rail Facility area

Table 6. Heritage Register Listings

The Ivanhoe Railway Precinct includes the railway station building, signal box, water tank and other associated infrastructure which date to 1925 when the station was opened. The precinct includes the area 20 metres (m) in either direction past each of the listed items (Forsyth 2009). The Ivanhoe Railway Precinct is one of the most remote and still intact railway stations in western NSW. It was post-World War I when the railway was taken to Ivanhoe, finally connecting this part of western NSW to Sydney. When the railway was opened in 1925, it was only used for freight, it was not until 1927 when the first passenger steam train serviced Ivanhoe (Forsyth 2009). The Ivanhoe Railway Precinct has been assessed against the State Heritage Register criteria, and is listed for its historical, aesthetic and social significance as well as its rarity and representativeness. The Ivanhoe Railway Precinct is moderately intact and is of state significance. The Project will not impact on the values of the Ivanhoe Rail Precinct.

6.2 Local Ethnographic Context

Aboriginal occupation of the region dates back to around 50,000 years ago (Hiscock 2008:44). The Barkandji (Paakantji), Mutthi Mutthi and Ngiyampaa language groups were recorded by the first Europeans as occupying western NSW (Sturt 1833; Mitchell 1838; Allen 1974; Landskape 2011). Horton (1994) mapped three language groups in the general subject area, namely, Mutthi Mutthi, Barindji and Yitha-Yitha (Jitu-Jitu). The Ngiyampaa language group was mapped by Horton as north of the Lachlan River but its people are known to have utilized the area around Lake Mungo.

The Mutthi Mutthi people were associated with Balranald, Carrawathal, Lake Benanee, Lake Reedy and Murrumbidgee River. The Mutthi Mutthi people occupied that area around Balranald and along the Murrumbidgee River to the Murray River. The Mutthi Mutthi language group is associated with the Kulin language group of western Victoria (Martin 1999:25).

The Ngiyampaa language group people are associated with various localities along the Lachlan River system, where there are three separate groups divided by the landscape they occupied (Martin 1999:19). The *pilaarrkilalu*, the Belah tree people, inhabited the eastern area near Keewong, Trida and Carowra Tank, while the *nhilyikiyalu*, the nelia tree people, occupied the western area and the *karulkiyalu*, the stone country people, occupied the northern region of the Ngiyampaa language area (Martin 1999:19).

Beckett (1959 in Martin 1999:21) provides the following account of the Ngiyampaa people's land organization:

Every man 'owned' a series of swamps, all of which would be adjacent to one another. He shouted their names as he came onto the ceremonial ground and he might sometimes be addressed by the name of the most important one. He was not the sole 'owner' but he had the right to hunt in them and to give others permission to do so, whereas hunting in another man's swamp necessitated giving the owner half the kill. In the only two cases (the informant) could cite, his own and that of his wife's brother, the swamps had been acquired from the father-in-law; however he added that swamps could be acquired from one's father or mother's brother. This information suggests that there were no distinct patrilineal hunting groups, but father's mother's brother's and wife's father's were one.

The Barkandji (Paakantji) people are also associated with the Darling River, between Bourke and Wentworth, and also occupied the hinterland on either side of the river, including the area around Lake Mungo (Martin 1999:10). Barkandji (Paakantji) people, who have lived and worked on stations in the area, have been known to recite precise details of the river, creeks and surrounding country. It was noted during early European expeditions into western NSW, that there were distinct similarities in appearance, language, material culture, burial practices, hut construction and social organisations, amongst the Barkandji (Paakantji) language group (Martin 1999:11). A Paakanjti elder from the Lake Mungo area tells a Paakanjti story about the tracks of 'Malkarra', a clever man:

Malkarra had something to do with Lake Mungo. Aunti Maggie Brody told us... (we were) scared of going out there because you'd be crossing Malkarra's tracks... his thina yapayapana. There was country names after him: 'Malkarra kiirrakirra', 'Malkarra's country'. They'd say "Yiki Malkarra kiirrakirra...kanttinja". 'This is his area, he went here years ago'. They'd say don't go over there, the Malkarra's country where he left his tracks'... you could cross his tracks if you said the right words to protect yourself (Martin 1999:102).

The Barkandji (Paakantji) occupied both sides of the Darling River, which was also their main economy as it provided both aquatic foods and cereals as well as a permanent water source. The Barkandji moved away from the river and into the hinterlands seasonally, depending on the resources available from the river during environment fluctuations (Allen 1974:309). The most common subsistence for the Barkandji people were fish, animals and birds provided by the riverine environment. It is surmised that the Aboriginal people of the region hunted ducks, pelicans and herons, and collected roots from the Bulrushes (Allen 1974:311). Although only temporary water sources were available in the hinterland, and not usually during summer, the Barkandji were still able to access these lands through the use of water carrying devices or accessing water from tree roots (Mitchell 1838; Allen 1974:311). In the winter months when the river did could not provide the same rich subsistence that it did in the warmer months, the Barkandji would separate into smaller groups with some travelling as far as 80 km away from the river. During this time plants and animal foods found in the hinterland would replace the aquatic resources, such as fish, produced by the river (Allen 1974:312).

There were three Aboriginal reserves (missions) in the Balranald area, one between Yanga Creek and the Murrumbidgee River operating between 1892 and 1950, another also in Balranald having been notified in 1892 and registered in 1937 and a third registered in 1964 on Piper and Sydney Streets. Frequently, experiences and connections from reserves often form part of the local narrative of Aboriginal communities.

North-east of Ivanhoe the Carowra Tank Reserve was gazetted in 1907, created from pre-existing Travelling Stock Reserves. The reserve was formed to accommodate Ngiyampaa, Wiradjuri and Wailwan peoples who were displaced from or limited in their use of their traditional country by increasing pastoral subdivision and the extension of the railway through western NSW in the late 19th century (Ivanhoe CWP 2011). The Carowra Tank Reserve was abandoned in the 1930s. The reserve is an important site of social and cultural significance for the Ngiyampaa people today, including many people in Ivanhoe, whose family members lived at the reserve, which includes a burial site with at least four graves (Ivanhoe CWP 2011).

6.3 Review of Local Archaeological Assessments

A Preliminary Cultural Heritage Assessment of the Atlas-Campaspe Mine area was undertaken by Landsape (2011). Landsape developed a predictive model for the Atlas-Campaspe Mine area based on observations of archaeological sites and their distribution and landscape setting in the region. Landsape (2011) predicted that stone artefact scatters and hearth sites would be the most common site type encountered and that these would be typically found nearby relict lake basins or claypans that may intermittently hold water after rain. The likelihood of encountering scarred trees, shell middens and burials was assessed as low as these site types are generally found near more permanent water sources.

A number of Aboriginal heritage assessment surveys have been undertaken in the wider region and are detailed below.

Witter (1999) compiled an extensive report predicting the archaeological site types expected throughout central NSW, his report specifically details the archaeogeographic profile of the Project area. Witter's (1999:35) predictive model suggest earth mounds are the most common site type within the Riverine Plains bioregion, however, they are less common on the Lachlan-Willandra Plains Archaeogeographic system where the Project area occurs. He states that earth mounds usually occur on the higher ground within floodplains, sand drifts, lake margins and swamps. Witter (1999:35) explains that earth mounds in the region are characterised by a built-up, charcoal rich deposit, being constructed from the surrounding sediments and sometimes containing clay heat retainers. Another common site type within the Lachlan-Willandra Plains Archaeogeographic system is the open camp site. The camp sites are characterised by widespread artefact scatters containing larger sized flaked stone and hearth material. Open camp sites occur most frequently in scalds and dry clay pans (Witter 1999:45). Other sites which are found in the Riverine Plains region include middens, burials and culturally modified trees. It can be difficult to determine middens from natural shell deposits, however, there are instances of shell associated with other animal bones, stone artefacts and burials (Witter 1999:36). Individual burials, along with multiple burials in one deposit and cemetery-like burials, all occur in this region. Witter (1999:35) states this is due to the excellent preservation conditions of the regional environment, such as the highly calcareous soils. Culturally modified trees are abundant in the region, with most tree scars the results of canoe construction. Scars of containers and roofing slabs also commonly occur. The most common tree species which show cultural scars are Black Box and Yellow Box (*Eucalyptus melliodora*) (Witter 1999:35).

Martin (1999) has also completed extensive archaeological assessment of western NSW. The study aimed to identify sites of significance, both archaeologically and culturally, within the region. The closest area's of significance, identified by Martin (1999:102-5) are Lake Mungo and the Willandra Lakes, Yanga Lake, Box Creek and lakes along Box Creek and Willandra Creek. Lake Mungo and the Willandra Lakes Region are both archaeologically and culturally significant. To date, the Willandra Lakes Region contains archaeological evidence of the earliest human remains in Australia (Hiscock 2008:44). Culturally, Lake Mungo and the Willandra Lakes are significant as they represent places of sacred sites and stories (Martin 1999:102).

At the Menindee Lakes, 170 km north-west of the study area, Pardoe conducted an extensive archaeological survey (Pardoe 2003). Pardoe's work documented thousands of sites and features, providing robust evidence on which to make inter-regional and intra-regional comparisons. He concluded that the people of the Darling River, the Barkandji, possessed a culture and biology that formed a coherent region. However, the most important finding from a regional perspective was that although clearly differentiated by language and some aspects of culture the Aboriginal people of the Murray Darling Basin also shared many technological and cultural similarities evidenced by the archaeological record. These similarities extended across the riverine region, and suggest links and interactions between the groups who inhabited the different environments of the central and south-western part of NSW.

East of the Atlas-Campaspe Mine area, Edmonds (2002; 2003) conducted two archaeological assessments for a mining lease 100 km north of Balranald. Similar landforms occur in both Edmonds' and this study's assessment areas. Edmonds (2002:4) located 18 Aboriginal archaeological sites as part of the initial assessment. Edmonds (2002) concluded that the sites were located either in scalds on lunette systems and plains, usually clustered around small dry lakes on the Hatfield or Marma land systems. Edmonds (2003:9) subsequent assessment of the same mining operation area located eight sites; four of which were to be impacted. Edmonds' predictive model suggests that archaeological sites were likely to occur on the Hatfield and Marma land systems (Edmonds 2003:11). The sites located as part of Edmonds' assessment were low density silcrete artefact scatters. One scatter site also contained shell midden material. Edmonds (2003:20) completed a subsurface test excavation as part of the assessment. The excavation, which consisted of one 25 centimetres (cm) x 25 cm test pit, revealed shell was present subsurface, however there was no evidence to support the shell being of cultural origin.

Approximately 10 km to the west of the Atlas-Campaspe Mine area, numerous archaeological assessments and research projects have been undertaken in the Willandra Lakes Region World Heritage Area (Clarke 1979; Johnston and Clarke 1998). Clarke (1979) undertook an extensive survey programme which aimed to identify located and assess Aboriginal cultural heritage sites, create a mitigation and management plan, and develop an interpretive programme for the Lake Mungo region.

Landskape (2010) has also undertaken multiple archaeological assessments at the nearby Snapper and Gingko Mineral Sands Mines, located approximately 105 km and 100 km from the Atlas-Campaspe Mine area, respectively. Although the Atlas-Campaspe Mine area is located in a different landform to the Snapper and Gingko Mineral Sands Mines, Landskape (2010) uses a similar model to the predictive model developed for the Preliminary Cultural Heritage Assessment for the Project (Landskape 2011). Landskape's (2006) assessment located 22 archaeological sites including stone artefact scatters, stone quarries and hearth sites as well as isolated stone artefacts, 19 of the sites were located in the proposed disturbance area. One historical heritage site was also located during the survey.

These sites were located on the Hatfield and Arumpo land systems (Landskape 2006:18), and therefore have relevance to this study which is located on the same land systems. Based on the results from the 2006 archaeological assessment, Landskape (2008) further analysed the archaeological sites located within the disturbance area at the Snapper Mineral Sands Mine. He completed a lithics analysis and excavated and dated hearth sites. Landskape's (2010) mineral sand mine archaeological assessment revealed no archaeological sites within the proposed impact area for the Snapper Mineral Sands Mine, however, Landskape (2010:17) states that archaeological sites were not located as the impact area was located away from significant water courses or drainage lines, areas which were often the focus of past Aboriginal occupation.

Witter (2001) also conducted a survey and archaeological assessment for the Gingko Mineral Sands Mine MLA where he located numerous archaeological sites. Witter (2001:2) located camp sites which included stone artefacts and camp fires, as well as stone quarries, culturally modified trees and shell midden material, situated in various landforms of the mining lease area, and proposed roads.

In 1991, Ferguson assessed the impact of a proposed Salt Inception Scheme at Mallee Cliffs, on Aboriginal cultural heritage sites. Ferguson's (1991) assessment is supplementary to an assessment completed by Lance (1989). Ferguson predicts that archaeological sites will be located along courses of major waterways, on alluvial flats around lakes or lagoons, on colluvial slopes and on the bluffs on the tops of escarpments (Ferguson 1991:4). As with many of the other archaeological assessments completed in the region, Ferguson gives little consideration to archaeological sites located near temporary water sources. Ferguson (1991:7-14) based his field investigations, both survey and auger hole excavation, on his land system predictions. Six archaeological sites were located during the field assessment, consisting of stone artefact scatters and shell midden sites.

Appleton (1997) surveyed an area on Arumpo station, 80 km north of Mildura. His assessment did not find any archaeological sites or materials in the study area, however, he did find two artefact scatters located outside the boundary of the study area. The study area was located on the Arumpo land system, which is characterized by dunes with dense Mallee (Appleton 1997:7), and which also occurs in the current subject area. Appleton surveyed the area without the assistance of local Aboriginal people and concluded that he did not require any local Aboriginal people to assess the area for significance due to the lack of archaeological sites.

The previous archaeological assessments indicate that archaeological sites have been located on Hatfield, Marma and Arumpo landforms and are usually associated with either permanent or temporary water sources, although the above sources place an emphasis on sites being located near permanent water sources, especially the now dried lakes. Aboriginal cultural heritage sites in the region comprise of stone artefact scatters, isolated stone artefacts, midden sites, hearths and ovens, quarry sites and human burials. The most predominant raw material type for stone artefacts is silcrete, however, there are instances of chert, quartz and quartzite artefacts recorded in the region.

7. Regional Character

7.1 Regional Archaeological Context

Considerable archaeological work has been undertaken in western NSW, particularly around the Willandra Lakes Region due to the archaeological antiquity of the region. Western NSW has had a very long history of human occupation, with the Willandra Lakes Region inhabited sometime around 50,000 to 45,000 years ago. At this time the climate was colder and water from the Southern Tablelands flowed along an ancestral Lachlan River (now Willandra Creek) to fill the Willandra Lakes Region. There is evidence indicating people occupied the dune system (lunette) along the eastern side of Lake Mungo over 40,000 years ago. Human remains have been dated to 42,000 BP, making these the oldest known remains in Australia (Olley *et al.* 2006). Conditions and lake levels fluctuated, during this period, with a substantial drying after 41,000 BP (Hiscock 2008:38-42). Archaeological evidence suggests people continued to occupy the region throughout this time, as the climate continued to dry and become colder. Reduced temperatures and water levels made some fish and freshwater mussels locally extinct after 25,000 BP. Water returned to the Willandra system between about 15,000 and 16,000 BP, and episodic flooding continued, at least into the northern lake, into the Holocene (Bowler 1998; Bowler *et al.* 2003; Hiscock 2008:56-59).

Subsequent periods of Aboriginal occupation of the region encompassing Willandra Lakes and Willandra Creek have received much less attention. It has been suggested that with increased drying of the southern lakes and the change in climatic conditions, people may have developed new dryland economies (Bowler 1998:149; Hiscock 2008:62). The early Holocene was wetter than the present with the climate becoming drier and more variable with El Nino drought events occurring sometime since 5,000 BP. The most intense period of climate variability, in the Holocene, occurred between about 5,000 BP and 2,000 BP (Hiscock 2008:140).

During the last 1,500 to 2,000 years the climate became wetter again, as the effects of El Nino lessened. Within the region, an intensive programme of dating hearths (ground ovens and camp fires) has shown that most were used within the last 1,700 years, suggesting increased occupation of hinterland areas of western NSW (Rhodes *et al.* 2009).

8. Predictions

8.1 Site Type Predictions

A desktop Preliminary Cultural Heritage Assessment was previously completed for the Atlas-Campaspe Mine area (Landskape 2011). The desktop assessment area did not include the mineral concentrate transport route or the Ivanhoe Rail Facility.

The Aboriginal site model (Landskape 2011:12-13) predicted that:

- ❑ Though occupation would have occurred in both hinterland and the lacustrine environment of the Willandra Lakes Region, most archaeological sites can be expected adjacent to freshwater sources.
- ❑ Stone artefact scatters, hearth sites and isolated finds of stone artefacts or hearthstones have the potential to occur within the Project area. The density of these items is predicted to be low in areas with an absence of permanent water sources. Open occupation sites are predicted to be predominately within 500 m of water sources and will most likely occur on level ground adjacent to relict lake basins and claypans that may retain surface water following rain. These landforms occur near the midpoint of the Campaspe deposit.
- ❑ Stone procurement areas (quarry sites) have the potential to occur in the Project area as silcrete stone sources have been recorded in the Willandra Lakes Region. Silcrete outcrops may occur at topographic low points in the landscape such as dry lakebeds.
- ❑ Culturally modified trees or scars made by Aboriginal people have the potential to occur on Black Box trees which may occur around claypans within the sandplains and dunefields of south-western NSW. River Red Gum (*Eucalyptus camaldulensis*) trees are not anticipated to occur in the Project area.
- ❑ Shell middens may occur in the Project area but the probability of encountering this site type is considered low as they are usually found near permanent water sources.
 - In addition to Landskape's above prediction it may also predicted that "dinner time camp" (Mehhan 1982) sites, consisting of small concentrations of shells may occur within the study area, given the proximity to the lake environments.
- ❑ Source-bordering dunes and lunettes adjacent to rivers and lakes are the landforms most likely to contain human skeleton remains, as such it is predicted that the chance of encountering these in the Project area will be low.
- ❑ Stone arrangements are considered unlikely to be located in the Project area due to their rarity in south-western NSW. Stone arrangements tend to occur on level ground, often on elevated landforms such as floodplain terraces.
- ❑ Sites and places associated with spiritual aspects of traditional Aboriginal society such as ceremony and dreaming sites fall outside the framework of this predictive model. Consultation with local Aboriginal communities is essential to identify sites of cultural significance.

The proposed mineral concentrate transport route occurs in a well-watered lacustrine system which includes source bordering dunes, lunettes, lakes and relict lakes. In this environment, Landskape's model can be adapted to state that open occupation sites such as stone artefact scatters, hearths (in this assessment the term "hearth" is used to describe any cultural feature that was formed by Aboriginal people using fire for domestic purposes in the past. This is done to be consistent with current recording practices in NSW, which allow for a feature of "Hearth" to be recorded only. The features described as hearths in this assessment are the remains of ground ovens with heat retainers) and isolated finds, shell middens and burials may be present.

9. Sampling Strategy

A sound sampling strategy is required under the terms of the Code (DECCW 2010a) which states that:

Sampling must:

- ☐ *include all landforms that will potentially be impacted. Where there is more than one instance of similar or the same landforms that have the potential to be impacted each individual landform must be sampled.*
- ☐ *place a proportional emphasis on those landforms deemed to have archaeological potential, clearly describing and justifying the reasons for their selection (see Requirement 4).*

The sampling strategy must:

- ☐ *describe how sampling relates to the footprint that is proposed to be impacted by the development.*
- ☐ *clearly state when a full coverage survey will be undertaken and justify when it is not.*

The sampling strategy developed for the Atlas-Campaspe study area was derived initially from the land system observations and predictions of archaeological sensitivity described above can be summarised as follows:

- ☐ Dunefields are unlikely to be archaeologically sensitive.
- ☐ Sandplains are unlikely to be archaeologically sensitive (with the exception of landforms containing water holding depressions, often associated with Black Box vegetation, and sandplains in close proximity to relict lakes [i.e. those adjacent to the mineral concentrate transport route]).
- ☐ Relict lakes and playas and alluvial plains will have archaeological potential, particularly land systems derived from lunettes and source bordering dunes.

The areas of highest archaeological potential were concluded to be differentiated sandplains (either through proximity to lakes either adjacent to or contained in the land systems) and lakes/playas/alluvial plains. These land systems are associated, for the most part, with the proposed mineral concentrate transport route. The otherwise undifferentiated sandplains and dunefields within the Atlas-Campaspe Mine area were concluded to have lower archaeological potential, with the exception of the Box Swamp adjacent to the Campaspe sites recorded, because they contain no differentiating features that may have focused past Aboriginal settlement, although isolated artefacts may be present. Considering this, a strong proportional emphasis was placed on sampling the proposed mineral concentrate transport route (Figure 8).

At Ivanhoe, the proposed footprint is situated on the undifferentiated sandplains of the Hatfield land system, with a small overlap into the Manara land system. A swamp is present south and west of the survey area, there may be archaeological potential expected in proximity to the swamp or depressions, otherwise the sandplain is considered to have low archaeological potential.

Taking into account the proportional emphasis on the sensitive landforms, this resulted in the following strategy:

- ☐ survey 20 m either side of the entirety of the existing public roads to be upgraded along the mineral concentrate transport route, using the entire team to get as high a coverage as possible;

- ❑ survey opportunistic transects using small teams of up to four surveyors within the proposed Atlas-Campaspe Mine footprint to sample each of the land systems present, focusing on any landscape differentiation if present (vegetation or topography changes);
- ❑ survey within the Ivanhoe Rail Facility footprint with the intent of getting a full coverage sample; and
- ❑ generally, wherever possible, existing exposures such as roads, scalds or exploration tracks were investigated, however much of the survey within the MLA was through undisturbed country with natural exposure and visibility.

At Ivanhoe, given the small area to be surveyed, a sampling strategy of parallel transects spaced 100 m to 200 m apart was utilised. This allowed direct observation of the entire footprint here, and provided a systematic sample of the Project area.

Therefore, the survey was not a full coverage survey but rather a sample survey focussed on the proposed impact footprint, and deliberately providing more effort and coverage to areas predicted to have higher archaeological potential. The reason for using a sampling strategy was that given the size of the area, the time and effort required to achieve a full coverage survey was beyond practical achievement, and unnecessary as the results of a sample survey can be reliably extrapolated across the land systems present. The sample survey implemented provided a reliable sample of all land systems to be impacted, and the results of these samples can be extrapolated to provide the basis for appropriate management and mitigation strategies for similar land system areas that were not directly surveyed.

10. Field Methods

10.1 Survey Methods

This section of the report describes the methods used to conduct the cultural heritage survey, which aimed to satisfy the sampling goals presented in Section 9. Prior to the survey a vehicle traverse was made of the full extent of the Atlas-Campaspe mine area to assess the nature of the country and to identify areas that may be archaeologically sensitive within their local contexts (box swamps in the sandplains, for example). These areas were then targeted during the pedestrian survey as they had the greatest likelihood of containing artefacts. The vehicle traverses were not included in survey effectiveness calculations, but were an important consideration in deciding the local areas of the larger landforms that were subject to foot survey transects. The vehicle traverse areas recorded by global positioning system (GPS) are shown on Figure 9. Additional vehicle traverses were made to those shown on Figure 9 although no GPS record was taken.

The surveys were undertaken by conducting traverses on foot of the targeted sample areas within each of the land systems present, focusing on areas of anticipated sensitivity within the Project disturbance footprint (when they were present), such as the margins of depressions, pans and exposures (Section 9).

For the proposed Ivanhoe Rail Facility, the footprint was small and the entire area was traversed on foot.

Survey transects for the mineral concentrate transport route (parallel with, and either side of the existing public roads) were conducted by having a team of at least four surveyors walk with even 5 m spacing either side of the edge of disturbance of the existing road. Generally the survey teams worked on sections of between 1 km and 5 km stretches of the road, depending on the time of day and weather conditions.

For the proposed mine infrastructure localities a survey team of 4 to 5 surveyors with 5 m spacing walked the route or area of the proposed infrastructure location. In some cases (such as the proposed internal roads) a small track already existed, and where this was the case it was followed. Otherwise, the differential global positioning system (DGPS) or GPS was used to navigate between waypoints marking the proposed infrastructure footprints.

For the mine areas, transects were walked within the different land systems. These transects also used a survey team of at least four surveyors with 5 m spacing. The nature and length of the transects was dictated by factors such as time of day and weather conditions, but generally the transects were organised by two teams starting at the same point in the centre of a lease area, and walking to opposite edges of the lease area, before returning again along a different path to the centre, and so on.

A representative sample of all land systems within the Project disturbance area was surveyed (Figures 8 and 9). On some occasions, the survey continued beyond the margins of the proposed impact area to allow the surveyors a sufficient opportunity gain an appreciation of a land system's archaeological potential.

Site and transect data was collected using a Trimble Nomad DGPS and Garmin GPS 62. Information regarding landforms, surface conditions, visibility and exposure, as required by Requirement 9 of the Code, was collected directly into the Trimble using TerraSync software or recorded in note books. Site data was then post-processed and corrected. Sketch maps of sites were also drawn and additional notes taken by hand.

Individual artefacts/objects were recorded and photographed where ever possible but in some cases sites extended beyond the survey area or objects were too numerous/dense to record in their entirety. In these cases, a sample of the site features and objects was recorded and an estimate of the site's contents (number and nature of objects) made. Site boundaries were mapped and determined by the visible exposure in which the site was contained or by the observable artefacts where exposure was ill-defined or non-existent.

A photographic record of the survey was made using 12 megapixel cameras.

10.2 Survey Limitations

Due to the sampling method used for the survey, some sites were not recorded in their entirety and some sites may extend beyond their noted boundaries. In some cases sites could not be fully sampled due to their large area. This limitation has been considered and recommendations have been made in the management and mitigation section of this report wherever it is deemed necessary that additional investigation is required following final engineering design.

None of the above limitations are considered significant and/or effect the robustness of the impact assessment contained within this report.

11. Results

11.1 Overview

The survey was conducted in three fieldwork blocks:

1. 17 April - 25 April 2012 (9 days): Atlas-Campaspe Mine area and the section of mineral concentrate transport route to be upgraded as part of the Project.
2. 9 May - 12 May 2012 (2 days): the section of mineral concentrate transport route to be upgraded as part of the Project.
3. 30 August - 31 August 2012 (2 days): Ivanhoe Rail Facility area and access track.

Survey conditions were excellent during all phases of the fieldwork, with fine weather and no access restrictions to the areas targeted for survey and sampling. There were no property access restrictions.

11.2 Survey Coverage

The survey was conducted as described in the field methods, with no variations to the methods or procedures described therein.

The survey covered a large area, comprising 396 km of transects (Figure 8). The width of the transects was at least 20 m in all cases with at least four personnel traversing each transect with a spacing of 5 m between each surveyor. Table 7 presents the survey details, showing that the estimated total land surface area observed during the survey was 2.57 km², or 2,570,000 square metres (m²).

Survey effectiveness data was estimated and recorded as per Requirement 9 of the Code (DECCW 2010a). Applying this data to the survey results suggests that the estimated effective coverage of the survey was 457,000 m², or approximately 18% of the observed ground-surface area and approximately 0.70% of the Project footprint. The effectiveness of the survey is discussed with regard to the landforms present further below.

It was outlined in Section 9 that the section of the mineral concentrate transport route that was surveyed traversed the land systems with the highest archaeological potential, and that accordingly the sampling strategy was biased toward these landforms. This difference in proportional emphasis of the sampling is shown in Table 7. The mineral concentrate transport route also had generally high visibility and exposure, meaning that an effective survey coverage of 4.8% was achieved. The Atlas-Campaspe Mine area had an effective survey coverage of around 0.2%, owing to its large size, the lower archaeological visibility and exposure. The Ivanhoe Rail Facility was relatively intensively surveyed and had moderate exposure and visibility, resulting in an effective survey coverage of around 1.6%.

Survey Units/ Land System	Total Area (km ²)	Survey Unit Area (km ²)	Average of Visibility (%)	Average of Exposure (%)	Effective Coverage Area (km ²)	Effective Survey Coverage (%)	Site Count
<i>Atlas-Campaspe Mine</i>	56.4	1.06	46.7	38.6	0.105	0.19	12
Arumpo	20.69	0.42	34	24	0.032	0.15	3
Wilkurra	9.05	0.34	26	16	0.015	0.17	2
Bulgamurra	17.4	0.22	30.5	23	0.018	0.10	7
Mandleman	6.65	0.07	70	70	0.035	0.53	0
Marona	2.61	0.01	73	60	0.005	0.19	0
<i>Proposed Mineral Concentrate Transport Route</i>	6.66	1.18	54	51.2	0.322	4.83	66
Hatfield	2.82	0.71	52	47	0.173	6.13	38
Mulurulu	0.14	0.06	57	53	0.018	12.86	1
Wilkurra	0.59	0.01	50	50	0.002	0.34	0
Youhl	2.72	0.28	58	54	0.087	3.20	13
Marma	0.39	0.12	53	52	0.033	8.46	14
<i>Ivanhoe</i>	1.83	0.33	30	30	0.030	1.63	22
Hatfield	1.60	0.31	40	30	0.037	2.3	22
Manara	0.23	0.02	20	30	0.001	0.43	0
Grand Total	64.89	2.57	-	-	0.457	0.70	100

Table 7: Summary of Survey Results and Coverage

Table 8 summarises the survey effectiveness by landform, as per Requirement 10 of the Code (DECCW 2010a). The overall effective survey coverage was less than 1% of the subject area (0.70%). However, those land systems identified as having the most archaeological potential (Hatfield, Youhl, Marma and Mulurulu) have had very high survey effectiveness. This is due to the proportional emphasis of survey effort directed towards these mineral concentrate transport route land systems, because, as a general rule, these land systems had very good archaeological exposure and visibility. Most land systems afforded some level of archaeological visibility and exposure. Overall 0.70% of the subject area was effectively surveyed.

The current results mean that the Project area, in particular the mineral concentrate transport route, has been well surveyed providing an accurate account of the archaeological record on the margins of the existing public road. At the Atlas and Campaspe footprints, the survey strategy involved a vehicle traverse of accessible areas using existing tracks, and targeting areas deemed to be the most sensitive on each of the land systems that were present. By targeting these areas of sensitivity, the general nature and distribution of past traces of Aboriginal land use can be effectively described to inform management decisions for the proposed activities associated with the Project.

Land System	Landform Area (m ²)	Area Effectively Surveyed (m ²)	% of Landform Effectively Surveyed	Sites	Feature Count (Number of Artefacts)	Hearths	Middens	Scarred Trees
Arumpo	20,690,000	32,000	0.15	3	3	0	0	0
Bulgamurra	17,390,000	18,000	0.10	7	75	30	0	1
Hatfield	4,420,000	210,000	4.75	60	864	42	0	0
Manara	230,000	1,000	0.43	0	0	0	0	0
Mandleman	2,610,000	35,000	1.34	0	0	0	0	0
Marma	390,000	33,000	8.46	14	59	0	0	0
Marona	2,720,000	5,000	0.18	0	0	0	0	0
Mulurulu	140,000	18,000	12.86	1	1	0	0	0
Wilkurra	9,650,000	17,000	0.18	2	2	0	0	0
Youhl	2,820,000	87,000	3.09	13	696	30	3	0
Total	61,060,000	456,000	0.75	100	1,700	102	3	1

Table 8. Landform Summary - Sampled Areas

11.3 Site Descriptions

The survey discovered 100 previously unrecorded Aboriginal heritage sites (Table 9) (Figures 9 to 24). Additional site contents information is presented in Appendix 2.

Site Number	Figure Code	Site Feature	Survey Unit	Landform
Atlas 1	Atl1	Isolated Artefact	Atlas-Campaspe Mine	Wilkurra
Atlas 2	Atl2	Isolated Artefact	Atlas-Campaspe Mine	Wilkurra
Atlas 3	Atl3	Isolated Artefact	Atlas-Campaspe Mine	Arumpo
Atlas 4	Atl4	Isolated Artefact	Atlas-Campaspe Mine	Bulgamurra
Atlas 5	Atl5	Isolated Artefact	Atlas-Campaspe Mine	Bulgamurra
Atlas 6	Atl6	Isolated Artefact	Atlas-Campaspe Mine	Arumpo
Campaspe 1	Cam1	Isolated Artefact	Atlas-Campaspe Mine	Arumpo
Campaspe 2	Cam2	Artefacts	Atlas-Campaspe Mine	Bulgamurra
Campaspe 3	Cam3	Artefacts	Atlas-Campaspe Mine	Bulgamurra
Campaspe 4	Cam4	Artefacts	Atlas-Campaspe Mine	Bulgamurra
Campaspe 5	Cam5	Artefacts	Atlas-Campaspe Mine	Bulgamurra
Campaspe 6	Cam6	Scarred Tree	Atlas-Campaspe Mine	Bulgamurra
Hatfield 1	Hat1	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield

Site Number	Figure Code	Site Feature	Survey Unit	Landform
Hatfield 2	Hat2	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 3	Hat3	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 4	Hat4	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 5	Hat5	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 6	Hat6	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 7	Hat7	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 8	Hat8	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 9	Hat9	Artefacts, Hearths	Mineral Concentrate Transport Route	Youhl
Hatfield 10	Hat10	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 11	Hat11	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 12	Hat12	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 13	Hat13	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 14	Hat14	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 15	Hat15	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 16	Hat16	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 17	Hat17	Artefacts, Hearths, Shell	Mineral Concentrate Transport Route	Youhl
Hatfield 18	Hat18	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 19	Hat19	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 20	Hat20	Artefacts, Hearths, non human bone & organic material	Mineral Concentrate Transport Route	Youhl
Hatfield 21	Hat21	Artefacts, Hearths	Mineral Concentrate Transport Route	Youhl
Hatfield 22	Hat22	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 23	Hat23	Isolated Artefact	Mineral Concentrate Transport Route	Youhl
Hatfield 24	Hat24	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 25	Hat25	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 26	Hat26	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 27	Hat27	Isolated Artefact	Mineral Concentrate Transport Route	Marma
Hatfield 28	Hat28	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 29	Hat29	Isolated Artefact	Mineral Concentrate Transport Route	Marma
Hatfield 30	Hat30	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 31	Hat31	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 32	Hat32	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 33	Hat33	Artefacts	Mineral Concentrate Transport Route	Marma

Site Number	Figure Code	Site Feature	Survey Unit	Landform
Hatfield 34	Hat34	Isolated Artefact	Mineral Concentrate Transport Route	Marma
Hatfield 35	Hat35	Isolated Artefact	Mineral Concentrate Transport Route	Marma
Hatfield 36	Hat36	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 37	Hat37	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 38	Hat38	Artefacts	Mineral Concentrate Transport Route	Marma
Hatfield 39	Hat39	Artefacts, Hearths	Mineral Concentrate Transport Route	Marma
Hatfield 40	Hat40	Artefacts, Hearths	Mineral Concentrate Transport Route	Hatfield
Hatfield 41	Hat41	Artefacts, Hearths	Mineral Concentrate Transport Route	Hatfield
Hatfield 42	Hat42	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 43	Hat43	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 44	Hat44	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 45	Hat45	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 46	Hat46	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 47	Hat47	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 48	Hat48	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 49	Hat49	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 50	Hat50	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 51	Hat51	Artefacts, Hearths	Mineral Concentrate Transport Route	Hatfield
Hatfield 52	Hat52	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 53	Hat53	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 54	Hat54	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 55	Hat55	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 56	Hat56	Artefacts, Hearths, non human bone & organic material	Mineral Concentrate Transport Route	Hatfield
Hatfield 57	Hat57	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 58	Hat58	Artefacts, Hearths	Mineral Concentrate Transport Route	Hatfield
Hatfield 59	Hat59	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 60	Hat60	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 61	Hat61	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 62	Hat62	Isolated Artefact	Mineral Concentrate Transport Route	Hatfield
Hatfield 63	Hat63	Artefacts	Mineral Concentrate Transport Route	Youhl
Hatfield 64	Hat64	Artefacts	Mineral Concentrate Transport Route	Hatfield
Hatfield 65	Hat65	Artefacts, Hearths	Mineral Concentrate Transport Route	Hatfield

Site Number	Figure Code	Site Feature	Survey Unit	Landform
Hatfield 66	Hat66	Isolated Artefact	Mineral Concentrate Transport Route	Mulurulu
Ivanhoe RLF 7	RLF7	Isolated Artefact	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 8	RLF8	Isolated Artefact	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 9	RLF9	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 10	RLF10	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 11	RLF11	Artefacts, Hearths	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 12	RLF12	Isolated Artefact	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 13	RLF13	Artefacts, Hearths	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 14	RLF14	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 15	RLF15	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 16	RLF16	Isolated Artefact	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 17	RLF17	Artefacts, Hearths	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 18	RLF18	Artefacts, Hearths	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 19	RLF19	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 20	RLF20	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 21	RLF21	Isolated Artefact	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 22	RLF22	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 23	RLF23	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 24	RLF24	Isolated Artefact	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 25	RLF25	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 26	RLF26	Artefacts, Hearths	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 27	RLF27	Artefacts	Ivanhoe Rail Facility	Hatfield
Ivanhoe RLF 28	RLF28	Isolated Artefact	Ivanhoe Rail Facility	Hatfield

Table 9. Survey Results – Aboriginal Heritage

The survey documented many traces of the area’s pastoral history. In two cases non-Aboriginal heritage items were assessed to be of a level of significance to constitute relics, or to be of local heritage significance (Table 10).

Item	Description	Heritage Listing
Marked Tree	Scarred Tree – surveyors marker	-
Domestic Dwelling Remains	Domestic artefacts and archaeological deposit	-

Table 10. Non-Aboriginal Heritage Sites

Full descriptions of each site are provided in Appendix 2. The locations of the sites are depicted in Figure 18 (Domestic Dwellings Remain) and Figure 22 (Marked Tree). This section of the report provides a general overview of the sites encountered, their contents and context.

Aboriginal Heritage Sites

Open sites containing stone artefacts

The majority of archaeological sites encountered in the subject area were open stone artefact sites. These sites contained a wide range of numbers of artefacts, from sites with single artefacts only, through to sites covering large areas with hundreds of artefacts. Generally, only small stone artefact sites with one to a few artefacts were present in the Atlas-Campaspe Mine area (with the exception of higher numbers of artefacts present near the small ephemeral depression in the Campaspe area). Exposure in the dune and sandplain areas was usually good, and the small number of artefacts cannot be attributed to limited visibility and exposure. The great majority of stone artefact sites were located in the relict lake areas along the mineral concentrate transport route. These sites were most frequently found in large scald exposures in the saltbush, but occasionally stone artefacts were also present in areas of mechanical disturbance, such as the existing public roads, secondary tracks and farm gates. In some areas artefacts were continuously distributed across the scald pans in relatively high densities, suggesting a continuous “background” of artefacts that was differentially exposed. Occasionally small high density concentrations of artefacts were present and these are interpreted as one off knapping events (flaking floors).

The majority of stone artefacts were flaked stone including debitage, tools and cores. Grinding stones were present, but generally only as fragments.

Open sites containing stone artefacts and hearths

The features described as hearths are the remains of ground ovens with heat retainers. Hearths were not a common feature identified during the survey. There were no hearths identified in the Atlas and Campaspe Mine areas. Along the mineral concentrate transport route, several open sites contained remnant hearths, while hearths were also present in the Ivanhoe survey area. The hearths were present as clustered heat retainers (in some cases still buried), and frequently as dispersed heat retainers existing on the ground surface with stone artefacts. All heat retainers were made from termite nests or clay.

Open sites containing stone artefacts, hearths and non human bone and organic material

In two cases, sites associated with the mineral concentrate transport route contained stone artefacts, hearths and fragmented bone. It was not clear if the bone was culturally deposited or associated directly with the artefacts and ovens.

Open sites containing stone artefacts, hearths and shell

At one locality along the corridor surveyed for the mineral concentrate transport route, at an area associated with the edge of a relict lake, the open sites contained a continuous distribution of stone artefacts, frequent hearths, shell midden material and fragmented bone in stratified contexts. The bone was interpreted to be culturally derived faunal remains, due to its stratigraphic association with the artefacts and shell.

Scarred trees

A single culturally scarred tree was located in the Campaspe lease, in an area of Black Box associated with the small depression described above.

Stone artefact assemblages

This section briefly summarises the nature of the stone artefacts recorded at the Atlas-Campaspe area and Ivanhoe. More site details are presented in Appendix 2. The great majority of stone artefacts were manufactured from silcrete, with cortical flakes and fragments frequently observed. This suggests a local source for the silcrete. Tools that are typical of the arid, semi-arid and western riverine region were frequently recorded in the larger stone artefact concentrations which are consistent with previous observations and findings for the region (Pardoe 2003). These typical regional tool forms included tula adze slugs, burren adze slugs, and backed artefacts. Other raw materials that were used for producing flaked stone artefacts were chert and quartzite.

Flaking floors, which are interpreted to represent individual episodes of flake and tool manufacture, are frequently reported in the region. Several flaking floors were observed in the relict lake areas of the mineral concentrate transport route, with the material present suggesting small blades were being manufactured.

Grinding artefacts were common at Ivanhoe and in the relict lake areas of the mineral concentrate transport route. The grinding gear was usually very fragmented and manufactured from sandstone or quartzite. Although fragmented the grinding artefacts were pieces of the typical thin, flat grinding slabs and mullers that are common in the region (no channelled grinding slabs and triangular shaped mullers were observed).

Non-Aboriginal Items

The remnants of the pastoral history of the area were frequently identified along the mineral concentrate transport route subject area and occasionally in the Ivanhoe subject area. Isolated finds such as domestic items discarded on the land (tins, jars, bottles); rural implements discarded on the land (shears, wire); evidence of land development (telegraph poles occasionally adjacent to the public roads); and evidence of general rural activities (a ringbarked tree, tree stumps, dams, ruined or removed fences) were observed throughout the surveys. However, in only two cases were historical remains determined to constitute items of local heritage value.

Marked Tree

A Marked Tree, probably dating to the first half of the 20th century was identified along the mineral concentrate transport route. The tree is a living Belah tree, with a small area of bark removal with an upward facing arrow and the letters RD.

Domestic Dwelling Remains

A former domestic dwelling (archaeological site) was identified along the mineral concentrate transport route. The surface material observed at the site suggests occupation since 1880. The material includes a suite of domestic items and building remains. A local informant thinks the site is possibly the site of the regions former postman. The date of construction and demolition of the building are currently unknown.

12. Analysis and Discussion

This section of the report presents an interpretation of the survey results in an archaeological framework with the intent of constructing an Aboriginal settlement history of the Project area.

Atlas-Campaspe Mine Area

All sites recorded within the Atlas-Campaspe Mine area were located on the margins of ephemeral depressions or slightly lower-lying areas to the surrounding topography. For the most part, the sites were located in close proximity to transitions in vegetation. Cracked clay was observed at Atlas 1 suggesting that these depressions may hold or have held temporary water in the past. The frequency of sites in the Bulgamurra, Arumpo and Wilkurra land systems is consistent with survey results elsewhere in these land systems within the Murray Darling bioregion (e.g. Landsape 2006; 2007; 2010; Witter 2001; Niche in prep).

Most of the sites in the Atlas-Campaspe Mine area consisted of isolated finds. Silcrete flakes and retouched tools were the most common artefact types.

Sites Campaspe 2 to 6 differed from the rest of the sites recorded in the Atlas-Campaspe Mine area in that they consisted of a series of artefact scatters and a scarred tree rather than isolated finds. These sites were located in close proximity to a depression containing Black Box trees. The depression is noticeably lower than the surrounding topography. After rainfall events, surface water generally flows towards the depression and collects. The water temporarily persists before evaporating or potentially seeping into the groundwater (Evans & Peck 2012). Rounded silcrete cobbles with a gibber-like varnish were observed in exposures just north of the depression, and the sites around the depression contained artefacts manufactured from this local material.

There was no clear evidence of subsurface deposits for sites Atlas 1 to Atlas 6 and Campaspe 1. It is possible that further isolated artefacts may be infrequently present across the Atlas-Campaspe Mine area along margins of depressions and near vegetation changes. More frequent and dense artefact scatters may be present near depressions in the landscape as demonstrated by sites Campaspe 2 to Campaspe 5. The raised dune on the eastern edge of the lake depression proximal to the Campaspe footprint is potentially a source bordering dune and therefore may have archaeological potential.

Evidence of land use from the pastoral era was sparse in the Atlas-Campaspe Mine area, being limited to old fence lines and tracks (which for the most part are still in use). The reason for this is that the Atlas-Campaspe Mine area was never the location of any dwelling, but rather has been open pastoral land over the period.

Proposed Mineral Concentrate Route

The section of the proposed mineral concentrate transport route that was surveyed with its close proximity to temporary and more permanent water sources and associated resources contained the highest number of sites and artefacts of the areas surveyed for the Project. The results from this survey supported Edmonds (2002; 2003) observations of the Hatfield and Marma land systems having high archaeological potential. In addition, the Yhoul land system was also observed to have high archaeological potential.

Sites were present in association within dune, lunette, depression, pan and scald landforms. These landforms comprised most of the surveyed area. Often exposures were ill-defined and artefacts were observed on the base of a pan or scald, eroding from the walls of the exposure and on top of vegetated areas on the margins of exposures. It is therefore highly likely that further subsurface Aboriginal objects may be present.

Site features within the surveyed area included artefacts, hearths and shell middens. Non human bone organic material was also present as highly fragmented bone associated with artefacts and eroding out of exposures (Hatfield 20 and Hatfield 56).

The majority of the stone artefact assemblage comprised silcrete flakes and retouched tools. Retouched tools included but are not limited to scrapers, adze slugs, burrens, nuclear tools and backed artefacts including geometric microliths. Grinding fragments such as mullers/grinding tops were present as was an example of a silcrete core which had been ground before being flaked (Hatfield 40). Hammerstones and a small number of axeheads/chopping tools were also observed. These chopping tools were shaped for hafting. In terms of assemblage characteristics, the assemblage recorded along the mineral concentrate transport route holds closer affinity to Witter's 2004 summary of the Murray Darling bioregion rather than the Riverine region.

Raw materials for stone artefacts included silcrete, quartzite, sandstone and some chert. The largest silcrete core was roughly 20 cm in width. The majority of artefacts were between 1 cm to 3 cm in length.

Hearths were characterised as intact, eroding or scattered. Many hearths were scattered but a number were observed just beginning to erode from the edges of exposures (e.g. Hatfield 40). In a few intact cases (e.g. Hatfield 21), artefacts were present inside a hearth or burnt artefacts were observed immediately adjacent a hearth. The hearth material observed included burnt termite mounds and burnt clay/sand. Discoloured calcrete may also be indicative of hearth activity (Witter 2004). The majority of hearths in the Willandra Lakes Region World Heritage Area date to the last 2000 years. It is theorised that this relates to preservation conditions as well as changing occupation patterns across the landscape. The presence of multiple hearths in a range of dune, lunette, pans and scalds along the section of the mineral concentrate transport route that was surveyed has the potential to provide additional dates to understand past Aboriginal occupation in the region.

Shells were recorded in Hatfield 17 and were scattered across a lunette landform in varying densities. The shell was fragmented but appeared to be bleached mussel shell. Freshwater mussel became locally extinct in the Willandra Lakes Region World Heritage Area and Lake Mungo area in the Pleistocene era.

The frequency and density of sites along the proposed mineral concentrate transport route highlights the notion of a continuous archaeological scatter or occupational landscape. It is highly likely that further surface and subsurface Aboriginal objects are present in the proposed impact area and in the surrounding landscape. This landscape is likely to have changed dramatically over the last 40,000 years. Availability of water, plant and animal resources will have fluctuated with the changing climate, and geomorphic activity resulted in the complicated system of depressions, basins and exposures observed today. Further investigation would be required to distinguish the age, boundaries or timescales of sites and objects in the landscape. Notably, the number of hearths, shell middens and buried deposits within source bordering dunes and lunettes may be suitable for dating and analysis.

Landscape's (2011) predictive model highlighted the importance of the availability of water throughout the landscape, and how this may have affected the way Aboriginal people used the landscape in the past. The Project area comprises two distinct land systems, namely, the Atlas-Campaspe Mine area and the Ivanhoe Rail Facility contain dunefields and sandplains, while the area traversed by the mineral concentrate transport route is comprised of playas and relict lakes, which are depressions that occasionally fill with surface water during rains. The results of the current survey support Landscape's (2011) model.

Relics, remains and land modifications from the period of pastoral development were frequently observed along the mineral concentrate transport route, however, for the most part the evidence was restricted to isolated occurrences of objects and features. The features were typical of what might be expected in the context of the margins of a public road in a remote rural area of NSW, including occasional telegraph poles, old fence lines, abandoned domestic and utilitarian items. Two items, the Marked Tree and the Domestic Dwelling Remains were assessed to be of local significance, as they have the potential to represent and provide information regarding the period of pastoral expansion and decline around the turn of the century.

Summary

The sandplains and dunefields contain very few traces of past Aboriginal land use, with the exception of the Black Box Swamp depression proximal to the Campaspe footprint. Overall there are isolated artefacts or very few artefacts in small concentrations, indicative of ephemeral use of these land systems by Aboriginal people in the past. The low density background distribution of isolated artefacts and very few artefacts in small concentrations is a continuous feature of the sandplains and dunefields landforms. This is to say that these small sites will occur across the landscape, but in the absence of local topographic or landscape features that would have served to focus Aboriginal activity in the recent past, the location of artefacts is unpredictable. These areas were probably only accessed by Aboriginal people in the past to collect available resources, or they may have been traversed as Aboriginal people moved around the landscape, between larger, more permanent bases. With the exception of the Black Box Swamp the sandplains and dunefields, it is expected that the proposed disturbance areas did not witness any extended occupation or settlement by Aboriginal people.

In comparison, the playas and relict lake areas contain an abundance of Aboriginal objects, with higher frequencies and diversity of features present closer to the larger lakes of the area. Features present included stone artefacts, hearths, shell midden and faunal remains. The higher frequency, density and diversity of archaeological material in this area is indicative of much more intensive past Aboriginal land use, including longer term settlement of the areas. The relict lakes have lunettes and are likely to also contain a relatively long record of Aboriginal land use, however, the majority of the finds encountered during the survey were surface finds and are likely to date to more recent occupation.

On a regional scale the Atlas-Campaspe Mine area and mineral concentrate transport route present an important cultural landscape, documenting the types of past Aboriginal use in an area between the major archaeological/cultural provinces of the Willandra Lakes Region World Heritage Area and the Murrumbidgee River and lowlands.

Ivanhoe Rail Facility

The proposed Ivanhoe Rail Facility is situated close to a swamp (a portion of which now contains a dam and windmill), and artefacts were generally discovered within 800 m of this feature. In particular a relatively high density site was situated in scalds and pans within 600 m of the ephemeral swamp. The results, as far as they can be extrapolated from such a small area, from this survey area supported by Edmonds (2002; 2003) observations of the Hatfield land systems has high archaeological potential.

Features recorded in the survey included flaked and ground stone artefacts, and hearths. The stone artefact assemblage comprised silcrete cores, broken and complete silcrete flakes, a small number of chert flakes, a moderate number of silcrete retouched tools, and sandstone grinding stone and fragments such as mullers. The proportion of grinding fragments and grinding stones in the Ivanhoe survey assemblage was much higher than that observed in the proposed mineral concentrate transport route area assemblage.

Hearths were characterised as intact, eroding or scattered. Most hearths in the survey area were still partially buried and intact while the remainder were eroding or scattered. Most residual soil deposits adjacent scalds in which hearths were observed were 10 to 20 cm in depth and most likely date to the recent past.

As with the results from the proposed mineral concentrate transport route, the frequency and density of sites in the Ivanhoe survey area highlights the notion of a continuous archaeological scatter or occupational landscape. It is highly likely that further surface and subsurface Aboriginal objects are present in the proposed impact area and in the surrounding landscape.

There was sporadic evidence of the pastoral and railroad history of the area identified, as ephemeral and isolated relics in the Ivanhoe survey area. These included tin, metal, broken bottles dating to the 1960s and white-glazed broken ceramic with the maker's mark "Dunn and Bennett," and insignia "N.S.W G.W.R".

13. Scientific Values and Significance Assessment

13.1 The Burra Charter

The Burra Charter (Australia International Council on Monuments and Sites 1999) defines the basic principles and procedures to be observed in the conservation of important heritage places. It provides a primary and 'best-practice' framework within which decisions about the management of heritage sites in Australia should be made. The Burra Charter defines cultural significance as being derived from the following four values:

Aesthetic value: This value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; the smells and sounds associated with the place and its use.

Historic value: This value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives *in-situ*, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

Scientific value: The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute further substantial information.

Social value: This value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group.

13.2 Scientific Significance Assessment of Aboriginal Heritage Sites

The NSW Aboriginal cultural heritage regulatory framework supports the significance assessment of Aboriginal archaeological sites and provides guidelines for this assessment within the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011). The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) outlines two main themes in the overall Aboriginal cultural heritage significance assessment process, namely, the identification of the cultural/social significance of Aboriginal objects and/or places to Aboriginal people and the identification of the scientific (archaeological) significance to the scientific/research community. These themes encapsulate those aspects of the Burra Charter that are of particular relevance to Aboriginal objects and places. The guidelines specify that information about scientific values will be gathered through archaeological investigation carried out according to the Code (DECCW 2010a). The Code (DECCW 2010a) itself does not specify criteria for assessment of Aboriginal objects, but rather suggests to "identify the archaeological values and assess their significance ...". The assessment must be supportable and the assessment criteria must reflect best practice assessment processes as set out in the Burra Charter. Notwithstanding the circularity of this advice, the scientific values described in the Burra Charter (Section 13.1) were considered further by the then NSW National Parks and Wildlife Service in their *Aboriginal Cultural Heritage Standards and Guidelines Kit* (1997).

In lieu of specific criteria, the advice from the *Aboriginal Cultural Heritage Standards and Guidelines Kit* is summarised and paraphrased below to provide guidance to the assessment of scientific values presented below:

Research Potential: It is the potential to elucidate past behaviour which gives significance under this criterion rather than the potential to yield collections of artefacts. Matters considered under this criterion include the intactness of a site, the potential for the site to build a chronology and the connectedness of the site to other sites in the archaeological landscape.

Representativeness: As a criterion, representativeness is only meaningful in relation to a conservation objective. Presumably all sites are representative of those in their class or they would not be in that class. What is at issue is the extent to which a class of sites is conserved and whether the particular site being assessed should be conserved in order to ensure that we retain a representative sample of the archaeological record as a whole. The conservation objective which underwrites the 'representativeness' criteria is that such a sample should be conserved.

Rarity: This criterion cannot easily be separated from that of representativeness. If a site is 'distinctive' then by definition, it will be part of the variability which a representative sample would represent. The criteria might best be approached as one which exists within the criteria of representativeness, giving a particular weighting to certain classes of site. The main requirement for being able to assess rarity is to determine what is common and what is unusual in the archaeological record, but also the way that archaeology confers prestige on certain sites because of their ability to provide certain information. The criterion of rarity may be assessed at a range of levels including local, regional, state, national, global.

Educational Potential: This criterion relates to the ability of the cultural heritage item or place to inform and/or educate people about one or other aspects of the past. It incorporates notions of intactness, relevance, interpretative value and accessibility. Where archaeologists or others carrying out cultural heritage assessments are promoting/advocating the educational value of a cultural heritage item or place it is imperative that public input and support for this value is achieved and sought. Without public input and support the educative value of the items/places is likely to not ever be fully realised.

Aesthetics: In relation to heritage places, aesthetic significance is generally taken to mean the visual beauty of the place. Aesthetic value is not inherent in a place but arises in the sensory response people have to it. The guidelines provide no expectation for archaeologists to consider *aesthetic values*, it is often the case that the aesthetics including the physical setting of an archaeological site or a landscape contributes to its cultural heritage significance. Examples of archaeological sites that may have high aesthetic values include rock art sites or sites located in environments that evoke strong sensory responses.

The scientific significance assessments for each site are presented in Table 11. Educational potential and aesthetic values are not considered to be criteria against which scientific values and significance can be assessed. Aesthetic values should be considered as a distinct category (rather than a criteria that contributes to scientific value) in accordance with the Burra Charter and the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011). Educational potential is considered to be a criterion that contributes to social value, rather than scientific value, and hence this is considered below in the overall cultural significance assessment.

Site Number	Figure Code	Site Features	Research Potential	Representative-ness	Rarity	Significance
Atlas 1	Atl1	Isolated Artefact	Low	Low	Low	Low
Atlas 2	Atl2	Isolated Artefact	Low	Low	Low	Low
Atlas 3	Atl3	Isolated Artefact	Low	Low	Low	Low
Atlas 4	Atl4	Isolated Artefact	Low	Low	Low	Low
Atlas 5	Atl5	Isolated Artefact	Low	Low	Low	Low
Atlas 6	Atl6	Isolated Artefact	Low	Low	Low	Low
Campaspe 1	Cam1	Isolated Artefact	Low	Low	Low	Low
Campaspe 2	Cam2	Artefacts	Low	High	High	Moderate
Campaspe 3	Cam3	Artefacts	High	High	High	High
Campaspe 4	Cam4	Artefacts	Low	High	High	Moderate
Campaspe 5	Cam5	Artefacts	Low	High	High	Moderate
Campaspe 6	Cam6	Scarred Tree	Low	Low	High	Moderate
Hatfield 1	Hat1	Isolated Artefact	Low	Low	Low	Low
Hatfield 2	Hat2	Isolated Artefact	Low	Low	Low	Low
Hatfield 3	Hat3	Isolated Artefact	Low	Low	Low	Low
Hatfield 4	Hat4	Artefacts	Low	Low	Low	Low
Hatfield 5	Hat5	Isolated Artefact	Low	Low	Low	Low
Hatfield 6	Hat6	Artefacts	Low	Low	Low	Low
Hatfield 7	Hat7	Isolated Artefact	Low	Low	Low	Low
Hatfield 8	Hat8	Artefacts	Low	Low	Low	Low
Hatfield 9	Hat9	Artefacts, Hearths	Moderate	Low	Low	Moderate
Hatfield 10	Hat10	Artefacts	Moderate	Low	Low	Moderate
Hatfield 11	Hat11	Artefacts	Low	Low	Low	Low
Hatfield 12	Hat12	Isolated Artefact	Low	Low	Low	Low
Hatfield 13	Hat13	Artefacts	Low	Low	Low	Low
Hatfield 14	Hat14	Artefacts	Moderate	Moderate	Low	Moderate
Hatfield 15	Hat15	Artefacts	Low	Low	Low	Low
Hatfield 16	Hat16	Artefacts	Low	Low	Low	Low
Hatfield 17	Hat17	Artefacts, Hearths, Shell	High	Moderate	Low	High
Hatfield 18	Hat18	Artefacts	Low	Low	Low	Low

Site Number	Figure Code	Site Features	Research Potential	Representative-ness	Rarity	Significance
Hatfield 19	Hat19	Artefacts	Low	Low	Low	Low
Hatfield 20	Hat20	Artefacts, Hearths, non human bone & organic material	High	Moderate	Low	High
Hatfield 21	Hat21	Artefacts, Hearths	High	Moderate	Low	High
Hatfield 22	Hat22	Artefacts	Low	Low	Low	Low
Hatfield 23	Hat23	Isolated Artefact	Low	Low	Low	Low
Hatfield 24	Hat24	Artefacts	Low	Low	Low	Low
Hatfield 25	Hat25	Artefacts	High	Moderate	Low	High
Hatfield 26	Hat26	Artefacts	Low	Low	Low	Low
Hatfield 27	Hat27	Isolated Artefact	Low	Low	Low	Low
Hatfield 28	Hat28	Artefacts	High	Low	Low	Moderate
Hatfield 29	Hat29	Isolated Artefact	High	Low	Low	Moderate
Hatfield 30	Hat30	Artefacts	High	Low	Low	Moderate
Hatfield 31	Hat31	Artefacts	Low	Low	Low	Low
Hatfield 32	Hat32	Artefacts	Low	Low	Low	Low
Hatfield 33	Hat33	Artefacts	Low	Low	Low	Low
Hatfield 34	Hat34	Isolated Artefact	Low	Low	Low	Low
Hatfield 35	Hat35	Isolated Artefact	Low	Low	Low	Low
Hatfield 36	Hat36	Artefacts	Low	Low	Low	Low
Hatfield 37	Hat37	Artefacts	Low	Low	Low	Low
Hatfield 38	Hat38	Artefacts	Low	Low	Low	Low
Hatfield 39	Hat39	Artefacts, Hearths	Low	Low	Low	Low
Hatfield 40	Hat40	Artefacts, Hearths	High	Moderate	Moderate	High
Hatfield 41	Hat41	Artefacts, Hearths	Low	Low	Low	Low
Hatfield 42	Hat42	Isolated Artefact	Low	Low	Low	Low
Hatfield 43	Hat43	Artefacts	Low	Low	Low	Low
Hatfield 44	Hat44	Isolated Artefact	Low	Low	Low	Low
Hatfield 45	Hat45	Isolated Artefact	Low	Low	Low	Low
Hatfield 46	Hat46	Artefacts	Low	Low	Low	Low
Hatfield 47	Hat47	Artefacts	Low	Low	Low	Low
Hatfield 48	Hat48	Artefacts	Low	Low	Low	Low

Site Number	Figure Code	Site Features	Research Potential	Representative-ness	Rarity	Significance
Hatfield 49	Hat49	Isolated Artefact	Low	Low	Low	Low
Hatfield 50	Hat50	Artefacts	Low	Low	Low	Low
Hatfield 51	Hat51	Artefacts, Hearths	Low	Low	Low	Low
Hatfield 52	Hat52	Artefacts	Low	Low	Low	Low
Hatfield 53	Hat53	Isolated Artefact	Low	Low	Low	Low
Hatfield 54	Hat54	Isolated Artefact	Low	Low	Low	Low
Hatfield 55	Hat55	Artefacts	Moderate	Low	Low	Moderate
Hatfield 56	Hat56	Artefacts, Hearths, non human bone & organic material	High	Moderate	Moderate	High
Hatfield 57	Hat57	Artefacts	Low	Low	Low	Low
Hatfield 58	Hat58	Artefacts, Hearths	Low	Low	Low	Low
Hatfield 59	Hat59	Artefacts	Low	Low	Low	Low
Hatfield 60	Hat60	Isolated Artefact	Low	Low	Low	Low
Hatfield 61	Hat61	Isolated Artefact	Low	Low	Low	Low
Hatfield 62	Hat62	Isolated Artefact	Low	Low	Low	Low
Hatfield 63	Hat63	Artefacts	Low	Low	Low	Low
Hatfield 64	Hat64	Artefacts	Low	Low	Low	Low
Hatfield 65	Hat65	Artefacts, Hearths	Low	Low	Low	Low
Hatfield 66	Hat66	Isolated Artefact	Low	Low	Low	Low
Ivanhoe RLF 7	RFL7	Isolated Artefact	Low	Low	Low	Low
Ivanhoe RLF 8	RFL8	Isolated Artefact	Low	Low	Low	Low
Ivanhoe RLF 9	RFL9	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 10	RFL10	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 11	RFL11	Artefacts, Hearths	Moderate	Low	Low	Moderate
Ivanhoe RLF 12	RFL12	Isolated Artefact	Low	Low	Low	Low
Ivanhoe RLF 13	RFL13	Artefacts, Hearths	Moderate	Low	Low	Moderate
Ivanhoe RLF 14	RFL14	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 15	RFL15	Artefacts	Low	Low	Low	Low

Site Number	Figure Code	Site Features	Research Potential	Representative-ness	Rarity	Significance
Ivanhoe RLF 16	RFL16	Isolated Artefact	Low	Low	Low	Low
Ivanhoe RLF 17	RFL17	Artefacts, Hearths	Moderate	Low	Low	Moderate
Ivanhoe RLF 18	RFL18	Artefacts, Hearths	Moderate	Low	Low	Moderate
Ivanhoe RLF 19	RFL19	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 20	RFL20	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 21	RFL21	Isolated Artefact	Low	Low	Low	Low
Ivanhoe RLF 22	RFL22	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 23	RFL23	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 24	RFL24	Isolated Artefact	Low	Low	Low	Low
Ivanhoe RLF 25	RFL25	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 26	RFL26	Artefacts, Hearths	Moderate	Low	Low	Moderate
Ivanhoe RLF 27	RFL27	Artefacts	Low	Low	Low	Low
Ivanhoe RLF 28	RFL28	Isolated Artefact	Low	Low	Low	Low

Table 11. Scientific Significance Assessment of Aboriginal Heritage Sites

13.3 Cultural Significance Assessment of Aboriginal Heritage Sites

The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011: 18) requires that a “clear description of the heritage values present across the area of the proposed activity” be presented, and be articulated back to the information collected during the assessment process, in particular to any submissions received from registered Aboriginal parties. The Guide advises that “the assessment of values is a discussion of *what* is significant and *why*”. The purpose of the statement of significance is to create a comprehensive assessment of values and significance by considering and stating the values identified under each of the value categories defined by the Burra Charter, namely, social values, historic values, scientific values, and aesthetic values. The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011:10) states:

The assessment and justification in the statement of significance must discuss whether any value meets the following criteria (NSW Heritage Office 2001):

- *does the subject area have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons? - social value*
- *is the subject area important to the cultural or natural history of the local area and/or region and/or state? - historic value*

- *does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state? - scientific (archaeological) value*
- *is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or state? - aesthetic value.*

Statements of significance for the Project area are presented in the following sub-sections.

Social significance

The Atlas-Campaspe Mine section of the Project area may have some social significance as an area in close proximity to the highly significant Lake Mungo. There have been no direct social or cultural associations, or sites or areas of spiritual or cosmological significance identified within the Project area. The Project area does not contain any conspicuous landscape features (such as ranges, lakes or rivers) that are ordinarily associated with significant cultural or social landscapes in western NSW. The Project area contains an assemblage of land systems, vegetation and faunal communities that have some significance to the Aboriginal community by providing a link to traditional and historical life-ways and resources. Requests were made of the registered Aboriginal parties during their review of the draft ACHA to comment on cultural values of the Project area and any possible links with the values of the Willandra Lakes Region World Heritage Area. No links were identified (Section 4.1).

Aesthetic significance

The Project area has low aesthetic values. The Atlas-Campaspe Mine is dominated by dunefields and sandplains with Mallee being the dominant vegetation community; the mineral concentrate transport route comprises an existing road on saltbush plains; and the Ivanhoe Rail Facility is a plain with wattle shrubland and grasses adjacent to a railway line. While representative localities within the Project area can provide a sense of place, this is by no means unique in the broader landscape.

Historic significance

The Project area contains no identified historic values.

Scientific significance

The Project area has moderate scientific value, however, this is extremely variable across such a large landscape. Situated between the relict lakes land systems of Mungo National Park, the Willandra Lakes Region World Heritage Area and the Riverine Plains of the Lachlan River and Murrumbidgee River, the Project area presents an opportunity to consider past Aboriginal land use in an area between these two highly characteristic zones.

The dune fields and sandplains of the Atlas-Campaspe Mine area and the Ivanhoe Rail Facility present a generally undifferentiated landscape with a low number and density of Aboriginal archaeological sites, with concentrations of sites around ephemeral water features. The archaeological sites of the dune fields and sandplains contain isolated or low numbers of stone artefacts, which in and of themselves have low research potential, but which present a landscape that is interesting for its relative lack of archaeological evidence compared to the surrounding areas.

The Project area contains a high number and density of Aboriginal archaeological sites, especially in the small relict lake, playa and alluvial plains areas associated with the mineral concentrate transport route. The sites here contain a suite of features that contain good research potential, and the presence of relict land features such as lunettes and source bordering dunes mean this potential may span relatively long periods of Aboriginal occupation. The archaeological material has excellent potential to provide information on past Aboriginal land use of the area, including the differential use of the various land systems present, however, in close proximity to the proposed mineral concentrate transport route the sites have been subject to context disturbance from the existing public road.

The registered Aboriginal parties were requested to provide input into the cultural values and significance of the Project area. The significance assessment column in Table 12 was left blank for the registered Aboriginal parties to complete during their review of the draft ACHA. No specific comments regarding cultural significance of individual sites were provided. Comments regarding cultural significance of the Project area and surrounds more generally were provided and are included after Table 12. Registered Aboriginal parties may also provide further written or verbal comments on the cultural values and significance of the Project area as part of their review of this report.

Site Number	Figure Code	Site Features	Cultural Significance Assessment
Atlas 1	Atl1	Isolated Artefact	
Atlas 2	Atl2	Isolated Artefact	
Atlas 3	Atl3	Isolated Artefact	
Atlas 4	Atl4	Isolated Artefact	
Atlas 5	Atl5	Isolated Artefact	
Atlas 6	Atl6	Isolated Artefact	
Campaspe 1	Cam1	Isolated Artefact	
Campaspe 2	Cam2	Artefacts	
Campaspe 3	Cam3	Artefacts	
Campaspe 4	Cam4	Artefacts	
Campaspe 5	Cam5	Artefacts	
Campaspe 6	Cam6	Scarred Tree	
Hatfield 1	Hat1	Isolated Artefact	
Hatfield 2	Hat2	Isolated Artefact	
Hatfield 3	Hat3	Isolated Artefact	
Hatfield 4	Hat4	Artefacts	
Hatfield 5	Hat5	Isolated Artefact	
Hatfield 6	Hat6	Artefacts	

Site Number	Figure Code	Site Features	Cultural Significance Assessment
Hatfield 7	Hat7	Isolated Artefact	
Hatfield 8	Hat8	Artefacts	
Hatfield 9	Hat9	Artefacts, Hearths	
Hatfield 10	Hat10	Artefacts	
Hatfield 11	Hat11	Artefacts	
Hatfield 12	Hat12	Isolated Artefact	
Hatfield 13	Hat13	Artefacts	
Hatfield 14	Hat14	Artefacts	
Hatfield 15	Hat15	Artefacts	
Hatfield 16	Hat16	Artefacts	
Hatfield 17	Hat17	Artefacts, Hearths, Shell	
Hatfield 18	Hat18	Artefacts	
Hatfield 19	Hat19	Artefacts	
Hatfield 20	Hat20	Artefacts, Hearths, non human bone & organic material	
Hatfield 21	Hat21	Artefacts, Hearths	
Hatfield 22	Hat22	Artefacts	
Hatfield 23	Hat23	Isolated Artefact	
Hatfield 24	Hat24	Artefacts	
Hatfield 25	Hat25	Artefacts	
Hatfield 26	Hat26	Artefacts	
Hatfield 27	Hat27	Isolated Artefact	
Hatfield 28	Hat28	Artefacts	
Hatfield 29	Hat29	Isolated Artefact	
Hatfield 30	Hat30	Artefacts	
Hatfield 31	Hat31	Artefacts	
Hatfield 32	Hat32	Artefacts	
Hatfield 33	Hat33	Artefacts	
Hatfield 34	Hat34	Isolated Artefact	

Site Number	Figure Code	Site Features	Cultural Significance Assessment
Hatfield 35	Hat35	Isolated Artefact	
Hatfield 36	Hat36	Artefacts	
Hatfield 37	Hat37	Artefacts	
Hatfield 38	Hat38	Artefacts	
Hatfield 39	Hat39	Artefacts, Hearths	
Hatfield 40	Hat40	Artefacts, Hearths	
Hatfield 41	Hat41	Artefacts, Hearths	
Hatfield 42	Hat42	Isolated Artefact	
Hatfield 43	Hat43	Artefacts	
Hatfield 44	Hat44	Isolated Artefact	
Hatfield 45	Hat45	Isolated Artefact	
Hatfield 46	Hat46	Artefacts	
Hatfield 47	Hat47	Artefacts	
Hatfield 48	Hat48	Artefacts	
Hatfield 49	Hat49	Isolated Artefact	
Hatfield 50	Hat50	Artefacts	
Hatfield 51	Hat51	Artefacts, Hearths	
Hatfield 52	Hat52	Artefacts	
Hatfield 53	Hat53	Isolated Artefact	
Hatfield 54	Hat54	Isolated Artefact	
Hatfield 55	Hat55	Artefacts	
Hatfield 56	Hat56	Artefacts, Hearths, non human bone & organic material	
Hatfield 57	Hat57	Artefacts	
Hatfield 58	Hat58	Artefacts, Hearths	
Hatfield 59	Hat59	Artefacts	
Hatfield 60	Hat60	Isolated Artefact	
Hatfield 61	Hat61	Isolated Artefact	
Hatfield 62	Hat62	Isolated Artefact	

Site Number	Figure Code	Site Features	Cultural Significance Assessment
Hatfield 63	Hat63	Artefacts	
Hatfield 64	Hat64	Artefacts	
Hatfield 65	Hat65	Artefacts, Hearths	
Hatfield 66	Hat66	Isolated Artefact	
Ivanhoe RLF 7	RLF7	Isolated Artefact	
Ivanhoe RLF 8	RLF8	Isolated Artefact	
Ivanhoe RLF 9	RLF9	Artefacts	
Ivanhoe RLF 10	RLF10	Artefacts	
Ivanhoe RLF 11	RLF11	Artefacts, Hearths	
Ivanhoe RLF 12	RLF12	Isolated Artefact	
Ivanhoe RLF 13	RLF13	Artefacts, Hearths	
Ivanhoe RLF 14	RLF14	Artefacts	
Ivanhoe RLF 15	RLF15	Artefacts	
Ivanhoe RLF 16	RLF16	Isolated Artefact	
Ivanhoe RLF 17	RLF17	Artefacts, Hearths	
Ivanhoe RLF 18	RLF18	Artefacts, Hearths	
Ivanhoe RLF 19	RLF19	Artefacts	
Ivanhoe RLF 20	RLF20	Artefacts	
Ivanhoe RLF 21	RLF21	Isolated Artefact	
Ivanhoe RLF 22	RLF22	Artefacts	
Ivanhoe RLF 23	RLF23	Artefacts	
Ivanhoe RLF 24	RLF24	Isolated Artefact	
Ivanhoe RLF 25	RLF25	Artefacts	
Ivanhoe RLF 26	RLF26	Artefacts, Hearths	
Ivanhoe RLF 27	RLF27	Artefacts	
Ivanhoe RLF 28	RLF28	Isolated Artefact	

Table 12: Overview of Archaeological Significance Ratings

Comments from one of the registered Aboriginal parties regarding cultural significance were received as part of the proposed methodology review. Mr Michael Kelly provided the following comments (a full account is provided in Appendix 1):

- *Site searches of the Aboriginal Heritage Information Management System AHIMS. The issue with the site searches on the AHIMS database is that there are Gaps' in the information on country due to lack of recording in specific areas across the state. Also the searches could give an all clear to a specific area once again due to the lack of site recordings. Just because the AHIMS database gives a specific results of sites within an area it doesn't mean that there are no other sites within the area as the initial recording of sites within an area is only a snippet of information of that country. Most sites were recorded in the earlier days when the Archaeologist were sampling sites to try and get an understanding of site types and locations. But they missed the bigger picture such as the Association & Connection between sites and places to understand what makes a cultural landscape. A cultural landscape joins all of the site features together to build a bigger picture of the landscape such as occupancy, use, recourses, and connections. The occupancy and use will give a quick snapshot of the areas landscape but when you include recourses and connections this then opens up the landscape to a much bigger picture of country.*

The bigger picture includes Vegetation types, Soil types, Landform & Units & Water that all make up a cultural landscape to sustain life for both Humans and Animals.

Once you join the site types to land forms and closest proximity water you then get a quick idea of how people lived within a specific area. For instance a site featuring multiple types such as Hearth, Shell, Artefact, Non Human Bone materials such a fish bone and or bird bone indicates what kinds of recourses were available at the time of occupation within the area. If you have a Hearth this indicates a stable recourse such as trees to create the hearth (Fire) then if you look at the Shell and bone material contained within the Hearth this is your indicator of water recourses within this landscape as water sustains life as for the Artefacts their material types will also give an insight to where they come from and how they may have been used also some materials such as Quartz may have been traded into the area and either coming into the landscape by canoe or overland and traded in times of Ceremony evens. So after just looking at a site containing these site types you can start to build the bigger picture.

...

- *Materials from site recordings should remain within the landscape and not transferred out of country for scientific purposes and should be kept in a designated keeping place on country to protect their integrity and cultural values. The reason this is mentioned is that there are huge collections of materials held within universities and museums within Australia that have been studied and recorded for many years what the people miss out on with carrying out this process in a uni other than on country is the spiritual connection to country in our beliefs as aboriginal people is that all of our tools and materials retain the spiritual connections to our ancestors through being able to sit down on country to look at our sites & feel the connection of our sitting, looking and feeling the connections you get an appreciation of what our people done to survive within their environment and what kept them in harmony with their landscape. (A Cultural Landscape) Michael (Mick) Kelly's view of cultural connection to country*

...

- *Archaeological significance assessment of information collected by way of research and survey all of our sites are significant to our people as they hold the connection to country and tell the stories for country. Our sites such as artefact scatters and quarries are a teaching tool to show how the materials were graded and used to make items such as blades and wood working tools. If our old people didn't want us to see this material they would have either hidden it or destroyed it to protect its methods of production (Copy Right) so this is why they left it there for us understand the processes of tool making. This also applies to other site types within the landscape. These are just a couple of reasons why our sites are significant to our people and have cultural values. The value of an individual site is not measured on a monetary sense but a cultural sense you may have heard the Question (Well how much is an Aboriginal site worth?) Answer? How much is your life worth? As our people lived and died to protect our knowledge and customs this extends to the knowledge hidden within these sites so this is why there should never be a monetary value imposed on Aboriginal sites only to protect and preserve them.*

Comments from another of the registered Aboriginal parties regarding cultural significance were received as part of the request for involvement in field surveys. Mutthi Mutthi Nations provided the following comments (a full account is provided in Appendix 1):

- *The Muthi Muthi Nation, Yita Yita and Ngyampa people have shared the resources of these tribal lands for many thousands of years. The cultural connection of these people includes middens, scar trees, burial sites and other sacred sites which are integral to each other's culture and heritage and remain as a permanent bond to traditional country. These lands also contain large numbers of red Kangaroos which represent the Muthi Muthi totem.*

13.4 Significance Assessment of Non-Aboriginal Heritage Items

The NSW Heritage Branch (OEH) has produced the guideline *Assessing Heritage Significance* (NSW Heritage Office 2001), which is part of the *Heritage Manual*. The *Assessing Heritage Significance* guideline sets out the methods, and criteria for assessing heritage significance in accordance with the NSW Heritage Branch requirements. The relevant parts of the requirements are reproduced below:

An item will be considered to be of State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

- | | |
|---------------|---|
| Criterion (a) | An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area); |
| Criterion (b) | An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area); |
| Criterion (c) | An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area); |
| Criterion (d) | An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons; |

- | | |
|---------------|--|
| Criterion (e) | An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area); |
| Criterion (f) | An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area); |
| Criterion (g) | <p>An item is important in demonstrating the principal characteristics of a class of NSW's</p> <ul style="list-style-type: none"> • cultural or natural places; or • cultural or natural environments (or a class of the local area's); • cultural or natural places; or • cultural or natural environments. |

An item is not to be excluded from the Register on the ground that items with similar characteristics have already been listed on the Register. While all criteria should be referred to during the assessment, only particularly complex items or places will be significant under all criteria. In many cases, items of environmental heritage will be significant under only one or two criteria.

In using these criteria it is important to assess the values first, then the context in which they are significant. Decide the appropriate context by considering similar items of local and State significance in each of these contexts.

Different components of a place may make a different relative contribution to its heritage value. Loss of integrity or condition may diminish significance. In some cases it may be useful to specify the relative contribution of an item or its components.

The majority of sites identified do not reach the threshold by meeting criteria for being of local significance. This is because the sites are generally remnants of ephemeral past activities such as the replacing of fences, or unspecified/unidentifiable domestic activities, such as short-term occupation. Such sites provide some insight into the history of the area, but beyond their observation and recording do not have the potential to further inform or represent the area's history in a meaningful way.

Significance assessments for the non-Aboriginal heritage items encountered during the survey are presented below.

Marked Tree

Location:

The tree is located on the north side of Hatfield-The Vale Road, 6.5 km from the intersection with the Balranald - Ivanhoe Road.

Description:

A Marked Tree, probably dating to the first half of the 20th century was identified along the mineral concentrate transport route. The tree is a living Belah tree, with a small area of bark removal with an upward facing arrow and the letters RD.

Assessment against NSW State Heritage Register Criteria:

- | | |
|---------------|--|
| Criterion (a) | An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area); |
| | <i>The marked tree has some value under this criterion. It represents an important stage and element (development of municipal roads) of the local area's development.</i> |

Domestic Dwelling Remains

Location:

The Domestic Dwelling Remains are located to the east of the Magenta Road, about 250 m north of the intersection with the Boree Plains-Gol Gol Road.

Description:

The former domestic dwelling (archaeological site) was identified along the mineral concentrate transport route. The surface material observed at the site suggests occupation since 1880. The material includes a suite of domestic items and building remains. A local informant thinks the site is possibly the site of the regions former postman. The date of construction and demolition of the building are currently unknown.

Assessment against NSW State Heritage Register Criteria:

- | | |
|---------------|--|
| Criterion (e) | An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area); |
| | <i>The site has the potential to provide information about past historical life ways in the local area and region. The dwelling has been demolished, however, the high number and the range of domestic items present on the surface indicates an archaeological site that has the potential to yield information about how people lived during a time of development and decline in the region.</i> |

14. Impact Assessment

14.1 Aboriginal Heritage Sites

Areas of archaeological value have been defined by considering:

- ☐ the landform and soil conditions;
- ☐ nature and extent of previous disturbance; and
- ☐ the size of sites and density of artefacts recovered.

The potential for impact has been determined by considering the current development footprint and any foreseeable secondary consequences associated with developing that footprint, and whether or not these overlap with the recorded cultural heritage sites and areas of potential.

The impacts are tabulated, as required by the Code in Table 13 below.

Site Name	Figure Code	Site Features	Type of harm	Degree of harm	Consequence of harm
Atlas 1	Atl1	Isolated Artefact	Direct	Total	Total loss of value
Atlas 2	Atl2	Isolated Artefact	Direct	Total	Total loss of value
Atlas 3	Atl3	Isolated Artefact	Direct	Total	Total loss of value
Atlas 4	Atl4	Isolated Artefact	Direct	Total	Total loss of value
Atlas 5	Atl5	Isolated Artefact	Direct	Total	Total loss of value
Atlas 6	Atl6	Isolated Artefact	Direct	Total	Total loss of value
Campaspe 1	Cam1	Isolated Artefact	Direct	Total	Total loss of value
Campaspe 2	Cam2	Artefacts	None	None	No loss of value
Campaspe 3	Cam3	Artefacts	None	None	No loss of value
Campaspe 4	Cam4	Artefacts	None	None	No loss of value
Campaspe 5	Cam5	Artefacts	None	None	No loss of value
Campaspe 6	Cam6	Scarred Tree	None	None	No loss of value
Hatfield 1	Hat1	Isolated Artefact	Direct	Total	Total loss of value
Hatfield 2	Hat2	Isolated Artefact	Direct	Total	Total loss of value
Hatfield 3	Hat3	Isolated Artefact	None	None	No loss of value
Hatfield 4	Hat4	Artefacts	None	None	No loss of value
Hatfield 5	Hat5	Isolated Artefact	None	None	No loss of value
Hatfield 6	Hat6	Artefacts	None	None	No loss of value
Hatfield 7	Hat7	Isolated Artefact	None	None	No loss of value
Hatfield 8	Hat8	Artefacts	Direct	Partial	Partial loss of value
Hatfield 9	Hat9	Artefacts, Hearths	Direct	Partial	Partial loss of value
Hatfield 10	Hat10	Artefacts	None	None	No loss of value
Hatfield 11	Hat11	Artefacts	None	None	No loss of value
Hatfield 12	Hat12	Isolated Artefact	Direct	Total	Total loss of value
Hatfield 13	Hat13	Artefacts	None	None	No loss of value
Hatfield 14	Hat14	Artefacts	Direct	Partial	Partial loss of value
Hatfield 15	Hat15	Artefacts	Direct	Partial	Partial loss of value
Hatfield 16	Hat16	Artefacts	None	None	No loss of value
Hatfield 17	Hat17	Artefacts, Hearths, Shell	None	None	No loss of value
Hatfield 18	Hat18	Artefacts	None	None	No loss of value
Hatfield 19	Hat19	Artefacts	None	None	No loss of value

Site Name	Figure Code	Site Features	Type of harm	Degree of harm	Consequence of harm
Hatfield 20	Hat20	Artefacts, Hearths, non human bone & organic material	None	None	No loss of value
Hatfield 21	Hat21	Artefacts, Hearths	None	None	No loss of value
Hatfield 22	Hat22	Artefacts	None	None	No loss of value
Hatfield 23	Hat23	Isolated Artefact	None	None	No loss of value
Hatfield 24	Hat24	Artefacts	None	None	No loss of value
Hatfield 25	Hat25	Artefacts	Direct	Partial	Partial loss of value
Hatfield 26	Hat26	Artefacts	Direct	Partial	Partial loss of value
Hatfield 27	Hat27	Isolated Artefact	None	None	No loss of value
Hatfield 28	Hat28	Artefacts	None	None	No loss of value
Hatfield 29	Hat29	Isolated Artefact	None	None	No loss of value
Hatfield 30	Hat30	Artefacts	None	None	No loss of value
Hatfield 31	Hat31	Artefacts	None	None	No loss of value
Hatfield 32	Hat32	Artefacts	Direct	Partial	Partial loss of value
Hatfield 33	Hat33	Artefacts	None	None	No loss of value
Hatfield 34	Hat34	Isolated Artefact	None	None	No loss of value
Hatfield 35	Hat35	Isolated Artefact	None	None	No loss of value
Hatfield 36	Hat36	Artefacts	None	None	No loss of value
Hatfield 37	Hat37	Artefacts	None	None	No loss of value
Hatfield 38	Hat38	Artefacts	Direct	Partial	Partial loss of value
Hatfield 39	Hat39	Artefacts, Hearths	Direct	Partial	Partial loss of value
Hatfield 40	Hat40	Artefacts, Hearths	Direct	Partial	Partial loss of value
Hatfield 41	Hat41	Artefacts, Hearths	None	None	No loss of value
Hatfield 42	Hat42	Isolated Artefact	None	None	No loss of value
Hatfield 43	Hat43	Artefacts	None	None	No loss of value
Hatfield 44	Hat44	Isolated Artefact	None	None	No loss of value
Hatfield 45	Hat45	Isolated Artefact	Direct	Total	Total loss of value
Hatfield 46	Hat46	Artefacts	None	None	No loss of value
Hatfield 47	Hat47	Artefacts	None	None	No loss of value
Hatfield 48	Hat48	Artefacts	None	None	No loss of value
Hatfield 49	Hat49	Isolated Artefact	Direct	Total	Total loss of value
Hatfield 50	Hat50	Artefacts	None	None	No loss of value
Hatfield 51	Hat51	Artefacts, Hearths	None	None	No loss of value
Hatfield 52	Hat52	Artefacts	None	None	No loss of value
Hatfield 53	Hat53	Isolated Artefact	None	None	No loss of value
Hatfield 54	Hat54	Isolated Artefact	None	None	No loss of value
Hatfield 55	Hat55	Artefacts	Direct	Partial	Partial loss of value
Hatfield 56	Hat56	Artefacts, Hearths, non human bone & organic material	Direct	Partial	Partial loss of value
Hatfield 57	Hat57	Artefacts	None	None	No loss of value
Hatfield 58	Hat58	Artefacts, Hearths	Direct	Partial	Partial loss of value
Hatfield 59	Hat59	Artefacts	None	None	No loss of value
Hatfield 60	Hat60	Isolated Artefact	Direct	Total	Total loss of value
Hatfield 61	Hat61	Isolated Artefact	Direct	Total	Total loss of value
Hatfield 62	Hat62	Isolated Artefact	None	None	No loss of value
Hatfield 63	Hat63	Artefacts	Direct	Partial	Partial loss of value
Hatfield 64	Hat64	Artefacts	None	None	No loss of value
Hatfield 65	Hat65	Artefacts, Hearths	None	None	No loss of value
Hatfield 66	Hat66	Isolated Artefact	Direct	Total	Total loss of value
Ivanhoe RLF 7	RLF7	Isolated Artefact	None	None	No loss of value

Site Name	Figure Code	Site Features	Type of harm	Degree of harm	Consequence of harm
Ivanhoe RLF 8	RLF8	Isolated Artefact	None	None	No loss of value
Ivanhoe RLF 9	RLF9	Artefacts	None	None	No loss of value
Ivanhoe RLF 10	RLF10	Artefacts	None	None	No loss of value
Ivanhoe RLF 11	RLF11	Artefacts, Hearths	None	None	No loss of value
Ivanhoe RLF 12	RLF12	Isolated Artefact	None	None	No loss of value
Ivanhoe RLF 13	RLF13	Artefacts, Hearths	None	None	No loss of value
Ivanhoe RLF 14	RLF14	Artefacts	None	None	No loss of value
Ivanhoe RLF 15	RLF15	Artefacts	None	None	No loss of value
Ivanhoe RLF 16	RLF16	Isolated Artefact	None	None	No loss of value
Ivanhoe RLF 17	RLF17	Artefacts, Hearths	None	None	No loss of value
Ivanhoe RLF 18	RLF18	Artefacts, Hearths	None	None	No loss of value
Ivanhoe RLF 19	RLF19	Artefacts	None	None	No loss of value
Ivanhoe RLF 20	RLF20	Artefacts	None	None	No loss of value
Ivanhoe RLF 21	RLF21	Isolated Artefact	None	None	No loss of value
Ivanhoe RLF 22	RLF22	Artefacts	None	None	No loss of value
Ivanhoe RLF 23	RLF23	Artefacts	None	None	No loss of value
Ivanhoe RLF 24	RLF24	Isolated Artefact	None	None	No loss of value
Ivanhoe RLF 25	RLF25	Artefacts	None	None	No loss of value
Ivanhoe RLF 26	RLF26	Artefacts, Hearths	None	None	No loss of value
Ivanhoe RLF 27	RLF27	Artefacts	None	None	No loss of value
Ivanhoe RLF 28	RLF28	Isolated Artefact	None	None	No loss of value

Table 13. Impact Matrix for Aboriginal Archaeological Sites

Atlas-Campaspe Mine Area

Sites Atlas 1 to 6 fall within the approximate extent of proposed surface development associated with the mining of the Atlas deposit (the Atlas footprint). As such the proposed impacts would result in total harm and total loss of value for these sites. All of these sites have low scientific significance and as such do not warrant further assessment or conservation.

Site Campaspe 1 falls within the approximate extent of the proposed surface development associated within the mining of the Campaspe deposit (the Campaspe footprint). The proposed impacts would result in total harm and total loss of value. This site has low scientific significance and as such does not warrant further assessment or conservation.

Sites Campaspe 2 to Campaspe 6 are outside the Campaspe footprint and as such would not be impacted by the Project. These sites together have moderate scientific significance as a focus of occupation in the immediate landscape which is limited evidence of occupation. These sites are important as an example of a surface water feature acting as a focus for past Aboriginal land use. These sites are the only known example of their type within the Project area. Naturally occurring silcrete is also present and utilised at the sites. The Campaspe footprint has been designed to avoid these sites and as such these sites will not be impacted by the Project.

The Proposed Mineral Concentrate Transport Route

The proposed mineral concentrate transport route between the Atlas-Campaspe Mine and the Balranald-Ivanhoe Road would require the upgrading of existing public roads and construction of two new sections of road. The two new sections of road would be up to approximately 23 m total width and approximately 1 km long. Disturbance would be restricted to the surface (i.e. would not include substantial subsurface disturbance). A brief description of the type, degree and consequence of harm to individual sites along the proposed mineral transport route is provided below.

It should be noted that there is archaeological potential along the entire length of the proposed mineral concentrate transport route that may be impacted by the road upgrade works, however, the scale of the impact (confined to the existing public road, or at worst to its immediate margins) to the cultural landscape is considered very low, and will not affect the values present.

Sites Hatfield 1, Hatfield 2 and Hatfield 12 are isolated artefacts of low scientific significance on the margins of the proposed impact area. Harm is likely to be direct and total. Sites Hatfield 45, Hatfield 49, Hatfield 60, Hatfield 61 and Hatfield 66 are also completely within the impact area. Harm is likely to be direct and total.

Sites Hatfield 3 to Hatfield 7, Hatfield 10, Hatfield 11, Hatfield 13, Hatfield 16, Hatfield 18 to Hatfield 24, Hatfield 27, Hatfield 33, Hatfield 35, Hatfield 37, Hatfield 48, Hatfield 53, Hatfield 54 and Hatfield 59 are beyond the proposed impact area and as such should not be subject to harm. Management and mitigation measurements should be put in place to ensure that incidental harm does not occur as a result of increased traffic or grader movements during the upgrading and maintenance of the road.

Sites Hatfield 28 to Hatfield 31 and Hatfield 34 are located in close proximity to the mineral concentrate transport route, but will not be impacted as they are adjacent to the section of road that will not be widened.

Portions of sites Hatfield 8, Hatfield 14, Hatfield 15, Hatfield 25, Hatfield 26, Hatfield 32, Hatfield 38, Hatfield 39, Hatfield 56 and Hatfield 63 are within the impact area. Harm is likely to be both direct but partial, resulting in a partial loss of value.

Sites Hatfield 17 to Hatfield 25 and Hatfield 40 to Hatfield 43 are an extensive, continuous landscape of occupation with potential for further surface and subsurface Aboriginal Objects. Portions of sites Hatfield 25 and Hatfield 40 are within the impact area. Harm is likely to be partial resulting in a partial loss of value.

Sites Hatfield 17 to Hatfield 21, Hatfield 22 to Hatfield 24 and Hatfield 41 to Hatfield 43 are beyond the proposed disturbance area and would not be impacted by the Project.

Sites Hatfield 36, Hatfield 44, Hatfield 46, Hatfield 47, Hatfield 50, Hatfield 51, Hatfield 52, Hatfield 57, Hatfield 62, Hatfield 64 and Hatfield 65 are beyond the proposed impact area and as such should not be subject to harm. Management and mitigation measurements should be put in place to ensure that incidental harm does not occur as a result of increased traffic or grader movements during the upgrading and maintenance of the road.

Portions of Hatfield 55 and Hatfield 58 are within the impact area. Harm is likely to be partial resulting in a partial loss of value.

Ivanhoe Rail Facility

The Ivanhoe Rail Facility and access road to the Rail Facility have been designed to avoid the surface exposures of the 22 known Aboriginal sites that were identified during the survey. As such, there is no direct impact to any of the sites.

However, the proposed activities will take place in close proximity to some sites and the Ivanhoe area contains a continuous archaeological landscape with potential subsurface stone artefacts and hearths. It is anticipated that any subsurface material present would be of a similar nature to what has been locally exposed.

In conclusion the Aboriginal archaeological heritage matters present a range of constraints to the proposed development and will require appropriate mitigation and management measures as discussed below.

14.2 Non-Aboriginal Heritage Sites

The impacts to non-Aboriginal heritage sites from the proposed mineral sands development are summarised in Table 14. As described in Section 13.4 the majority of items identified by the surveys do not reach the threshold set by the NSW State Heritage Register criteria to constitute being of local heritage value.

The Marked Tree and Domestic Dwelling Remains are both of local significance and will not be impacted by the proposed development.

Site Name	Impact	Consequence on Heritage Values
Marked Tree	None	No deleterious effect
Domestic Dwelling Remains	None	No deleterious effect

Table 14. Impact to Non-Aboriginal Heritage Sites

14.3 Potential Impacts to the World Heritage and National Heritage Values of the Willandra Lakes Region

The Project area is situated near the Willandra Lakes Region World Heritage Area. The Willandra Lakes Region World Heritage Area is listed under both the World Heritage List and the National Heritage List.

The values of the Willandra Lakes Region which meet the World Heritage criteria are:

- (iii) *to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;*
- (viii) *to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;*

The values of the Willandra Lakes Region World Heritage Area which meet the National Heritage criteria are:

- (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;*
- (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;*

At its closest point the Willandra Lakes Region World Heritage Area is situated approximately 10 km from the closest disturbance footprint of the Campaspe deposit. The mineral concentrate transport route is situated at a distance of between 28 km and 60 km from the Willandra Lakes Region World Heritage Area. Ivanhoe is approximately 80 km north of the northern boundary of the Willandra Lakes Region World Heritage Area.

The landscape features from which the world heritage values are derived are lunettes and associated relict lake and inter-lake connecting areas. Combined, these landforms preserve a rich palaeo-environmental (World Heritage criterion viii; National Heritage criteria [a], [b], [c]) and cultural (World Heritage criterion iii; National Heritage criteria [a], [b], [c], [g]) record stretching from 100,000 years ago to the present. Significantly the combined archaeological and environmental record preserved within the Willandra Lakes Region World Heritage Area documents life ways, cultural practices and human responses to a changing climate and environment over the last 50,000 years.

The results of the survey of the Project area provide no evidence that similar values exist within the Project area. The Atlas-Campaspe Mine area and the Ivanhoe Rail Facility are situated on quaternary sand dunes and sandplains, which do not contain a significant natural and cultural record. The mineral concentrate transport route traverses an area which includes some smaller relict lakes and deposits, however these are separate to and not associated with the Willandra Lakes Region World Heritage Area (the proposed mineral concentrate transport route is between 26 km and 52 km east of the Willandra Lakes Region World Heritage Area) and will not be significantly impacted.

Based on the above, it is concluded that the Project would not have a significant impact on the World Heritage or National Heritage values of the Willandra Lakes Region World Heritage Area.

15. Management and Mitigation Measures

15.1 Management and Mitigation Measures - Aboriginal Heritage

Conservation principles and management framework

The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) requires that both direct and indirect harm be considered. Generally direct harm refers to occasions where an activity physically impacts a site or objects and therefore effects the heritage values possessed by the site or objects. Indirect harm is usually taken to mean harm stemming from secondary consequences of the activity, and may affect sites or objects as a consequence of the activity. Examples of such indirect harm are increased visitors to a site, or increased erosion in an area.

The two founding principles behind the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011:12) are ecologically sustainable development and intergenerational equity. These principles hold that “the present generation should make every effort to ensure the health, diversity and productivity of the environment - which includes cultural heritage - is available for the benefit of future generations”. The strong emphasis, as in the Burra Charter, is to quantify and understand the heritage values of a place, a site, or an object and exhaust avenues of avoiding harm to those values. If harm cannot be avoided then there must be consideration and implementation of strategies to minimise harm (OEH 2011:13).

It follows that the hierarchy for consideration in regards to management strategies available for surface stone artefacts and subsurface stone artefacts and areas of archaeological potential fall into four general categories, in order of preference from a conservation perspective:

- ☐ avoidance and *in-situ* conservation;
- ☐ partial avoidance and partial *in-situ* conservation (includes partial harm);
- ☐ harm with mitigating circumstances such as collection or salvage; and
- ☐ unmitigated harm.

General Measures

It is recommended that a Heritage Management Plan be developed in consultation with the NSW Department of Planning and Infrastructure (DP&I) and OEH and registered Aboriginal parties to define management and mitigation measures. The following general approach should be taken to manage cultural heritage during the life of the Project:

- ☐ Ongoing consultation with the registered Aboriginal parties.
- ☐ Where practicable, known Aboriginal sites be avoided during Project construction and operation works.
- ☐ Where avoidance of known Aboriginal sites is not practicable, a representative sample of artefacts (given the nature of the sites this would most likely include collection of all visible objects within the Project footprint) be salvaged for safekeeping in consultation with the registered Aboriginal parties in accordance with the Heritage Management Plan. It is recognised that the Aboriginal community has indicated that any salvaged material should remain available for use by the local Aboriginal community rather than to be stored in a university or museum.

These wishes will be paramount during development of the Heritage Management Plan. Local options at Atlas-Campaspe for storage of the salvaged artefacts being on-site, or possibly at the Mungo National Park, if appropriate and accessible facilities exist. At Ivanhoe, it has been suggested that salvaged artefacts may be kept on-site, or at the local library or school.

- ❑ Any new Aboriginal heritage sites identified during the development of the Project be registered with the OEH in consultation with the registered Aboriginal parties.
- ❑ Any new Aboriginal heritage sites identified during the development of the Project be managed consistent with the measures detailed in the Heritage Management Plan.

Atlas-Campaspe Mine

Aboriginal sites within the Atlas-Campaspe footprint consisted of seven isolated finds of low scientific significance and do not require further investigation. The management of the sites should be guided by a Heritage Management Plan developed on the findings of this assessment and ongoing consultation with the Aboriginal community. Where impact cannot be avoided:

- ❑ Manage Harm:
 - Salvage of a selection of representative sites prior to disturbance.

Sites Campaspe 2, 3, 4 and 5 are a series of interconnected artefact scatters surrounding an ephemeral depression. Campaspe 6 is a Scarred tree which is also located in the same area. These sites are of moderate and high significance. The Atlas-Campaspe footprint has been designed to avoid the area in which the sites are located, including a small elevated feature, which is probably a source bordering dune. As such, the sites would not be subject to disturbance by the Project. The area should be managed with care to avoid the possibility of indirect impacts, and these should be considered in the Heritage Management Plan.

Proposed Mineral Concentrate Transport Route

The proposed mineral concentrate transport route is located in a landscape of high archaeological sensitivity and potential significance. Surface disturbance associated with the proposed mineral concentrate transport route (i.e. roadworks along the existing roads) has some potential to impact on surface and/or subsurface archaeological material. Avoidance and *in-situ* conservation is recommended for sites and areas if readily practicable. Where impact cannot be avoided:

- ❑ Minimise Harm:
 - Reduce dimensions of the mineral concentrate transport route footprint where possible (partial avoidance/partial harm). For example a section of Magenta Road would not be subject to road widening works. Consequently sites within this area would not be subject to disturbance.
 - Create exclusion zones to protect sites (from accidental harm) located outside (but in close proximity to) the mineral concentrate transport route footprint. This may include avoiding known sites for laydown areas associated with the roadworks.
- ❑ Mitigate and Manage Harm:
 - Salvage of a representative sample of surface Aboriginal artefacts prior to disturbance. This sample should be directed by the Heritage Management Plan in consultation with the registered Aboriginal parties.

- Appropriate representative samples for the mineral concentrate transport route would include the salvage of entire surface assemblages from within the impact area.
- Surface salvage would include the monitoring (by representatives of the registered Aboriginal parties) of any soil stripping required for the roadworks.

Ivanhoe Rail Facility

Aboriginal Heritage

The proposed Ivanhoe Rail Facility and access track is located in close proximity to several surface sites, and the access track traverses an area of archaeological potential. The exposure of archaeological surface objects will be dependent on ground conditions at any given time, therefore surface disturbance associated with the proposed rail facility has the potential to impact on surface and/or subsurface archaeological material. Avoidance and *in-situ* conservation is recommended and has been achieved for known sites and areas identified as being of high significance.

For the remainder of the impact footprint:

- ❑ **Minimise Harm:**
 - Reduce dimensions of the impact area where possible (partial avoidance/partial harm).
 - Create exclusion zones to protect sites and PAD located outside (but in close proximity to) the disturbance area, in particular the sites Ivanhoe RLF 11, Ivanhoe RLF 13, Ivanhoe RLF 17, Ivanhoe RLF 18 and Ivanhoe RLF 26 .
- ❑ **Mitigate and Manage Harm:**
 - Salvage of a representative sample of any newly exposed surface Aboriginal artefacts prior to disturbance, should be implemented. This sample would involve a pre-disturbance walk-over and should be directed by the Heritage Management Plan in consultation with the registered Aboriginal parties.
 - Appropriate representative samples for the proposed rail facility would include the salvage of entire surface assemblages from within the impact area.
 - Surface salvage would include the monitoring (by representatives of the registered Aboriginal parties) of any soil stripping required for the Ivanhoe Rail Facility components.
 - The Ivanhoe area is rich in hearths so the Heritage Management Plan should consider options for information retrieval from these (such as dating of charcoal and collection of heat retainers) in consultation with the registered Aboriginal parties.

15.2 Management and Mitigation Measures - Non-Aboriginal Heritage

Proposed Mineral Concentrate Transport Route

The Marked Tree site consists of a tree with an historical surveyors mark, most likely falling into the period after 1914. The site will not be impacted by the Project. The site should be managed with care to avoid the possibility of indirect impacts, and these should be considered in the Heritage Management Plan.

The Domestic Dwelling Remains site has local significance if it is the material remains of the dwelling of the mail man who serviced the local area during the twentieth century. The site will not be impacted by the Project. The site should be managed with care to avoid the possibility of indirect impacts, and these should be considered in the Heritage Management Plan.

16. Recommendations

It is recommended that a Cultural Heritage Management Plan be developed for the Project to formalise the management and mitigation measures. This plan should be developed in consultation with the OEH, the registered Aboriginal parties and a suitably qualified individual such as an archaeologist. The Cultural Heritage Management Plan should be developed prior to any works which would harm Aboriginal or historical cultural heritage sites. The Cultural Heritage Management Plan should include protocols for:

1. Continued consultation with the registered Aboriginal parties throughout the life of the Project.
2. The maintenance of a record of known Aboriginal heritage sites, their location and status including the timely update of relevant sites and plans and the lodgement of AHIMS site cards and AHIMS impact recording forms.
3. The identification and recording of authorised impacts to sites.
4. The management of unexpected Aboriginal objects or sites identified during the lifespan of the Project, including protocols for the amendment of the proposed works (if practicable) if new sites or areas of high significance are identified.
5. The discovery of burials and ancestral remains.
6. The management of any culturally sensitive information provided by the registered Aboriginal parties.
7. The development of a surface salvage programme associated with the required upgrades to the proposed mineral concentrate transport route and the Ivanhoe Rail Facility prior to disturbance. The salvage programme should be limited in scope to areas of proposed impact. The purpose of the surface salvage would be to salvage surface archaeological material prior to disturbance. Archaeological material should be stored and managed in accordance with the wishes of the registered Aboriginal parties. This may include storage of the salvaged material on-site in a fenced area or at an appropriate educational centre such as the Ivanhoe library, or a combination of both.
8. The development of a surface salvage programme of Aboriginal objects associated with the Atlas-Campaspe Mine footprint, and a record of those objects, from areas proposed for impact. The collection should be staged as part of the mine campaign clearance programmes prior to infrastructure, pit or stockpile development.
9. The accurate recording of the location of the collected artefacts, and a framework for their analysis developed with the registered Aboriginal parties.
10. Retrieval of samples from hearths (such as samples for dating of charcoal and collection of heat retainers) wherever they are located within a disturbance footprint associated with the Atlas-Campaspe area, the mineral concentrate transport route and in particular at the Ivanhoe Rail Facility disturbance footprint, in consultation with the Aboriginal community.
11. Management of all salvaged material in consideration of the Aboriginal community's wishes.
12. The inclusion of Aboriginal heritage and cultural awareness training as part of the induction programme. The cultural awareness training should have direct input from the registered Aboriginal parties.

13. The ongoing protection and maintenance of areas set aside for conservation, in particular the Campaspe 2 to Campaspe 5 sites, for which the Project disturbance area was modified to avoid.
14. Performance, compliance, review and maintenance of the Cultural Heritage Management Plan, that is the Management Plan must be a living document able to adapt throughout the construction and operation of the Project.

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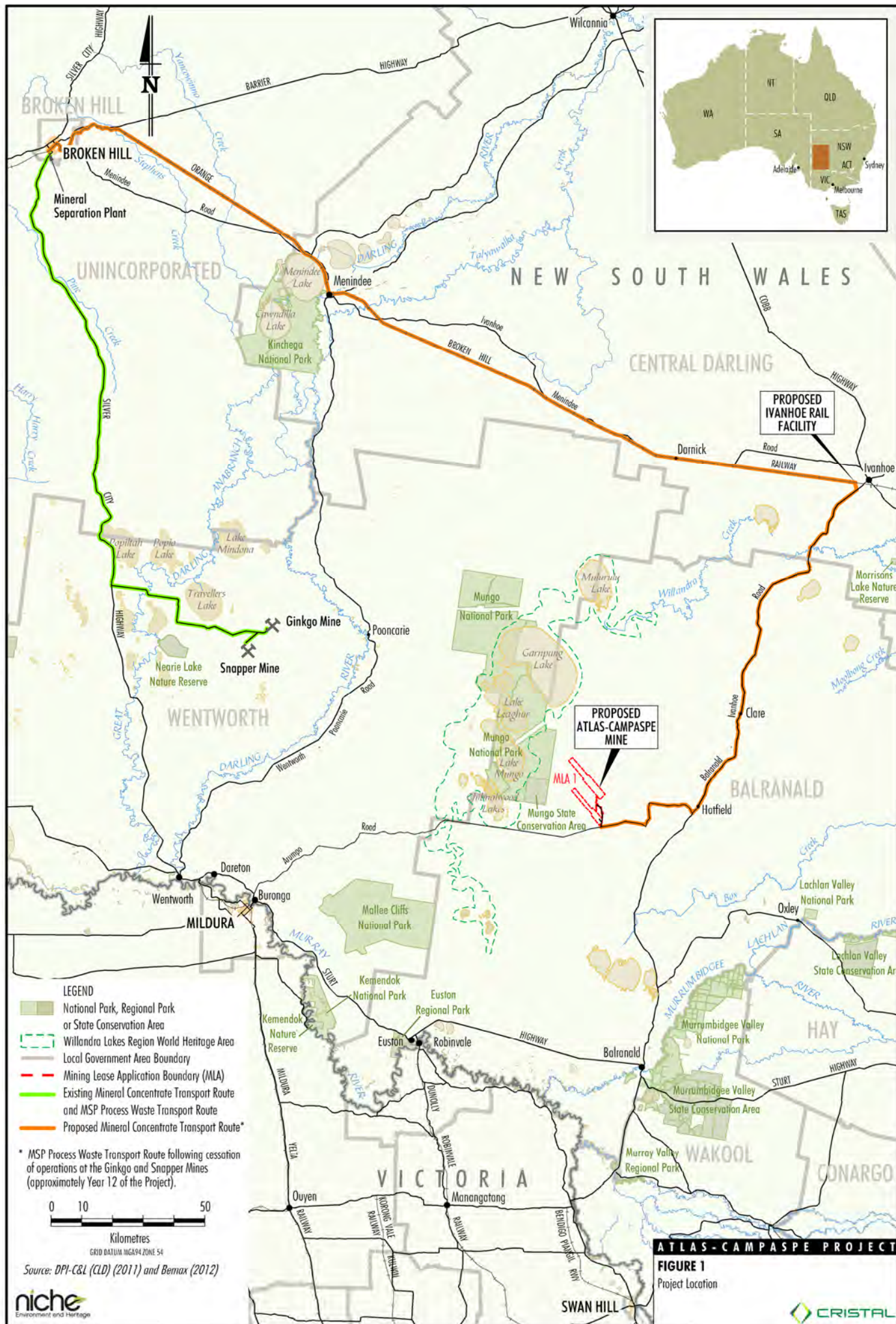
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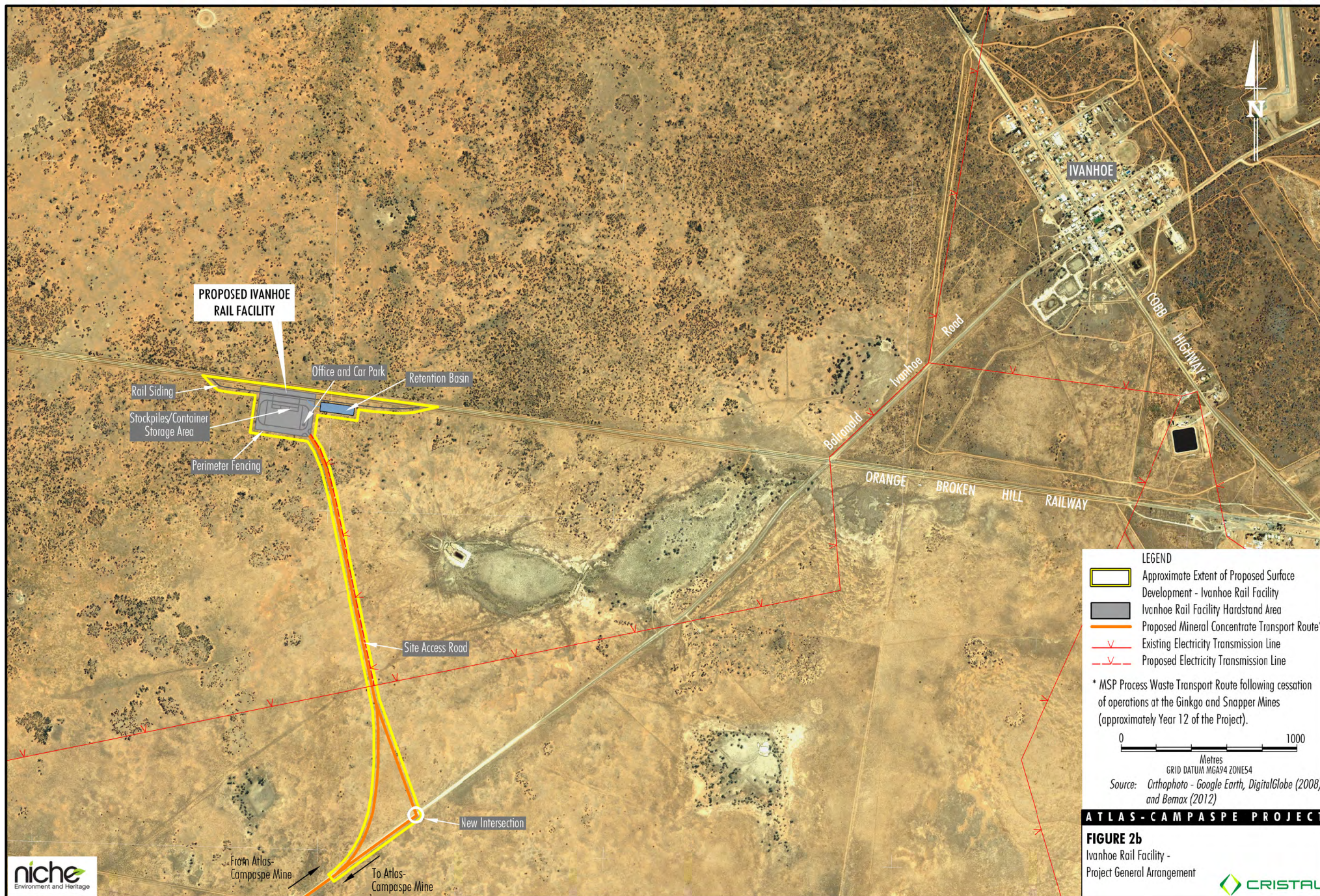
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18. Figures







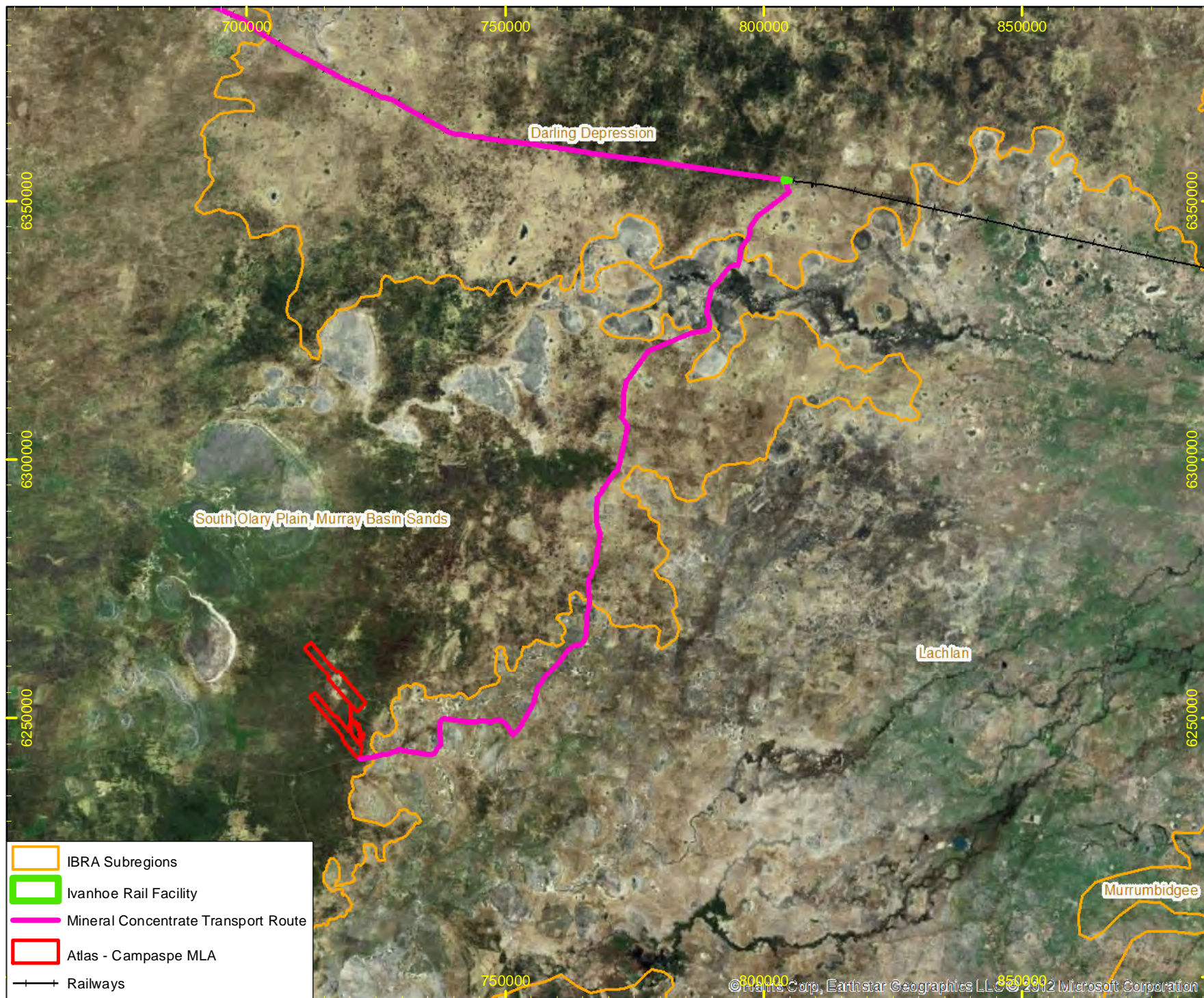
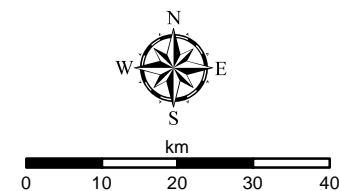


Figure 3: Biogeographic Regions

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



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Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
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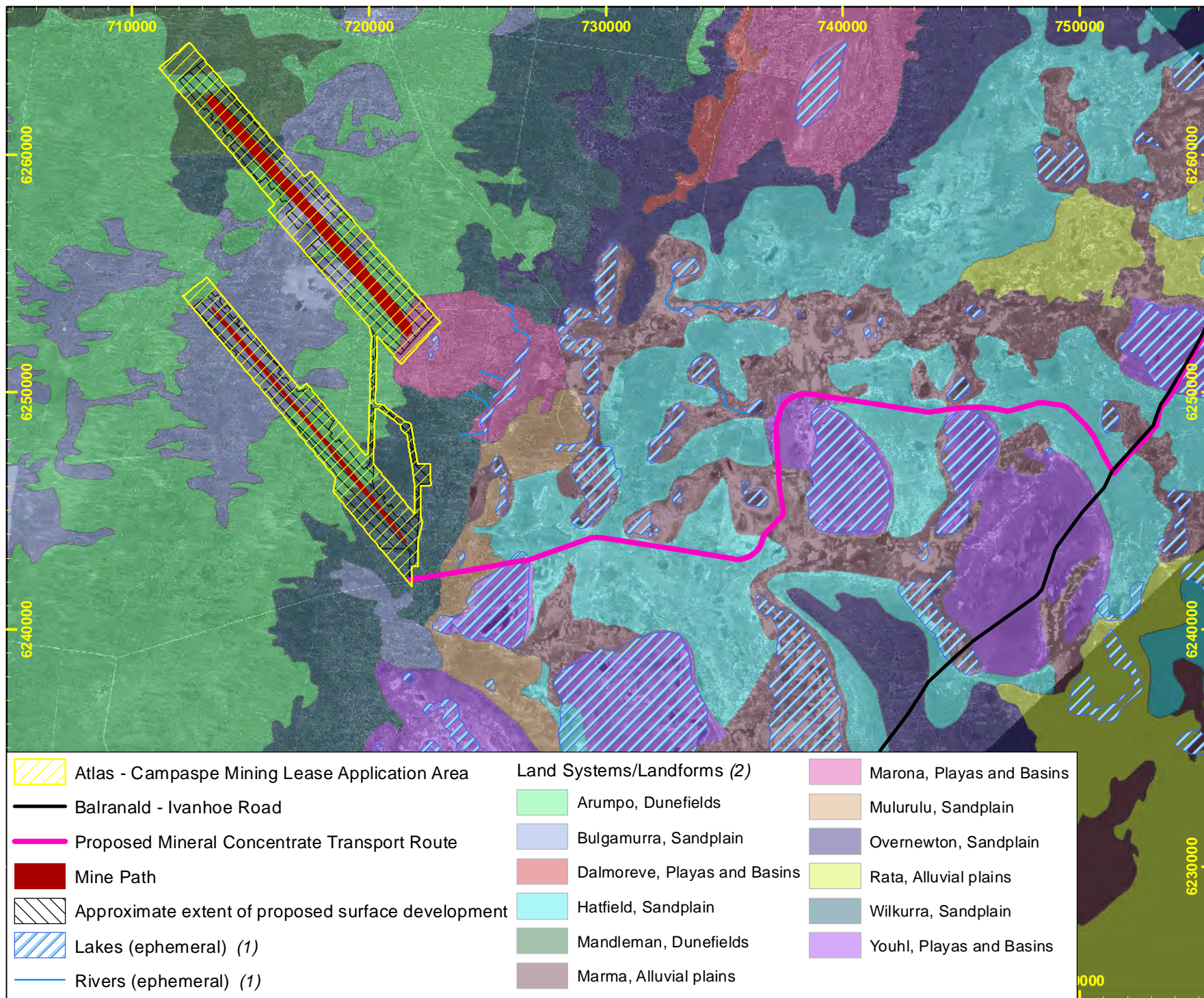


Figure 4: Land Systems Atlas - Campaspe Mine Area

1118 Atlas - Campaspe Mineral Sands Project

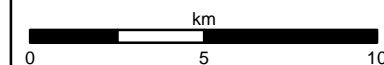
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Sources:

(1): Geodata Topo 250K
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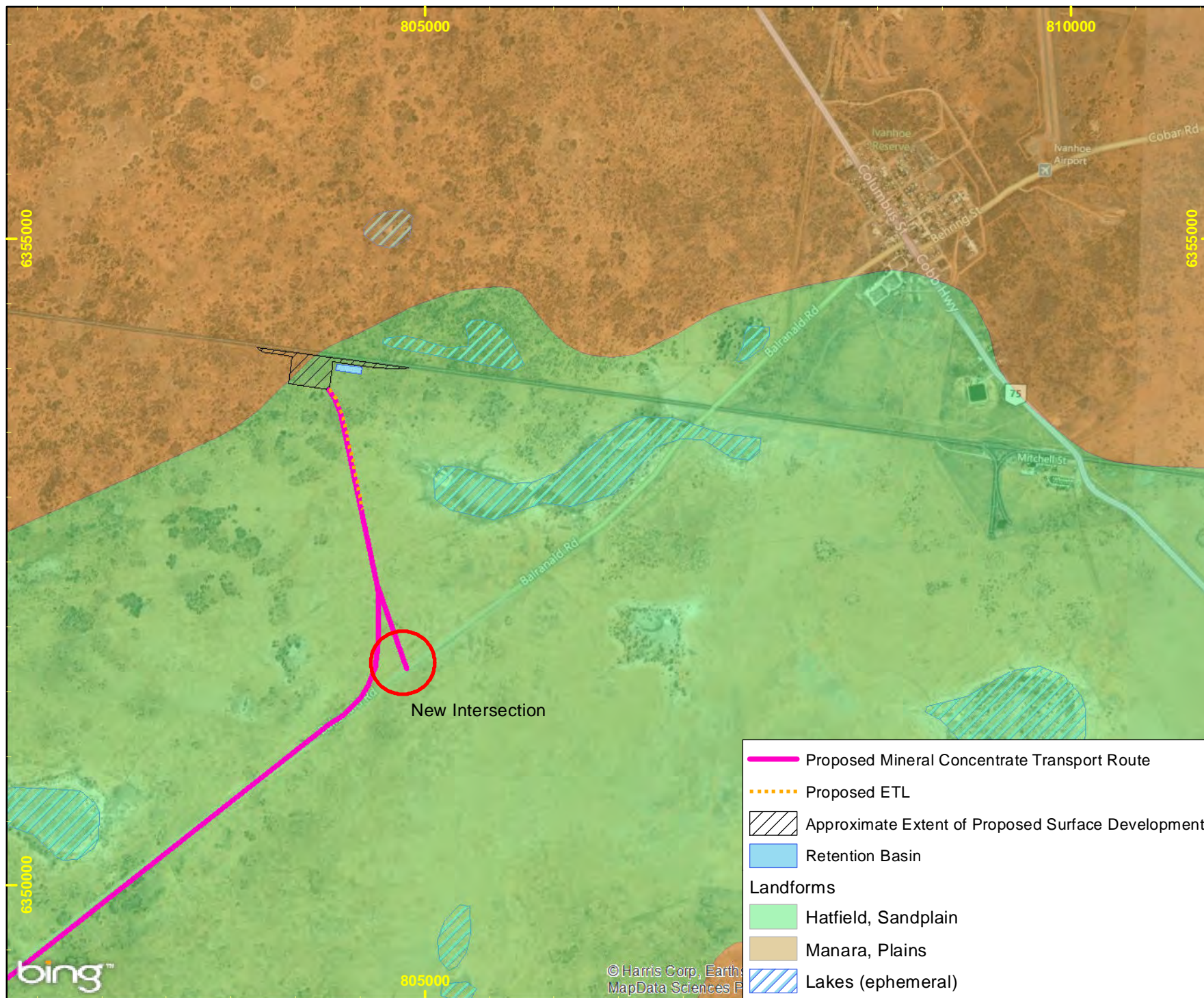


Figure 5: Land Systems
- Ivanhoe Rail Facility

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012

Sources: Geodata Topo 250K
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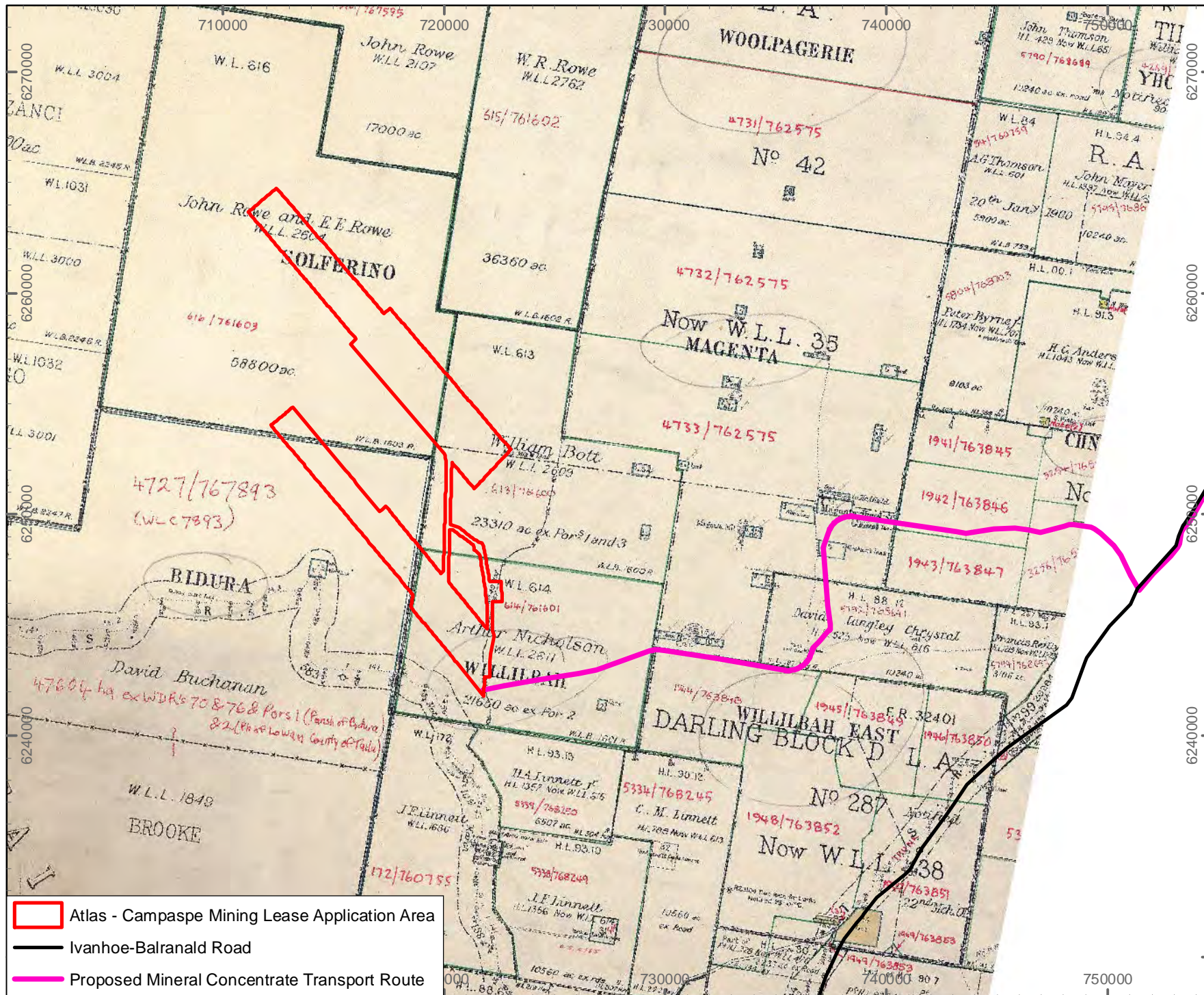
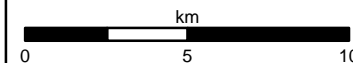


Figure 6: Kilfera Parish
Map 1923

1118 Atlas - Campaspe
Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



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Horizontal Datum:
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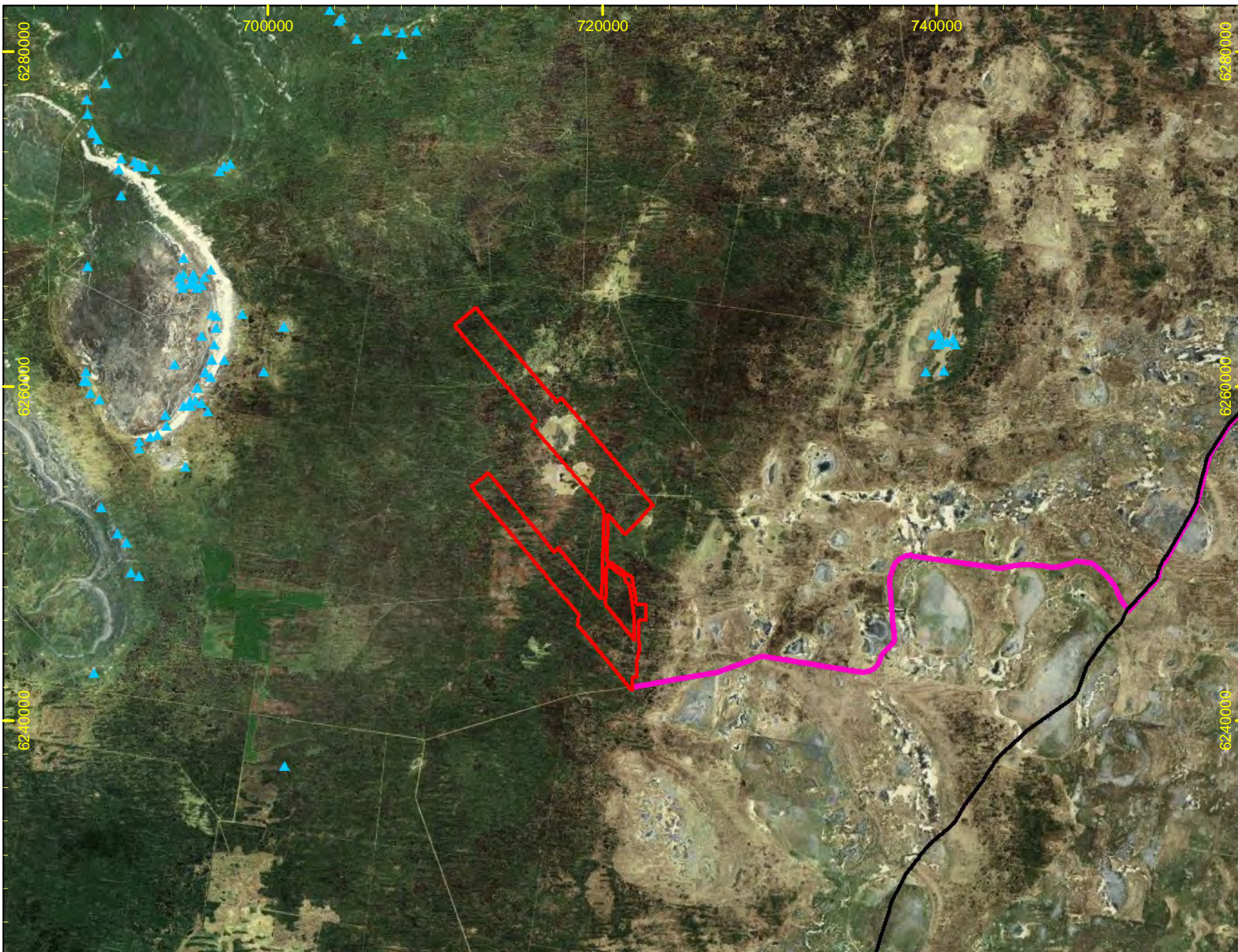
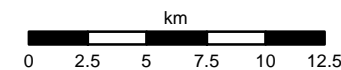


Figure 7: AHIMS Sites
Atlas - Campaspe Mine
Area

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



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▲ AHIMS Site (September 2011)

— Balranald - Ivanhoe Road

□ Atlas - Campaspe Mining Lease Application Area

— Proposed Mineral Concentrate Transport Route

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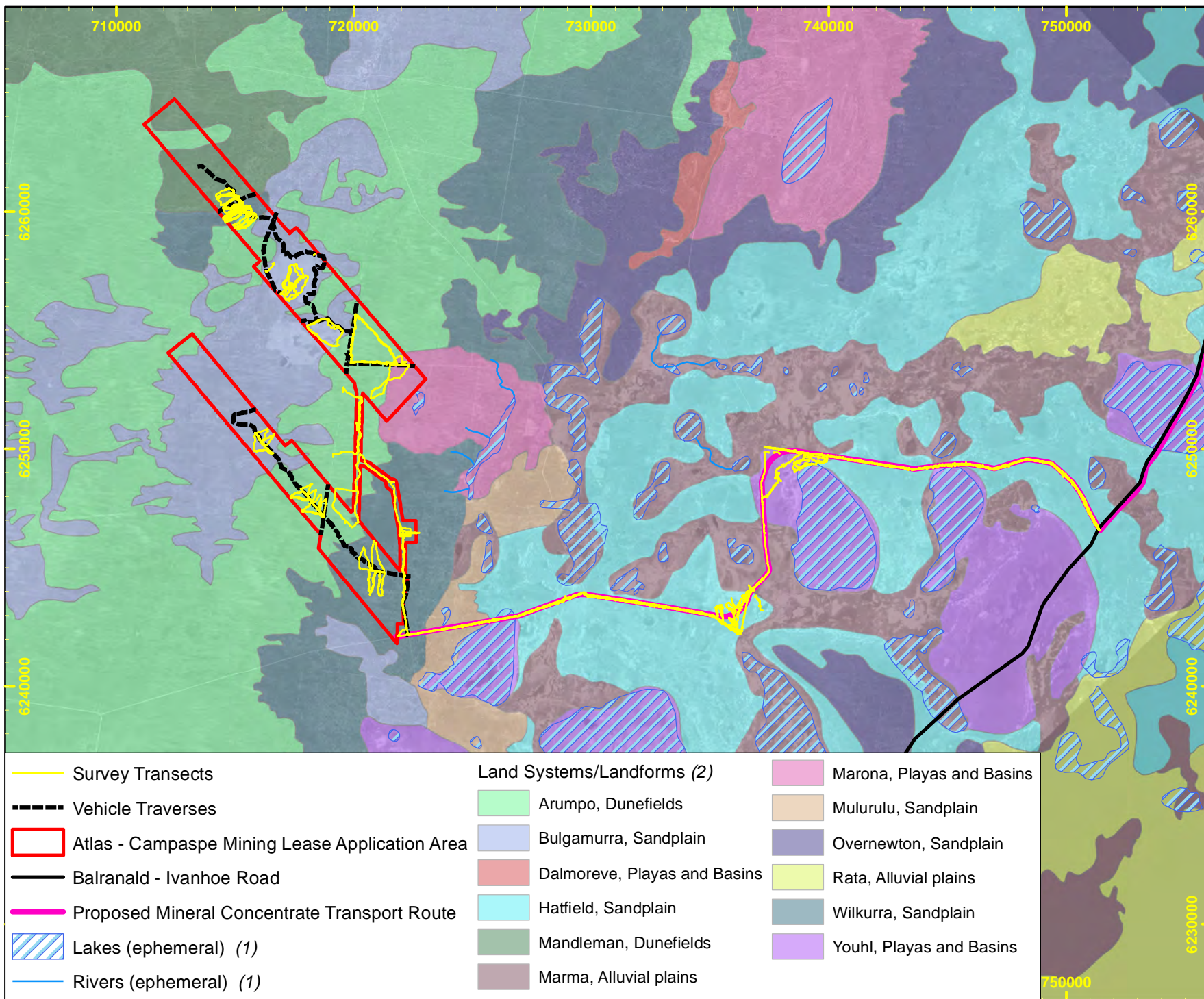


Figure 8: Survey Coverage
Atlas - Campaspe Mine Area

1118 Atlas - Campaspe Mineral Sands Project

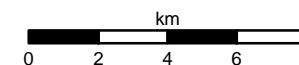
Drawn by: RJ
Project Mgr: JR

Date: 19/11/2012

Sources:

(1): Geodata Topo 250K
(C) Copyright Commonwealth of Australia (Geoscience Australia) 2006

(2): Walker PJ 1991, Land Systems of Western New South Wales. Soil Conservation Service of NSW, Technical Report No.25.



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Horizontal Datum:
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Imagery:
(c) Bemax Resources Limited

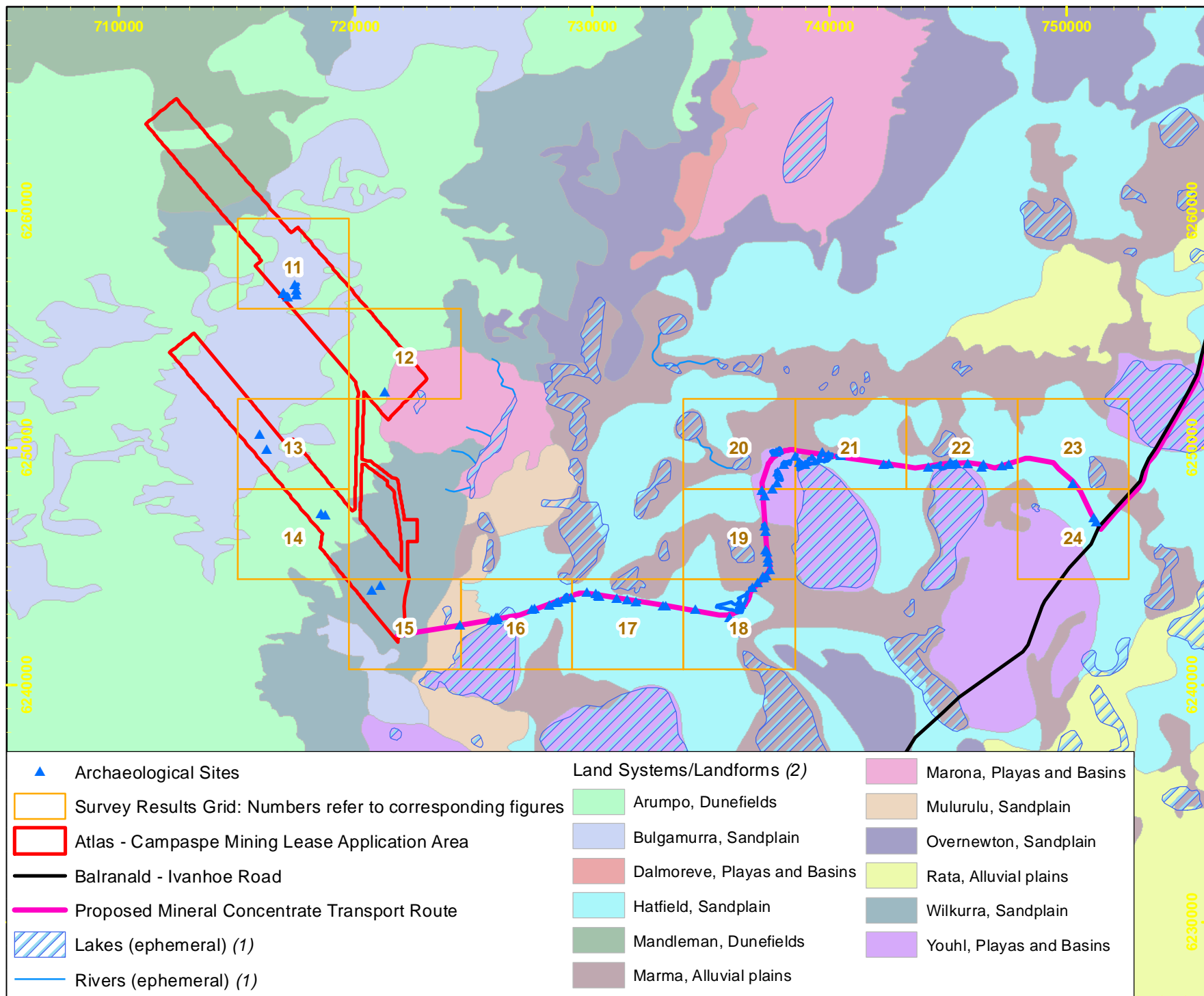


Figure 9: Survey Results - Overview

1118 Atlas - Campaspe Mineral Sands Project

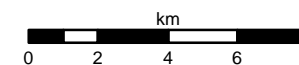
Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012

Sources:

(1): Geodata Topo 250K
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Horizontal Datum:
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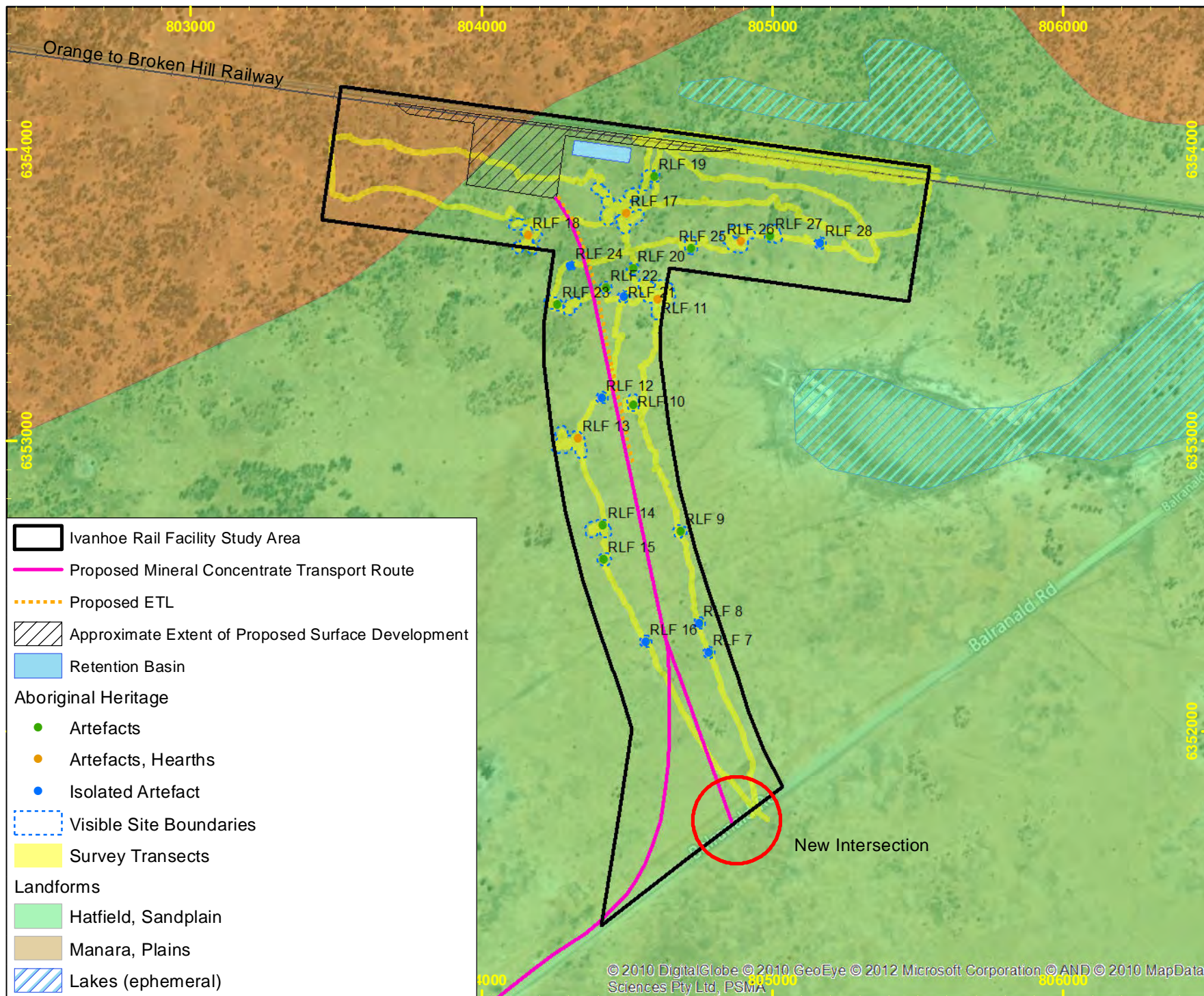


Figure 10: Survey Results
- Ivanhoe Rail Facility
1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012

Sources: Geodata Topo 250K
(C) Copyright Commonwealth of Australia (Geoscience Australia) 2006



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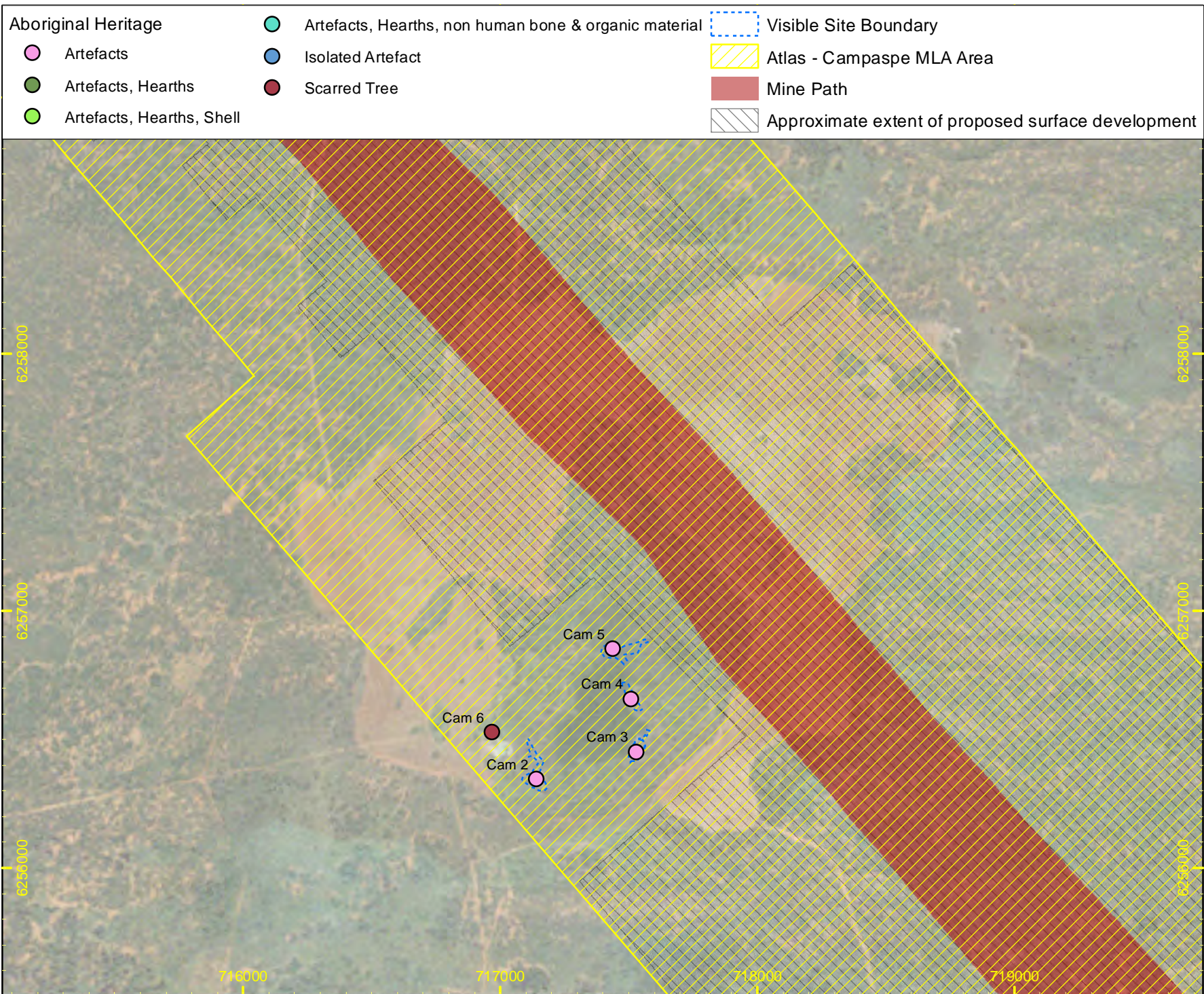
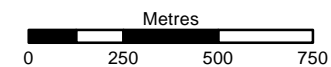


Figure 11: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



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Horizontal Datum:
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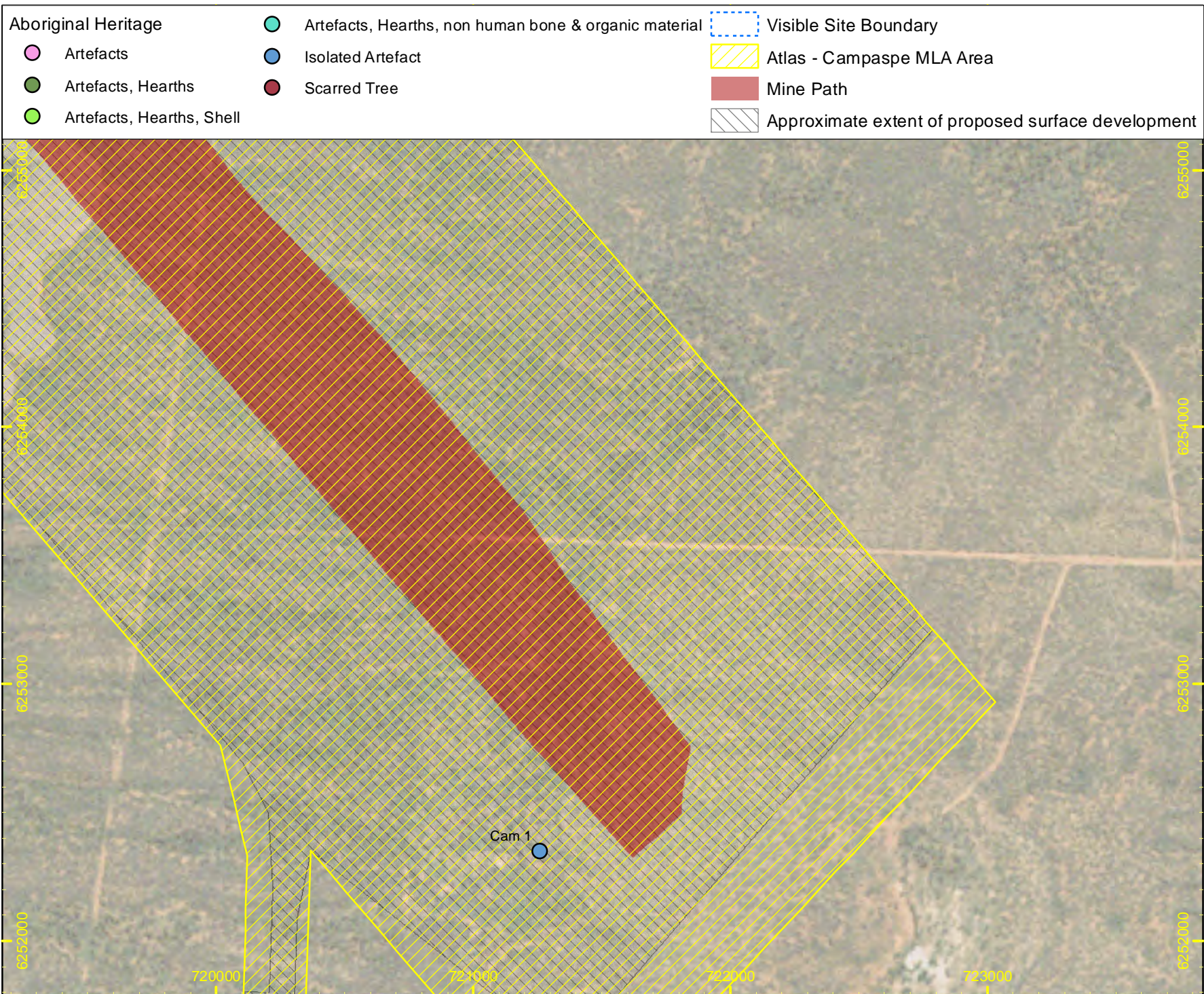
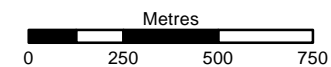


Figure 12: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



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Horizontal Datum:
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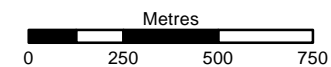


Figure 13: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



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Environment and Heritage

Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
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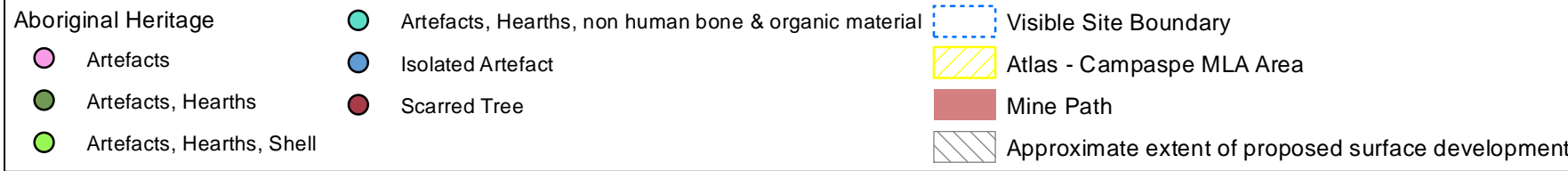
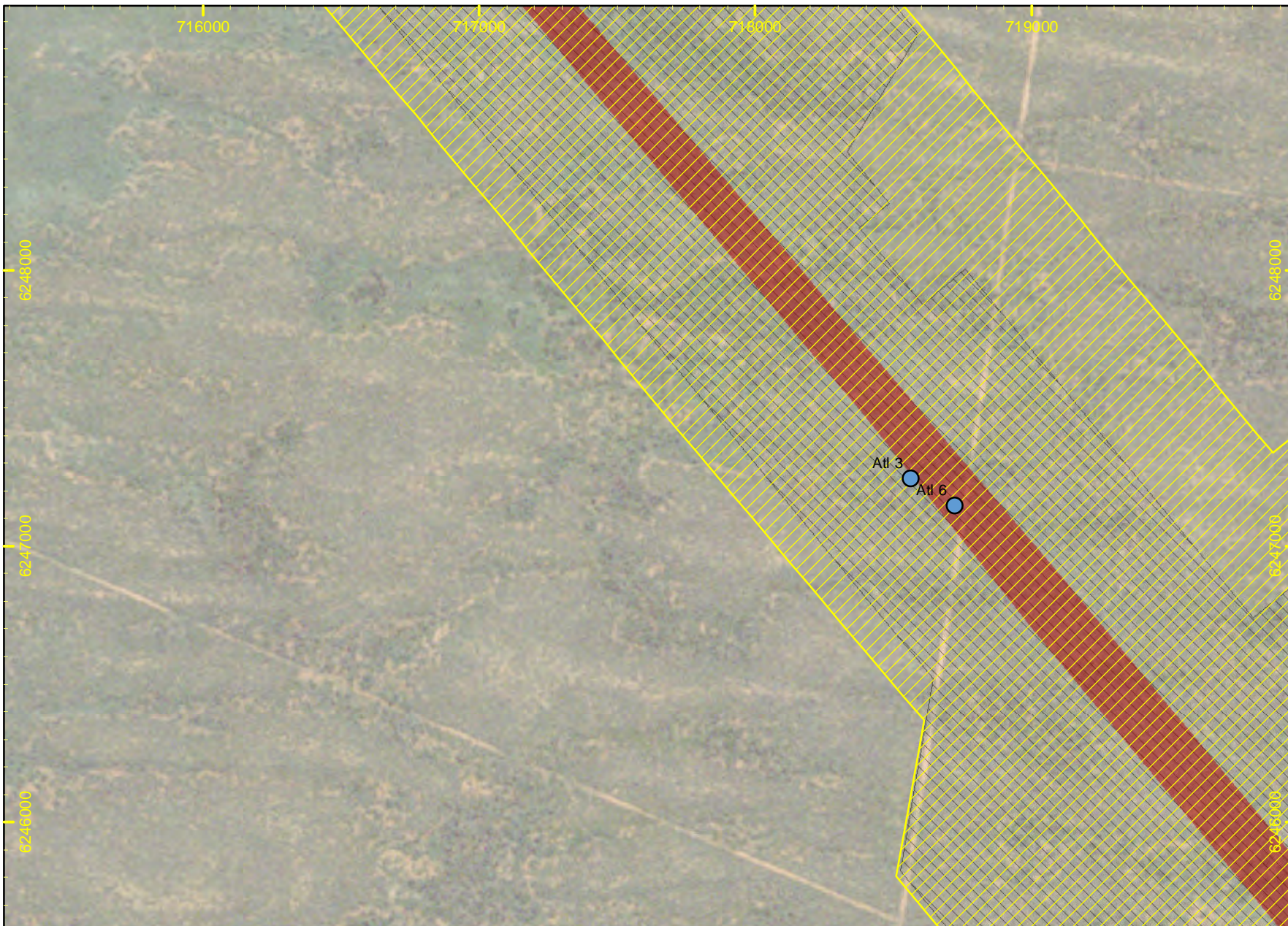
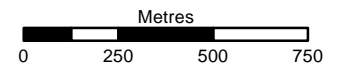


Figure 14: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

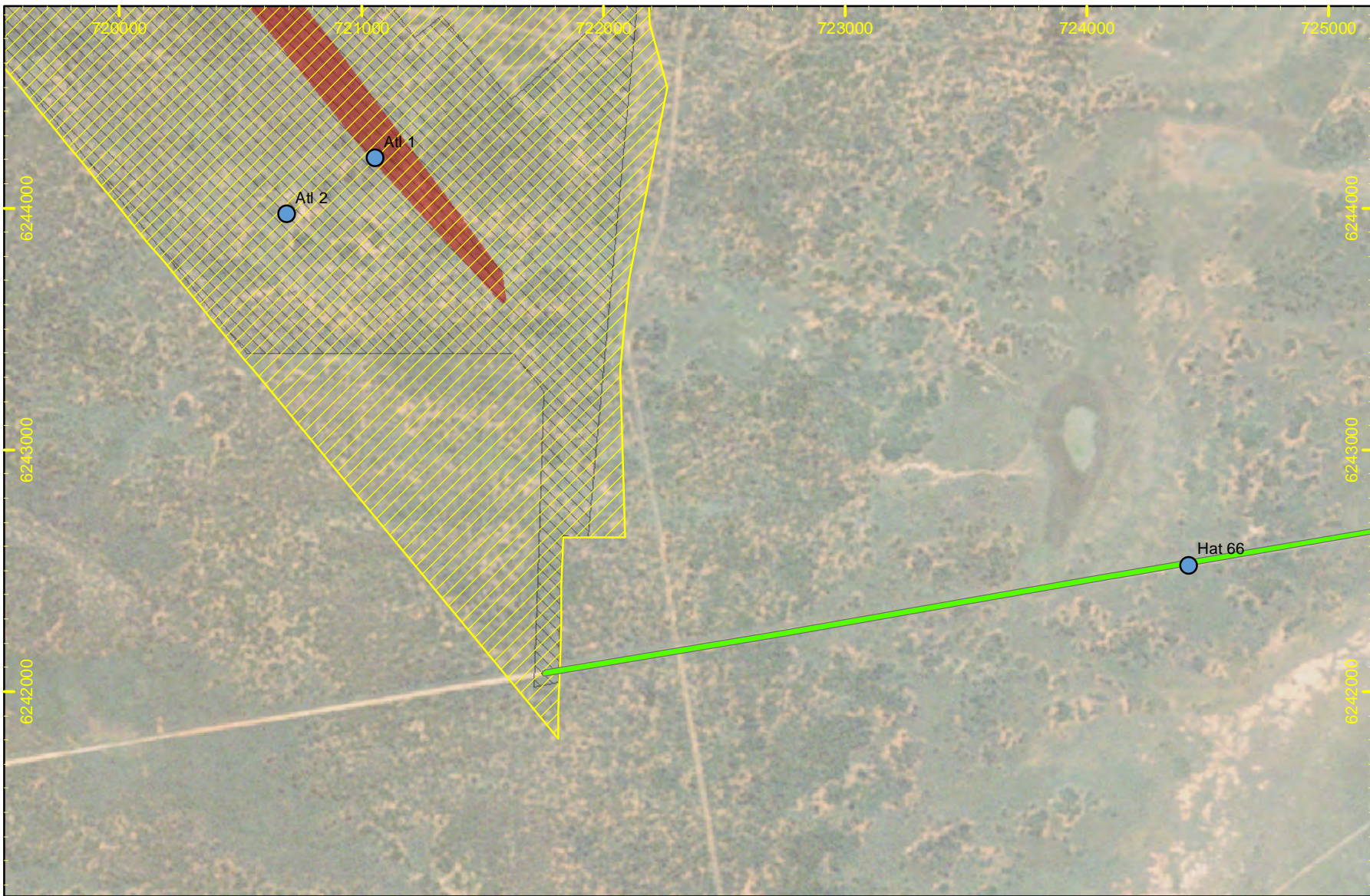
Date: 8/11/2012



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Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
(c) Bemax Resources Limited



Aboriginal Heritage

- Artefacts
- Artefacts, Hearths
- Artefacts, Hearths, Shell
- Artefacts, Hearths, non human bone & organic material
- Isolated Artefact
- Scarred Tree

Visible Site Boundary

- Atlas - Campaspe MLA Area
- Mine Path
- Approximate extent of proposed surface development

Proposed Mineral Concentrate Transport Route

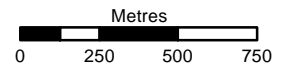
- Road Widening and Drainage Works
- Road Sealing and Drainage Works
- New Road Formation and Drainage Works
- No Works Required

Figure 15: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



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Horizontal Datum:
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Imagery:
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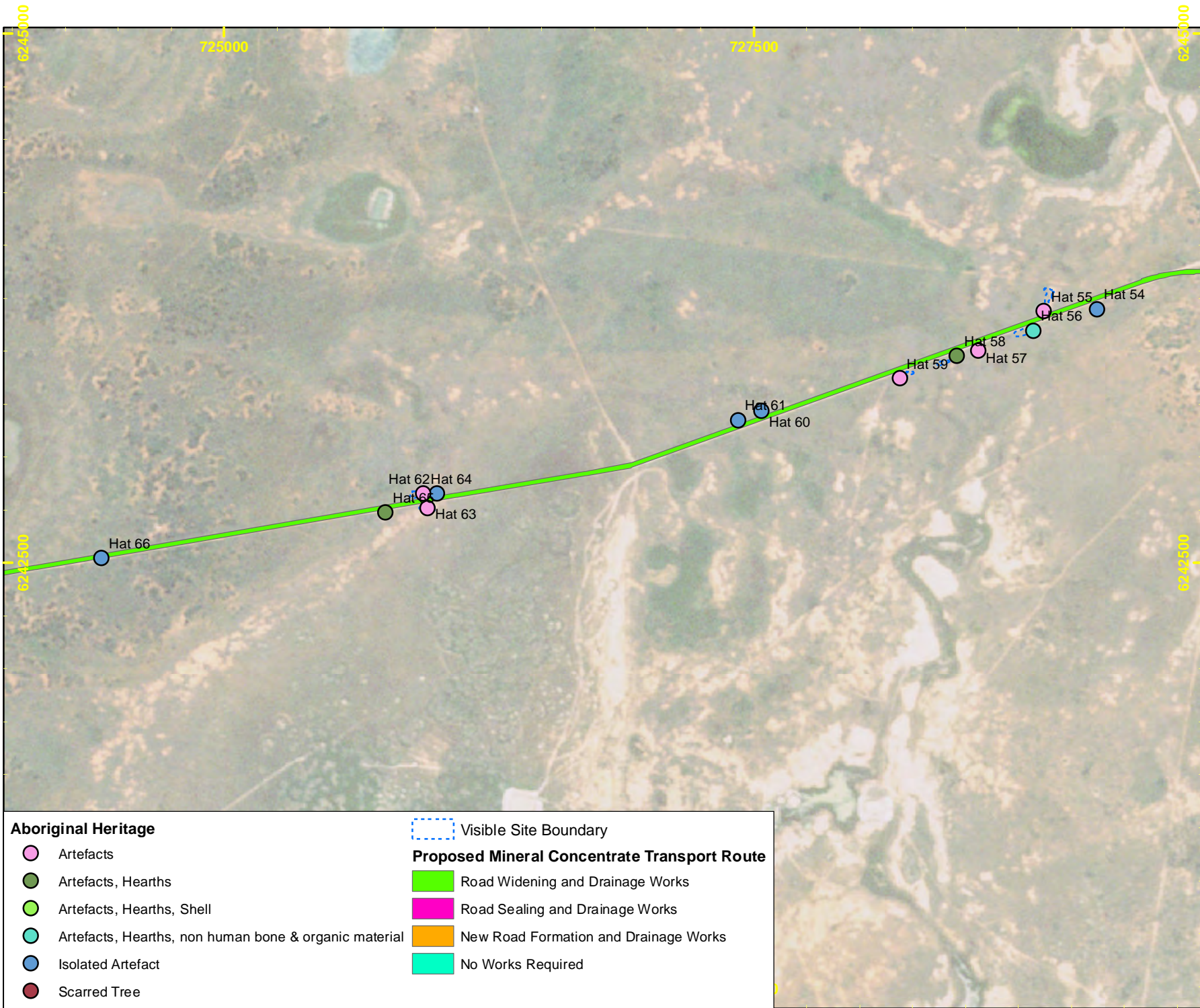


Figure 16: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 29/08/2012

Metres

Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
(c) Bemax Resources Limited



Figure 17: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

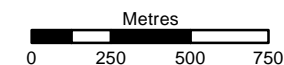
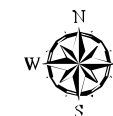
Date: 29/08/2012

Aboriginal Heritage

- Artefacts
- Artefacts, Hearths
- Artefacts, Hearths, Shell
- Artefacts, Hearths, non human bone & organic material
- Isolated Artefact
- Scarred Tree

Proposed Mineral Concentrate Transport Route

- Road Widening and Drainage Works
- Road Sealing and Drainage Works
- New Road Formation and Drainage Works
- No Works Required



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Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
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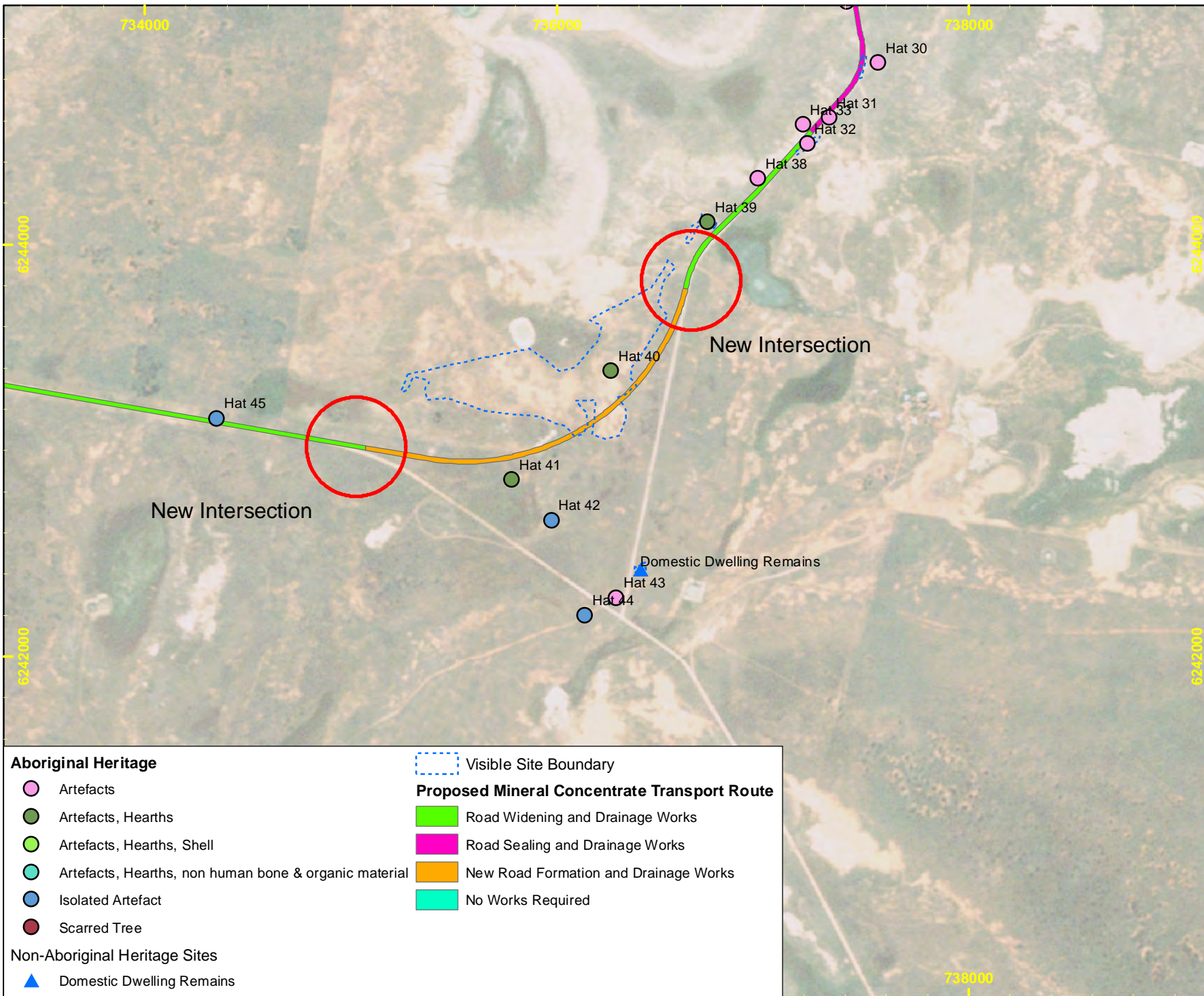
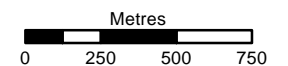


Figure 18: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 6/09/2012



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Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
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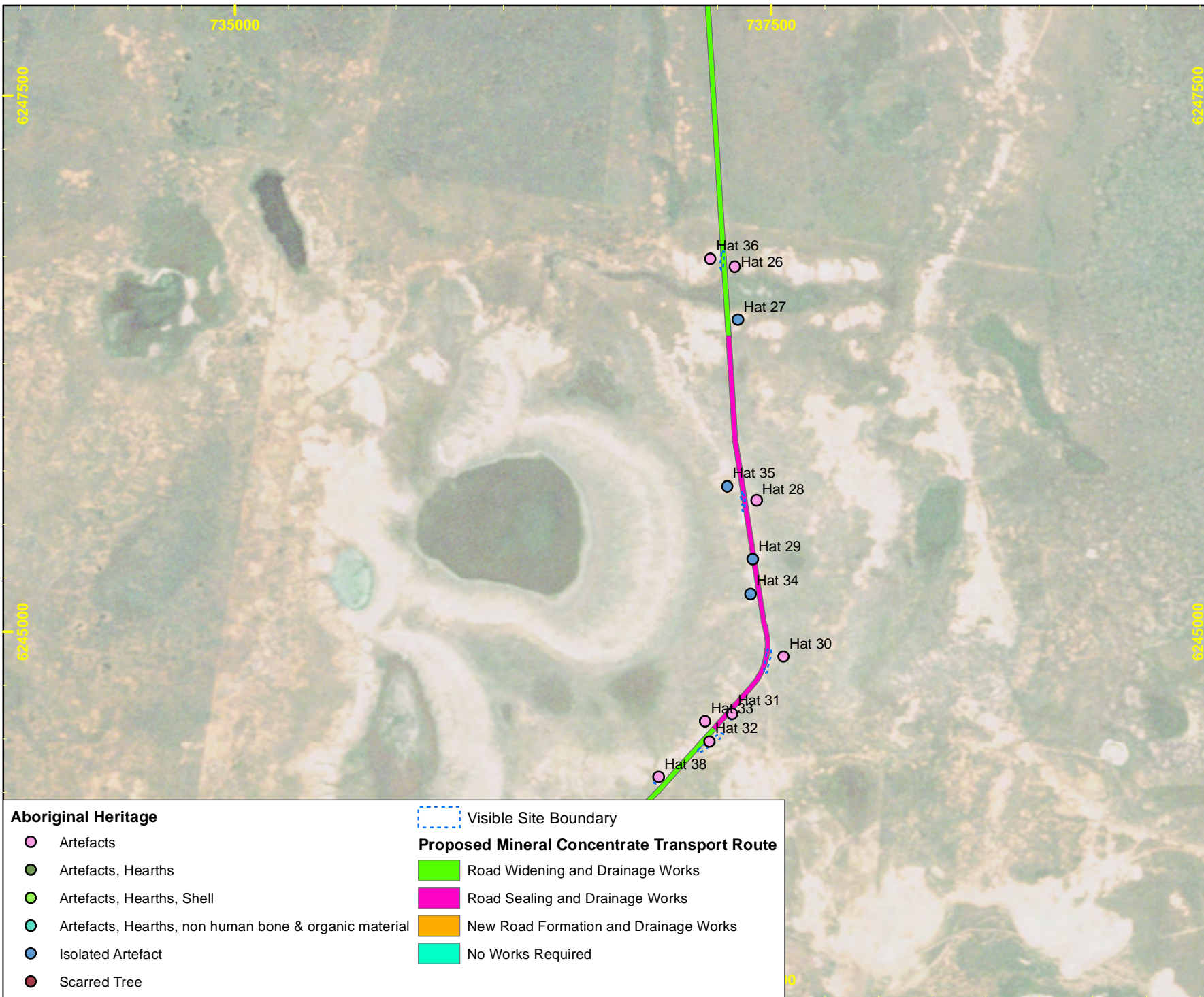
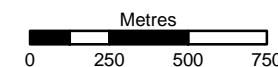


Figure 19: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 21/11/2012



Horizontal Datum:
GDA 1994 MGA Zone 54

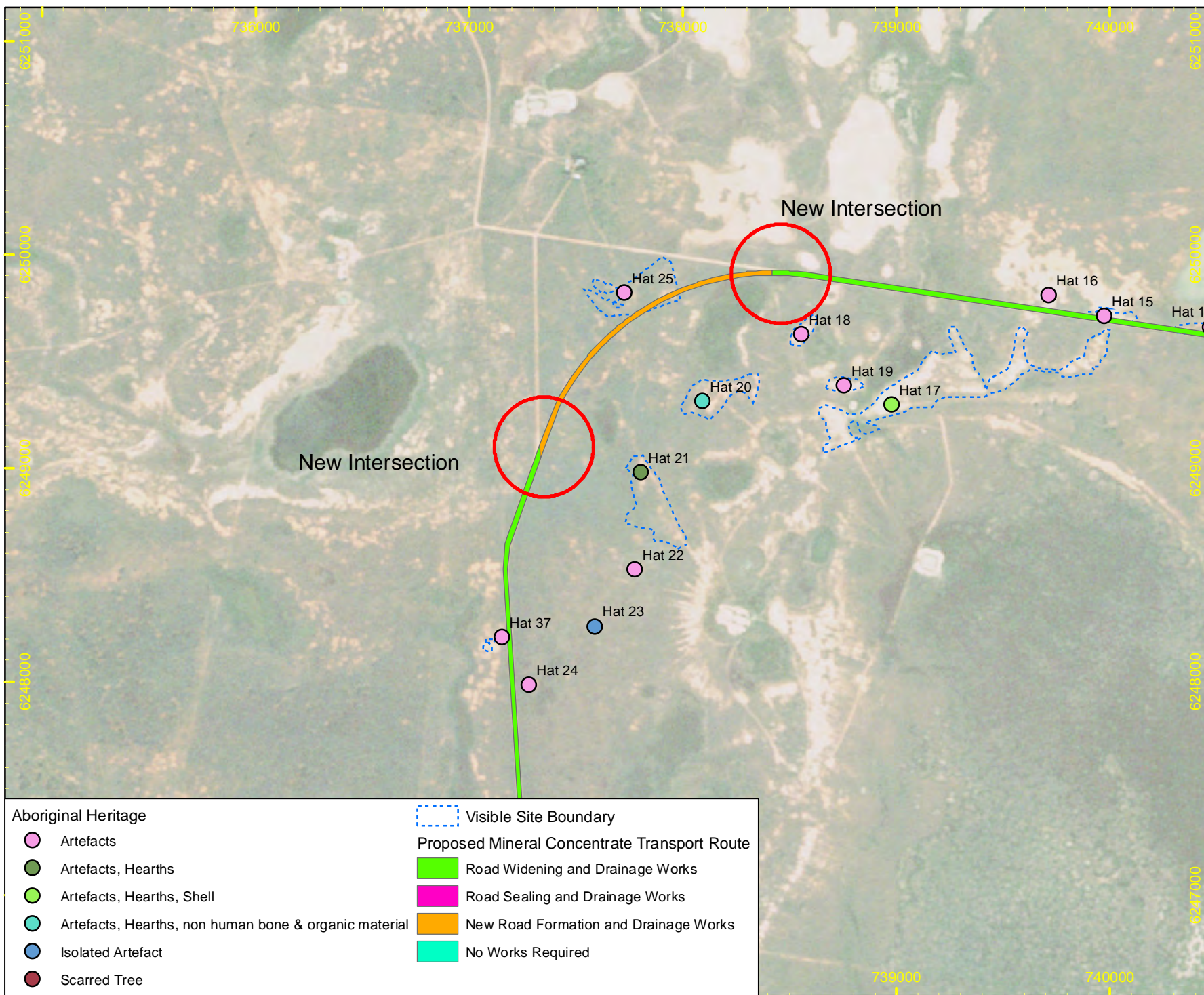
Imagery:
(c) Bemax Resources Limited

Figure 20: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



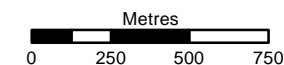
Aboriginal Heritage

- Artefacts
- Artefacts, Hearths
- Artefacts, Hearths, Shell
- Artefacts, Hearths, non human bone & organic material
- Isolated Artefact
- Scarred Tree

Visible Site Boundary

Proposed Mineral Concentrate Transport Route

- Road Widening and Drainage Works
- Road Sealing and Drainage Works
- New Road Formation and Drainage Works
- No Works Required



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Environment and Heritage

Horizontal Datum:
GDA 1994 MGA Zone 54

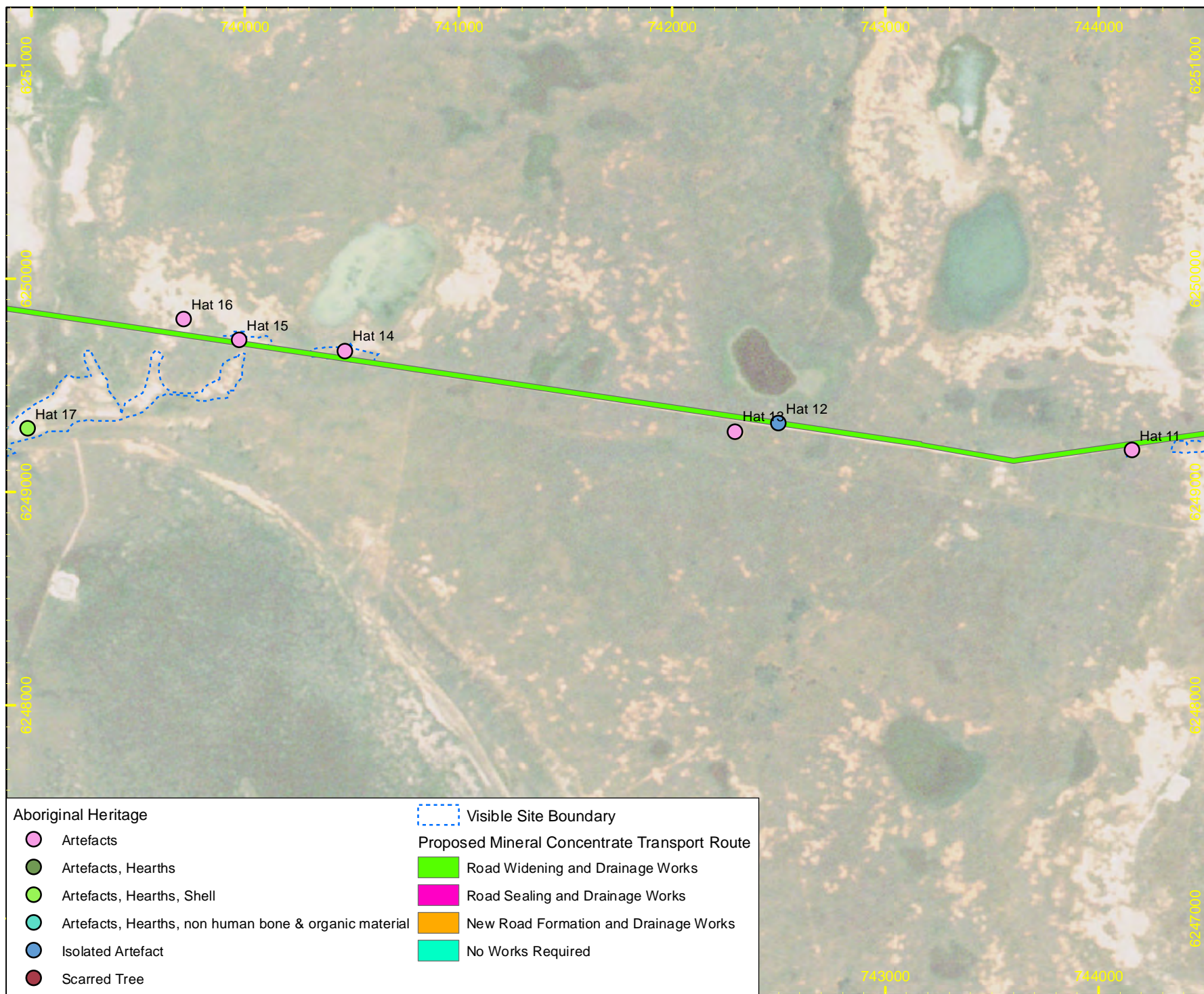
Imagery:
(c) Bemax Resources Limited

Figure 21: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012

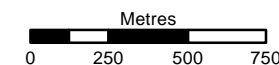


Aboriginal Heritage

- Artefacts
- Artefacts, Hearths
- Artefacts, Hearths, Shell
- Artefacts, Hearths, non human bone & organic material
- Isolated Artefact
- Scarred Tree

Visible Site Boundary

- Road Widening and Drainage Works
- Road Sealing and Drainage Works
- New Road Formation and Drainage Works
- No Works Required



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Environment and Heritage

Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
(c) Bemax Resources Limited

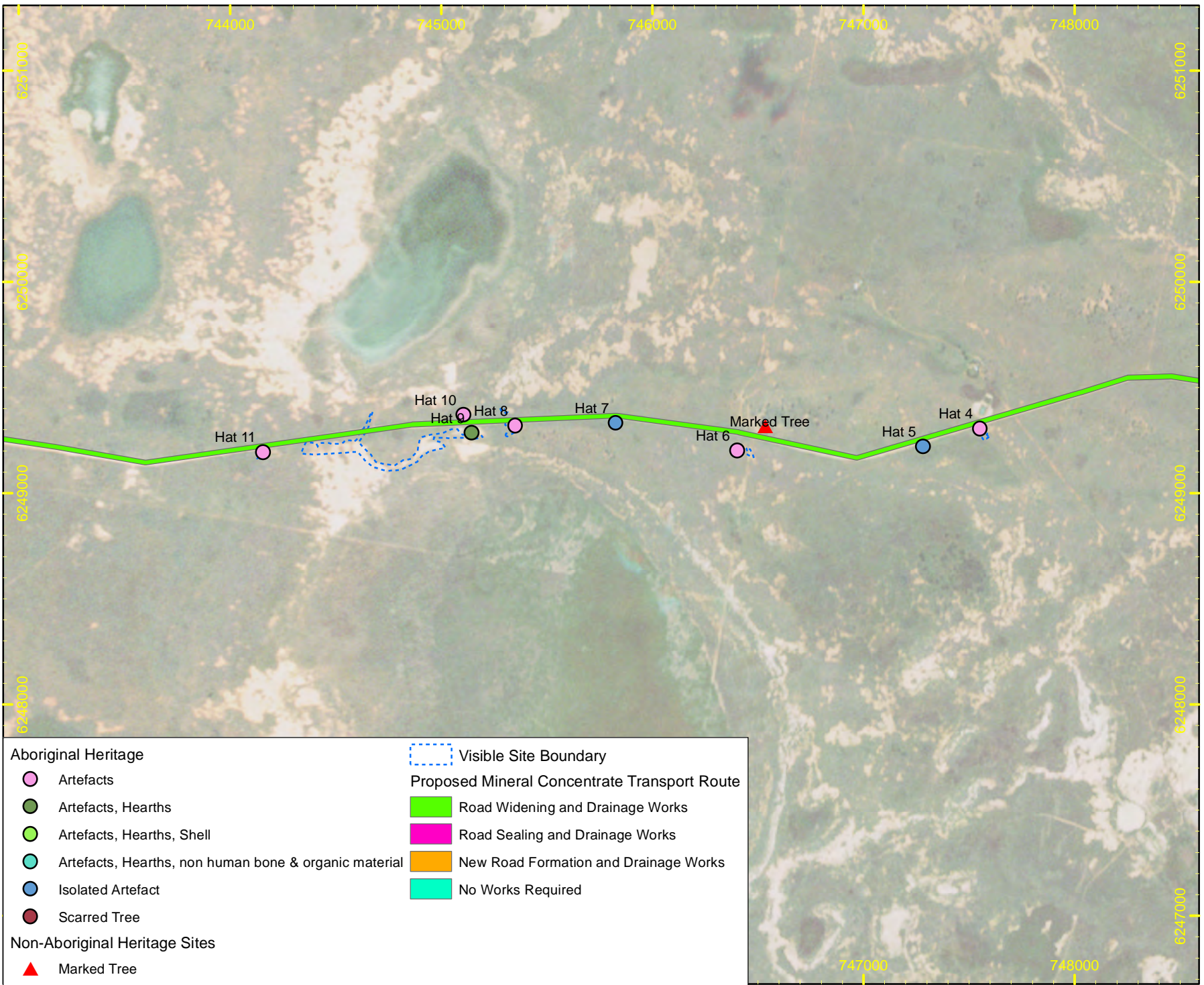


Figure 22: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 21/11/2012

Metres

Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
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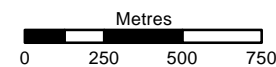


Figure 23: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
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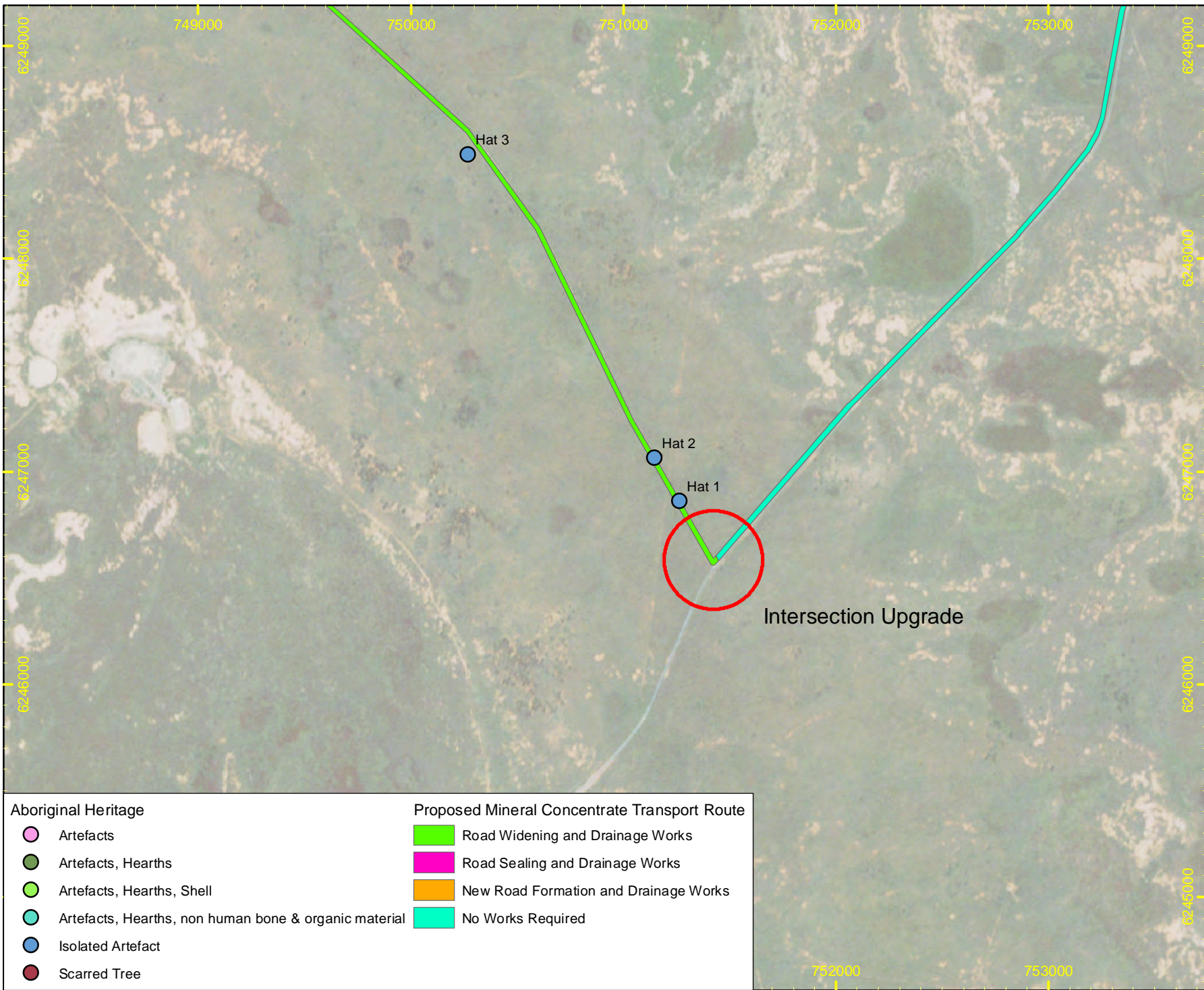
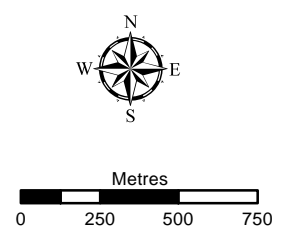


Figure 24: Survey Results

1118 Atlas - Campaspe Mineral Sands Project

Drawn by: RJ
Project Mgr: JR

Date: 8/11/2012



niche
Environment and Heritage

Horizontal Datum:
GDA 1994 MGA Zone 54

Imagery:
(c) Bemax Resources Limited

Aboriginal Heritage	Proposed Mineral Concentrate Transport Route
Artefacts	Road Widening and Drainage Works
Artefacts, Hearths	Road Sealing and Drainage Works
Artefacts, Hearths, Shell	New Road Formation and Drainage Works
Artefacts, Hearths, non human bone & organic material	No Works Required
Isolated Artefact	
Scarred Tree	

19. Appendices

Appendix 1

Consultation Records

Consultation Log - Atlas-Campaspe Project

Date	Activity	Contact name	Notes/comments
10 October 2011	Letter to agencies and organisations requesting list of stakeholders – 14 days given for responses.	Queanbeyan OEH Environmental Protection and Regulation Group Office; Balranald Local Aboriginal Land Council (LALC); Office of the Registrar, Aboriginal Land Rights Act, 1983; National Native Title Tribunal (NNTT); Native Title Services Corporation Limited (NTSCORP); Balranald Shire Council; and Lower Murray Darling Catchment Management Authority (Lower Murray Darling CMA).	Response received 3 November 2011. No response received. Response received 3 October 2011. Response received 28 October 2011. No response received. No response received. Response received 21 October 2011.
7 November 2011	Letter to Aboriginal groups identified by the organisations listed above inviting them to register an interest in the consultation process for the Project – 16 days given for responses.	Balranald LALC; Willandra Lakes 2 Traditional Tribal Groups Elders Council; Muthi-Muthi Nations; National Koorie Site Management; and Kullila Site Consultants.	The following Aboriginal groups registered: Balranald LALC; Willandra Lakes 2 Traditional Tribal Groups Elders Council; Muthi-Muthi Nations; National Koorie Site Management; and Kullila Site Consultants.
9 November 2011	Newspaper Advertisements – 14 days given for responses.	Sunraysia Daily; and Riverine Grazier.	-
Undated (in response to the letter dated 7 November 2011)	Letter received requesting a Project briefing.	Willandra Lakes World Heritage Area Country Culture and Heritage Division.	Project briefing (including summary of Aboriginal assessment findings) provided (15 August 2012) to the Willandra Lakes Region World Heritage Area Community Management Council, incorporating the Willandra Lakes 2 Traditional Tribal Groups Elders Council, Technical Scientific Advisory Committee, landowners, shire councils, NSW and Commonwealth government agencies.

Date	Activity	Contact name	Notes/comments
9 December 2011	Methodology and Project information distributed to the registered Aboriginal groups - 28 days given for review and comment. Invitation to attend Project information session on the 17 January 2012.	Balranald LALC; Willandra Lakes 2 Traditional Tribal Groups Elders Council; Muthi-Muthi Nations; National Koorie Site Management; and Kullila Site Consultants.	Further to the letter, the registered Aboriginal groups were contacted about the Project information session. The groups indicated that did not need a Project information session and would review the methodology and discuss Project specifics during the field work.
19 December 2011	Letter to Queanbeyan OEH Environmental Protection and Regulation Group Office and Balranald LALC listing the groups that registered in the consultation process for the Project.	Queanbeyan OEH Environmental Protection and Regulation Group Office; and Balranald LALC.	
25/26 January 2012	Newspaper Advertisements for the revised Project area – 14 days given for responses.	Sunraysia Daily; and Riverine Grazier.	-
30 January 2012	Letter to Agencies and organisations requesting list of stakeholders for the revised Project area – 14 days given for responses.	Dubbo OEH Environmental Protection and Regulation Group Office; Queanbeyan OEH Environmental Protection and Regulation Group Office; Balranald LALC; Ivanhoe LALC; Office of the Registrar, Aboriginal Land Rights Act, 1983; National Native Title Tribunal (NNTT); Native Title Services Corporation Limited (NTSCORP); Central Darling Shire Council; Balranald Shire Council; Lower Murray Darling Catchment Management Authority (Lower Murray Darling CMA); and Lachlan Catchment Management Authority.	No response received. Response received 13 February 2012. No response received. No response received – letter returned to sender. No response received. Response received 9 February 2012. No response received. No response received. No response received. Response received 3 February 2012. No response received.
30 January 2012	Email registering an interest in the consultation process for the Project.	Michael Kelly (on behalf of Ngiyampaa people)	Stated that other groups may be registered who could not speak for this area. Offered to help sort through cultural issues in the assessment.

Date	Activity	Contact name	Notes/comments
14 February 2012	Letter to Agencies and organisations requesting list of stakeholders – letter returned to sender.	Ivanhoe LALC	Enquired into the status of the Ivanhoe LALC. Thad Nagus from the NSW Aboriginal Land Council advised that the Ivanhoe LALC was no longer in operation.
	Phone call to additional Aboriginal groups identified by the organisations listed above inviting them to register an interest in the consultation process for the Project. Note that the Aboriginal groups that previously registered were automatically included.	Ivanhoe Community Working Party; Badger Bates; and Barkindji Elders Council.	The following additional Aboriginal groups registered: Ivanhoe Community Working Party; Badger Bates; and Barkindji Elders Council.
24 February 2012	Methodology and Project information distributed to the registered Aboriginal groups – 28 days given for review and comment.	Balranald LALC; Willandra Lakes 2 Traditional Tribal Groups Elders Council; Muthi-Muthi Nations; Ivanhoe Community Working Party; Badger Bates; Barkindji Elders Council; Michael Kelly (on behalf of Ngiyampaa people); National Koorie Site Management; and Kullila Site Consultants.	Comments were received from Michael Kelly (on behalf of Ngiyampaa people).
2 March 2012	Phone call – Jamie Reeves (JR)	Arthur Kirby (AK)- Barkindji Elders Council	JR provided Project information and sought response on methodology. AK advised methodology was adequate, but that it was important to keep people up-to-date with information.
2 March 2012	Phone call – Jamie Reeves	Andrew Rose – Department of Aboriginal Affairs (DAA), on behalf of Ivanhoe Working Party	Confirmed Working Party's involvement, main contacts Fay Johnston and Joan Slade.
2 March 2012	Phone call – Jamie Reeves	Michael Kelly (on behalf of Ngiyampaa people).	JR left message seeking input to methodology.
2 March 2012	Phone call – Jamie Reeves	Badger Bates (BB).	BB had no comment on methodology, happy to move forward with Project. BB advised important to contact Ivanhoe people.
2 March 2012	Phone call – Jamie Reeves	Vicki Clarke (VC) - Muthi-Muthi Nations.	VC advised JR to make all future arrangements through Danny Kelly Snr.

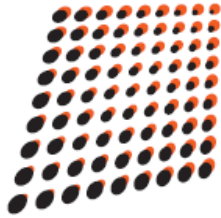
Date	Activity	Contact name	Notes/comments
2 March 2012	Phone call – Jamie Reeves	Danny Kelly Snr (DK)- Muthi-Muthi Nations;	DK had received methodology but had not reviewed it. Happy to move forward with Project.
2 March 2012	Phone call – Jamie Reeves	Wendy Thomson - Balranald LALC.	JR left message seeking input to methodology.
2 March 2012	Phone call – Jamie Reeves	Maria Maher (MM)- National Koorie Site Management and Kullila Site Consultants.	MM had received and reviewed methodology, no comments and happy to move forward with Project.
2 March 2012	Phone call – Jamie Reeves	Warren Clarke - Willandra Lakes 2 Traditional Tribal Groups Elders Council.	JR left message seeking input to methodology.
5 March 2012	Phone call – Jamie Reeves	Wendy Thomson (WT) - Balranald LALC	WT had received methodology but had not reviewed it. Happy to move forward with project. Discussed general matters.
5 March 2012	Phone call – Jamie Reeves	Fay Johnston (FJ)- Ivanhoe Community Working Party	FJ confirmed Working Party interested only in Ivanhoe Rail Loading Facility.
5 March 2012	Phone call – Jamie Reeves	Warren Clarke (WC) - Willandra Lakes 2 Traditional Tribal Groups Elders Council.	JR advised that WC not contactable for at least a week.
5 March 2012	Phone call – Jamie Reeves	Michael Kelly (on behalf of Ngiyampaa people).	JR left message seeking input to methodology.
9 March 2012	Letter to Dubbo OEH Environmental Protection and Regulation Group Office, Queanbeyan OEH Environmental Protection and Regulation Group Office and Balranald LALC listing the groups that registered in the consultation process for the Project.	Dubbo OEH Environmental Protection and Regulation Group Office; Queanbeyan OEH Environmental Protection and Regulation Group Office; and Balranald LALC.	-
13 March 2012	Phone call – Jamie Reeves	Michael Kelly (on behalf of Ngiyampaa people).	Discussed Project in general, and traditional boundaries in the region, and traditional cultural connections.
13 March 2012	Information on cultural values	Michael Kelly (on behalf of Ngiyampaa people)	Mr Kelly provided comments on the Proposed Methodology. These are attached in full and addressed in Section 4.1. Bemax acknowledges Mr Kelly's comments regarding other groups however is required to consult with all registered groups in accordance with government policies and guidelines.

Date	Activity	Contact name	Notes/comments
16 March 2012	Phone call – Jamie Reeves	Andrew Rose – DAA, on behalf of Ivanhoe Working Party	Discussed possibility of JR and Bemax representative attending a Working Party Meeting in Ivanhoe.
20 March 2012	Letter advising of intent to conduct fieldwork and seeking cultural information.	Balranald LALC; Willandra Lakes 2 Traditional Tribal Groups Elders Council; Muthi-Muthi Nations; National Koorie Site Management; Kullila Site Consultants; Ivanhoe Community Working Party; Badger Bates; Barkindji Elders Council; and Michael Kelly (on behalf of Ngiyampaa people)	-
27 March 2012	Phone call – Jamie Reeves	Maria Maher - National Koorie Site Management and Kullila Site Consultants.	MM advised would be supplying information in response to letter dated 20 March.
2 April 2012	Information on cultural values in response to field survey letter.	Maria Maher - National Koorie Site Management	These comments are attached in full.
3 April 2012	Phone call – Jamie Reeves	Wendy Thomson - Balranald LALC	JR left message regarding impending fieldwork and seeking information.
3 April 2012	Phone call – Jamie Reeves	Warren Clarke - Willandra Lakes 2 Traditional Tribal Groups Elders Council	JR left message regarding impending fieldwork and seeking information.
3 April 2012	Phone call – Jamie Reeves	Arthur Kirby - Barkindji Elders Council	JR left message regarding impending fieldwork and seeking information
3 April 2012	Phone call – Jamie Reeves	Fay Johnston - Ivanhoe Community Working Party	JR inquired regarding impending fieldwork and seeking information. FJ to review and respond.
3 April 2012	Phone call – Jamie Reeves	Michael Kelly (on behalf of Ngiyampaa people)	JR left message regarding impending fieldwork and seeking information.
3 April 2012	Phone call – Jamie Reeves	Danny Kelly Snr - Muthi-Muthi Nations	JR inquired regarding impending fieldwork and seeking information. DK to review and respond.
3 April 2012	Phone call – Jamie Reeves	Badger Bates	Could not contact.
4 April 2012	Information on cultural values in response to field survey letter.	Danny Kelly - Muthi Muthi Nations	These comments are attached in full.

Date	Activity	Contact name	Notes/comments
5 April 2012	Phone call – Jamie Reeves	Danny Kelly Snr - Muthi-Muthi Nations;	Discussion regarding provision of sites officers for survey.
5 April 2012	Phone call – Jamie Reeves	Arthur Kirby - Barkindji Elders Council	AK going to provide information for survey by 10 April.
5 April 2012	Phone call – Jamie Reeves	Warren Clarke - Willandra Lakes 2 Traditional Tribal Groups Elders Council	WC advised JR needed to discuss with Richard, who will get back to JR.
5 April 2012	Phone call – Jamie Reeves	Wendy Thomson - Balranald LALC	Discussion regarding provision of sites officers for survey.
9 April 2012	Phone call – Jamie Reeves	Michael Kelly (on behalf of Ngiyampaa people)	MK advised JR to contact John Shipp to conduct fieldwork on behalf of Ngiyampaa people, and also advised JR to see if Fay Johnson had anyone to conduct fieldwork.
14 April 2012	Phone call – Jamie Reeves	John Shipp (on behalf of Ngiyampaa people)	JS advised he was unable to attend proposed fieldwork.
17 April 2012 – 25 April 2012	Cultural Heritage Surveys – Atlas-Campaspe and mineral concentrate transport route	Balranald LALC; Muthi-Muthi Nations; National Koorie Site Management; and Kullila Site Consultants.	Discussions regarding cultural values and significance during field surveys.
9 – 12 May 2012	Cultural Heritage Surveys – Mineral Concentrate Transport Route and Ivanhoe Rail Facility	Balranald LALC; and Muthi-Muthi Nations.	Discussions regarding cultural values and significance during field surveys.
11 July 2012	Cultural Heritage Surveys – Ivanhoe Rail Facility	Ivanhoe Community Working Party; Balranald LALC; and Muthi-Muthi Nations.	Discussions regarding cultural values and significance during field surveys.
1 August 2012	Cultural Heritage Surveys – Ivanhoe Rail Facility	Ivanhoe Community Working Party.	Discussions regarding cultural values and significance during field surveys.
30 – 31 August 2012	Cultural Heritage Surveys – Ivanhoe Rail Facility	Ivanhoe Community Working Party.	Discussions regarding cultural values and significance during field surveys.

Date	Activity	Contact name	Notes/comments
7 September 2012	Draft Aboriginal Cultural Heritage Assessment distributed to registered Aboriginal parties for review and comment	Balranald LALC; Willandra Lakes 2 Traditional Tribal Groups Elders Council; Muthi-Muthi Nations; National Koorie Site Management; Kullila Site Consultants; Ivanhoe Community Working Party; Badger Bates; Barkindji Elders Council; and Michael Kelly (on behalf of Ngijampaa people).	-
18 September 2012	Phone call – Clare Anderson	Maria Maher - National Koorie Site Management and Kullila Site Consultants.	MM advised groups happy with the report and did not want to meet.
18 September 2012	Phone call – Clare Anderson	David Rise - Ivanhoe Community Working Party	DR proposed meeting for 9 or 10 October to discuss project.
18 September 2012	Phone call – Clare Anderson	Sissy Pettit-Havea (SP) Balranald LALC	SP advised the LALC were in receipt of the report, and will review.
18 September 2012	Phone call – Clare Anderson	Michael Kelly (on behalf of Ngijampaa people).	Left message re: receipt of report and follow up.
18 September 2012	Phone call – Clare Anderson	Danny Kelly Snr - Muthi-Muthi Nations;	DK advised Muthi Muthi had received report. Further advised that Muthi Muthi would be available for a meeting 26 October 2012 or 24 November 2012. Not able to meet in October. A meeting could not be arranged within the report review period.
18 September 2012	Phone call – Clare Anderson	Badger Bates.	Left message re: receipt of report and follow up.
18 September 2012	Phone call – Clare Anderson	Warren Clarke - Willandra Lakes 2 Traditional Tribal Groups Elders Council	Left message re: receipt of report and follow up. Advised that WC on leave until end of September.
18 September 2012	Phone call – Clare Anderson	Arthur Kirby - Barkindji Elders Council	AK advised he had received report and would be happy to attend any group meetings. A meeting could not be arranged within the report review period.
25 September 2012	Phone call – Jamie Reeves	Michael Kelly (on behalf of Ngijampaa people).	MK returning previous call. Advised he had received report, but not yet reviewed. Advised would like to meet to discuss project.

Date	Activity	Contact name	Notes/comments
25 September 2012	Phone call – Jamie Reeves	Sissy Pettit-Havea (SP) Balranald LALC	SP advised BLALC unable to meet until late October 2012. Jamie Reeves advised that this was outside of the consultation period and that either verbal or written comments could be provided.
3 October 2012	Phone call – Jamie Reeves	Warren Clarke - Willandra Lakes 2 Traditional Tribal Groups Elders Council	WC advised that Richard Minter could act for him in meeting, and pass on relevant information.
10 October 2012	Meeting	Ivanhoe Community Working Party	Meeting notes attached.
11 October 2012	Meeting	Michael Kelly (on behalf of Ngiyampaa people); Leanne Mitchell and Richard Minter (Willandra Lakes WHA Advisory Committee). Note Richard Minter also acting on behalf of Warren Clarke (Willandra Lakes 2 Traditional Tribal Groups Elders Council).	Meeting notes attached.



BEMAX
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ABN 60 009 247 858

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Perth
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Perth WA 6000
TEL: (08) 9212 6000
FAX: (08) 9486 4711

10 October 2011

Office of Environment and Heritage
PO Box 1049
Griffith NSW 2680

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

BEMAX Resources Limited is proposing to develop the Atlas-Campaspe Mineral Sands Project (the Project), near Balranald, western NSW. The proposal includes development of a mineral sands mine and related surface infrastructure within the area shown as the "*Area of Interest*" on the attached figure.

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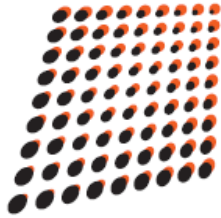
Could you please direct all correspondence to the contact details provided below by 24 October 2011.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

A handwritten signature in black ink, appearing to read 'RAY ROBERTS', written in a cursive style.

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



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10 October 2011

NTS Corp Limited
Mr Peter Schultz
PO Box 2105
Strawberry Hills NSW 2012

Dear Peter

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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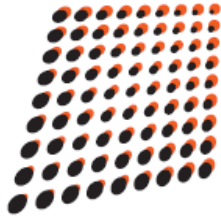
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PO Box 231
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Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

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RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



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10 October 2011

National Native Title Tribunal
NSW & ACT Registry
GPO Box 9973
Sydney NSW 2001

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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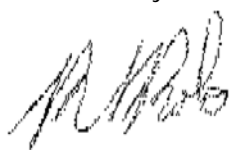
In particular BEMAX Resources Limited requests a list of native title claimants, native title holders and registered Indigenous Land Use Agreements within the "Area of Interest" that the National Native Title Tribunal has records of.

Please be advised that, as per the Office of Environment and Heritage (formerly the Department of Environment, Climate Change and Water) *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010) the names of Aboriginal persons and groups who register an interest will be forwarded to the Office of Environment and Heritage and the Balranald Local Aboriginal Land Council, unless we are advised not to release particular details.

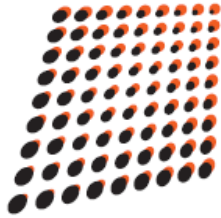
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Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

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RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



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10 October 2011

Ronni O'Donnel
Catchment Officer (Aboriginal Communities)
Lower Murray Darling Catchment Management Authority
PO Box 363
Buronga NSW 2739

Dear Ronni

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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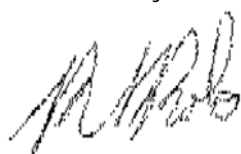
In particular BEMAX Resources Limited requests the contact details of any established Aboriginal reference group within the "*Area of Interest*" that the Lower Murray Darling CMA may be aware of.

Please be advised that, as per the Office of Environment and Heritage (formerly the Department of Environment, Climate Change and Water) *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010) the names of Aboriginal persons and groups who register an interest will be forwarded to the Office of Environment and Heritage and the Balranald Local Aboriginal Land Council, unless we are advised not to release particular details.

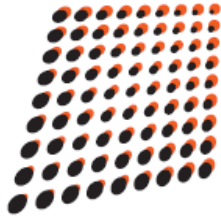
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Jamie Reeves
Niche Environment and Heritage
PO Box 231
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Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

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RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



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10 October 2011

The General Manager
Balranald Shire Council
P. O. Box 120
BALRANALD NSW 2715

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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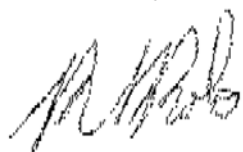
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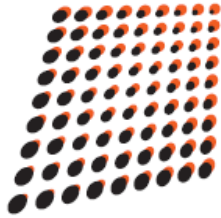
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Exploration Manager
BEMAX Resources Limited



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10 October 2011

The Coordinator
Balranald Local Aboriginal Land Council
PO Box 187
Balranald NSW 2715

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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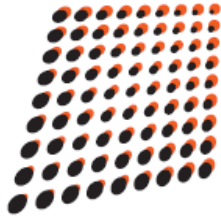
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BEMAX Resources Limited



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10 October 2011

The Registrar
Office of the Registrar, Aboriginal Land Rights Act 1983
PO Box 112
Glebe NSW 2037

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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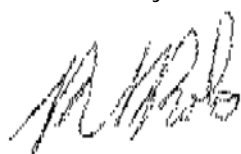
In particular BEMAX Resources Limited requests a list of Aboriginal Owners within the "Area of Interest" that the Office of the Registrar, Aboriginal Land Rights Act 1983, has records of.

Please be advised that, as per the Office of Environment and Heritage (formerly the Department of Environment, Climate Change and Water) *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010) the names of Aboriginal persons and groups who register an interest will be forwarded to the Office of Environment and Heritage and the Balranald Local Aboriginal Land Council, unless we are advised not to release particular details.

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Email: jreeves@niche-eh.com

Yours sincerely,

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RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



**Environment,
Climate Change
& Water**

Your reference: Letter of 4/10/11
Our reference: DOC11/50532
Contact: Dimitri Young
(02) 6229 7116

Mr Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137

Dear Sir

**WRITTEN NOTIFICATION OF PROPOSAL AS REQUIRED UNDER DECCW ABORIGINAL
CULTURAL HERITAGE CONSULTATION REQUIREMENTS FOR PROPONENTS 2010**

RE: Proposed Works – Atlas-Campaspe Mineral Sands Project

I refer to your letter of 4 October 2011 received by the Office of Environment and Heritage (OEH), formerly the Department of Environment, Climate Change and Water, on 3 November 2011 regarding the above matter.

Attached is a list of known Aboriginal parties for the Balranald local government area that OEH feels is likely to have an interest in the development. Please note this list is not necessarily an exhaustive list of all interested Aboriginal parties and receipt of this list does not remove the requirement of a proponent/ consultant to advertise in local print media and contact other bodies seeking interested Aboriginal parties, in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (April 2010).

If you wish to discuss any of the above matters further please contact me on (02) 6229 7116.

Yours sincerely

Dimitri Young 3 November 2011

DIMITRI YOUNG

**A/Manager Landscape and Aboriginal Heritage Protection (South)
Environment Protection and Regulation**

Enclosure: Attachment 1

ATTACHMENT 1

Organisation/Individual Name	Address	Contact Name	Contact Details
Muthi Muthi Nations	C/- Balranald Health Service Sturt Hwy, BALRANALD NSW 2715	Danny Kelly	03 50200330
Willandra Lakes 2 Traditional Tribal Groups Elders Council	C/- Mungo National Parks Joint Management Co-ordinator (Warren Clarke) PO Box 318, BURONGA NSW 2739	Warren Clarke	03 5021 8900 warren.clarke@environment.nsw.gov.au
Balranald Local Aboriginal Land Council	200 Church St BALRANALD NSW 2715		03 5020 1932
Ali Maher	National Koorie Site Management 3 Cuthbert Drive Mount Warrigal NSW 2528	Ali Maher	0403 738 126 ali.n.maher@hotmail.com
Paul Charles	Kullila Site Consultants 14 Werrang Road Primbee NSW 2502	Paul Charles	0423 795 389 kullilasiteconsultants@hotmail.com

Jamie Reeves
NICHE ENVIRONMENTAL & HERITAGE
PO Box 231
Concord NSW 2137

13 October 2011

Dear Jamie

Re: Request - Search for Registered Aboriginal Owners

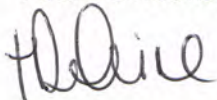
I refer to your letter dated 10 October 2011 regarding Aboriginal stakeholders within Balranald area NSW.

I have searched the Register of Aboriginal Owners and the project area described does not have Registered Aboriginal Owners pursuant to Division 3 of the *Aboriginal Land Rights Act 1983 (NSW)*.

You are no doubt in contact with the co-management advisory committee and Elders Council which currently manage the land with National Parks & Wildlife.

I suggest you also contact the Balranald Local Aboriginal Land Council as Mungo National Park is located within their land council boundaries. They may also be able to assist you in identifying other Aboriginal stakeholders for this project.

Yours sincerely

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

Tabatha Dantoine

Administrative Officer

Office of the Registrar, *Aboriginal Land Rights Act (1983)*

ATTACHMENT 1

EPA'S LIST OF ABORIGINAL STAKEHOLDER GROUPS WITHIN THE CENTRAL DARLING AND BALRANALD LGA'S - THAT MAY HAVE AN INTEREST IN THE PROJECT; PROVIDED AS PER THE "OEH ABORIGINAL CULTURAL HERITAGE REQUIREMENT FOR PROPONENTS 2010".

CENTRAL DARLING LGA

Organisation/Affiliation	Name/Title	Address
Badger Bates		107 Gaffney Lane Broken Hill NSW 2880
Barkindji Elders Council	Arthur Kirby	C/- PO Box 87 Euston NSW 2737
IVANHOE LALC	Chairperson	PO Box 116 IVANHOE NSW 2878

BALRANALD LGA

Organisation/Individual Name	Address	Contact Name	Contact Details
Muthi Muthi Nations	C/- Balranald Health Service Sturt Hwy, BALRANALD NSW 2715	Danny Kelly	03 50200330
Willandra Lakes 2 Traditional Tribal Groups Elders Council	C/- Mungo National Parks Joint Management Co-ordinator (Warren Clarke) PO Box 318, BURONGA NSW 2739	Warren Clarke	03 5021 8900 warren.clarke@environment.nsw.gov.au
Balranald Local Aboriginal Land Council	200 Church St BALRANALD NSW 2715		03 5020 1932
Ali Maher	National Koorie Site Management 3 Cuthbert Drive Mount Warrigal NSW 2528	Ali Maher	0403 738 126 ali.n.maher@hotmail.com
Paul Charles	Kullila Site Consultants 14 Werrang Road Primbee NSW 2502	Paul Charles	0423 795 389 kullilasiteconsultants@hotmail.com

The Department of Environment Climate Change and Water is now known as
The Office of Environment and Heritage.

Our Ref (A739086)

3 February 2012

Jamie Reeves
Niche Environment and heritage
PO Box 231
Concord NSW 2137

Dear Jamie

**Re: Atlas-Campaspe Mineral Sands project
Aboriginal Cultural Heritage Assessment**

Thank you for your letter dated 30 January 2012 requesting assistance in identifying Aboriginal groups, stakeholders or traditional knowledge holders interested in the management of Aboriginal cultural heritage matters in the "areas of interest" outlined in the map provided.

The Lower Murray Darling Catchment Management Authority (LMD CMA) acknowledges that CMAs have been listed in *Section 4.1.2 (g) of the Aboriginal Cultural Heritage Consultation Requirements for proponents 2010*, under *Part 6, National Parks and Wildlife Act 1974* as a source of information to obtain the "names of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places".

It is recommended by the LMD CMA that you contact the following Aboriginal Community groups in regard to cultural heritage matters within the project area.

**Balranald Local Aboriginal Land Council located at
200 Church St, Balranald
PO Box 187 Balranald NSW 2715**

**Dareton Local Aboriginal Land Council located at
51 Sturt Place, Dareton
PO Box 7 Dareton NSW 2717**

**Menindee Local Aboriginal Land Council located at
Yartla St, Menindee
PO Box 47 Menindee NSW 2879**

**Far West Regional Land Council located at
Far West Zone Aboriginal Land Council
Level 3 State Government Building
32 Sulphide St
Broken Hill NSW 2880**



Your reference: Letter of 4/10/11
Our reference: DOC11/50532
Contact: Dimitri Young
(02) 6229 7116

Mr Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137

Dear Sir

**WRITTEN NOTIFICATION OF PROPOSAL AS REQUIRED UNDER DECCW ABORIGINAL
CULTURAL HERITAGE CONSULTATION REQUIREMENTS FOR PROPONENTS 2010**

RE: Proposed Works – Atlas-Campaspe Mineral Sands Project

I refer to your letter of 4 October 2011 received by the Office of Environment and Heritage (OEH), formerly the Department of Environment, Climate Change and Water, on 3 November 2011 regarding the above matter.

Attached is a list of known Aboriginal parties for the Balranald local government area that OEH feels is likely to have an interest in the development. Please note this list is not necessarily an exhaustive list of all interested Aboriginal parties and receipt of this list does not remove the requirement of a proponent/ consultant to advertise in local print media and contact other bodies seeking interested Aboriginal parties, in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (April 2010).

If you wish to discuss any of the above matters further please contact me on (02) 6229 7116.

Yours sincerely

Dimitri Young 3 November 2011

DIMITRI YOUNG

**A/Manager Landscape and Aboriginal Heritage Protection (South)
Environment Protection and Regulation**

Enclosure: Attachment 1

ATTACHMENT 1

Organisation/Individual Name	Address	Contact Name	Contact Details
Muthi Muthi Nations	C/- Balranald Health Service Sturt Hwy, BALRANALD NSW 2715	Danny Kelly	03 50200330
Willandra Lakes 2 Traditional Tribal Groups Elders Council	C/- Mungo National Parks Joint Management Co-ordinator (Warren Clarke) PO Box 318, BURONGA NSW 2739	Warren Clarke	03 5021 8900 warren.clarke@environment.nsw.gov.au
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Paul Charles	Kullila Site Consultants 14 Werrang Road Primbee NSW 2502	Paul Charles	0423 795 389 kullilasiteconsultants@hotmail.com



National
Native Title
Tribunal



28 October 2011

Jamie Reeves
Niche Environment & Heritage
PO Box 231
Concord NSW 2137

**South-East & Central
Registry –Sydney Office**

Level 25, 25 Bligh Street
Sydney NSW 2000
GPO Box 9973
Sydney NSW 2001
Telephone (02) 9227 4000
Facsimile (02) 9227 4030

Our Reference: 4501/11nt

Your Reference: -

Dear Jamie

**Native Title Search Results of Atlas-Campaspe Mineral Sands Project Area within
Balranald Shire Council Local Government Area**

Thank you for your search request received on 11 October 2011 in relation to the above area.

Search Results

The results provided are based on the information you supplied and are derived from a search of the following Tribunal databases:

Register Type	NNTT Reference Numbers
Schedule of Applications (unregistered claimant applications)	Nil.
Register of Native Title Claims	Nil.
National Native Title Register	Nil.
Register of Indigenous Land Use Agreements	Nil.
Notified Indigenous Land Use Agreements	Nil.

At the time this search was carried out, there were **no relevant entries** in the above databases.

Please note: There may be a delay between a native title determination application being lodged in the Federal Court and its transfer to the Tribunal. As a result, some native title determination applications recently filed with the Federal Court may not appear on the Tribunal's databases.

Tribunal accepts no liability for reliance placed on enclosed information

The enclosed information has been provided in good faith. Use of this information is at your sole risk. The National Native Title Tribunal makes no representation, either express or implied, as to



the accuracy or suitability of the information enclosed for any particular purpose and accepts no liability for use of the information or reliance placed on it.

If you have any further queries, please do not hesitate to contact me on the number below or on the free call number 1800 640 501.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'N. Thorpe', enclosed within a light blue rectangular border.

Nakari Thorpe
Senior Case Management Assistant

Telephone: (02) 9227 4004

Facsimile: (02) 9227 4030

Email: Nakari.thorpe@nntt.gov.au



Searching the NNTT Registers in New South Wales

Search service

On request the National Native Title Tribunal will search its public registers for you. A search may assist you in finding out whether any native title applications (claims), determinations or agreements exist over a particular area of land or water.

In New South Wales native title cannot exist on privately owned land including family homes or farms.

What information can a search provide?

A search can confirm whether any applications, agreements or determinations are registered in a local government area. Relevant information, including register extracts and application summaries, will be provided.

In NSW because we cannot search the registers in relation to individual parcels of land we search by local government area.

Most native title applications do not identify each parcel of land claimed. They have an external boundary and then identify the areas not claimed within the boundary by reference to types of land tenure e.g., freehold, agricultural leasehold, public works.

What if the search shows no current applications?

If there is no application covering the local government area this only indicates that at the time of the search either the Federal Court had not received any claims in relation to the local government area or the Tribunal had not yet been notified of any new native title claims.

It does not mean that native title does not exist in the area.

Native title may exist over an area of land or waters whether or not a claim for native title has been made.

Where the information is found

The information you are seeking is held in three registers and on an applications database.

National Native Title Register

The National Native Title Register contains determinations of native title by the High Court, Federal Court and other courts.

Register of Native Title Claims

The Register of Native Title Claims contains applications for native title that have passed a registration test.

Registered claims attract rights, including the right to negotiate about some types of proposed developments.

Register of Indigenous Land Use Agreements

The Register of Indigenous Land Use Agreements contains agreements made with people who hold or assert native title in an area.

The register identifies development activities that have been agreed by the parties.

Application summaries

An application summary contains a description of the location, content and status of a native title claim.

This information may be different to the information on the Register of Native Title Claims, e.g., because an amendment has not yet been tested.

How do you request a search?

A search request form is available on the Tribunal's web site at:



<http://www.nntt.gov.au/registers/search.html>

Mail, fax or email your request to the

Tribunal's Sydney registry, identifying the local government area/s you want searched.

Email: SydneySearch@nntt.gov.au

Fax: (02) 9227 4030

Address: GPO Box 9973, Sydney NSW 2001

Phone: (02) 9227 4000

Our Ref (A644306)

21 October 2011

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137

Dear Jamie

Re: Atlas-Campaspe Mineral Sands Project Aboriginal Cultural heritage Assessment

Thank you for your letter dated 10 October 2011 requesting assistance in identifying Aboriginal groups, stakeholders or traditional knowledge holders interested in the management of Indigenous heritage matters in the Balranald area.

The Lower Murray Darling Catchment Management Authority (LMD CMA) acknowledges that CMAs have been listed in *Section 4.1.2 (g)* of the *Aboriginal Cultural Heritage Consultation Requirements for proponents 2010*, under *Part 6, National Parks and Wildlife Act 1974* as a source of information to obtain the "names of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal *objects* and/or *places*".

It is recommended by the LMD CMA that you contact the following Aboriginal Community group/s in regard to cultural heritage matters within the project area.

**Balranald Local Aboriginal Land Council is located at
200 Church Street Balranald
P.O Box 187 Balranald NSW 2715**

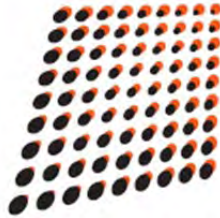
Please note the LMD CMA takes no responsibility for the groups listed as being the only persons or groups who may have a cultural heritage interest in your project area and further investigation may be necessary within your consultation process. The Office of Environment and Heritage would be a good point of contact.

Sincerely,



Lesley Palmer
General Manager

LP/mw/rd



BEMAX
RESOURCES LIMITED
ABN 60 009 247 858

Broken Hill
134 Pinnacles Road
Broken Hill NSW 2880
PO Box 444
Broken Hill NSW 2880
TEL: (08) 8088 6538
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Perth
Level 15, QV.1 Building
250 St George's Terrace
Perth WA 6000
TEL: (08) 9212 6000
FAX: (08) 9486 4711

7 November 2011

Wendy Thompson
Coordinator
Balranald Local Aboriginal Land Council
200 Church Street
Balranald NSW 2715

Dear Wendy

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

BEMAX Resources Limited is proposing to develop the Atlas-Campaspe Mineral Sands Project (the Project), near Balranald, western New South Wales (NSW). The proposal includes development of a mineral sands mine and related surface infrastructure within the area shown as the "Area of Interest" on the attached figure.

BEMAX Resources Limited plans to seek approval for the Project under the *Environmental Planning and Assessment Act 1979* (NSW). As part of the approval process, BEMAX Resources Limited will be preparing an Aboriginal Cultural Heritage Assessment.

In accordance with the Office of Environment and Heritage's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010), BEMAX Resources Limited is seeking to consult with any Aboriginal persons or groups who may hold cultural knowledge of, or who have a right or interest in Aboriginal objects, places and/or Aboriginal cultural heritage in the "Area of Interest". The consultation process will help determine the cultural significance of Aboriginal objects and/or places relevant to the "Area of Interest", and will be used to by the applicant to prepare any necessary applications for approval.

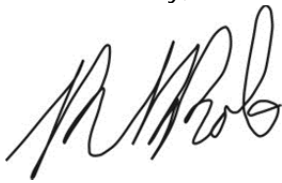
BEMAX Resources Limited is requesting registrations of interest in the consultation process for the Project from Aboriginal persons or groups who hold cultural knowledge relevant to the "Area of Interest".

Please register your interest in writing to the contact details provided below by 23 November 2011.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

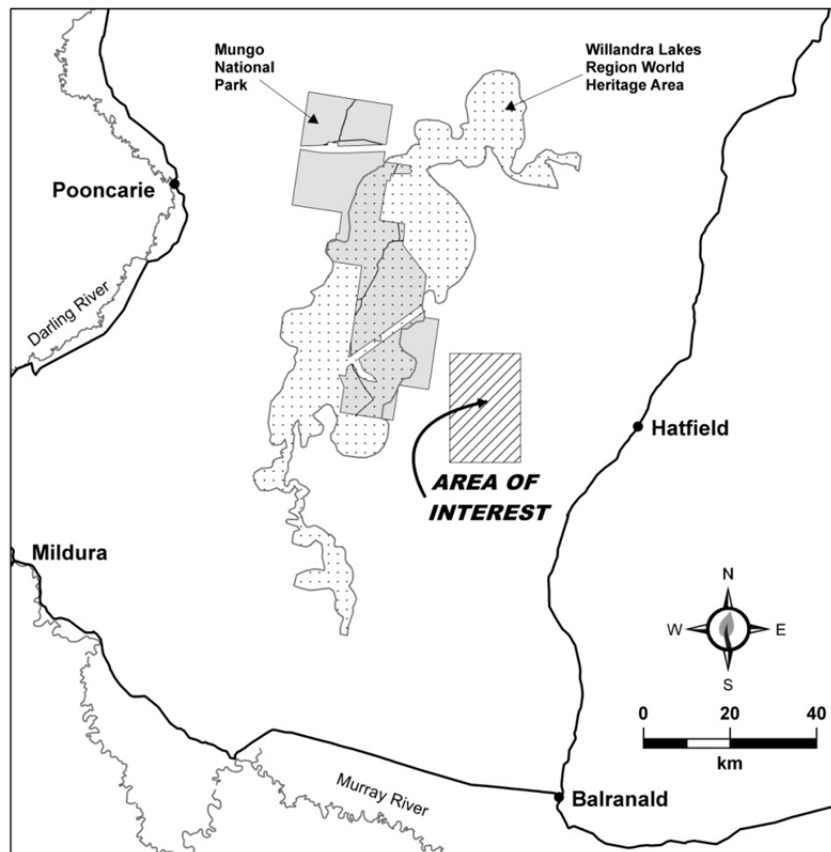
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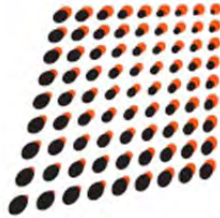
Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Area of Interest





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ABN 60 009 247 858

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7 November 2011

Paul Charles
Kullila Site Consultants
14 Werrang Road
Primbee NSW 2502

Dear Paul

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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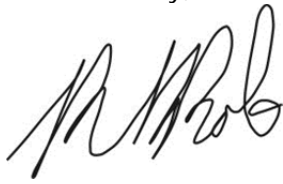
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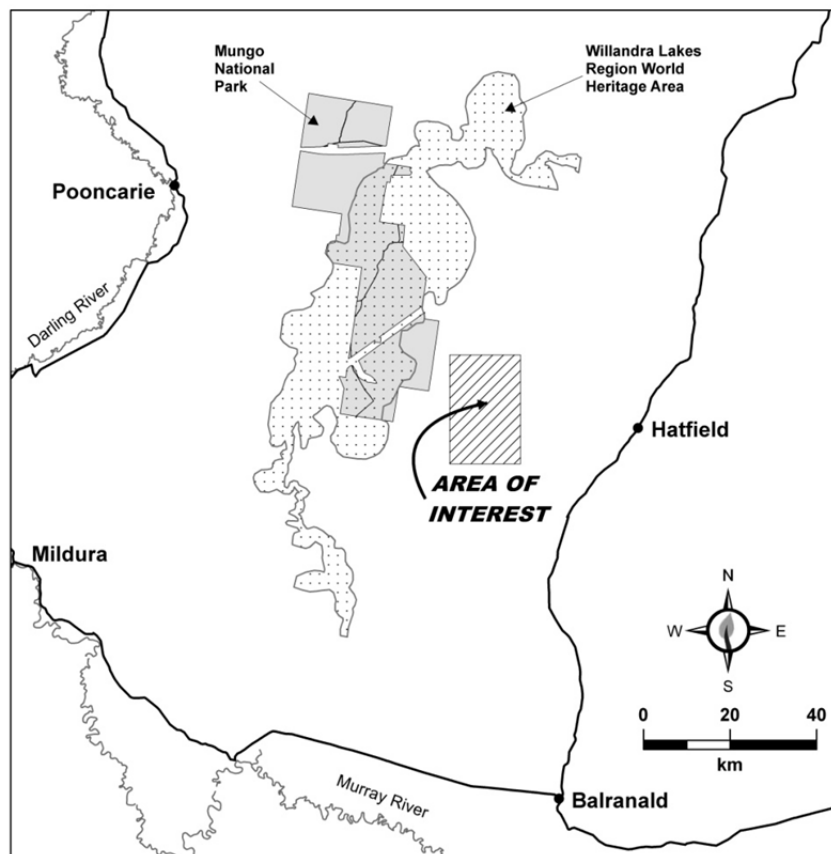
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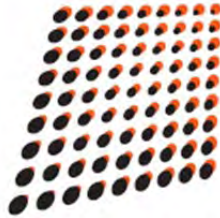
Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Area of Interest





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7 November 2011

Danny Kelly
Muthi Muthi Nations
c/- Balranald Health Service
Sturt Highway
Balranald NSW 2715

Dear Danny

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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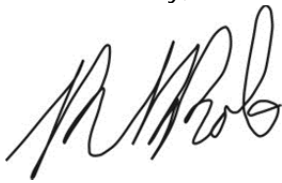
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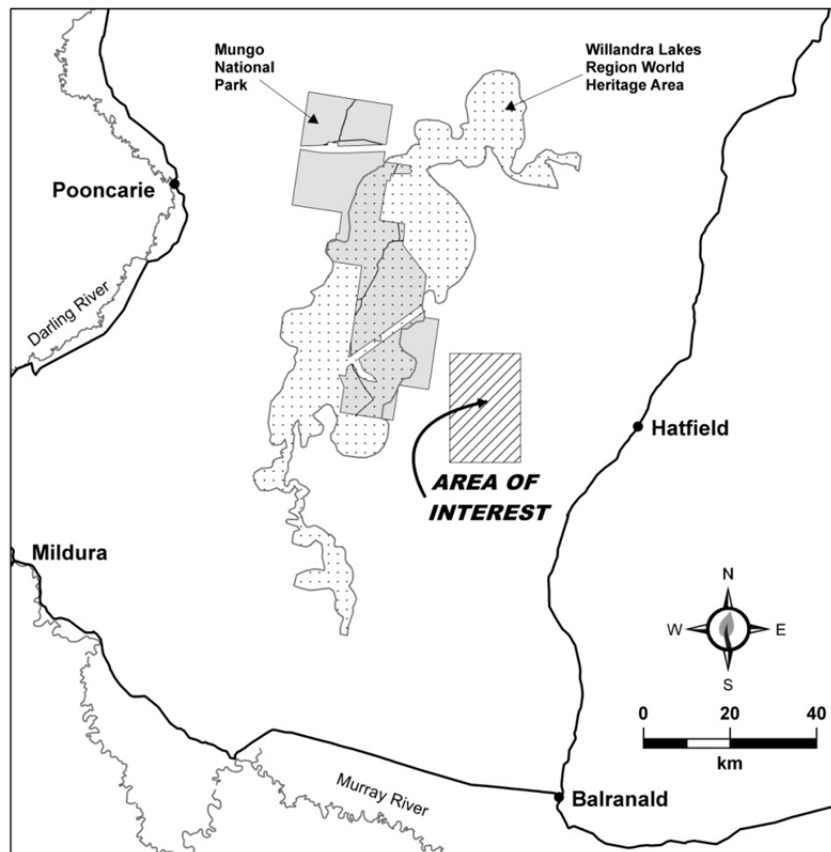
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Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Area of Interest





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7 November 2011

Ali Maher
National Koorie Site Management
3 Cuthbert Drive
Mount Warrigal NSW 2528

Dear Ali

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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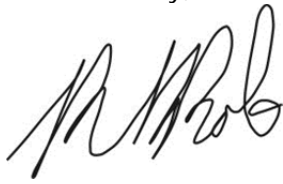
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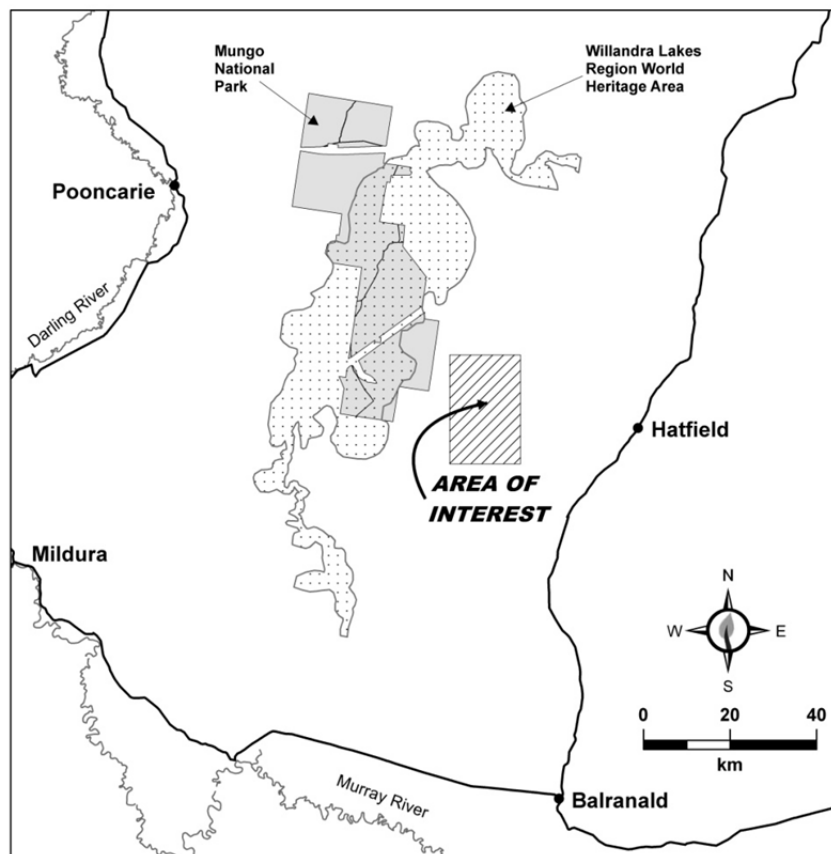
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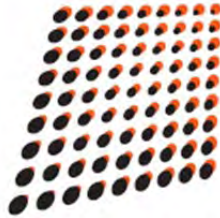
Yours sincerely,



RAY ROBERTS
Exploration Manager
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Area of Interest





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FAX: (08) 9486 4711

7 November 2011

Warren Clarke
Willandra Lakes 2 Traditional Tribal Groups Elders Council
c/- Mungo National Parks Joint Management Co-ordinator
PO Box 318
Buronga NSW 2739

Dear Warren

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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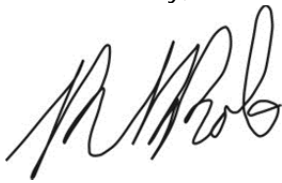
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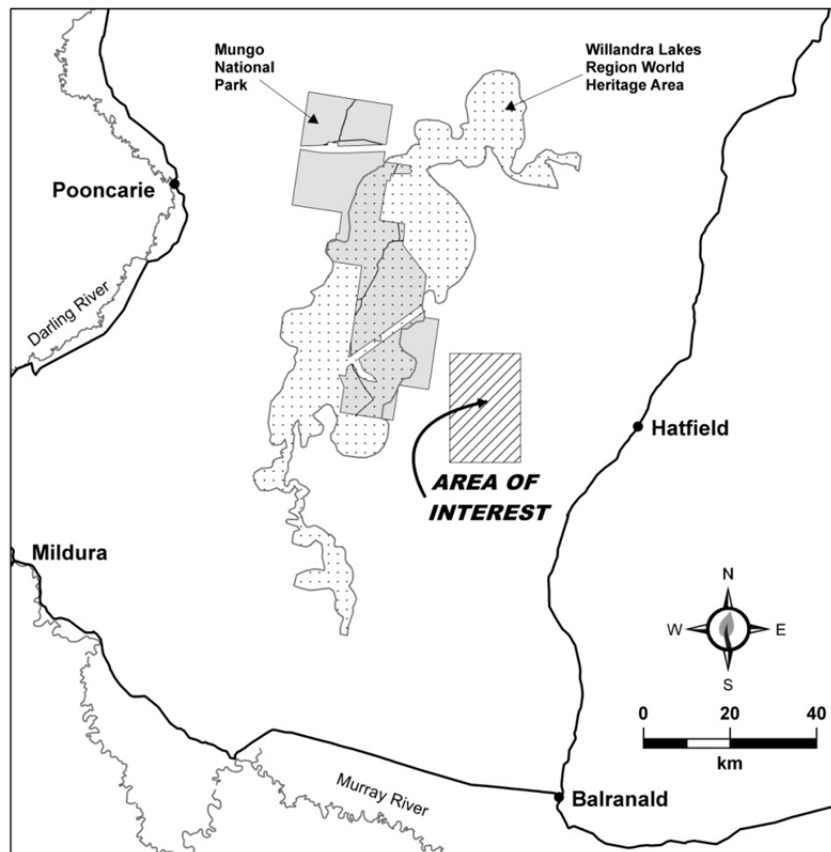
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Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Area of Interest



Renew licence

THE Department of Sustainability and Environment is reminding Victorian wildlife licence holders to re-new their licence.

All wildlife licences have a common expiry date of September 30 and licence holders were sent a re-nwal notice in September this year.

However, in September, there were 13,500 Victo-rian wildlife licences registered with DSE.

Now, in November, there are 10,571 – a difference of almost 3000.

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Step back in time

Students build Ancient Rome in the classroom

By Gabrielle McLeod

TRINITY Lutheran College students wrapped themselves up in togas for their biennial Italian Day.

As part of the college's Italian studies program, which continues up to year 10, students celebrated an Ancient Rome-themed Italian Day last week.

Rather than their school uniforms, students in years Prep to 6 came dressed as Ancient Romans in their best togas, gladiator armour and tunics for the special occasion.

The day was officially opened by Emperor Leskeius, otherwise known as college principal Andrew Leske, followed by a parade showcasing the students' attire.

Italian teacher, Mary-anne Ghidinelli, said students looked the part in their costumes.

"As part of the day, students participated in activities to do with Ancient Rome," Ms Ghidinelli said.

"They built mini Colosseums, ran Roman relay and chariot races, made laurel wreaths, played bocce and made mosaics.

"We also did some Tarantella dancing to finish off the afternoon and the year 9 and 10 students made a PowerPoint presentation of their trip to



ANCIENT LESSON: Lily and Xavier enjoyed making Colosseums out of Nutri-Grain and chocolate icing at Trinity Lutheran College's Italian Day last week.

Picture: Stacey Merlin

Italy."

Students were also treated to a delicious Italian lunch featuring Roman rolls, Pompeii pizza, pasta alla Romana and most importantly gelati.

"The Colosseum making

was very popular – it might have had something to do with making them out of Nutri-Grain and chocolate icing," Ms Ghidinelli said.

"We hold an Italian Day every second year and students re-

ally enjoy it.

"At the college we teach the students Italian until they leave, unlike most schools where students will go onto secondary college and possibly be taught a different language."

ATLAS-CAMPASPE MINERAL SANDS PROJECT ABORIGINAL CULTURAL HERITAGE ASSESSMENT

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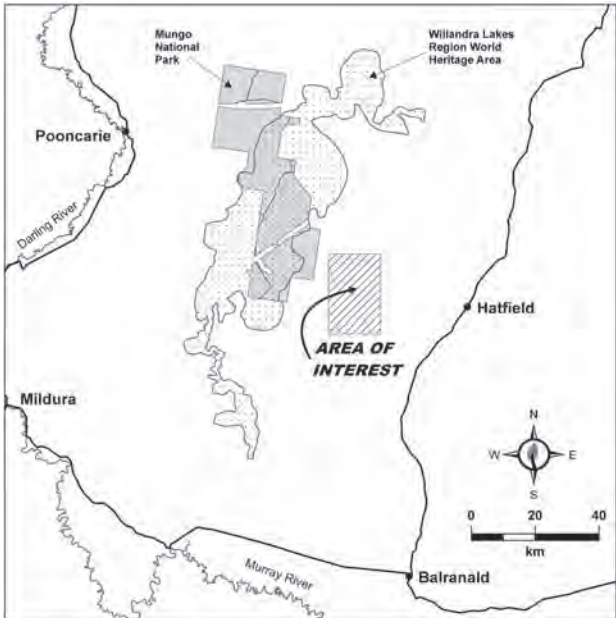
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Please register your interest in writing to the contact details provided below by 23 November 2011.

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Time running out


WENTWORTH Shire residents have just three more days to nominate a local sportsperson, environmental champion or community leader for an Australia Day Award in 2012.

The closing date for nominations for the awards has been extended for one week and will now close on Friday.

Council is seeking nominations for its Citizen of the Year, Young Citizen of the Year, Community Group of the Year, Sporting Team of the Year, Sportsper-son of the Year, Young Sportsper-son of the Year and Environmental Award.

Nomination forms are available from the Wentworth Shire Council's website www.wentworth.nsw.gov.au or are available from the council's of- fice at 26 Adelaide Street, Wentworth.

www.prestaff.com.au



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Applications close on 18th November and should include a letter of application and copy of current resume, including contactable referees. All correspondence should be referred to steve@prestaff.com.au, PO Box 377 or 43 Lemon Ave Mildura and should quote Ref. 7831.

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MUNGO

BALRANALD BYLINES



Trust farmers trading water again following change in law

By Joe Dimasi, Commissioner, ACCC

The Australian Competition and Consumer Commission (ACCC) is satisfied that farmers in private irrigation trusts and districts, including Bungunyah-Koraleigh Irrigation Trust (BKIT) near Balranald, now have the same opportunities to trade their water in accordance with the Commonwealth water rules as other farmers in the Murray-Darling Basin.

The ACCC has concluded its investigation into BKIT following amendments to the NSW Water Management Act and resolution of disputes between the Trust and the farmers.

The Water Market Rules 2009 and the Water Charge (Termination Fees) Rules 2009 regulate the conduct of irrigation water suppliers in processing farmers' applications for transformation and termination.

The ACCC is responsible for monitoring and enforcing compliance with the Commonwealth water rules.

In 2010, around the time the Commonwealth water rules began, the ACCC received complaints from farmers in south-western NSW that some private irrigation trusts and districts, including

BKIT, were not allowing them to trade their water using the process of transformation or to terminate their connection to the irrigation network.

At the same time, BKIT and other private irrigation trusts and districts raised concerns that they had limited powers under the Water Management Act to comply with the Commonwealth rules.

The ACCC recognised there was a lack of clarity in the Water Management Act about the powers of private irrigation trusts and districts.

This led the NSW Parliament to enact amendments to the Water Management Act in December 2010.

The result was that private irrigation trusts and districts in NSW now have clear power to process farmers' applications for transformation and termination.

Following these legislative changes, the ACCC has monitored the conduct of private irrigation trusts and districts, including BKIT.

It has observed that farmers in south-western NSW have taken advantage of opportunities to trade their water and terminate their delivery services.

The ACCC also investigated complaints from farmers supplied by BKIT about the

terms of transformation and termination agreed to by the Trust and farmers before December 2010.

The ACCC has worked with farmers and the Trust to ensure farmers have been allowed to trade their water and terminate their connection to the Trust's network in accordance with the Commonwealth rules.

At the same time, the ACCC has provided guidance to the Trust to help it understand and comply with the requirements of the rules.

The ACCC is satisfied that disputes between farmers and BKIT about applications made before December 2010 have been resolved or are about to be resolved on the terms agreed between the Trust and the farmers.

The ACCC continues to monitor compliance with the Commonwealth water rules and to work with water delivery operators and farmers to help them understand and comply with the rules. Guides to the rules are available at www.accc.gov.au/guides.

Any farmer who is concerned their water supplier is preventing them from trading their water, or has questions about the application of the rules to their circumstances, should email water@accc.gov.au or call ACCC's Infocentre on 100 302 502.

SWATS cautioned to keep Council involved

South West Arts has been cautioned to involve Local Government if it hopes to continue to receive funding from councils.

This follows a presentation to Balranald Shire Council by South West Arts regional arts development officer, Alyce Fisher at its last meeting. Council learned that since South West Arts changed its constitution six years ago it was no longer necessary to have Local Government representation on its board.

Trade Training Centre opens this week

Balranald Central School's new Trade Training Centre will officially open on Friday, November 11.

This will take place at 1.30pm in the hall and parents and community mem-

bers are invited to attend.

Afternoon tea will be served, so please contact the front office if you would like to be a part of this historic event.

"But council representatives are welcome to the meetings," she said. "You need a Local Government voice if you rely on Local Government funding," Cr Steve O'Halloran responded.

"When it comes to the vote for funding, you need to have someone who is going to argue for you," Mayor Alan Purtill added.

"Having said that, we do support South West Arts. The more shows you send out this way, the better."

"You need a Local Government voice if you rely on Local Government funding," Cr Steve O'Halloran responded.

"When it comes to the vote for funding, you need to have someone who is going to argue for you," Mayor Alan Purtill added.

"Having said that, we do support South West Arts. The more shows you send out this way, the better."

"You need a Local Government voice if you rely on Local Government funding," Cr Steve O'Halloran responded.

St Joseph's fete has it all

Santa will make an early appearance in Balranald this year when he visits St Joseph's annual fete this Sunday, November 13.

The fete gets under way at 11am and offers four hours of non-stop fun.

You can dress as you favourite television character for the fantasy parade, decorate your own icecream, go on a scavenger hunt or join the queue at the

jumping slide.

There will be plenty to eat, with a barbecue as well as donut and drinks stalls operating.

Don't miss the book fair and auction and be sure to buy a raffle and bingo ticket.

Stall holders include plants, arts and craft as well as trash 'n treasure, show bags and lucky dips.

Flood funding

Balranald Shire Council has been successful in its application for a grant under the Floodplain Management Program.

Council has received funding up to \$103,102 under the Floodplain Risk Management Grants Scheme for the second stage of the town's levee augmentation.

The funding will enable a fixed automatic pump to be erected at the corner of Moa and Turandurey Streets.

It will operate when

New gate for Hostel

A self-closing gate is to be installed at Bidgee Haven Hostel at a cost of \$3250.

The gate will be placed on the Senior Citizens' building side of the independent living units and will allow easy access to the shopping area.

"It will give residents access to the main street and also security at night," member of Council's Retirement Hostel Committee, Peter Lawler said.

The sensor gate will have a timer to prevent entry at night.

the river is high to prevent flooding inside the levee bank.

Council needs to match 20 per cent of the cost of the project.

Nursing award for Gayle



In conjunction with The Three Rivers Run event, organised to raise awareness of prostate cancer, Balranald's Gayle Purtill was awarded a scholarship to complete a prostate care nursing course.

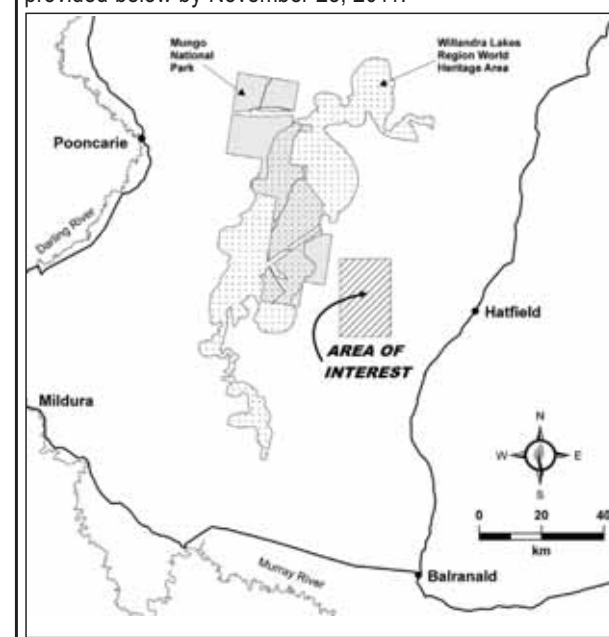
Gayle is pictured during the presentation at the Kyalite Pub where event participants stayed overnight.

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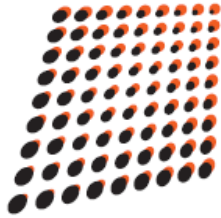
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30 January 2012

The Coordinator
Balranald Local Aboriginal Land Council
PO Box 187
Balranald NSW 2715

Dear Sir/Madam

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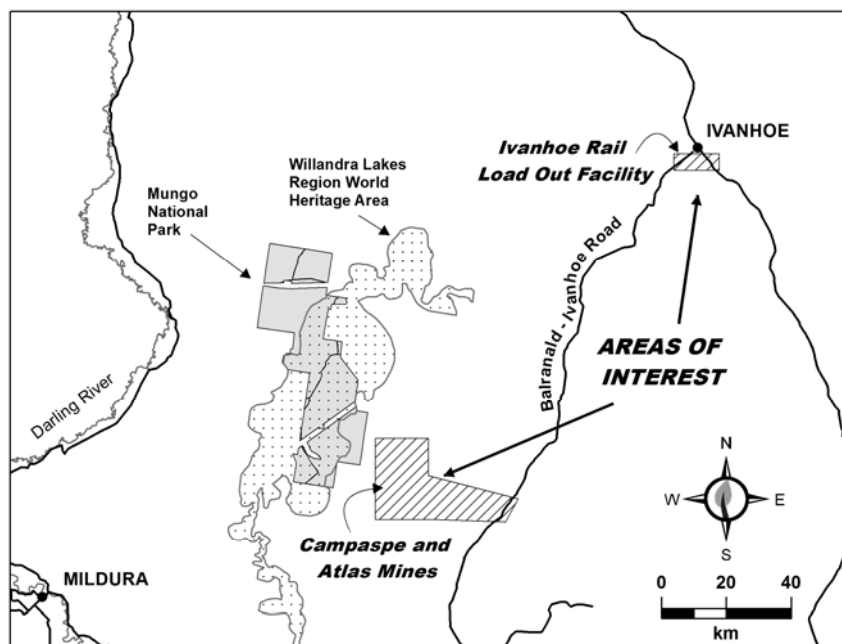
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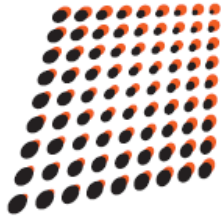
Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Areas of Interest





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Ivanhoe Local Aboriginal Land Council
PO Box 116
Ivanhoe

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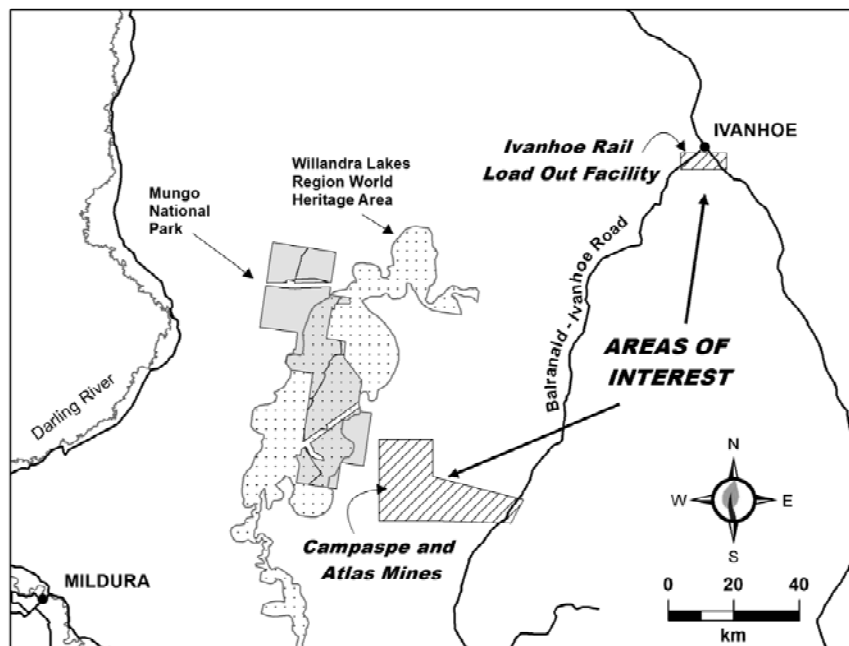
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30 January 2012

Office of Environment and Heritage
Landscape and Aboriginal Heritage Protection Section
PO Box 733
Queanbeyan NSW 2620

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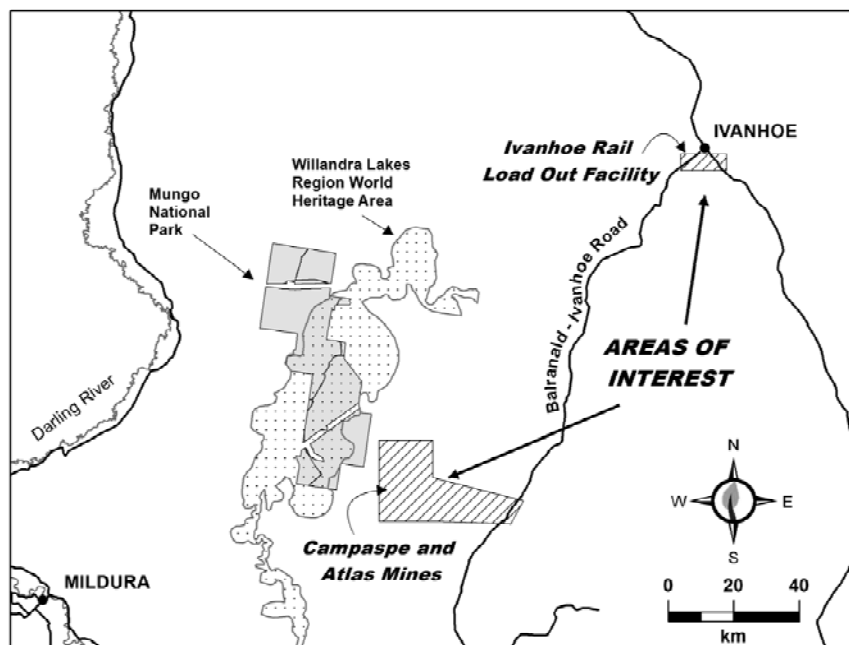
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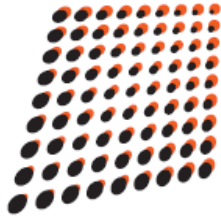
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Office of Environment and Heritage
Environment and Conservation Programs
PO Box 2111
Dubbo NSW 2830

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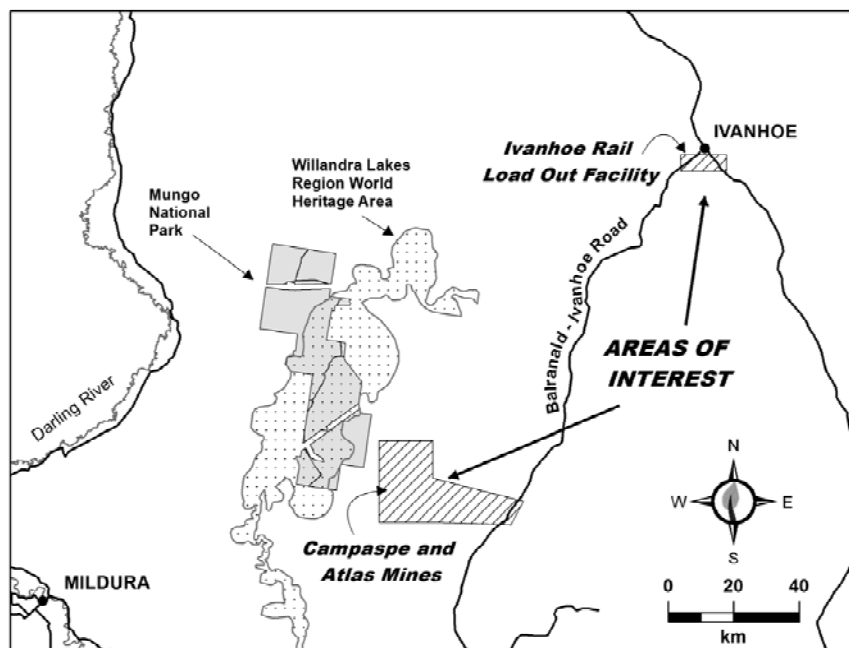
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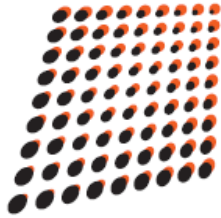
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Perth
Level 15, QV.1 Building
250 St George's Terrace
Perth WA 6000
TEL: (08) 9212 6000
FAX: (08) 9486 4711

30 January 2012

National Native Title Tribunal
NSW & ACT Registry
GPO Box 9973
Sydney NSW 2001

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

BEMAX Resources Limited is proposing to develop the Atlas-Campaspe Mineral Sands Project (the Project), near Balranald, western NSW. Further to our correspondence of 4 October 2011, the proposal now includes development of a mineral sands mine and related surface infrastructure, including a rail load out facility at Ivanhoe, within the areas shown as the "Areas of Interest" on the attached figure.

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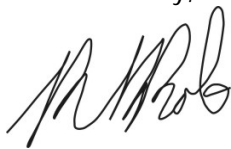
In particular BEMAX Resources Limited requests a list of native title claimants, native title holders and registered Indigenous Land Use Agreements within the "Areas of Interest" that the National Native Title Tribunal has records of.

Please be advised that, as per the Office of Environment and Heritage (formerly the Department of Environment, Climate Change and Water) *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010) the names of Aboriginal persons and groups who register an interest will be forwarded to the Office of Environment and Heritage, the Balranald Local Aboriginal Land Council and the Ivanhoe Local Aboriginal Land Council, unless we are advised not to release particular details.

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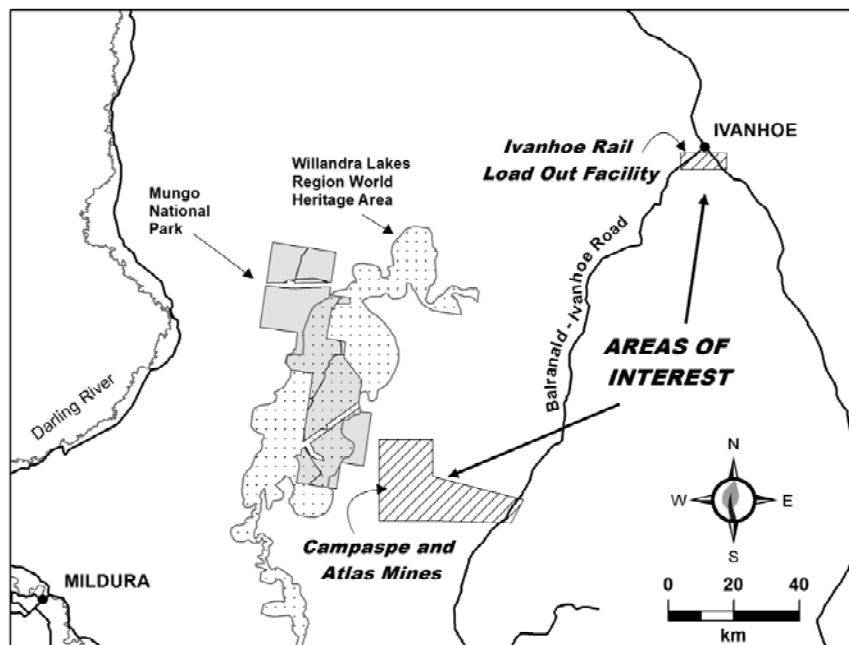
Jamie Reeves
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Telephone: 0488 224 888
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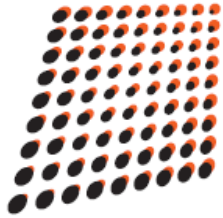
Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Areas of Interest





BEMAX
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ABN 60 009 247 858

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30 January 2012

NTS Corp Limited
Mr Peter Schultz
PO Box 2105
Strawberry Hills NSW 2012

Dear Peter

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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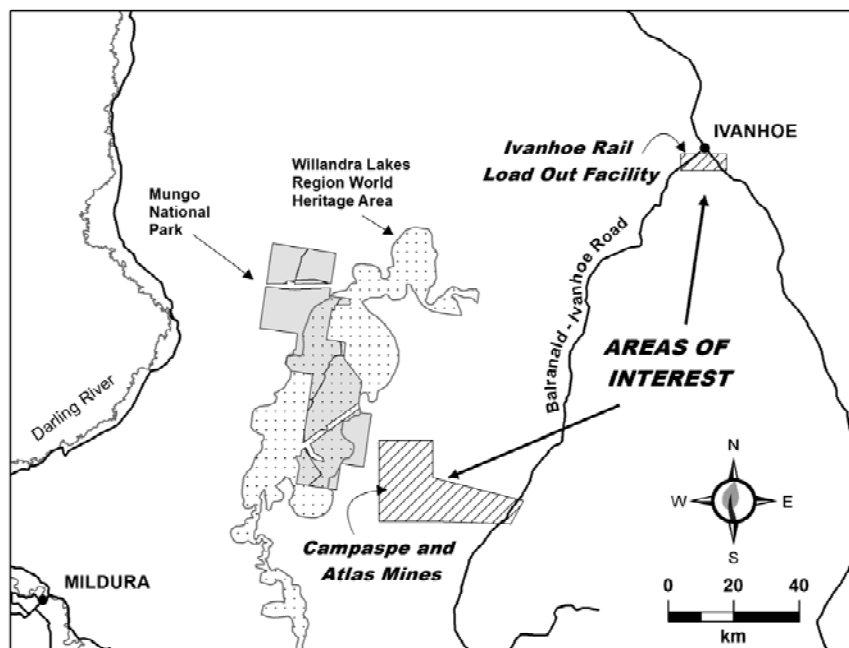
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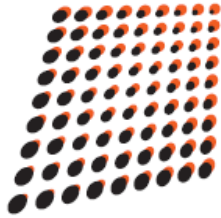
Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Areas of Interest





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30 January 2012

The General Manager
Balranald Shire Council
PO Box 120
BALRANALD NSW 2715

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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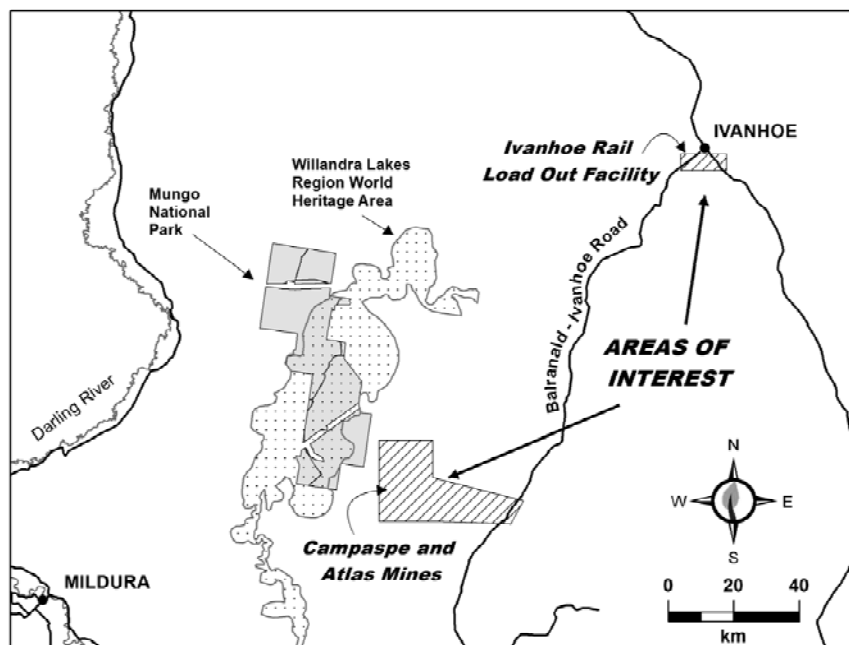
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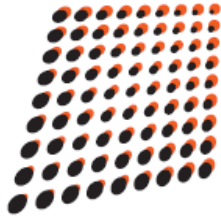
Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

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30 January 2012

Lachlan Catchment Management Authority
PO Box 726
Forbes NSW 2871

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

BEMAX Resources Limited is proposing to develop the Atlas-Campaspe Mineral Sands Project (the Project), near Balranald, western NSW. The proposal includes development of a mineral sands mine and related surface infrastructure, including a rail load out facility at Ivanhoe, within the areas shown as the "Areas of Interest" on the attached figure.

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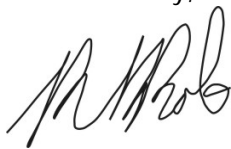
In particular BEMAX Resources Limited requests the contact details of any established Aboriginal reference group within the "Area of Interest" that the Lachlan CMA may be aware of.

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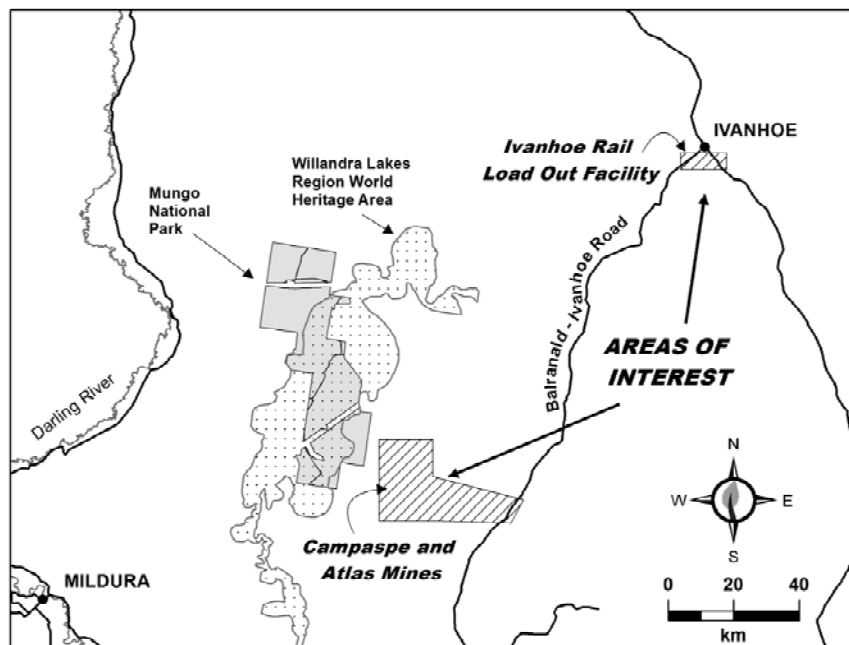
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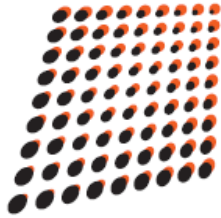
Yours sincerely,



RAY ROBERTS
Exploration Manager
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Areas of Interest





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30 January 2012

Ronni O'Donnel
Catchment Officer (Aboriginal Communities)
Lower Murray Darling Catchment Management Authority
PO Box 363
Buronga NSW 2739

Dear Ronni

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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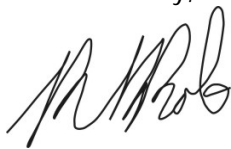
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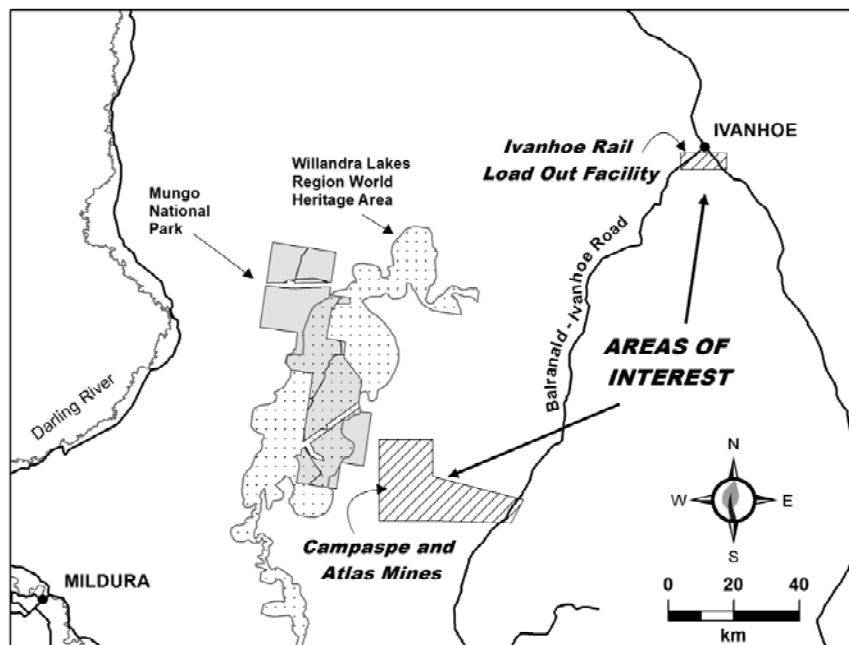
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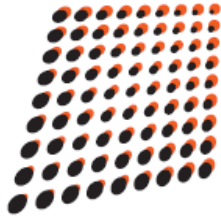
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RAY ROBERTS
Exploration Manager
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Areas of Interest





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30 January 2011

The Registrar
Office of the Registrar, Aboriginal Land Rights Act 1983
PO Box 112
Glebe NSW 2037

Dear Sir/Madam

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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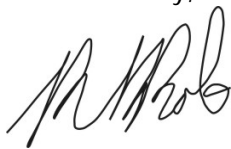
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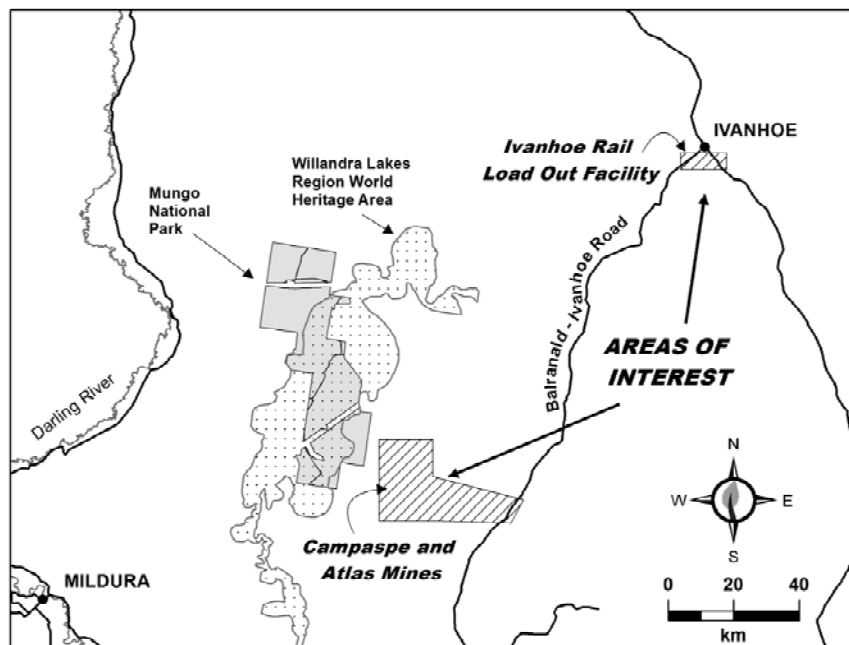
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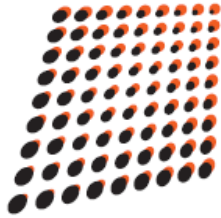
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RAY ROBERTS
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30 January 2012

The General Manager
Central Darling Shire Council
PO Box 165
Wilcannia NSW 2836

Dear Sir/Madam

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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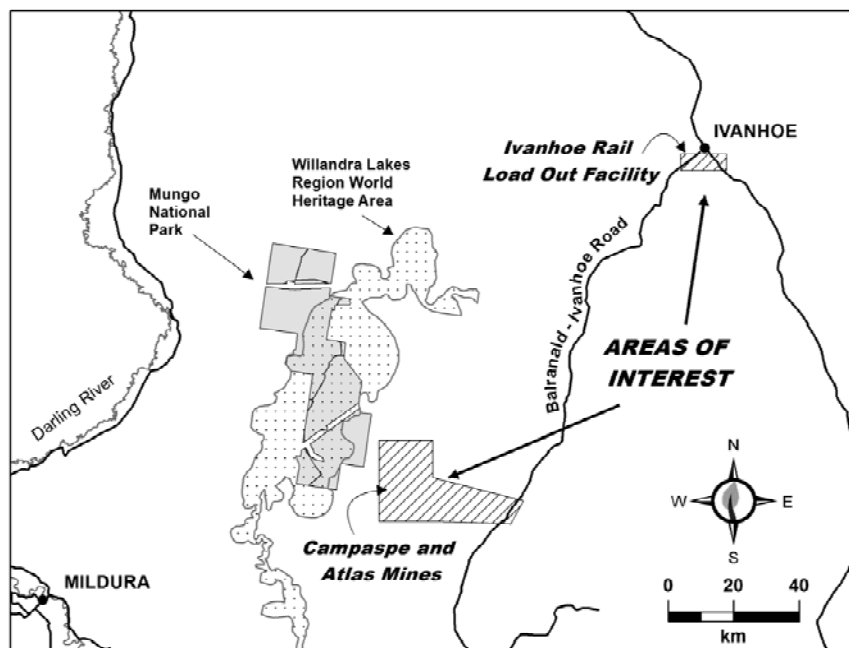
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Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Areas of Interest



Jamie Reeves
NICHE ENVIRONMENTAL & HERITAGE
PO Box 231
Concord NSW 2137

2 February 2012

Dear Jamie

Re: Request - Search for Registered Aboriginal Owners

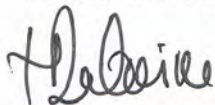
I refer to your letter dated 30 January 2012 regarding Aboriginal stakeholders within Balranald area NSW.

I have searched the Register of Aboriginal Owners and the project area described does not have Registered Aboriginal Owners pursuant to Division 3 of the *Aboriginal Land Rights Act 1983* (NSW).

You are no doubt in contact with the co-management advisory committee and Elders Council which currently manage the land with National Parks & Wildlife.

I suggest you also contact the Balranald Local Aboriginal Land Council as Mungo National Park is located within their land council boundaries. They may also be able to assist you in identifying other Aboriginal stakeholders for this project.

Yours sincerely



Tabatha Dantoine
Administrative Officer

Office of the Registrar, *Aboriginal Land Rights Act* (1983)



Australian Government

WILLANDRA LAKES REGION

World Heritage Area

MUNGO NATIONAL PARK

Dear Jamie,

Thank you for your letter dated 9th December to the Willandra Lakes 2 Traditional Tribal Groups Elders Council.

Your letter was tabled at the Willandra Lakes Technical Scientific Advisory Committee / Community Management Council and the Mungo National Park Joint Management Advisory Committee meetings where it was discussed attracting interest.

There are four committees that advise the State and Federal governments on matters within Mungo National Park and the Willandra Lakes Region World Heritage Area:

Two Traditional Tribal Groups (2TTG's) Elders Council

Represents the interests of the traditionally affiliated Indigenous people and provide traditional perspectives on management issues, directions and priorities within the Willandra Lakes Region World Heritage Area.

Technical Scientific Advisory Committee (TSAC)

This committee gives scientific and technical support and advice to the Community Management Council and the 2TTG's Elders Council.

Community Management Council (CMC)

This council is made up of stakeholders (Traditional Owners, Landholders, Shire Councils & Government agencies) and is an essential part of the administrative structure as it guides, implements and reviews plans. It is a link between the communities.

Mungo National Park Joint Management Advisory Committee

Gives advice and guidance on day to day works and proposed projects within Mungo National Park. It has representatives from the Government, Shire Council, Landholders, Traditional Owners and Scientists.

Given the proximity of the proposed mining enterprise to the World Heritage Area it would be wise to keep each of the committees informed. The TSAC/CMC committees would also welcome a presentation by BEMAX to a joint session at a convenient time.

We would also like to attend the information session being held on the 17th January 2012. Could you please inform us when a venue has been confirmed.

Kind Regards,

Leanne Mitchell
Aboriginal Heritage Conservation Officer
Willandra Lakes Region World Heritage Area
Country Culture and Heritage Division



Leanne Mitchell
PO Box 318
Buronga, NSW 2739
PH: 03 5021 8900
leanne.mitchell@environment.nsw.gov.au

Take care with campfires

People who do not act responsibly when lighting and using campfires can place people and property at risk

– Dennis Ward

THE Department of Sustainability and Environment and Parks Victoria are urging the community to act responsibly and show extreme caution when lighting campfires and using barbecues in parks and camping grounds over the Australia Day long weekend.

Victoria has now entered its peak fire danger season and there are hot and dry conditions forecast for Australia Day and the following weekend.

DSE state duty officer Dennis Ward said fire crews have been called to a number of fires caused by escaped campfires in Northern Victoria which unnecessarily took firefighters from critical fire management duties.

“People who do not act responsibly when lighting and using campfires can place people and property at risk if the fire escapes,” Mr ward said.

“People need to construct and use

campfires in accordance with fire regulations.

“Campers have to take responsibility for their campfires and to be accountable for their actions; otherwise they will face serious penalties.”

Campers face on the spot fines of \$366 for not complying with the regulations.

For serious offences they can be convicted and face fines of between \$5000 and up to \$10,000 or two years imprisonment.

“The Australia Day weekend is a fantastic time to enjoy camping along the river, but everyone must take real care with campfires” Mr Ward said.

“Before you light a campfire, make sure you know whether campfires are generally permitted in that location and if any fire restrictions are in place at that time.”

For further information on campfires you can visit www.dse.vic.gov.au or phone the DSE customer services centre on 136 186.



LOVE MATCH: Janette Ward has won tickets for this weekend's women's singles final at the Australian Tennis Open in Melbourne.

Two readers off to tennis finals

TWO lucky *Sunraysia Daily* readers have won the chance to be courtside for this weekend's men's and women's singles finals at the Australian Tennis Open in Melbourne.

They are Janette Ward and Cameron Pritchard, winners of our competition, run in conjunction with the Australian Pro Tour, Prime Television and 99.5 Star FM.

Winner of the women's singles tickets, Mrs Ward was thrilled when contacted by *Sunraysia Daily* to tell her she was off to Melbourne.

“It's hard to believe I've won out of all the entries you received,” she said.

“I went to the Open last year but Mum and I decided that we would go every second year so this is just amazing.”

“Mum is just as excited as I am to be going again this year.”

Asked who she thought would take



Cameron Pritchard

out the title, Mrs Ward backed defending champion ‘Aussie Kim’, Kim Clijsters.

“At least it will be a peaceful match to watch and listen to,” she said

An enthusiastic tennis player, Mrs Ward plays locally with Alcheringa Tennis Club where she has been a member for three years.

She was also part of the team which won the Division One Pennant Winter Competition in 2011.

Winner of the men's singles finals tickets, Mr Pritchard was delighted when told his name had been drawn from more than 3000 entries.

The prize includes flights and accommodation in Melbourne.

ATLAS-CAMPASPE MINERAL SANDS PROJECT ABORIGINAL CULTURAL HERITAGE ASSESSMENT

BEMAX Resources Limited is proposing to develop the Atlas-Campaspe Mineral Sands Project (the Project), near Balranald, western NSW. The proposal includes development of a mineral sands mine and related surface infrastructure and rail loading facility near the township of Ivanhoe within the areas shown as the “Areas of Interest”.

BEMAX Resources Limited plans to seek approval for the Project under the *Environmental Planning and Assessment Act 1979* (NSW). As part of the approval process, BEMAX Resources Limited will be preparing an Aboriginal Cultural Heritage Assessment.

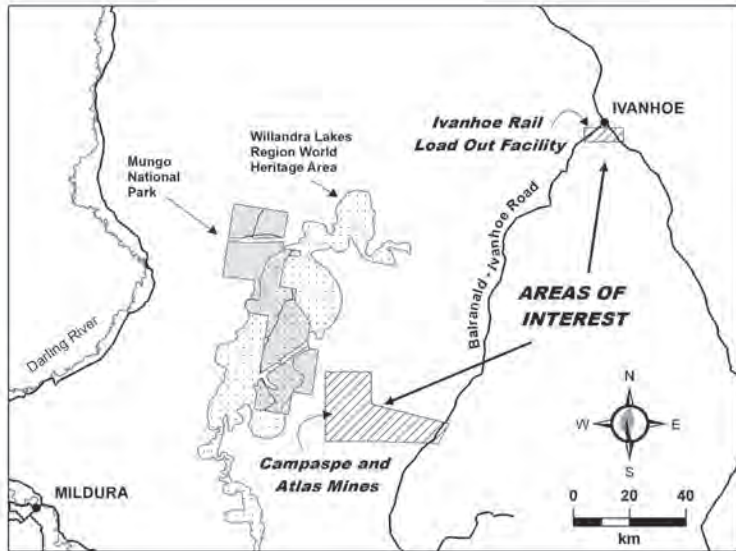
In accordance with the Office of Environment and Heritage's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010), BEMAX Resources Limited is seeking to consult with any Aboriginal persons or groups who may hold cultural knowledge of, or who have a right or interest in Aboriginal objects, places and/or Aboriginal cultural heritage in the “Areas of Interest”. The consultation will help determine the cultural significance of Aboriginal objects and/or places relevant to the “Areas of Interest”, and will be used to by the applicant to prepare applications for approval.

BEMAX Resources Limited is requesting registrations of interest in the consultation process for the Project from Aboriginal persons or groups who hold cultural knowledge relevant to the “Areas of Interest”.

Please register your interest in writing to the contact details provided below by 8 February 2012.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Please be advised that, as per the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, BEMAX Resources Limited is required to forward the names of Aboriginal persons and groups who register an interest to the Office of Environment and Heritage, the Balranald Local Aboriginal Land Council and the Ivanhoe Local Aboriginal Land Council, unless you advise that you do not want particular details released.



SD648841

Your chance to become a millionaire!

Simply write a “letter to the editor” at Sunraysia Daily and you will be automatically entered in the weekly prize draw for a Parker Pen and Tattsлото gift pack compliments of Klemms Tattsлото Newsagency.

If there is an issue you feel strongly about and wish to stimulate reader interest then a “letter to the editor” is the ideal forum to have your say.

Sunraysia Daily prefers letters to the editor to be no more than 300 words and they must indicate the authors name,

address (not a post office box) and day time telephone number for verification.

By submitting a letter for publication the author agrees that it may be edited for legal, space or other reasons.

Letter with pen names will generally not be considered for publication.

Each weekly winner will be notified and corresponding letter published in Saturday's issue.

Letters to the editor can be sent in the following manner:

Email: news@sunraysiadaily.com.au
Fax: 5023 4817
Mail: Your Say
Sunraysia Daily
PO Box 1400, Mildura, Vic, 3502

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SD644705

MUNGO

BALRANALD BYLINES

\$1.3 million allocated for new VIC

Council has allocated \$1.3 million to progress the construction and fit-out of its new Visitor and Interpretive Centre.

The site has been surveyed and Council has prepared an Expression of Interest for the design and fit-out of the centre.

More than 60 local residents attended a

community meeting late last year to receive an update on the project and meeting the recently appointed Tourism Project Manager, German Ugarte. The new centre is part of a Red Gum project at Heritage Park which also include new carparks for visitors.

Other components of the project include

the creation of a swing bridge river walk and marketing and promotional activities to make Balranald a tourist destination.

Director of Economic and Community Development, Robyn Ryan said some great ideas were put forward at the meeting, and those who attended agreed that the centre

should showcase the local Aboriginal culture, European heritage, wetlands, agriculture and Yanga and Mungo National Parks.

Other ideas from the meeting include interactive visual terminals, access to the Art Gallery from the centre, children's play equipment and shade sails.

New chair for Lower Murray Darling CMA

Lower Murray Darling Catchment Management Authority (CMA) has welcomed the appointment of Cheryl Rix as the new Chair of the Board.

Mrs Rix (pictured) brings a breadth of experience to the LMD CMA Board and is well known in the local area working in the irrigation, water and community banking sector.

"I am thrilled and excited to be appointed Chair of the LMD CMA, and acknowledge the work that lies ahead with the Catchment Action Plan Review," Mrs Rix said.

"My experience in business and management and as a landholder will be of great benefit.

"Being raised on a sheep and cattle property and more recently being an active member of the local Sunraysia region as a landholder, community volunteer and business professional has provided



me with a broad understanding of the issues facing catchment residents, farmers and irrigators and how we integrate farming and environmental practices to ensure sustainability into the future.

"The Catchment has a wide variety of natural assets valued by all who live in our region that need to be appropriately cared for, not least the riverine environments which have been given a much greater focus in the draft Murray Darling

Basin Plan."

Mrs Rix also welcomed Allison McTaggart as newly appointed Board member, saying she would provide a strong skill set with her experience on other Boards, strategic planning and business management.

"I also look forward to working closely with the rest of the Board Patty Byrnes, Barrie MacMillan, Paula Doran and Tom Hynes," Mrs Rix said.

Comment sought on firewood collection

National Parks and Wildlife Service (NPWS) is seeking public comment on the Domestic Firewood Collection within River Red Gum Reserves in the Riverina Bioregion – Review of Environmental Factors.

The reserves cover the River Red Gum Eucalyptus camaldulensis forests contained within the Murray Valley National Park and Regional Park and the Murrumbidgee Valley National and Regional Park. Until July 2010, these forests were managed by Forests NSW.

Member for Murray-Darling, John Williams said since the forests were converted to National Parks, the many restrictions introduced caused people dif-

CCTV mooted for golf club

A close circuit television could be installed at Balranald Golf course clubhouse.

Council is considering the action following a number of break-ins at the clubhouse late last year.

This has been strongly supported by the police as the CCTV has a huge deterrent effect and will assist in catching criminals not on the policy system.

"This type of deterrent has been successful with other businesses throughout the community already," Mayor, Cr Alan Purtill said.

Council may also support other businesses to establish CCTV on their buildings.

Euston subdivision

Historic Euston Station is to be further subdivided.

A proposal by the owner, Ian Tyack seeks to create a 1.2 hectare lot in order to expand tourism potential of the site and structures.

In 2007 Council consented to the first development application, subdividing a parcel of land into four lots.

Council unanimously approved the latest development application which has a number of conditions attached.

These include a floor level of 300mm higher than the recorded one in 100 year flood level for each of the new dwellings.

The height is to be confirmed by a registered surveyor prior to occupation.

ficulties collecting firewood.

"It is extremely important that people who collect firewood from the River Red Gum Reserves submit comments, their concerns and issues so they can be included in the review," Mr Williams said.

A copy of Domestic Firewood Collection within River Red Gum Reserves in the Riverina Bioregion – Review of Environmental Factors can be at the River Red Gums website www.riverredgums.nsw.gov.au/management/firewood or by contacting 1300 361 967.

Submissions close on February 17 and can be sent to the Project Officer – Firewood NPWS, PO Box 1049 Griffith 2680.

Gas hopes more than a pipedream

A teleconference between Hay Shire Council General Manager, Chris Littlemore and GHD consultative engineers has the potential for terrific growth for the region.

GHD is looking at establishing a natural gas pipeline between Mildura and Echuca and contacted Council to determine which businesses could use such as service.

Councillors enthusiastically received the news when Mr Littlemore tabled his report at the December Council meeting.

Euston not RV friendly - yet

Euston has failed in its bid to become an RV Friendly destination.

Council has been told that Euston does not qualify as a destination, but Direction Tourism and Economic Development, Robyn Ryan suggested the matter be further investigated.

"There are guidelines that could be met," Ms Ryan said.

Skate park area ear marked

Council has ear marked an area for the long-awaited skate park to be located and quotes for its construction were received late last year.

Balranald Inc has placed a submission for funding with Community Partnerships.

ATLAS-CAMPASPE MINERAL SANDS PROJECT ABORIGINAL CULTURAL HERITAGE ASSESSMENT

BEMAX Resources Limited is proposing to develop the Atlas-Campaspe Mineral Sands Project (the Project), near Balranald, western NSW. The proposal includes development of a mineral sands mine and related surface infrastructure and rail loading facility near the township of Ivanhoe within the areas shown as the "Areas of Interest". BEMAX Resources Limited plans to seek approval for the Project under the *Environmental Planning and Assessment Act 1979* (NSW). As part of the approval process, BEMAX Resources Limited will be preparing an Aboriginal Cultural Heritage Assessment.

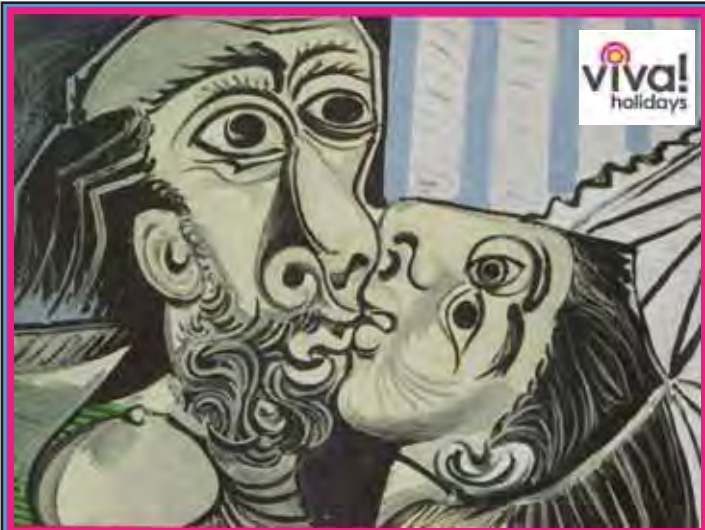
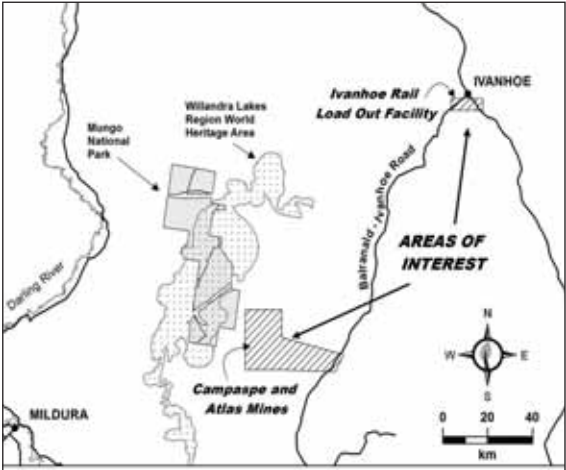
In accordance with the Office of Environment and Heritage's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010), BEMAX Resources Limited is seeking to consult with any Aboriginal persons or groups who may hold cultural knowledge of, or who have a right or interest in Aboriginal objects, places and/or Aboriginal cultural heritage in the "Areas of Interest". The consultation will help determine the cultural significance of Aboriginal objects and/or places relevant to the "Areas of Interest", and will be used to by the applicant to prepare applications for approval. BEMAX Resources Limited is requesting registrations of interest in the consultation process for the Project from Aboriginal persons or groups who hold cultural knowledge relevant to the "Areas of Interest".

Please register your interest in writing to the contact details provided below by February 8, 2012.

Jamie Reeves, Niche Environment and Heritage, PO Box 231, Concord NSW 2137
Telephone: 0488 224 888, Fax: 02 4017 0071, Email: jreeves@niche-eh.com

Please be advised that, as per the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*,

BEMAX Resources Limited is required to forward the names of Aboriginal persons and groups who register an interest to the Office of Environment and Heritage, the Balranald Local Aboriginal Land Council and the Ivanhoe Local Aboriginal Land Council, unless you advise that you do not want particular details released.



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Our Ref (A739086)

3 February 2012

Jamie Reeves
Niche Environment and heritage
PO Box 231
Concord NSW 2137

Dear Jamie

**Re: Atlas-Campaspe Mineral Sands project
Aboriginal Cultural Heritage Assessment**

Thank you for your letter dated 30 January 2012 requesting assistance in identifying Aboriginal groups, stakeholders or traditional knowledge holders interested in the management of Aboriginal cultural heritage matters in the "areas of interest" outlined in the map provided.

The Lower Murray Darling Catchment Management Authority (LMD CMA) acknowledges that CMAs have been listed in *Section 4.1.2 (g) of the Aboriginal Cultural Heritage Consultation Requirements for proponents 2010*, under *Part 6, National Parks and Wildlife Act 1974* as a source of information to obtain the "names of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places".

It is recommended by the LMD CMA that you contact the following Aboriginal Community groups in regard to cultural heritage matters within the project area.

**Balranald Local Aboriginal Land Council located at
200 Church St, Balranald
PO Box 187 Balranald NSW 2715**

**Dareton Local Aboriginal Land Council located at
51 Sturt Place, Dareton
PO Box 7 Dareton NSW 2717**

**Menindee Local Aboriginal Land Council located at
Yartla St, Menindee
PO Box 47 Menindee NSW 2879**

**Far West Regional Land Council located at
Far West Zone Aboriginal Land Council
Level 3 State Government Building
32 Sulphide St
Broken Hill NSW 2880**

Please note the LMD CMA takes no responsibility for the groups listed as being the only persons or groups who may have a cultural heritage interest in your project area and further investigation may be necessary within your consultation process. The Office of Environment and Heritage would be a good point of contact.

Sincerely,



Lesley Palmer
General Manager

LP/RO/ro

Jamie Reeves

From: Kelly Mick <Mick.Kelly@environment.nsw.gov.au>
Sent: Monday, 30 January 2012 10:51 AM
To: Jamie Reeves
Cc: Clarke Lawrence; Sullivan Phillip; John Shipp; peterharriswc@bigpond.com
Subject: Ngiyampaa cultural intreset

Hi Jamie

I have just seen the public flyer in the Mildura paper (Sunraysia Daily). I am putting in my interest in the cultural heritage component of your assessment for this area as this area lies wholly within the Ngiyampaa aboriginal country. You may have had claims from other groups such as the Barkintji group and Mutthi Mutthi who don't come from this area but are willing to claim it as their country? We the Ngiyampaa people extend from the Nareen Lakes near Brewarrina down along the Darling River using the Tallywalka creek as our cultural boundary to Menindee then inland to the Willandra lakes system to around 20k from the Murray River across to the north of Balranald. Following the Murrumbidgee upto the Lachlan river then upto Hillston taking in Booligal as our bottom boundary. From here as mentioned we go to Hillston then upto Mount Hope and across to Nyngan returning back to the Nareen lakes.

I know there are people from the communities who claim this country as there own but do not know their country or stories that live within them. As an Aboriginal man who learnt our tribal Lore and ways through my elders I am now standing up for my ancestors who have belonged to this country not others who moved into the area and had children their and now claim it as there own.

We the Ngiyampaa people would like to be included in these discussions on country to work with you to help you sort through cultural issues that could arise in your assessment.

Thanks

Michael (Mick) Kelly

Heritage Information Officer | Country, Culture and Heritage Division

Office of Environment & Heritage | Parks & Wildlife Group Office

Cnr sturt Hwy & Melaleuca st | PO Box 318 Buronga, NSW 2739

Phone (03) 50218918 | Fax (03) 50222037 Email: <mailto:mick.kelly@environment.nsw.gov.au>



Office of
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**Mothers Ancestral Guardians
Indigenous Corporation
M.A.G.I.C**

Magic has Ngiyampaa people registered within its membership.

This is a response to the desktop assessment of recorded Aboriginal sites and the methodology for the Atlas-Campaspe Mineral Sands Project.

- Site searches of the Aboriginal Heritage Information Management System AHIMS. The issue with the site searches on the AHIMS database is that there are Gaps' in the information on country due to lack of recording in specific areas across the state. Also the searches could give an all clear to a specific area once again due to the lack of site recordings. Just because the AHIMS database gives a specific result of sites within an area it doesn't mean that there are no other sites within the area as the initial recording of sites within an area is only a snippet of information of that country. Most sites were recorded in the earlier days when the Archaeologist were sampling sites to try and get an understanding of site types and locations. But they missed the bigger picture such as the Association & Connection between sites and places to understand what makes a cultural landscape. A cultural landscape joins all of the site features together to build a bigger picture of the landscape such as occupancy, use, recourses, and connections. The occupancy and use will give a quick snapshot of the areas landscape but when you include recourses and connections this then opens up the landscape to a much bigger picture of country.

The bigger picture includes Vegetation types, Soil types, Landform Units & Water that all make up a cultural landscape to sustain life for both Humans and Animals.

Once you join the site types to land forms and closest proximity water you then get a quick idea of how people lived within a specific area. For instance a site featuring multiple types such as Hearth, Shell, Artefact, Non Human Bone materials such as fish bone and or bird bone indicates what kinds of recourses were available at the time of occupation within the area. If you have a Hearth this indicates a stable recourse such as trees to create the hearth (Fire) then if you look at the Shell and bone material contained within the Hearth this is your indicator of water recourses within this landscape as water sustains life as for the Artefacts their material types will also give an insight to where they come from and how they may have been used also some materials such as Quartz may have been traded into the area and either coming into the landscape by canoe or overland and traded in times of Ceremony events. So after just looking at a site containing these site types you can start to build the bigger picture

Atlas-Campaspe Mineral Sands Project – Archaeological Assessment Mythology
Aboriginal Stakeholder Consultation.

- Materials from site recordings should remain within the landscape and not transferred out of country for scientific purposes and should be kept in a designated keeping place on country to protect their integrity and cultural values. The reason this is mentioned is that there are huge collections of materials held within universities and museums within Australia that have been studied and recorded for many years what the peoples miss out on with carrying out this process in a uni other than on country is the spiritual connection to country in our beliefs as aboriginal people is that all of our tools and materials retain the spiritual connections to our ancestors through being able to sit down on country to look at our sites & feel the connection of our ancestors by putting your self in their space of occupancy on country. By sitting, looking and feeling the connections you get an appreciation of what our people done to survive within their environment and what kept them in harmony with their landscape. (A Cultural Landscape)
[Michael \(Mick\) Kelly's view of cultural connection to country](#)
- Stakeholders for this country should have their recognition and rights to speak for country highlighted in their group so that BEMAX recourses limited have an understanding of who has the right to speak for Country on Country and to represent the peoples from this country. This should be put in place to eliminate confusion between the traditional owners and others who say they have the right to speak for country those who have only geographical location ties such as groups who settled into the area and are not traditional owners through spiritual connection and kinships. Only those who have been through our traditional LORE will understand this relationship and connection to country as for those who haven't been through our LORE only say they are connected to country with no real substance to back up their claims.
- Archaeological significance assessment of information collected by way of research and survey all of our sites are significant to our people as they hold the connection to country and tell the stories for country. Our sites such as artefact scatters and quarries are a teaching tool to show how the materials were graded and used to make items such as blades and wood working tools. If our old people didn't want us to see this material they would have either hidden it or destroyed it to protect its methods of production (Copy Right) so this is why they left it there for us understand the processes of tool making. This also applies to other site types within the landscape. These are just a couple of reasons why our sites are significant to our people and have cultural Values. The value of an individual site is not measured on a monetary sense but a cultural sense you may have heard the Question (Well how much is an Aboriginal site worth?) Answer? How much is your life worth? as our people lived and died to protect our knowledge and customs this extends to the knowledge hidden within these sites so this is why there should never be a monetary value imposed on Aboriginal sites only to protect and preserve them.

Michael (Mick) Kelly
A Ngiyampaa Person
Representing Ngiyampaa People
Email: mothers.guardians@gmail.com
Mobile: 0428-246243

Description – NG6084/98 Pooncarie Barkandji (Paakantyi) People 8 (NC97/32)
External Boundary

Area of Application (geographic extent) = 128,497.33 sq km

Schedule B – Description of External Boundary

Commencing at a point located on the New South Wales–South Australian border at Latitude 30.971331° South; then easterly along the northern boundary of Lot 3769 on Plan 766182 to the north west corner of Boco Parish, then generally easterly along the northern boundaries of Boco, Patterson, Sturt, and Fowlers Gap parishes; then generally north easterly along the northern and western boundaries of Giles, Boorla and Mulcahee parishes to the southern boundary of Coyurunda Parish; then westerly along the southern boundary of that parish to the south western most corner of the eastern severance of Lot 3548 on Plan 765900; then generally north easterly along the western boundary of that eastern severance to Latitude 30.696799° South; then generally north easterly through Points 1 to 151 of Attachment B2 to the northern boundary of Lot 247-3015 (Herbert Parish) at Longitude 142.853272° East; then generally easterly along the northern boundary of that Lot, the northern boundary of the southern severance of Lot 194 (Herbert Parish), the northern boundary of the south eastern severance of Lot 3567 on Plan 765919, the northern boundary of the southern severance of Lot 1068 on Plan 762293, the northern boundary of the southern severance of Lot 1069 on Plan 762294, the northern boundary of Lot 246 (Indi Parish), again the northern boundary of the southern severance of Lot 1069 on Plan 762294, the northern boundary of Lot 3509 on Plan 765801, the northern boundary of Lot 234 (Willara Parish), again the northern boundary of Lot 3509 on Plan 765801, the northern boundary of the southern severance of Lot 4013 on Plan 766486, the northern boundary of the southern severance of Lot 2040 on Plan 763949, the northern boundary of the southern severance of Lot 235 (Urisino Parish), the northern boundary of Lot 420-3015 (Urisino Parish), again the northern boundary of the southern severance of Lot 235 (Urisino Parish), again the northern boundary of the southern severance of Lot 2040 on Plan 763949, the northern boundary of the southern severance of Lot 4787 on Plan 765867 and the northern boundary of the southern severance of Lot 4999 on Plan 765868 to the south western most corner of the eastern severance of Lot 3 on Plan 756380; then generally north easterly along the western boundary of that severance to the boundary of the northern severance of Lot 4999 on Plan 765868; then easterly, generally north easterly and north westerly along the eastern boundaries of that severance to Latitude 29.709190° South; then generally easterly, generally north easterly and generally south westerly along the southern boundaries of a road reserve through the town of Wanaaring as described by Points 152 to 226 of Attachment B2; then south easterly to the north western corner of a western severance of Lot 6713 on Plan 822039 at Latitude 29.704816° South; then south easterly along the north eastern boundary of that severance to its south eastern corner and then southerly to the southern severance of

ATTACHMENT B
2 of 4

that Lot at Longitude 144.175107° East; then generally south easterly along the northern boundary of that severance, the northern boundary of the south western severance of Lot 6594 on Plan 769383, the northern boundary of Lot 404 (Paroo Parish), the northern boundary of the southern severance of Lot 134 (Paroo Parish), the northern boundary of the south eastern severance of Lot 6594 on Plan 769383 to the eastern boundary of the Paroo Parish; then generally southerly along the eastern boundaries of Paroo, Tantawanga, Coorallie and Nummo parishes to the south eastern corner of Lot 4544 on Plan 767650; then westerly along the southern boundaries of that Lot to the north western corner of Lot 1285 on Plan 762890, then southerly along the western boundaries of that Lot to the north west corner of Lot 2307 on Plan 764543; then easterly along the northern boundaries of that Lot to south eastern boundary of Biparo Parish; then south westerly along that parish boundary to the north eastern boundary of Binpooker Parish; then generally south easterly along the north eastern boundaries of Binpooker, Yamaranie, Tutty, Far West, Arabi and Tilpa parishes to Latitude 30.893778° South; then generally north easterly and generally south easterly along the south eastern boundaries of the southern severance of Lot 4859 on Plan 769151 being also the north eastern bank of the Darling River to Latitude 30.869155° South; then south easterly to the northern most corner of Lot 4548 on Plan 767654; then south easterly along the north eastern boundaries of that Lot to the northern most corner of Weelongbar Parish; then generally south easterly and generally south westerly along the northern and eastern boundaries of Weelongbar, Gidgiegahumba, Thourumble, Rankin, Lawrence and Deniehy parishes to Latitude 31.430849° South; then south westerly through Longitude 144.803328 ° East, Latitude 31.578405° South to the northern boundary of the southern severance of Lot 847 on Plan 761945; then generally westerly along the northern boundaries of that severance, the northern boundaries of the southern severance of Lot 848 on Plan 761957, the northern boundaries of the south easternmost and south westernmost severances of Lot 844 on Plan 761944, the northern boundaries of the southern severance of Lot 170 (Donald Plain Parish), again the northern boundaries of the south westernmost severance of Lot 844 on Plan 761944, the northern boundaries of the southern severance of Lot 2391 on Plan 764354, the northern boundaries of the southern severance of Lot 2390 on Plan 764353, the northern boundaries of the southern severance of Lot 626 on Plan 761124, the northern boundaries of the southern severance of Lot 626 on Plan 761123 and the northern and western boundaries of the southern severance of Lot 2389 on Plan 764352 to the northern most corner of Salisbury Parish; then south easterly, south westerly and again south easterly along the north eastern boundaries of that parish, the south eastern boundaries of Salisbury, Coonavittira and Moama parishes and the north eastern boundary of Mollara Parish to the easternmost corner of Lot 1979 on Plan 763987; then generally south westerly and north westerly along the south eastern and south western boundaries of that Lot to the northernmost corner of Lot 774 on Plan 762102; then south westerly, south easterly and north easterly along the north western, south western and south eastern boundaries of that Lot to the north eastern boundary of Hann Parish; then generally south easterly along the north eastern boundaries of Hann, Baden Park and Bambilla parishes to Longitude 144.366406° East; then

Environment and Heritage Information System (EHIS) File: NSD6084/98 - Description - 0000031.doc

ATTACHMENT B
3 of 4

generally south westerly through Points 227 to 231 of Attachment B2 to Longitude 144.152863° East on the northern boundary of Whitminbah Parish; then generally westerly, generally southerly and generally easterly along the boundaries of that parish to Longitude 144.122752° East; then south westerly through Longitude 143.899861° East, Latitude 33.306038° South to the western boundary of Goondoola Parish at Latitude 33.303001° South; then generally northerly along the western boundaries of Goondoola and Gunnamby parishes to the south eastern corner of Billibah Parish; then generally westerly along the southern boundaries of that parish and southerly along the eastern boundary of Laura Parish to the north eastern boundary of Lot 3210 on Plan 765415; then south easterly, generally south westerly and westerly along the boundaries of that Lot to the north eastern corner of the eastern severance of Lot 5872 on Plan 768764; then southerly down the eastern boundaries of that severance and the eastern boundaries of the eastern severances of Lot 178 on Plan 760771 to the northern boundary of Willandra Parish; then generally south easterly, westerly and southerly along the northern, eastern and southern boundaries of Willandra, Mandellman and Gol Gol parishes to the easternmost corner of Lot 4427 on Plan 767322; then southerly and westerly along the eastern and southern boundaries of that Lot to the easternmost south east corner of Lot 4425 on Plan 767320; then westerly along the southern boundaries of that Lot to the eastern most south east corner of Lot 4192 on Plan 766759; then westerly and southerly along the boundaries of that Lot to the southern boundary of Tankie Parish; then westerly and northerly along the southern boundaries of that parish to Latitude 33.641708° South; then south westerly to the southern boundary of Burkett Parish at Longitude 143.178407° East; then westerly along the southern boundaries of Burkett and Mong parishes to the south western corner of Mong Parish; then generally southerly along the western boundaries of Lot 1050 on Plan 762245 and Lot 1031 on Plan 762246 to the north eastern corner of Arumpo Parish; then generally southerly along the western boundaries of Arumpo and Bunchie parishes to the northern boundary of Lot 1033 on Plan 762259, then easterly, generally southerly and westerly along the external boundaries of that Lot to the south eastern corner of Lot 3530 on Plan 765823; then westerly along the southern boundaries of that Lot to a corner at Longitude 142.823807° East; then westerly to the western boundary of Mindelwul Parish at Latitude 33.923432° South; then generally southerly along the eastern most boundaries of Mindelwul, Ulong, Thirrang, Garnet, and Laurie parishes to the south eastern corner of Laurie Parish; then southerly along an eastern boundary of Gulthul Parish to the north eastern corner of Lot 3396 on Plan 765684; then southerly and westerly along the eastern and southern boundaries of that Lot to Longitude 142.769085° East, then south easterly to a north eastern corner of Lot 3 on Plan 756115; then south easterly and south westerly along the boundary of that Lot to the northern most corner of Lot 5 on Plan 756115; then south easterly, south westerly and again south easterly along the eastern boundaries of that Lot, the north western boundaries of Lot 4403 on Plan 767298 and the northern and western boundaries of Lot 4259 on Plan 766866 to the southern boundary of Raining Parish; then westerly along the southern boundaries of that Parish, southerly along the eastern boundaries of Bengallow Parish and generally

C:\Documents and Settings\John B. Gaudin\My Documents\NSD6084\NC97\32_Description_20060628.doc

ATTACHMENT B
4 of 4

south westerly along the eastern boundaries of Matalong Parish to the northern corner of the northern severance of Lot 5208 on Plan 760457; then generally south westerly and generally westerly along the north western boundaries of that Lot, the southern boundary of Lot 192 on Plan 760808 and the northern boundary of Lot 7 on Plan 756098 to that Lot's north western corner, then westerly to the northern bank of the Murray River at Latitude 34.593103° South; then generally north westerly along the northern banks of the Murray River (transecting across the mouths of tributaries entering this river and including any lands between the Victoria and New South Wales border and this northern bank) to the New South Wales-South Australian border; then northerly along the New South Wales-South Australian border back to the commencement point.

Geographic coordinates are in decimal degrees and referenced to Australian Geodetic Datum 1966 (AGD66). These coordinates are based on the position of spatial reference data as sourced from Land Information Centre, Department of Information Technology and Management, NSW.

Native Title Claimant Application
Geographic Description - NC97/32
External boundary

Coordinates: Geographic (Decimal Degrees)
Projection: Australian Geodetic Datum 1966 (AGD66)

Point	Easting	Northing
1	141.907434	30.696811
2	141.933288	30.696785
3	141.954170	30.697684
4	141.965010	30.699861
5	141.975801	30.702878
6	141.980828	30.705635
7	141.806484	30.707587
8	141.891270	30.711195
9	142.001719	30.720150
10	142.006548	30.722808
11	142.014455	30.724095
12	142.044492	30.721853
13	142.048274	30.721228
14	142.051142	30.710331
15	142.048737	30.700061
16	142.052115	30.693355
17	142.062593	30.684437
18	142.074913	30.678149
19	142.081873	30.678440
20	142.094702	30.680579
21	142.107628	30.681219
22	142.121836	30.676706
23	142.140184	30.669010
24	142.145328	30.668621
25	142.158536	30.682062
26	142.165543	30.661501
27	142.182443	30.662197
28	142.220174	30.664584
29	142.233267	30.661726
30	142.278444	30.655899
31	142.284584	30.652744
32	142.297034	30.643886
33	142.306257	30.639152
34	142.322253	30.638882
35	142.341506	30.632054
36	142.354361	30.633418
37	142.386033	30.638965
38	142.373037	30.638411
39	142.392104	30.635762
40	142.398340	30.630904
41	142.417272	30.612081
42	142.423460	30.608070
43	142.430461	30.607494
44	142.438513	30.606029
45	142.454443	30.605878
46	142.459412	30.606071
47	142.473770	30.598122
48	142.477897	30.598894
49	142.461897	30.595035
50	142.492916	30.593760
51	142.497157	30.588819
52	142.495815	30.580253
53	142.496327	30.565670
54	142.499885	30.555748
55	142.503219	30.549072
56	142.521252	30.527649
57	142.524496	30.522670
58	142.528725	30.517767
59	142.531931	30.513598
60	142.555125	30.492566
61	142.570456	30.480194
62	142.584099	30.465253
63	142.589583	30.456253
64	142.589932	30.449462
65	142.596067	30.428728
66	142.602800	30.411673
67	142.606209	30.403296
68	142.608859	30.390562
69	142.609016	30.387241
70	142.625826	30.369183
71	142.633457	30.355841
72	142.636871	30.350834

Generated from data sourced from
Land Information Centre, Dept of Information Technology and Management

Prepared by:
Geospatial Analysis and Mapping Branch
Native Title Unit
03/05/2006

05/19/2006

TO 923700835

FROM 17-SEP-2004 12:44

000034

73	142.649225	30.338572
74	142.658529	30.331266
75	142.673904	30.321633
76	142.680867	30.319345
77	142.686091	30.316133
78	142.695219	30.312220
79	142.707191	30.310962
80	142.717351	30.306235
81	142.719925	30.294423
82	142.720756	30.291844
83	142.723446	30.283497
84	142.724122	30.269914
85	142.722311	30.266446
86	142.720626	30.260430
87	142.725768	30.256362
88	142.726989	30.252160
89	142.740574	30.238203
90	142.743754	30.234067
91	142.747144	30.225687
92	142.746005	30.208637
93	142.754593	30.195345
94	142.756253	30.181798
95	142.755683	30.173274
96	142.761466	30.156477
97	142.767901	30.146508
98	142.786357	30.133576
99	142.804046	30.116381
100	142.807260	30.111375
101	142.817559	30.103244
102	142.834472	30.094901
103	142.836833	30.093736
104	142.836674	30.092687
105	142.839639	30.092994
106	142.846839	30.089070
107	142.860880	30.087797
108	142.865903	30.086276
109	142.871832	30.086488
110	142.876855	30.084967
111	142.886738	30.085320
112	142.891720	30.084647
113	142.902590	30.085033
114	142.907653	30.082882
115	142.913562	30.082872
116	142.921892	30.074662
117	142.930281	30.064755
118	142.932659	30.056336
119	142.932901	30.051243
120	142.934090	30.047033
121	142.935067	30.026417
122	142.935136	30.024962
123	142.936324	30.020753
124	142.936927	30.008020
125	142.943574	29.992849
126	142.944923	29.985344
127	142.943389	29.975937
128	142.941616	29.971623
129	142.939096	29.962182
130	142.935064	29.922078
131	142.936870	29.883382
132	142.932342	29.875220
133	142.927572	29.871651
134	142.916023	29.865291
135	142.901386	29.861370
136	142.890754	29.858740
137	142.885867	29.853189
138	142.882288	29.847836
139	142.878534	29.843588
140	142.878051	29.833331
141	142.876283	29.828016
142	142.874878	29.821307
143	142.869458	29.808667
144	142.869702	29.801574
145	142.867835	29.797260
146	142.867659	29.785550
147	142.866413	29.787653
148	142.857665	29.784584
149	142.857909	29.758452
150	142.854420	29.750915
151	142.853144	29.735516

Generated from data courtesy from:
Lead Information Centre, Dept of Information Technology and Management.

Prepared by:
Geospatial Analysis and Mapping Branch
Madeline Macle
03/06/2006

P. 28/30

92370895 10

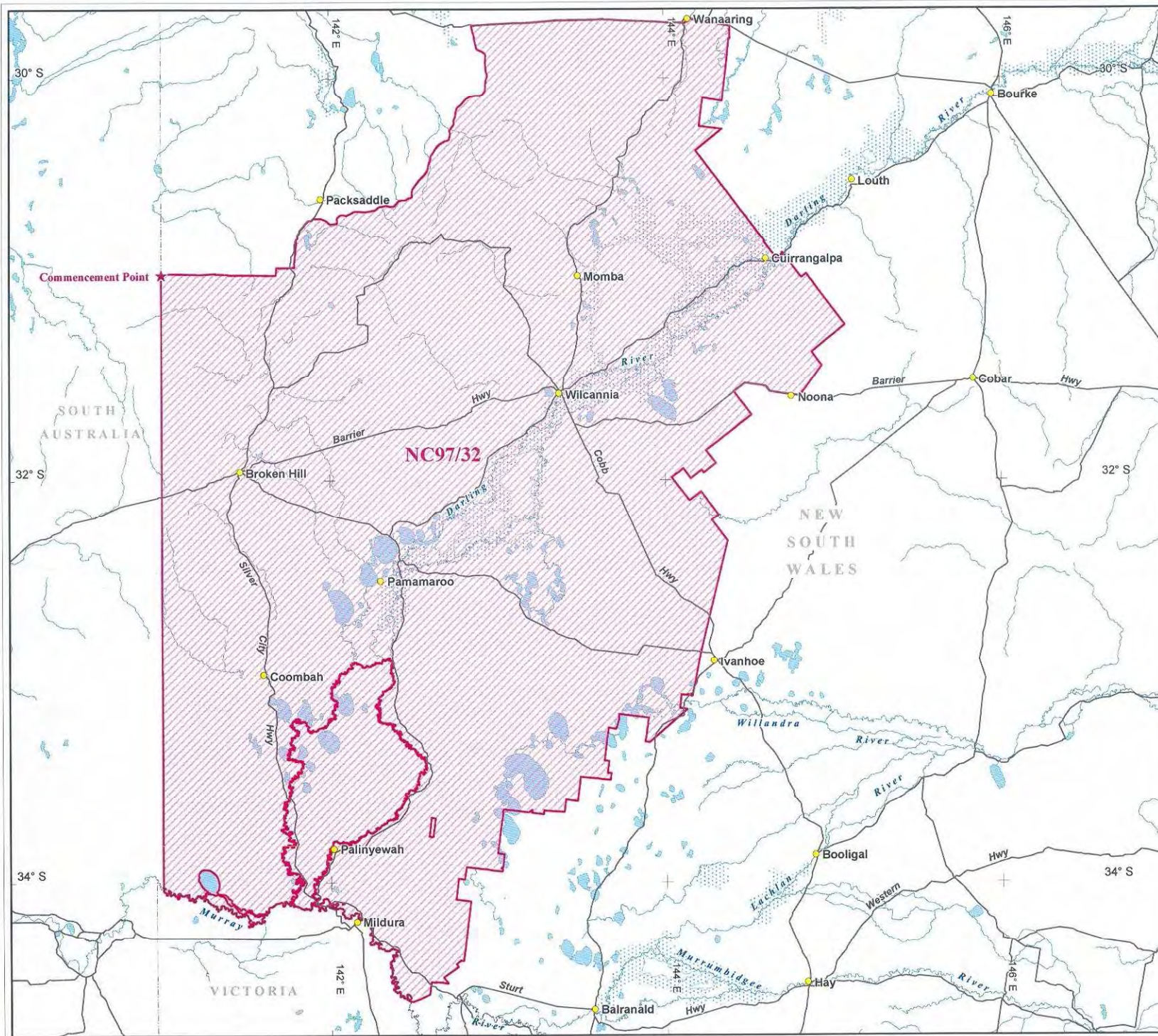
17-SEP-2004 12:45 FROM

000035

227	144.588358	32.302861
228	144.705585	32.256964


000036

228	144.164426	33.028655
230	144.162768	33.031543
231	144.161358	33.041720



**NATIVE TITLE
DETERMINATION APPLICATION**

**NC97/32 - NG6084/98
Pooncarie Barkandji (Paakantyi)
People 8**

 Area of Application (geographic extent)
= 128,497.33 sq km

NOTE: To determine areas subject to claim within the external boundary, reference to the application description is necessary.

Map created by: Geospatial Analysis & Mapping Branch,
National Native Title Tribunal (03/05/2004)

Application boundary data compiled by NNTT from data
sourced from DITM (NSW), PALM (ACT) and Environment
Australia (ACT).

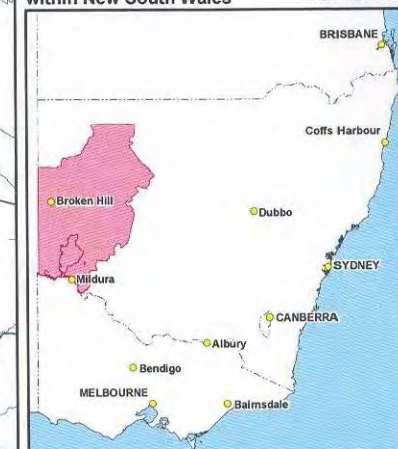
Topographic vector data is © Commonwealth of Australia
(Geoscience Australia) 2003

**NSD6084/98 (NC97/32)
Map of External Boundary
Attachment Schedule C of the Application
Page 1 of 1, A4, 29/09/2004**

The Registrar, the National Native Title Tribunal and its
staff and officers and the Commonwealth, accept no
liability and or give no undertakings, guarantees or
warranties concerning the accuracy, completeness or
fitness for purpose of the map.



**Location of NC97/32
within New South Wales**





National
Native Title
Tribunal



9 February 2012

Jamie Reeves
Niche Environment & Heritage
PO Box 231
Concord NSW 2137

**South-East & Central Registry
Sydney Office**

Level 25, 25 Bligh Street
Sydney NSW 2000
GPO Box 9973
Sydney NSW 2000
Telephone (02) 9227 4000
Facsimile (02) 9227 4030

Our Reference: 4719/12kl

Your Reference: -

Dear Mr Reeves

**Native Title Search Results of Ivanhoe within Central Darling Local Government Area &
Balranald within Balranald Shire Council Local Government Area**

Thank you for your search request of 30 January 2012 in relation to the above area.

Search Results

The results provided are based on the information you supplied and are derived from a search of the following Tribunal databases:

Register Type	NNTT Reference Numbers
Schedule of Applications (unregistered claimant applications)	Nil.
Register of Native Title Claims	NC97/32
National Native Title Register	Nil.
Register of Indigenous Land Use Agreements	Nil.
Notified Indigenous Land Use Agreements	Nil.

I have included a register extract, map attachment and a NNTT Registers fact sheet to help you understand the search result.

Please note that there may be a delay between a native title determination application being lodged in the Federal Court and its transfer to the Tribunal. As a result, some native title determination applications recently filed in the Federal Court may not appear on the Tribunal's databases.

The search results are based on analysis against external boundaries of applications only. Native title applications commonly contain exclusions clauses which remove areas from within the

external boundary. To determine whether the areas described are in fact subject to claim, you need to refer to "Area covered by claim" section of the relevant Register Extract or Application Summary and any maps attached.

Search results are the existence of native title

Please note that the enclosed information from the Register of Native Title Claims and/or the Schedule of Applications is **not** confirmation of the existence of native title in this area. This cannot be confirmed until the Federal Court makes a determination that native title does or does not exist in relation to the area. Such determinations are registered on the National Native Title Register.

Tribunal accepts no liability for reliance placed on enclosed information

The enclosed information has been provided in good faith. Use of this information is at your sole risk. The National Native Title Tribunal makes no representative, either express or implied, as to the accuracy or suitability of the information enclosed for any particular purpose and accepts no liability for use of the information or reliance placed on it.

If you have any further queries, please contact me on 1800 640 501.

Yours sincerely



Nakari Thorpe
Senior Case Management Assistant

Telephone (02) 9227 4004

Facsimile (02) 9227 4030

Email Nakari.thorpe@nntt.gov.au

Encl



NATIONAL NATIVE TITLE TRIBUNAL

Application Information and Extract from the Register of Native Title Claims

Application Information

Application numbers: Federal Court number: NSD6084/98
NNTT number: NC97/32

Application name: Barkandji Traditional Owners #8

Registration history: Registered from 08/10/1997 to 23/12/2004.
Registered from 03/11/2006.

Register Extract (pursuant to s.186 of the *Native Title Act 1993*)

Application lodged with: National Native Title Tribunal

Date application lodged: 08/10/1997

Date claim entered on Register: 03/11/2006

Applicants: Murray Butcher, Derek Hardman, Jennifer Whyman, William Bates,
Maureen O'Donnell, Mary-Ann Marton, Cyril Hunter

Address for service: Principal Legal Officer
NTSCORP Limited
PO Box 2105
STRAWBERRY HILLS NSW 2012
Phone: (02) 9310 3188
Fax: (02) 9310 4177

Additional Information:

Not Applicable

Area covered by the claim:

1. Any areas of land and waters within, either current or former Applications for Determination of Native Title numbered NC97/13 (NG6065/98); NC97/14 (NG6066/98); NC97/18 (NG6070/98); NC97/22 (NG6074/98); NC97/23 (NG6075/98) and NC97/30 (NG6082/98);
2. All land and waters within the Application for Determination of Native Title numbered NC95/10 (NG6018/98)

3. Any areas of land and waters covered by the past or present freehold title or by previous valid exclusive possession acts as defined by section 23B of the Native Title Act 1993. That is, the area covered by the application excludes:

- (a) a Scheduled interest;
- (b) a freehold estate
- (c) a commercial lease that is neither an agricultural lease nor a pastoral lease;
- (d) an exclusive agricultural lease or an exclusive pastoral lease;
- (e) a residential lease;
- (f) a community purpose lease;
- (g) any lease that confers a right of exclusive possession over particular land and waters

4. Subject to paragraphs 6 and 7, the area covered by the application excludes any land or waters covered by the valid construction or establishment of any public work, where the construction or establishment of the public work commenced on or before 23 December 1996.

5. Subject to paragraphs 6 and 7, exclusive possession is not claimed over areas which are subject to valid previous non-exclusive possession acts done by the Commonwealth or State.

6. Subject to paragraph 9 below, where the act specified in paragraphs 3, 4 and 5 falls within the provisions of:

- (a) s.23B(9) - Exclusion of acts benefiting Aboriginal Peoples or Torres Strait Islanders;
- (b) s.23B (9A) - Establishment of a national park or state park;
- (c) s.23B (9B) - Acts where legislation provides for non-extinguishment;
- (d) s.23B (9C) - Exclusion of Crown to Crown grants; and
- (e) s.23B (10) - Exclusion by regulation

the area covered by the act is not excluded from the application.

7. Where an act specified in paragraphs 3, 4 and 5 affects land or waters referred to in:

- (a) s.47 - Pastoral leases etc covered by claimant application;
- (b) s.47A - Reserves covered by claimant application;
- (c) s.47B - Vacant Crown Land covered by claimant application

the area covered by the act is not excluded from the application.

8. the area covered by the application excludes land or waters subject to a lease in perpetuity validly granted under the Western Lands Act 1901 (NSW); and

9. the area covered by the application excludes land or waters where the native title rights and interests claimed have otherwise been validly extinguished.

Persons claiming to hold native title:

The Barkandji Traditional Owners are the native title claim group on whose behalf the applicants make this application. It is made up of all the descendents of the following apical ancestors:

Manfred Mary/Mary Johnson

Manfred Tommy

Louisa Brown

Cuthero Jack Brown

Susan/Annie Webster (Old Mrs Webster)

Cuthero Mary

Billy Webster

Cuthero Harry

Alec McLean
Nganya
Louisa
Bessie Wattata
Sarah Cabbage
Harry Mitchell
Daniel McGregor
Outalpa George
Cranzie
Jack Tyler
Will Matjulum Gibson
Kitty McFarlane
Kutyi
Cate Newton (aka Maggie Tyler)
Albert Bates
Judy/May Banks
Thomas Williams
Fanny Williams
Nancy Watts Quimby
Jim Crowe
Topsie Crowe
Alec Bridge
Margaret Payne (Granny Payne)
George Harrison
Kitty Knight
Jacky Knight
Paddy Black
Eva Black
Hero Black
Sam Black
Rosie Black
Rosie Fields
Tall Boy Keegan
Kitty Keegan
Rose Drayton
Polly Draper
Warlo Jemmy (King James)
Queen Polly
Winbar Billy
Tommy Elliot
Charlie Elliot
Granny Quayle

Registered native title rights and interests:

The following Native Title Rights & Interests were entered on the Register on 03/11/2006:

A description of the native title rights and interests claimed in relation to particular land or waters (including any activities in exercise of those rights and interests).

Over areas where a claim to exclusive possession cannot be recognised, the Barkandji Traditional Owners as defined in Schedule A of this application, claim the following non-exclusive rights and interests:

- (a) the right to access the application area
- (b) the right to camp on the application area
- (c) the right to erect shelters on the application area
- (d) the right to move about the application area
- (e) the right to hold meetings on the application area
- (f) the right to hunt on the application area

- (g) the right to fish on the application area
- (h) not established
- (i) not established
- (j) the right to participate in cultural activities on the application area
- (k) the right to maintain and protect places of importance under traditional laws, customs and practices in the application area
- (l) the right to conduct burials on the application area
- (m) not established
- (n) not established
- (o) not established
- (p) the right to teach the physical and spiritual attributes of places and areas of importance on or in the land and waters to members of the native title claim group who fall within the description contained in schedule A.

The native title rights and interests are subject to:

- (a) the valid laws of the State of New South Wales and the Commonwealth of Australia
- (b) the rights (past or present) conferred upon persons pursuant to the laws of the Commonwealth and the laws of the State of New South Wales.

Register attachments:

1. Map of External Boundary , Attachment Schedule C of the Application, 1 page - A4, Attached 29/09/2004.
2. Description of External Boundary of Application Area , Attachment B of the Application, 8 pages - A4 , Attached 28/06/2006.

Note: The Register may, in accordance with s.188 of the Native Title Act 1993, contain confidential information that will not appear on the Extract.



Searching the NNTT Registers in New South Wales

Search service

On request the National Native Title Tribunal will search its public registers for you. A search may assist you in finding out whether any native title applications (claims), determinations or agreements exist over a particular area of land or water.

In New South Wales native title cannot exist on privately owned land including family homes or farms.

What information can a search provide?

A search can confirm whether any applications, agreements or determinations are registered in a local government area. Relevant information, including register extracts and application summaries, will be provided.

In NSW because we cannot search the registers in relation to individual parcels of land we search by local government area.

Most native title applications do not identify each parcel of land claimed. They have an external boundary and then identify the areas not claimed within the boundary by reference to types of land tenure e.g., freehold, agricultural leasehold, public works.

What if the search shows no current applications?

If there is no application covering the local government area this only indicates that at the time of the search either the Federal Court had not received any claims in relation to the local government area or the Tribunal had not yet been notified of any new native title claims.

It does not mean that native title does not exist in the area.

Native title may exist over an area of land or waters whether or not a claim for native title has been made.

Where the information is found

The information you are seeking is held in three registers and on an applications database.

National Native Title Register

The National Native Title Register contains determinations of native title by the High Court, Federal Court and other courts.

Register of Native Title Claims

The Register of Native Title Claims contains applications for native title that have passed a registration test.

Registered claims attract rights, including the right to negotiate about some types of proposed developments.

Register of Indigenous Land Use Agreements

The Register of Indigenous Land Use Agreements contains agreements made with people who hold or assert native title in an area.

The register identifies development activities that have been agreed by the parties.

Application summaries

An application summary contains a description of the location, content and status of a native title claim.

This information may be different to the information on the Register of Native Title Claims, e.g., because an amendment has not yet been tested.

How do you request a search?

A search request form is available on the Tribunal's web site at:
<http://www.nntt.gov.au/registers/search.html>
Mail, fax or email your request to the Tribunal's Sydney registry, identifying the local government area/s you want searched.

Email: SydneySearch@nntt.gov.au

Fax: (02) 9227 4030

Address: GPO Box 9973, Sydney NSW 2001

Phone: (02) 9227 4000

Niche Environment and Heritage
PO Box 231
CONCORD NSW 2137

Att: Jamie Reeves

13th February 2012

Dear Jamie,

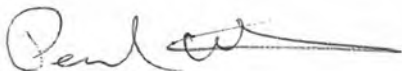
**WRITTEN NOTIFICATION AS REQUIRED UNDER OFFICE OF ENVIRONMENT AND
HERITAGE (OEH) ABORIGINAL CULTURAL HERITAGE REQUIREMENT FOR
PROPONENTS 2010 – For the proposed Atlas-Campaspe Mineral Sand Project Near
Ivanhoe and Balranald NSW**

I refer to your letter dated 30th January 2012 to the Environment Protection Authority (EPA) regarding the above matter.

A list of known Aboriginal parties that EPA feels is likely to have an interest in this development is attached as Attachment 1 (overleaf). Please note this list is not necessarily an exhaustive list of all interested Aboriginal parties and receipt of this list does not remove the requirement of a proponent/consultant to advertise in local print media and contact other bodies seeking interested Aboriginal parties, in accordance with the requirements.

If you wish to discuss any of the above matters further please contact me, at your earliest convenience, on (02) 6883 5361.

Yours sincerely



Paul Houston
Aboriginal Heritage Planning Officer
EPA - North- West Branch

The Department of Environment Climate Change and Water is now known as
The Office of Environment and Heritage.

ATTACHMENT 1

EPA'S LIST OF ABORIGINAL STAKEHOLDER GROUPS WITHIN THE CENTRAL DARLING AND BALRANALD LGA'S - THAT MAY HAVE AN INTEREST IN THE PROJECT; PROVIDED AS PER THE "OEH ABORIGINAL CULTURAL HERITAGE REQUIREMENT FOR PROPONENTS 2010".

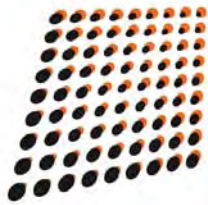
CENTRAL DARLING LGA

Organisation/Affiliation	Name/Title	Address
Badger Bates		107 Gaffney Lane Broken Hill NSW 2880
Barkindji Elders Council	Arthur Kirby	C/- PO Box 87 Euston NSW 2737
IVANHOE LALC	Chairperson	PO Box 116 IVANHOE NSW 2878

BALRANALD LGA

Organisation/Individual Name	Address	Contact Name	Contact Details
Muthi Muthi Nations	C/- Balranald Health Service Sturt Hwy, BALRANALD NSW 2715	Danny Kelly	03 50200330
Willandra Lakes 2 Traditional Tribal Groups Elders Council	C/- Mungo National Parks Joint Management Coordinator (Warren Clarke) PO Box 318, BURONGA NSW 2739	Warren Clarke	03 5021 8900 warren.clarke@environment.nsw.gov.au
Balranald Local Aboriginal Land Council	200 Church St BALRANALD NSW 2715		03 5020 1932
Ali Maher	National Koorie Site Management 3 Cuthbert Drive Mount Warrigal NSW 2528	Ali Maher	0403 738 126 ali.n.maher@hotmail.com
Paul Charles	Kullila Site Consultants 14 Werrang Road Primbee NSW 2502	Paul Charles	0423 795 389 kullilasiteconsultants@hotmail.com

The Department of Environment Climate Change and Water is now known as
The Office of Environment and Heritage.



20 March 2012

Balranald Local Aboriginal Land Council
Wendy Thompson
PO Box 187
Balranald NSW 2715

Dear Wendy,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

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Could you please direct all correspondence and completed questionnaires to Jamie Reeves via the contact details provided below.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ray Roberts', written in a cursive style.

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
QUESTIONBAIRE FOR ENGAGEMENT OF SERVICES**

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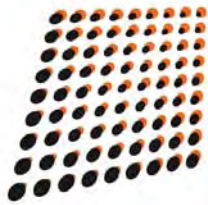
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[illegible]



20 March 2012

Ivanhoe Community Working Party
c/- Aboriginal Affairs NSW
Andrew Rose
PO Box 29
Bourke NSW 2840

Dear Andrew,

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

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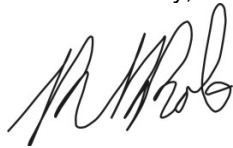
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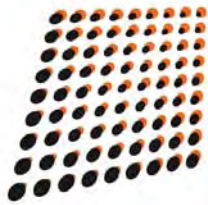
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20 March 2012

Barkindji Elders Council
Arthur Kirby
PO Box 87
Euston NSW 2737

Dear Arthur,

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT
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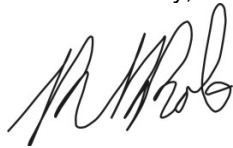
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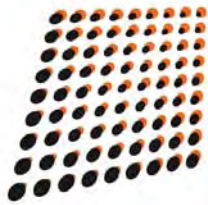
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20 March 2012

Michael Kelly
PO Box 318
Buronga NSW 2739

Dear Michael,

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT
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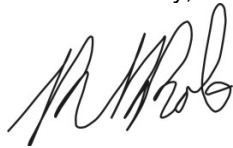
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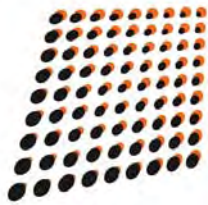
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20 March 2012

National Koorie Site Management
Ali Maher
3 Cuthbert Drive
Mount Warrigal NSW 2528

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Please describe the nature of your cultural connection to the country on which the proposed Atlas-Campaspe Mineral Sands Project is situated. Please include any relevant cultural knowledge or knowledge of Aboriginal objects or places. If you are a Traditional Owner please state this clearly.

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2. Representing other community members

Please state who you or your organisation represents. Do you or your organisation represent other members of the Aboriginal community? If so please describe how information is provided to the other members, and how their information and knowledge may be provided back to Bemax.

[illegible]

3. Previous experience

Please list your relevant (for example, in the area of the proposed Project) previous experience in providing cultural heritage advice and survey participation.

[illegible]

4. Schedule of Rates

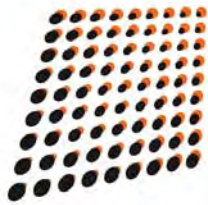
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[illegible]



20 March 2012

Kullila Site Consultants
Paul Charles
14 Werrang Road
Primbee NSW 2739

Dear Paul,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

We have recently presented to you information about the Atlas-Campaspe Mineral Sands Project (the Project) and the cultural heritage assessment methodology for your review. The purpose of the methodology is for you to suggest any protocols you may wish to be adopted into the information gathering process and assessment methodology and to highlight any other matters such as issues or areas of cultural significance that might affect or inform the assessment process.

We are currently planning our cultural heritage and archaeological field surveys of the Project area. Could you please advise us of any areas of cultural significance or sensitivity within the Project area so that we can make appropriate arrangements for dealing with these areas during the surveys. Things you may wish to consider include:

- Whether you know of Aboriginal objects of cultural value to Aboriginal people in the Project area.
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Please note that any cultural information can be provided either in writing or verbally via the contact details provided below.

We are planning to conduct our cultural heritage and archaeological field surveys in April 2012 (commencing 11 April 2012). Attached is a questionnaire for registered Aboriginal parties seeking paid involvement in the field surveys to complete. Aboriginal representatives will be selected by Bemax Resources Limited (Bemax) based on the merits of the responses received. To ensure consideration for paid involvement in the field surveys, please return the completed questionnaire by 30 March 2012.

Please note that representatives from the registered Aboriginal parties involved in the field surveys will be required to be physically fit and provide proof of current insurances (i.e. public liability and workers compensation).

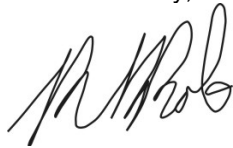
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Subsequent to the field surveys we would like to meet with all registered Aboriginal parties and present the results of the surveys. An inspection of the Project area to inspect any sites or areas of interest identified during the surveys or the consultation process is also proposed with invitations to all registered Aboriginal parties.

Could you please direct all correspondence and completed questionnaires to Jamie Reeves via the contact details provided below.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ray Roberts', with a stylized, cursive script.

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
QUESTIONBAIRE FOR ENGAGEMENT OF SERVICES**

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- *“decision making informed by Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of objects and/or places regarding the conservation and management of Aboriginal objects and/or places*
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The *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010) specify that the Aboriginal people who can provide the information required to assess the potential impacts on Aboriginal cultural heritage, based on Aboriginal lore and custom are *“the traditional owners or custodians of the land that is the subject of the proposed project. Traditional owners or custodians with appropriate cultural heritage knowledge to inform decision making who seek to register their interest as an Aboriginal party are those people who:*

- *continue to maintain a deep respect for their ancestral belief system, traditional lore and custom;*
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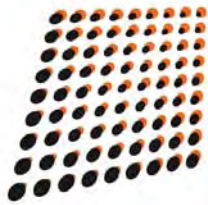
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[illegible]



20 March 2012

Willandra Lakes 2 Traditional Tribal Groups Elders Council
c/- Warren Clarke
PO Box 318
Buronga NSW 2739

Dear Warren,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

We have recently presented to you information about the Atlas-Campaspe Mineral Sands Project (the Project) and the cultural heritage assessment methodology for your review. The purpose of the methodology is for you to suggest any protocols you may wish to be adopted into the information gathering process and assessment methodology and to highlight any other matters such as issues or areas of cultural significance that might affect or inform the assessment process.

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Could you please direct all correspondence and completed questionnaires to Jamie Reeves via the contact details provided below.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ray Roberts', written in a cursive style.

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
QUESTIONBAIRE FOR ENGAGEMENT OF SERVICES**

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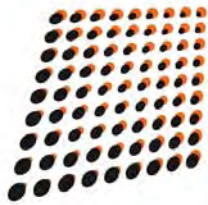
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20 March 2012

Muthi Muthi Nations
Danny Kelly
PO Box 210
Balranald NSW 2715

Dear Danny,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

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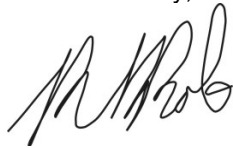
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Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

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RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
QUESTIONBAIRE FOR ENGAGEMENT OF SERVICES**

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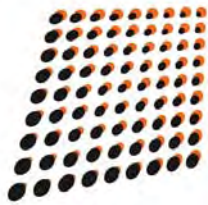
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20 March 2012

Badger Bates
107 Gaffeny Lane
Broken Hill NSW 2737

Dear Badger,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

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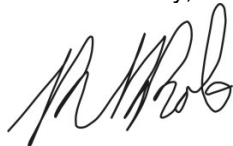
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Yours sincerely,

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Exploration Manager
BEMAX Resources Limited

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT
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[illegible]



9 March 2012

Office of Environment and Heritage
PO Box 733
Queanbeyan NSW 2620

Attention: Mr Dimitri Young

Dear Dimitri,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

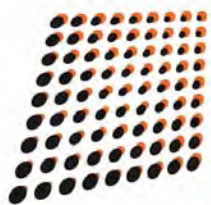
In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) below is a list of groups that have registered an interest in the community consultation process with BEMAX Resources Limited for the Atlas-Campaspe Mineral Sands Project (the Project). Please note that the Atlas-Campaspe Mineral Sands Project has been revised to include a proposed rail facility at Ivanhoe.

- Balranald Local Aboriginal Land Council;
- Badger Bates;
- Barkindji Elders Council;
- Ivanhoe Community Working Party;
- Kullila Site Consultants;
- Muthi Muthi Nations;
- National Koorie Site Management;
- Ngayampaa People; and
- Willandra Lakes 2 Traditional Tribal Elders Council.

In accordance with section 4.1.6 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) the published public notices are provided in Attachment 1.

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



9 March 2012

Office of Environment and Heritage
PO Box 2111
Dubbo NSW 2715

Attention: Phil Purcell

Dear Phil,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



9 March 2012

Balranald Local Aboriginal Land Council
200 Church Street
Balranald NSW 2715

Attention: Wendy Thompson

Dear Wendy,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) below is a list of groups that have registered an interest in the community consultation process with BEMAX Resources Limited for the Atlas-Campaspe Mineral Sands Project (the Project). Please note that the Atlas-Campaspe Mineral Sands Project has been revised to include a proposed rail facility at Ivanhoe.

- Balranald Local Aboriginal Land Council;
- Badger Bates;
- Barkindji Elders Council;
- Ivanhoe Community Working Party;
- Kullila Site Consultants;
- Muthi Muthi Nations;
- National Koorie Site Management;
- Ngayampaa People; and
- Willandra Lakes 2 Traditional Tribal Elders Council.

In accordance with section 4.1.6 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) the published public notices are provided in Attachment 1.

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

ATLAS-CAMPASPE MINERAL SANDS PROJECT
PROPOSED METHODOLOGY
ABORIGINAL CULTURAL HERITAGE ASSESSMENT



February 2012
Project No. BMX-11-25
Document No: 00432277

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1 INTRODUCTION

BEMAX Resources Limited (BEMAX) proposes to develop the Atlas-Campaspe Mineral Sands Project (the Project).

The Project would comprise of two components:

- The Atlas-Campaspe Mine (incorporating the Atlas and Campaspe open pits), located approximately 80 kilometres (km) north of Balranald and 270 km south-west of Broken Hill in New South Wales (NSW) (Figures 1 and 2).
- The Ivanhoe Rail Facility, located approximately 135 km north-east of the Atlas-Campaspe Mine (Figures 1 and 3).

The Atlas-Campaspe Mine is located approximately 10 km to the east of the Willandra Lakes World Heritage Area and approximately 5 km to the east of the Mungo National Park (Figure 1).

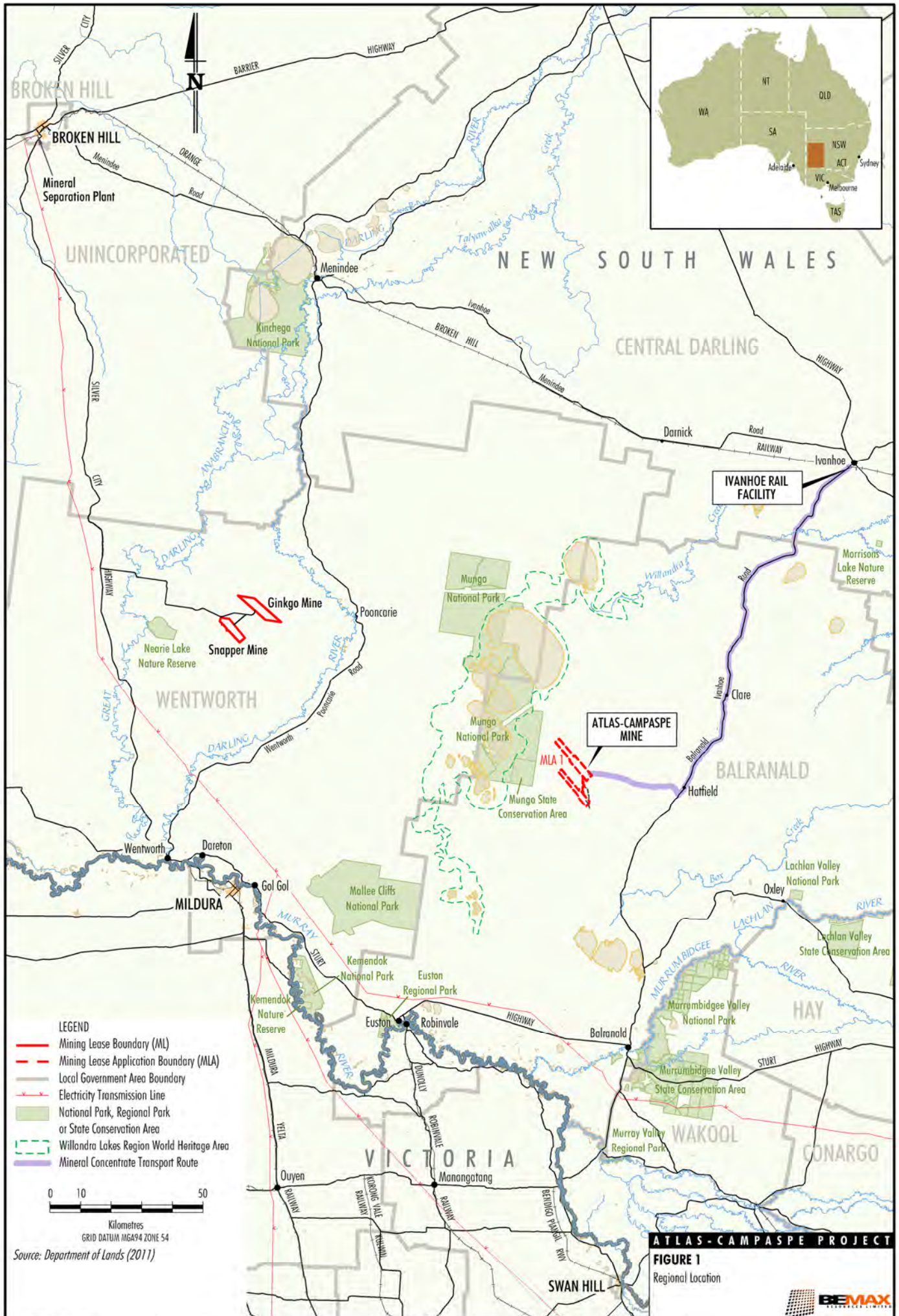
Mungo National Park has some of the earliest evidence of human occupation of Australia (Bowler *et al.*, 1970, 2003; Thorne *et al.*, 1999; Cupper and Duncan, 2006; Olley *et al.*, 2006). This evidence includes stone artefacts, fireplaces, ancestral remains and fossilised footprints (Mulvaney and Kamminga, 1999; Webb *et al.*, 2006). Stone artefacts found have been dated to between 46,000 to 50,000 years ago and the burials of a male and female at Lake Mungo have dated at 40,000 years old (Bowler *et al.*, 2003). The Mungo area contains a relict lake system. The Project is not expected to have an impact on the Aboriginal cultural heritage values of the Willandra Lakes World Heritage Area or Mungo National Park.

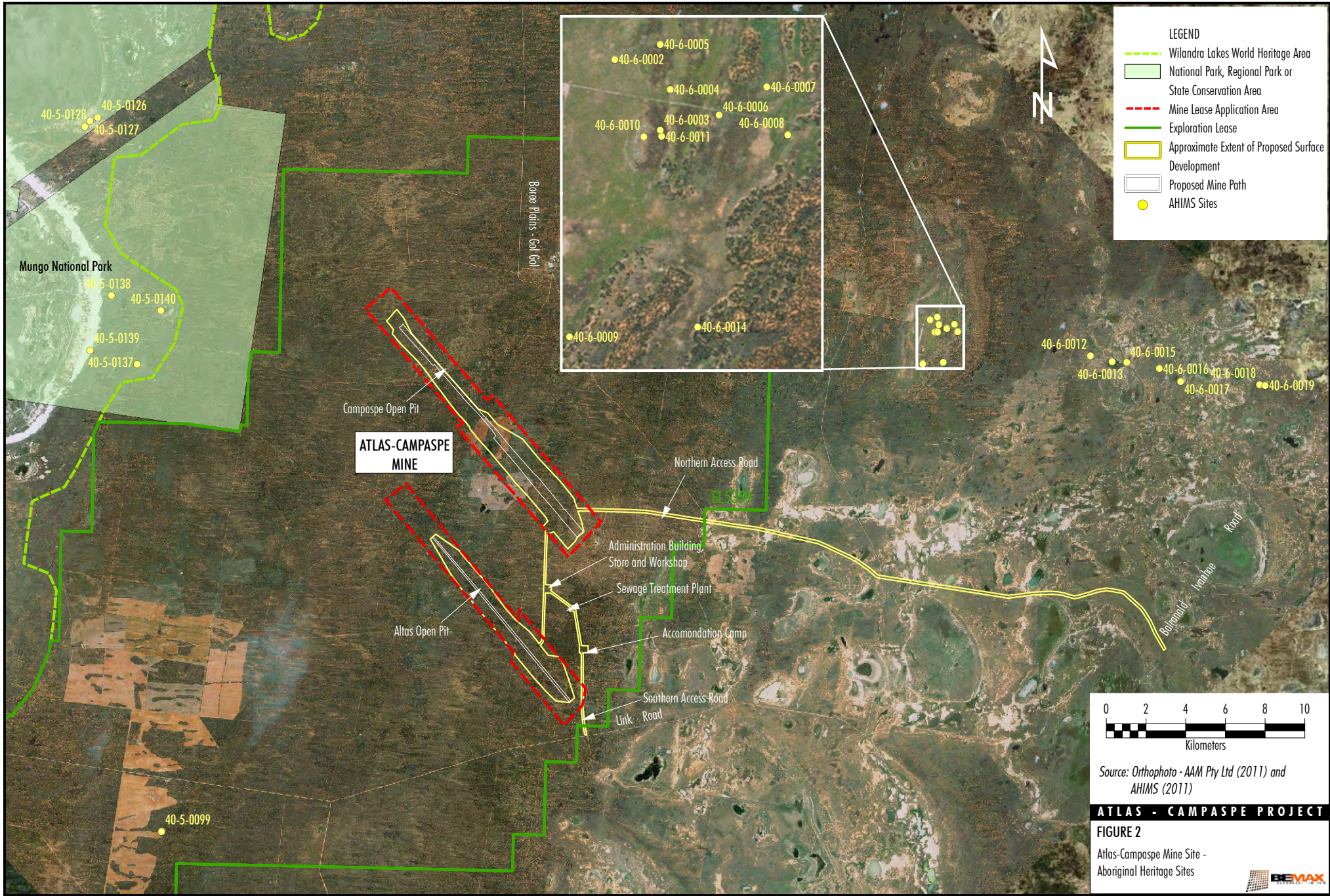
The NSW Office of Environment and Heritage (OEH) (previously the Department of Environment, Climate Change and Water [DECCW]) defines Aboriginal cultural heritage as consisting of places and items that are of significance to Aboriginal people because of their traditions, observances, lore, customs, beliefs and history (DECCW, 2010a). Activities that impact the landscape may affect Aboriginal cultural heritage.

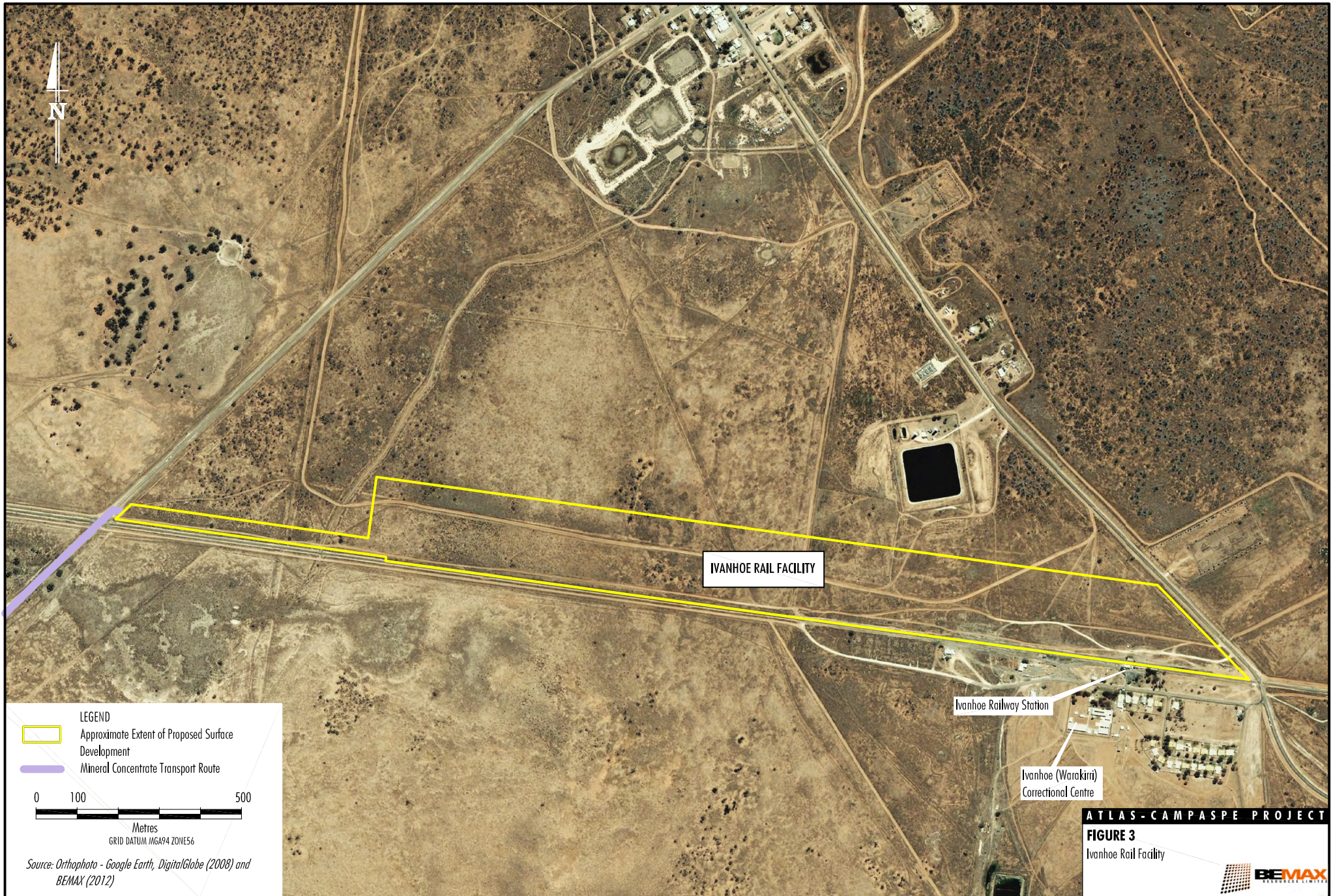
This document presents a Proposed Methodology for the Aboriginal cultural and archaeological assessment of the Project.

This Proposed Methodology has been designed to conform to the relevant requirements of various advisory documents and guidelines. These guidelines and documents include:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (OEH, 2011a).
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Part 6 National Parks and Wildlife Act, 1974)* (DECCW, 2010a).
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b).
- Clause 80C of the *NSW National Parks and Wildlife Regulation, 2009*.
- *Draft Guidelines for Aboriginal Cultural Impact Assessment and Community Consultation* (NSW Department of Environment and Conservation, 2005).
- The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Australia International Council on Monuments and Sites [ICOMOS], 1999).
- *Aboriginal Cultural Heritage Standards and Guidelines Kit* (NSW National Parks and Wildlife Service, 1997).







The remainder of this document is structured as follows:

Section 2:	Provides an overview of the proposed Project.
Section 3:	Outlines the objectives of Aboriginal community consultation.
Section 4:	Provides an overview of previous archaeological investigations undertaken in the vicinity of the Project.
Section 5:	Describes the consultation steps undertaken to date for the Project.
Section 6:	Provides a description of the proposed cultural heritage assessment methodology.
Section 7:	Describes the proposed archaeological assessment methodology.
Section 8:	Provides an overview of the proposed archaeological and cultural heritage surveys.
Section 9:	Provides an overview of the proposed content of the Aboriginal Cultural Heritage Assessment report.
Section 10:	Provides the key Aboriginal community input points in the assessment process.
Section 11:	Provides the critical timelines for the Aboriginal Cultural Heritage Assessment for the Project.
Section 12:	Lists the references cited in this report.

2 PROJECT SUMMARY

The main activities associated with the development of the Project would include:

- clearance of vegetation and stripping soils on a campaign basis ahead of the advancing mine operation;
- overburden stripping and direct placement;
- mining of ore by conventional mobile equipment (i.e. dozers and/or front end loaders);
- stockpiling of heavy metal concentrate;
- supply of water from the borefield;
- stockpiling of mineral concentrates;
- construction and operation of the Ivanhoe Rail Facility;
- transport of mineral concentrates to the Ivanhoe Rail Facility;
- construction of initial sand residue dams;
- construction of initial overburden emplacements;
- construction of an accommodation camp;
- construction of internal and access roads;
- construction of ancillary facilities including a sewage treatment plant, workshops, ablutions and administration facilities; and
- staged replacement of soils and progressive rehabilitation of the mine path behind the advancing mining operation.

All of the activities described above that require surface disturbance would be undertaken within the study areas (labelled as the Approximate Extent of Proposed Surface Development on Figures 2 and 3). It is not known at this early stage in the Project the exact location of all Project components. However, they would all be located within the study areas and the field surveys and investigations to be undertaken as part of the Aboriginal Cultural Heritage Assessment will cover these areas.

3 OBJECTIVE OF COMMUNITY CONSULTATION

The objective of community consultation is for Aboriginal people to have the opportunity to improve assessment outcomes by:

- providing relevant information about the cultural significance and values of the Aboriginal object(s) and/or place(s);
- influencing the design of the method to assess cultural and scientific significance of Aboriginal object(s) and/or place(s);
- actively contributing to the development of cultural heritage management options and recommendations for any Aboriginal object(s) and/or place(s) within the study areas; and
- commenting on the draft assessment report before it is submitted to government.

4 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

A number of Aboriginal heritage assessments have been undertaken in the vicinity of the Project. These include:

- *Campaspe Mineral Sands Project Willandra East EL5359 Preliminary Cultural Heritage Assessment* (Landscape, 2011);
- *Snapper Mineral Sands Project Cultural Heritage Assessment* (Landscape, 2007); and
- *Ginkgo Mineral Sands Project: Archaeological and Aboriginal Heritage Assessment* (Witter Archaeology, 2001).

The Landscape (2011) preliminary cultural heritage assessment took the form of a desktop study of the Atlas-Campaspe Mine area. The Aboriginal Heritage Information Management System (AHIMS), the State Heritage Register of the NSW Heritage Council and the Balranald Shire Council's Local Environmental Plan were searched. No Aboriginal sites have been registered in the proposed Atlas-Campaspe Mine area to date. Using data collected from the register searches, information collected from nearby archaeological studies and a review of topographic and geological maps and aerial photographs, the desktop study formulated a general predictive model for cultural heritage site locations (Landscape, 2011).

The model (Landscape, 2011) predicts that:

- Though occupation would have occurred in both hinterland and the lacustrine environment of the Willandra Lakes, most archaeological sites can be expected adjacent to freshwater sources.
- Stone artefact scatters, hearth sites and isolated finds of stone artefacts or hearthstones have the potential to occur within the study area for the Atlas-Campaspe Mine. The density of these items is predicted to be low given the absence of permanent water sources. Open occupation sites are predicted to be predominately within 500 m of water sources so will most likely occur on level ground adjacent relict lake basins and claypans that may retain surface water following rain. These landforms occur near the midpoint of the Campaspe deposit.
- Stone quarry sites have the potential to occur in the study area for the Atlas Campaspe Mine as silcrete stone sources have been recorded at the Willandra lakes. Silcrete outcrops may occur at topographic low points in the landscape such as dry lakebeds.
- Culturally modified trees or scars made by Aboriginal people have the potential to occur on Black Box trees which may occur around claypains within the sandplains and dunefields of south-western NSW.

- Shell middens may occur in the study area for the Atlas-Campaspe Mine but the probability of encountering this site type is considered low as they are usually found near permanent water sources.
- Source-bordering dunes and luness adjacent rivers and lakes are the landforms most likely to contain human skeleton remains, as such it is predicted that the chance of encountering these in the study area will be low.
- Stone arrangements are considered unlikely to be located in the study area for the Atlas-Campaspe Mine due to their rarity in south-western NSW. Stone arrangements tend to occur on level ground, often on elevated landforms such as floodplain terraces.
- Sites and places associated with spiritual aspects of traditional Aboriginal society such as ceremony and dreaming sites fall outside the framework of this predictive model. Consultation with local Aboriginal communities is essential to identify sites of cultural significance.

A review of known sites of cultural significance in western NSW prepared by Sarah Martin in 1999 did not identify any known sites of significance within the proposed study areas (Martin, 1999). Searches of the AHIMS database were undertaken on 21 October 2011 for a 40 km by 40 km search area centred on the Atlas-Campaspe Mine and on the 18 January 2012 for a 5 km by 5 km search area centred on the Ivanhoe Rail Facility.

Based on the results of the previous investigations and the AHIMS searches, no Aboriginal heritage sites have been identified within the Atlas-Campaspe Mine or Ivanhoe Rail Facility areas. Twenty-six Aboriginal heritage sites have been identified in the area surrounding the Atlas-Campaspe Mine (Table 1 and Figure 2). A copy of the site cards for the Aboriginal heritage sites listed in Table 1 are provided in Attachment 1. No Aboriginal heritage sites were located within the area surrounding the Ivanhoe Rail Facility.

Table 1
Aboriginal Heritage Sites in the Area Surrounding the Atlas-Campaspe Mine

Site Type	AHIMS Site ID ¹
Artefact and Potential Archaeological Deposit (PAD)	40-5-0126
Burial and PAD	40-5-0127
Burial and Hearth	40-5-0140
Hearth and PAD	40-5-0128, 40-5-0138
Hearth	40-5-0137, 40-5-0139, 40-5-0099
Isolated Artefact	40-6-0003, 40-6-0005, 40-6-0006, 40-6-0009, 40-6-0011, 40-6-0019
Artefact Scatter	40-6-0002, 40-6-0004, 40-6-0007, 40-6-0008, 40-6-0010, 40-6-0012, 40-6-0013, 40-6-0014, 40-6-0015, 40-6-0016, 40-6-0017, 40-6-0018

¹ Refer Figure 2.

5 CONSULTATION TO DATE

A summary of the consultation undertaken to date in accordance with the Section 4.1 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a) for the Project is outlined below.

The following organisations were asked for names of Aboriginal persons or groups who may hold cultural knowledge of, or have a right or interest in Aboriginal objects, places and/or Aboriginal cultural heritage values in the study areas or surrounds:

- OEH Queanbeyan Environmental Protection and Regulation Group;
- OEH Dubbo Environmental Protection and Regulation Group;
- Balranald Local Aboriginal Land Council;
- Ivanhoe Local Aboriginal Land Council¹;
- The Registrar, Aboriginal Land Rights Act, 1983;
- The National Native Title Tribunal;
- Native Title Services Corporation Limited (NTSCORP Limited);
- Balranald Shire Council;
- Ivanhoe Shire Council;
- Lower Murray Darling Catchment Management Authority; and
- Lachlan Catchment Management Authority.

BEMAX provided notification of the proposed Project to Aboriginal stakeholders identified by the organisations listed above. These stakeholders were invited to register an interest in the process of community consultation with BEMAX regarding the Aboriginal cultural heritage assessment of the proposed Project.

In addition to the above notifications, notices were placed in the Sunraysia Daily and the Hay Riverine Grazier (9 November 2011 and 25 January 2012) seeking registrations from any additional interested Aboriginal stakeholders.

6 CULTURAL ASSESSMENT METHODOLOGY

The objectives of the consultation process are described in Section 3.

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a), BEMAX requests that registered Aboriginal stakeholders provide, where relevant, at any time throughout the conduct of the Aboriginal Cultural Heritage Assessment, cultural information regarding:

- whether there are any Aboriginal objects of cultural value to Aboriginal people in the study areas or surrounds; and
- whether there are any places of cultural value to Aboriginal people in the study areas or surrounds.

This may include places of social, spiritual and cultural value, historic places with cultural significance, and potential places/areas of historic, social, spiritual and/or cultural significance.

¹ BEMAX has since been advised that the Ivanhoe Local Aboriginal Land Council is no longer in operation.

The cultural assessment and consultation process will involve the following:

- Distribution of this proposed assessment methodology to registered Aboriginal stakeholders.
- Review of the proposed assessment methodology by registered Aboriginal stakeholders who may wish to advise any matters such as issues/areas of cultural significance that might affect, inform or refine the assessment methodology.
- Consultation with registered Aboriginal stakeholders regarding the cultural context and value of Aboriginal objects and/or places that may be in the study areas or surrounds (including appropriate management of any cultural information provided by registered Aboriginal stakeholders that is sensitive or has restricted public access).
- Assessment of the significance of Aboriginal objects and/or places located in the study areas or surrounds based on the context, Aboriginal heritage values and archaeological assessment.
- Consultation with registered Aboriginal stakeholders regarding potential management options to avoid or mitigate harm and/or conserve known Aboriginal objects and/or places.
- Documentation of feedback received as part of the cultural assessment from registered Aboriginal stakeholders for presentation in the final cultural heritage assessment report (subject to the sensitivity of the information provided).

Sensitive Cultural Information - Management Protocol

In the event that a registered Aboriginal party has sensitive or restricted public access information it is proposed that BEMAX would manage this information (if provided by the Aboriginal community) in accordance with a sensitive cultural information management protocol. It is anticipated that the protocol will include making note of and managing the material in accordance with the following key limitations/requirements as advised by Aboriginal people at the time of the information being provided:

- any restrictions on access to the material;
- any restrictions on communication of the material;
- any restrictions on the location/storage of the material;
- any cultural recommendations on handling the material;
- any contextual information;
- any names and contact details of persons authorised within the relevant Aboriginal group to make decisions concerning the Aboriginal material and the degree of authorisation;
- any details of any consent given in accordance with customary law;
- the level of confidentiality to be accorded to the material; and
- any access and use by the registered Aboriginal parties of the cultural information in the material.

7 ARCHAEOLOGICAL ASSESSMENT METHODOLOGY

The archaeological assessment will involve the following:

- A search of the AHIMS database.
- A search of the National Heritage List, Commonwealth Heritage List and register of the National Estate.
- Provision of existing information on Aboriginal heritage within the study areas and surrounds to the registered Aboriginal stakeholders, including copies of site cards for sites in the area surrounding the Project (Attachment 1).
- Literature review of relevant cultural heritage and archaeological reports and publications.
- Survey of the study areas with the assistance of registered Aboriginal stakeholders.
- Archaeological significance assessment based on existing information and additional information collected during the site inspections/survey and consultation with Aboriginal stakeholders.
- Preparation of an Aboriginal Cultural Heritage Assessment report.

Information from previous archaeological investigations in the vicinity of the proposed Project will inform the survey of the study areas and will also be incorporated into the archaeological significance assessment.

8 ARCHAEOLOGICAL AND CULTURAL HERITAGE SURVEY

The archaeological survey is planned for April 2012. Representatives from the Registered Aboriginal Parties will be invited to assist with the surveys.

The surveys will focus on areas of anticipated sensitivity, such as the margins of depressions and pans, and any other areas identified as of concern to the community during consultation. The surveys will be undertaken by conducting traverses on foot of targeted areas. Where appropriate, vehicle traverses of large areas and targeted spot inspections of areas will also be undertaken.

9 ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT

Following consultation on the methodology of the cultural heritage assessment and the undertaking of any required field components, a draft Aboriginal Cultural Heritage Assessment report will be prepared. The draft Aboriginal Cultural Heritage Assessment report will be provided to registered Aboriginal stakeholders for review and feedback and will include:

- details of the objects and places identified within the study areas and an assessment of potential impacts from the Project;
- records of the Aboriginal stakeholder consultation conducted and how any comments received throughout the assessment process were considered; and
- proposed management and mitigation recommendations drawing on information provided by registered Aboriginal stakeholders and the findings of the cultural and archaeological assessments.

10 KEY ABORIGINAL COMMUNITY INPUT POINTS IN THE ASSESSMENT PROCESS

Key input points in the Aboriginal Cultural Heritage Assessment impact assessment process for feedback from the Aboriginal community regarding research methodology, cultural significance and management of potential impacts on heritage sites/values may include:

- written or verbal feedback on the Proposed Methodology;
- verbal feedback and comments during the field survey of the study areas;
- written or verbal feedback following the field survey and prior to the issue of the draft Aboriginal Cultural Heritage Assessment to the registered Aboriginal parties for review; and
- verbal or written feedback on the draft Aboriginal Cultural Heritage Assessment.

In addition to the above, written or verbal feedback can be provided at any stage throughout the consultation process (i.e. until the completion of the draft Aboriginal Cultural Heritage Assessment review period).

In the event that a registered Aboriginal party has sensitive or restricted public access information it is proposed that BEMAX will manage this information in accordance with a sensitive cultural information management protocol outlined in Section 6.

11 CRITICAL TIMELINES

Critical timelines for the Aboriginal Cultural Heritage Assessment of the Project are outlined below. Please note that these timelines are estimates at this early stage in the process and are provided to allow forward planning of personnel and resources. BEMAX will provide subsequent notification and clarification (i.e. actual dates and approach for field work participation) of the below timelines once greater certainty is available.

1. Provision of comments on Proposed Methodology: 28 March 2012.
2. Collation of cultural significance information: ongoing throughout process until end of draft Aboriginal Cultural Heritage report review period.
3. Field survey: April 2012.
4. Provision of a draft Aboriginal Cultural Heritage Assessment report (including proposed management and mitigation measures) to registered Aboriginal stakeholders for review: May 2012 (following field survey).
5. Provision of comments on draft Aboriginal Cultural Heritage Assessment report: May/June 2012.
6. Finalisation of the Aboriginal Cultural Heritage Assessment report in consideration of comments received: June 2012.

12 REFERENCES

- Australia International Council on Monuments and Sites (1999) *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*. Revised edition. Australia ICOMOS, Canberra.
- Bowler, J.M., Johnston, H., Olley, J.M., Prescott, J.R., Roberts, R.G., Shawcross, W. and Spooner, N.A. (2003) *New ages for human occupation and climatic change at Lake Mungo, Australia*. Nature 421, 837-840.
- Bowler, J.M., Jones, R., Allen, H. and Thorne, A.G. (1970) *Pleistocene human remains from Australia: a living site and human cremation from Lake Mungo, western New South Wales*. World Archaeology 2: 39-60.
- Cupper, M. and Duncan, J. (2006) *Last glacial megafaunal death assemblage and early human occupation at Lake Menindee, southeastern Australia*. Quaternary Research 66, 332-341.
- Department of Environment and Conservation (2005) *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*.
- Department of Environment, Climate Change and Water (2010a) *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents 2010*.
- Department of Environment Climate Change and Water (2010b) *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.
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- Office of Environment and Heritage (2012) *AHIMS search for the following area: E: 806032-811032; N: 6351102-6356102*. Date accessed: 18 January 2012.
- Office of Environment and Heritage (2011a) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales*.
- Office of Environment and Heritage (2011b) *AHIMS search for the following area: E: 697000-734000; N: 6232000-6275000*. Date accessed: 21 October 2011.
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- Thorne, A., Grün, R., Mortimer, G., Simpson, J.J., McCulloch, M., Taylor, L. and Curnoe, D. (1999) *Australia's oldest human remains: age of the Lake Mungo Skeleton*. Journal of Human Evolution 36, 591-692.

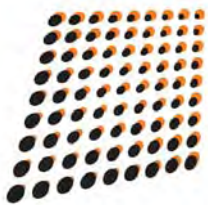
Webb, S., Cupper, M. and Robins, R. (2006) *Pleistocene human footprints from the Willandra Lakes, South-eastern Australia*.

Witter Archaeology (2001) *Ginkgo Mineral Sands Project: Archaeological and Aboriginal Heritage Assessment*.

ATTACHMENT 1

ABORIGINAL HERITAGE SITE CARDS

Refer to Enclosed CD
(Hardcopy available on Request)



24 February 2011

Wendy Thompson
Coordinator
Balranald Local Aboriginal Land Council
PO Box 187
Balranald NSW 2715

Dear Wendy

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

Please find enclosed for your review, a copy of the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Atlas-Campaspe Mineral Sands Project.

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010) issued by the Office of Environment and Heritage (previously the Department of Environment, Climate Change and Water [DECCW]), we provide the Proposed Methodology for your review and feedback. Your feedback may include the identification of issues or areas of cultural significance that may affect, inform or refine the proposed methodology or any protocols that you wish to be adopted into the information gathering process or assessment methodology.

To allow consideration, feedback with respect to the revised Proposed Methodology is required to be provided by the end of Wednesday 28 March 2012.

Could you please direct all correspondence regarding the Proposed Methodology to:

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

Andrew Rose
Ivanhoe Community Working Party
c/- Aboriginal Affairs NSW
PO Box 29
Bourke NSW 2840

Dear Andrew

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

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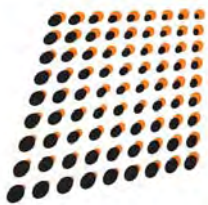
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Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

Badger Bates
107 Gaffney Lane
Broken Hill NSW 2880

Dear Badger

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

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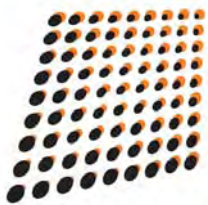
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Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

Arthur Kirby
Barkindji Elders Council
c/- PO Box 87
Bourke NSW 2737

Dear Arthur

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

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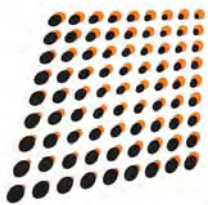
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Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

Ngiyampaa People
Michael Kelly
c/- PO Box 318
Buronga NSW 2739

Dear Michael

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Aboriginal Cultural Heritage Assessment**

Proposed Methodology

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RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

Ali Maher
National Koorie Site Management
3 Cuthbert Drive
Mount Warrigal NSW 2528

Dear Ali

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

Please find enclosed for your review, a copy of the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Atlas-Campaspe Mineral Sands Project.

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010) issued by the Office of Environment and Heritage (previously the Department of Environment, Climate Change and Water [DECCW]), we provide the Proposed Methodology for your review and feedback. Your feedback may include the identification of issues or areas of cultural significance that may affect, inform or refine the proposed methodology or any protocols that you wish to be adopted into the information gathering process or assessment methodology.

To allow consideration, feedback with respect to the revised Proposed Methodology is required to be provided by the end of Wednesday 28 March 2012.

Could you please direct all correspondence regarding the Proposed Methodology to:

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

Paul Charles
Kullila Site Consultants
14 Werrang Road
Primbee NSW 2502

Dear Paul

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

Please find enclosed for your review, a copy of the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Atlas-Campaspe Mineral Sands Project.

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010) issued by the Office of Environment and Heritage (previously the Department of Environment, Climate Change and Water [DECCW]), we provide the Proposed Methodology for your review and feedback. Your feedback may include the identification of issues or areas of cultural significance that may affect, inform or refine the proposed methodology or any protocols that you wish to be adopted into the information gathering process or assessment methodology.

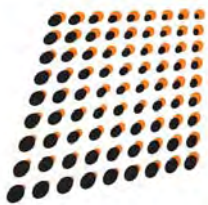
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Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

c/- Warren Clarke
Willandra Lakes 2 Traditional Tribal Elders Council
PO Box 318
Buronga NSW 2502

Dear Warren

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

Please find enclosed for your review, a copy of the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Atlas-Campaspe Mineral Sands Project.

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010) issued by the Office of Environment and Heritage (previously the Department of Environment, Climate Change and Water [DECCW]), we provide the Proposed Methodology for your review and feedback. Your feedback may include the identification of issues or areas of cultural significance that may affect, inform or refine the proposed methodology or any protocols that you wish to be adopted into the information gathering process or assessment methodology.

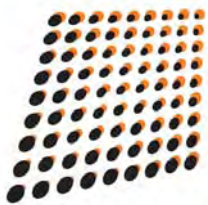
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Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



24 February 2011

Danny Kelly
Muthi Muthi Nations
PO Box 210
Balranald NSW 2715

Dear Danny

**Atlas-Campaspe Mineral Sands Project
Aboriginal Cultural Heritage Assessment**

Proposed Methodology

Please find enclosed for your review, a copy of the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Atlas-Campaspe Mineral Sands Project.

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Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limit



P.O Box 210, Balranald, N.S.W, 2715.
Ph: 03 50 200 330
Fax: 03 50 200 333

To: *Mr. Jamie Reeves*..... Date: *6/5/12*
Company: *Niche*.....

Fax Number: *02-4017 0071*..... Number of pages:

Sender's Name: *Daniel Kelly*..... Phone: *6*.....

Re: *Hadfield Mining operations*.....

Note/Comment:

.....

.....

.....

1. Cultural connection

Please describe the nature of your cultural connection to the country on which the proposed Atlas-Campaspe Mineral Sands Project is situated. Please include any relevant cultural knowledge or knowledge of Aboriginal objects or places. If you are a Traditional Owner please state this clearly.

The Mutthi Mutthi Nation, Yita Yita and Ngyampa people have shared the resources of these tribal lands for many thousands of years. The cultural connection of these people includes middens, scar trees, burial sites and other sacred sites which are integral to each other's culture & heritage and remain as a permanent bond to traditional country. These lands also contain large numbers of red kangaroos which represent the Mutthi Mutthi totem.

2. Representing other community members

Please state who you or your organisation represents. Do you or your organisation represent other members of the Aboriginal community? If so please describe how information is provided to the other members, and how their information and knowledge may be provided back to Bemax.

Bakamald Aboriginal Health Service is a community -
controlled organisation servicing Bakamald and
the Bakamald Shire area. It is a service which
is freely open to all community members. Information
is disseminated via regular newsletters. The centre
is also used for community meetings and workshops
by other services

3. Previous experience

Please list your relevant (for example, in the area of the proposed Project) previous experience in providing cultural heritage advice and survey participation.

For several years I was involved actively with the World Heritage Area and helped establish joint management for Mungo National Park.

I have been involved in the process of keeping original ownership of these areas foremost for decision making on future management, planning and protection of sites.

I am currently serving as a member of the traditional owners' advisory committee of the Murrumbidgee Catchment Management Authority.

4. Schedule of Rates

Please provide your schedule of rates for fieldwork participation, and include any expenses you may expect to incur, and the rate at these will be sought to be reimbursed.

Field workers are to be paid at award rates,

commensurate with individual ages and experience.

Allowances should be made for the following:

- meals

- accommodation - including camping allowance if applicable

- fuel

- remote area allowance

- mileage (wear & tear on vehicle)

at normal NSW State government rates applicable

at the time of employment

5. Insurances

Suitable WorkCover (for employers) and Liability insurances are required in order for Bemax to engage you / your organisation for advisory services. Please list your insurances using insurer name and policy number, and attach certificates of currency.

Insurances and workcover certificates are held by

Mildura Aboriginal Corporation, which is the

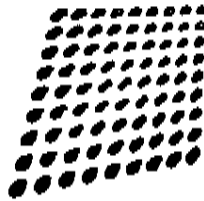
custodian body for Gooland Aboriginal Health

Service.

We are currently awaiting the certificates of currency

from Mildura and they will be forwarded as soon

as possible.



ABN 60 009 247 858
BEMAX
RESOURCES LIMITED
A Cristal Global Company

Mildura
4463 Benetook Ave
Mildura VIC 3501
PO Box 4032
Mildura VIC 3052
TEL: (03) 5025 7575
FAX: (03) 5025 7105
www.bemax.com.au

20 March 2012

National Koorie Site Management
Ali Maher
3 Cuthbert Drive
Mount Warrigal NSW 2528

Dear Ali,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

We have recently presented to you information about the Atlas-Campaspe Mineral Sands Project (the Project) and the cultural heritage assessment methodology for your review. The purpose of the methodology is for you to suggest any protocols you may wish to be adopted into the information gathering process and assessment methodology and to highlight any other matters such as issues or areas of cultural significance that might affect or inform the assessment process.

We are currently planning our cultural heritage and archaeological field surveys of the Project area. Could you please advise us of any areas of cultural significance or sensitivity within the Project area so that we can make appropriate arrangements for dealing with these areas during the surveys. Things you may wish to consider include:

- Whether you know of Aboriginal objects of cultural value to Aboriginal people in the Project area.
- Whether you know of any places of cultural value to Aboriginal people in the Project area. This includes places of social, spiritual and cultural value, historic places with cultural significance, and potential places/areas of historic, social, spiritual and/or cultural significance.

Please note that any cultural information can be provided either in writing or verbally via the contact details provided below.

We are planning to conduct our cultural heritage and archaeological field surveys in April 2012 (commencing 11 April 2012). Attached is a questionnaire for registered Aboriginal parties seeking paid involvement in the field surveys to complete. Aboriginal representatives will be selected by Bemax Resources Limited (Bemax) based on the merits of the responses received. To ensure consideration for paid involvement in the field surveys, please return the completed questionnaire by 30 March 2012.

Please note that representatives from the registered Aboriginal parties involved in the field surveys will be required to be physically fit and provide proof of current insurances (i.e. public liability and workers compensation).

Please note that even if you do not participate in the field surveys, you will still be consulted with in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010).

Subsequent to the field surveys we would like to meet with all registered Aboriginal parties and present the results of the surveys. An inspection of the Project area to inspect any sites or areas of interest identified during the surveys or the consultation process is also proposed with invitations to all registered Aboriginal parties.

Could you please direct all correspondence and completed questionnaires to Jamie Reeves via the contact details provided below.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
QUESTIONNAIRE FOR ENGAGEMENT OF SERVICES**

If you wish to be considered for paid involvement in the cultural heritage and archaeological field surveys for the Atlas-Campaspe Mineral Sands Project please complete the following questionnaire. The information provided in response to the questionnaire will be treated as strictly confidential.

The purpose of this questionnaire is to assist Bemax Resources Limited (Bemax) in selecting the most suitable survey team for the field surveys. In considering the selection criteria presented in the questionnaire Bemax is seeking to select relevant survey participants and knowledge holders in order to help them satisfy the intended outcomes of the consultation conducted in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010), which are:

- *"decision making informed by Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of objects and/or places regarding the conservation and management of Aboriginal objects and/or places"*
- *"the opportunity for effective involvement of Aboriginal people or groups with relevant cultural knowledge in the heritage-impact assessment processes"*

The *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010) specify that the Aboriginal people who can provide the information required to assess the potential impacts on Aboriginal cultural heritage, based on Aboriginal lore and custom are *"the traditional owners or custodians of the land that is the subject of the proposed project. Traditional owners or custodians with appropriate cultural heritage knowledge to inform decision making who seek to register their interest as an Aboriginal party are those people who:*

- *continue to maintain a deep respect for their ancestral belief system, traditional lore and custom;*
- *recognise their responsibilities and obligations to protect and conserve their culture and heritage and care for their traditional lands or Country;*
- *have the trust of their community, knowledge and understanding of their culture, and permission to speak about it."*

It is acknowledged that Aboriginal people who, through a historical presence in a particular area, may have developed cultural knowledge relevant to the Aboriginal objects and/or places based on knowledge passed down to them by Aboriginal people with a traditional connection to Country. In some cases it will only be Aboriginal people with a historical connection to an area who have the knowledge to inform the assessment of cultural significance of certain objects/places.

1. Cultural connection

Please describe the nature of your cultural connection to the country on which the proposed Atlas-Campaspe Mineral Sands Project is situated. Please include any relevant cultural knowledge or knowledge of Aboriginal objects or places. If you are a Traditional Owner please state this clearly.

My Great Grand parents are
buried in Balnarrald and my Grandmother
was born there. The Cemetery
has most of my elders, uncles and
Aunts buried here. Plus I was
born in Swan Hill and still have
a ~~ext~~ close association with the
area.

2. Representing other community members

Please state who you or your organisation represents. Do you or your organisation represent other members of the Aboriginal community? If so please describe how information is provided to the other members, and how their information and knowledge may be provided back to Bemax.

my family connections are the
Kirby, Kelly & Murray clan all
knowledge will be available to Bemax
when needed

3. Previous experience

Please list your relevant (for example, in the area of the proposed Project) previous experience in providing cultural heritage advice and survey participation.

I have been a site officer for over five years, and have set up my own service for the past 2 years. I have worked with Bhp Billiton, Biosis Records, Nairn officer, RTA - Bomaberry to Nowra by-pass. My Great Auntie Ally Kelly ^{did} show my mother and my mother showed me, so area's of Monger's and this has given me knowledge of the area in which proposed Project will be.

4. Schedule of Rates

Please provide your schedule of rates for fieldwork participation, and include any expenses you may expect to incur, and the rate at these will be sought to be reimbursed.

My rates are \$120 ph
and 75¢ mileage.

5. Insurances

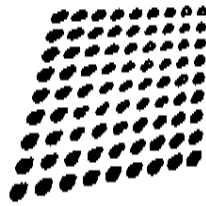
Suitable WorkCover (for employers) and Liability insurances are required in order for Bemax to engage you / your organisation for advisory services. Please list your insurances using insurer name and policy number, and attach certificates of currency.

Q10 Business Insurance

Policy No: G 800234620

National Kosri Site Management

Ali Maher.



ABN 60 009 247 858
BEMAX
RESOURCES LIMITED
A Cristal Global Company

Mildura
4463 Benatook Ave
Mildura VIC 3501
PO Box 4032
Mildura VIC 3052
TEL: (03) 5025 7575
FAX: (03) 5025 7105
www.bemax.com.au

20 March 2012

Kullila Site Consultants
Paul Charles
14 Werrang Road
Primbee NSW 2739

Dear Paul,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
PROPOSED CULTURAL HERITAGE SURVEYS**

We have recently presented to you information about the Atlas-Campaspe Mineral Sands Project (the Project) and the cultural heritage assessment methodology for your review. The purpose of the methodology is for you to suggest any protocols you may wish to be adopted into the information gathering process and assessment methodology and to highlight any other matters such as issues or areas of cultural significance that might affect or inform the assessment process.

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Could you please direct all correspondence and completed questionnaires to Jamie Reeves via the contact details provided below.

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,



RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT
QUESTIONNAIRE FOR ENGAGEMENT OF SERVICES**

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- *continue to maintain a deep respect for their ancestral belief system, traditional lore and custom;*
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1. Cultural connection

Please describe the nature of your cultural connection to the country on which the proposed Atlas-Campaspe Mineral Sands Project is situated. Please include any relevant cultural knowledge or knowledge of Aboriginal objects or places. If you are a Traditional Owner please state this clearly.

My Great Grand Parents are
Buried in Belranold, my nan Theresa
(Kibby) Donacey was born in Belranold
The cemetery is full of my
ancestors, Aunt & Uncle. I, also
was born in Swan Hill, Vic. and
still have many relatives live
Here and I still have a great
association with the Area.

2. Representing other community members

Please state who you or your organisation represents. Do you or your organisation represent other members of the Aboriginal community? If so please describe how information is provided to the other members, and how their information and knowledge may be provided back to Bemax.

My family connection are the
Kirby, Kelly & Murray clan. any
knowledge we have will be available
to Bemax

[illegible]

4. Schedule of Rates

Please provide your schedule of rates for fieldwork participation, and include any expenses you may expect to incur, and the rate at these will be sought to be reimbursed.

My rates are \$120 ph

Milage 75 c kilometre.

5. Insurances

Suitable WorkCover (for employers) and Liability insurances are required in order for Bemax to engage you / your organisation for advisory services. Please list your insurances using insurer name and policy number, and attach certificates of currency.

G10 Business Insurance

Policy Number 9500234612

Kulila Site Consultant

Paul Charles.

Mutthi Mutthi Alice Kelly Descendants
Governing Committee

PO BOX 210
Balranald 2715
NSW
Phone 0350200330
Fax 03 50200333

21-11-2011

Jamie Reeves
Niche Environment and Heritage
PO BOX 231
Concord 2137
NSW
Ref: Atlas-Campaspe Mineral Sands Project

Dear Jamie

I'm writing in response to a letter received on the 7th Nov from Ray Roberts Exploration Manager BEMAX in reference to the surveying of our traditional lands for objects and places of cultural significance to us Mutthi Mutthi people in the area of interest.

On the 12th of November a meeting of the "Mutthi Mutthi Alice Kelly Descendants Governing Committee" was held in Balranald during that meeting the letter was tabled and a motion was moved to instruct me to formally register our interest as direct descendants of the lands BEMAX intend to mine for sands, elect family members to work with BEMAX to identify site of cultural interest and wish to advise that we **DO NOT** want our details released to Balranald Aboriginal Land Council **BUT** welcome details to be forwarded to Office of Environment.

Mr Daniel Kelly is the contact person for our registered interest his role is to co-ordinate the Aboriginal people who have been nominated who have the cultural knowledge to identify such sites and are available when requested.

NAMES of those nominated.

Daniel Kelly (jnr), Maureen Reyland, Patricia Winch, John Thomas Winch (jnr), Douglas Smith, Mary Pappin (jnr), Cheryl Charles, Shannon Kelly, Zowie Kelly, Joseph Blyth and Ryan Bruton.

Mr Daniel Kelly details are

Balranald Aboriginal Health Service

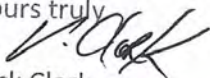
PO BOX 210 Balranald 2715 NSW

EMAIL dkelly@macmildura.org

Phone 0350200330 mobile 0437 527 966 Fax 03 50200333

As the Mutthi Mutthi Nations organisation is no longer in operation could all correspondence be addressed to "Mutthi Alice Kelly Descendants Governing Committee C/O the Balranald Aboriginal Health Service PO 210 Box Balranald NSW 2715.

Yours truly



Vick Clark

Mutthi Mutthi



12 September 2012

Wendy Thompson
Balranald Local Aboriginal Land Council
PO Box 187
Balranald NSW 2715

Attention: Wendy Thompson

Dear Wendy,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) issued by the Office of Environment and Heritage, please find enclosed for your review and comment, a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the Atlas-Campaspe Mineral Sands Project.

If you wish to provide comment on the draft ACHA, you are requested to do so (either in writing or verbally) by 5.00 pm on 11 October 2012. All comments received by that date will be taken into consideration as the ACHA is finalised. The final ACHA will be made available to you after completion.

If you wish to schedule a meeting to discuss the draft ACHA could you please contact Jamie Reeves via the contact details below.

Could you please direct all correspondence to:

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



12 September 2012

Andrew Rose
Ivanhoe Community Working Party c/- Aboriginal Affairs NSW
PO Box 29
Bourke NSW 2840

Attention: Andrew Rose

Dear Andrew,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



12 September 2012

Badger Bates
Badger Bates
107 Gaffney Lane
Broken Hill NSW 2880

Attention: Badger Bates

Dear Badger,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



12 September 2012

Arthur Kirby
Barkindji Elders Council
c/- PO Box 87
Euston NSW 2737

Attention: Arthur Kirby

Dear Arthur,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) issued by the Office of Environment and Heritage, please find enclosed for your review and comment, a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the Atlas-Campaspe Mineral Sands Project.

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Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



BEMAX
RESOURCES LIMITED

ABN 60 009 247 858

A Cristal Global Company

Mildura

4463 Benetook Ave
Mildura VIC 3501
PO Box 4032
Mildura VIC 3052
TEL: (03) 5025 7575
FAX: (03) 5025 7105
www.bemax.com.au

12 September 2012

Michael Kelly
Michael Kelly on behalf of Ngiyampaa People
PO Box 318
Buronga NSW 2739

Attention: Michael Kelly

Dear Michael,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) issued by the Office of Environment and Heritage, please find enclosed for your review and comment, a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the Atlas-Campaspe Mineral Sands Project.

If you wish to provide comment on the draft ACHA, you are requested to do so (either in writing or verbally) by 5.00 pm on 11 October 2012. All comments received by that date will be taken into consideration as the ACHA is finalised. The final ACHA will be made available to you after completion.

If you wish to schedule a meeting to discuss the draft ACHA could you please contact Jamie Reeves via the contact details below.

Could you please direct all correspondence to:

Jamie Reeves
Niche Environment and Heritage
PO Box 231
Concord NSW 2137
Telephone: 0488 224 888
Fax: 02 4017 0071
Email: jreeves@niche-eh.com

Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources

Limited





12 September 2012

Ali Maher
National Koorie Site Management
3 Cuthbert Drive
Mount Warrigal NSW 2528

Attention: Ali Maher

Dear Ali,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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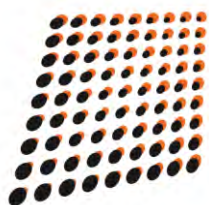
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Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



12 September 2012

Paul Charles
Kullila Site Consultants
14 Werrang Road
Primbee NSW 2502

Attention: Paul Charles

Dear Paul,

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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Exploration Manager
BEMAX Resources Limited



BEMAX
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ABN 60 009 247 858

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Mildura VIC 3501
PO Box 4032
Mildura VIC 3052
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FAX: (03) 5025 7105
www.bemax.com.au

12 September 2012

c/- Warren Clarke
Willandra Lakes 2 Traditional Tribal Groups Elders Council
PO Box 318
Buronga NSW 2739

Attention: Warren Clarke

Dear Warren,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited



12 September 2012

Danny Kelly
Muthi Muthi Nations
PO Box 210
Balranald NSW 2715

Attention: Danny Kelly

Dear Danny,

**ATLAS-CAMPASPE MINERAL SANDS PROJECT
ABORIGINAL CULTURAL HERITAGE ASSESSMENT**

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Yours sincerely,

RAY ROBERTS
Exploration Manager
BEMAX Resources Limited

Ivanhoe Community Working Party Agenda
Wednesday 10th October 2012 at 10am
BER Ivanhoe Central School

* Welcome to Country/ Minutes silence

* Apologies

* Minutes of Previous meeting

* General Business (Presentations/ Discussion)

- David Arthur Human Resources Manager Bemax Resources; Jamie Reeves, Niche Environment & Heritage
- Mayor Ray Longfellow/ Leanne Ryan, A/General Manager, CDS
- Zoe Dobson, Remote Communities facilitator Maari Ma Health

* Other Business Arising

- NAIDOC 2011/12 funding
- Community Services funding (\$1,000) for developing a project in Ivanhoe
- Western CMA Reference Advisory Group nomination

LUNCH

* Next meeting: To be advised

Meeting re: DRAFT ACHA

Date: 10 October 2012

Place: Ivanhoe Central School

AGENDA

1. Introductions

Meeting attendees

2. Purpose and Goals

To seek feedback on the DRAFT ACHA, particularly cultural values and comments on proposed management

3. DRAFT ACHA and the Assessment Process – Jamie Reeves

Description of the assessment process, the assessment and its findings and the management options/approaches taken and proposed

4. Identification of Aboriginal Cultural Heritage Values

A discussion of the Aboriginal cultural heritage values of the Project area and surrounds, and whether additional information can be added to the draft ACHA

5. Recording of comments

Comments specifically regarding the ACHA to be minuted, and agreed upon for inclusion in the final ACHA

BEMAX – ATLAS-CAMPASPE PROJECT

Meeting re: DRAFT ACHA

Date: 10 October 2012

Place: Ivanhoe Central School

MEETING NOTES – JAMIE REEVES

BACKGROUND (SEE IVANHOE COMMUNITY WORKING PARTY AGENDA ABOVE)

Kaye Hickey-Reynolds, Tim Chase and David Arthur from Bemax attended the Ivanhoe Community Working Party regular meeting and presented the proposed project, and answered questions about the project.

Jamie Reeves from Niche Environment and Heritage attended the meeting and presented results of the ACHA and discussed / answered questions about the ACHA.

After Lunch Jamie Reeves discussed the ACHA recommendations in more detail with the group

ATTENDANCE

Fay Johnson, Joan Slade, Velma Clarke, James Kennedy (Ivanhoe Community Working Party)
Zoe Dobson (Remote communities facilitator Maari Ma Health)
Andrew Rose (Community Program Officer Aboriginal Affairs – Western Region (Bourke)
Leanne Ryan A/General Manager, Ray Longfellow – Mayor (Central Darling Shire Council)
Kaye Hickey-Reynolds, Tim Chase and David Arthur (Bemax)
Jamie Reeves (Niche Environment and Heritage)

NOTES

Recommendations are supported

Details for management plan:

- artefacts to stay in town, possibly at the library
- stakeholders to consider using artefacts for education – teaching kit/interpretation
- community to have input into the cultural awareness program

It was noted that although not in the project area, Carowra Tank Reserve was an important site to the Ivanhoe Community:

- Andrew Rose to provide Jamie Reeves with a short report and information about the Carowra Tank Reserve
- Jamie Reeves to include the Carowra Tank Reserve history in the ACHA report

Meeting re: DRAFT ACHA

Date: 11 October 2012

Place: NPWS Buronga

AGENDA

1. Introductions

Meeting attendees

2. Purpose and Goals

To seek feedback on the DRAFT ACHA, particularly cultural values and comments on proposed management

3. Project Information and Background – Lucas Burns

Presentation of background information about the Project and EIS status

4. DRAFT ACHA and the Assessment Process – Jamie Reeves

Description of the assessment process, the assessment and its findings and the management options/approaches taken and proposed

5. Identification of Aboriginal Cultural Heritage Values

A discussion of the Aboriginal cultural heritage values of the Project area and surrounds, and whether additional information can be added to the draft ACHA

6. Recording of comments

Comments specifically regarding the ACHA to be minuted, and agreed upon for inclusion in the final ACHA

BEMAX – ATLAS-CAMPASPE PROJECT

Meeting re: DRAFT ACHA

Date: 11 October 2012

Place: NPWS Buronga

JAMIE REEVES - MEETING NOTES

ATTENDANCE:

Michael Kelly (Ngiyampaa People), Leanne Mitchell (OEH), Richard Mintern (OEH – Willandra Lakes Region WHA, and representing Willandra Lakes 2 Traditional Tribal Groups Elders Council), Lucas Burns (Resource Strategies), Jamie Reeves (Niche)

NOTES:

Michael Kelly – noted preference for any collected artefacts to be stored and put back at the end of the mine life

Richard Mintern:

- noted that there was a broad stakeholder interest group in World Heritage Area
- interest in cultural heritage material that may have links/implications for World Heritage Area
- concerns over visual impact and lighting (noting that these issues are addressed in other specialist appendices of the EIS)
- noted that if no groups had identified links between the Project area and the values of the Willandra Lakes Region WHA, that was all that could be said in the report

Michael Kelly:

- a keeping place at the black box swamp (sites Atlas 2 – 5) near Campaspe mine
- could be a fenced and grided area within which the artefacts are kept
- possibility of propagating the Mossgiel Daisy?
- interested in possibilities for indigenous occupation with fencing contracts and similar
- paid cultural monitors should be employed during campaign clearances

Richard Mintern:

the types of World Heritage Area associations would be stories, or (archaeological) evidence for exchange – eg. silcrete

Richard Mintern:

Suggested a day trip to the site would be beneficial (this was supported by Michael Kelly)