1 December 2011

Mr Garry Ryman
Director Planning & Environmental Services
Cobar Shire Council
P.O. Box 223
Cobar NSW 2835

Dear Garry,

I refer to your letter dated 28 November regarding Application To Modify Development Consent 2010/LD-00074.REV1.

In response to the issues raised I provide the following information.

1. NSW Department of Primary Industries – Crown Land Division

Water pipeline between the mine site and the "Wirlong" (WLL 6239) property

Silver Corporation of Australia Pty Ltd ("SCA") has been liaising with Crown Lands re the necessity or not of a Crown Lands licence over this section of the pipeline. Today (1st December), Crown Lands advised that SCA does not need to apply for a Crown Lands licence given that the Western Lands Lease and the Mining Licence are ultimately owned by the same company (Cobar Consolidated Resources Limited). That is also the name of the company which was granted Development Consent. Accordingly, this is no longer a matter required to be addressed by SCA. Please contact Donna Basham or Shaun Barker if you would like verification of this statement.

The sourcing of water for the mine project from ground water sources on the "Wirlong" property

At the beginning of September a Crown Lands Licence application was lodged in respect of the sourcing of water for the mine project from a ground water source on the "Wirlong" property and its transport via a pipeline, to SCA's ML 1659. SCA now understands that the Crown Lands Department has been waiting for both a copy of the registered lessee's consent to the application and a map outlining the specifics of the pipeline route and the location of the borefield prior to being able to process the application. SCA undertakes to provide Crown Lands with the requisite consent and a map prior to the end of December 2011.

The winning of gravel from the identified mining area for road construction

The amount of gravel proposed to be used for road construction is inconsequential in terms of the total amount of material available for rehabilitation of the mine-site. (93,000m3 out of a total amount of waste rock of 7,500,000m3 over the first three years of the project = 1.24%). Indeed, it can be replaced with other material available without any detriment to SCA's ability to rehabilitate the mine-site as outlined in the EIS.

2. Transport NSW

Not applicable

3. NSW Office of Water

Whilst SCA is not required to respond to the matters raised in the NSW Office of Water's report, we note that in NOW's response they make reference to the need for SCA to obtain Controlled Activity Approvals for the causeways included in the shire road upgrade project.

On 28th November SCA contacted Tim Baker at the NSW Office of Water to explain that the only reason the causeways were mentioned was because SCA included the wording of the actual consent condition verbatim for information. In fact, the issue SCA was seeking to remedy was the "timing" of the project, not the project itself.

Tim suggested that SCA could eliminate NOW's concern if SCA could get a letter from Cobar Shire Council clarifying that: The Manuka Road Upgrade project was a development consent condition requested by the Cobar Shire Council. The project will be carried out on an existing Crown land easement on an existing Shire Road by the Cobar Shire Council at Cobar Consolidated Resources expense, as agreed. He also suggested that it needed to be clarified that Cobar Shire Council, as a delegated authority, is not assessing the impacts of the road upgrade project per the reasons stated. It seems clear that if the Shire undertakes the project that a number of studies e.g. Environmental Assessments, Cultural Heritage, etc. are deemed unnecessary. SCA requested such a letter from Stephen Taylor, on 28 November.

4. Trade and Investment

Approximately 93,000m3 of material for road construction is proposed to be removed from inside the permitted outline of the South Central Pit. The amount of gravel proposed to be used for road construction is inconsequential in terms of the total amount of material available for rehabilitation of the mine-site. (93,000m3 out of a total amount of waste rock of 7,500,000m3 over the first three years of the project = 1.24%). Indeed, it can be replaced with other material available without any detriment to SCA's ability to rehabilitate the mine-site as outlined in the EIS.

The topsoil in this area is anticipated to be used in the rehabilitation of the mine site and will be selectively removed, stockpiled and used for this purpose as per the EIS. The deeper material may have been used in the rehabilitation of the mine site (eg for backfilling of the pits). The fact that some of this material may go to the waste dump and some of the material may be used for road building is inconsequential in terms of the total amount of material available for rehabilitation. (93,000m3 out of a total amount of waste rock of 7,500,000m3 over the first three years of the project = 1.24%). Indeed, it can be replaced with other material available without any detriment to SCA's ability to rehabilitate the mine-site as outlined in the EIS.

The material is being extracted under the authority of ML 1659. It is overburden.

Silver Corporation of Australia Pty Ltd |ABN 84 147 443 249
A wholly-owned subsidiary of Cobar Consolidated Resources Limited | ABN 67 118 684 576
Level 4, 448 St Kilda Road, Melbourne VIC 3004 | PO Box 7693, St Kilda Road VIC 8004
Ph 61 3 9869 8200 | Fax 61 3 9869 8299
www.ccrlimited.com.au

5. Office of Environment and Heritage

No new quarry is proposed. Rather, approximately 93,000m3 of material is proposed to be removed from inside the southern end of the permitted outline of the South Central Pit (as detailed in the EIS). A map depicting the location of the area of the South Central Pit from which the material will be extracted is attached.

Accordingly, there will be no change to infrastructure, erosion and sediment control measures, proposed measures to protect threatened species and Aboriginal Cultural Heritage issues, from those already outlined in the EIS.

6. Cobar Shire Council – Engineering Staff

Once the pit is deepened to expose the suitable material, the material will either be tested on access roads within the site or sent to a testing facility to provide grading and a CBR. The testing of the material will be under heavily trafficked roads within the site and may include stabilising to improve the durability properties. Should the material prove not to be suitable, it will not be used for road re-construction. Rather, sources external to the site will be utilised.

Garry, we would appreciate you processing this information as a matter of urgency in order that you can prepare your report for the Western Regional Joint Planning Panel. Please do not hesitate to contact me if you require any further information.

Yours sincerely,

Stephanie Reeves
Legal Counsel
Cobar Consolidated Resources Limited

APPLICATION FOR MODIFICATION OF CONSENT

Section 96 EPA Act / Clause 115 EPA Regulation 2000

TO:	Cobar Shire Council 36 Linsley Street PO Box 223 **COBAR NSW 2835**	**OFFICE USE ONLY:**	
From:	Cobar Consolidated Resources Limited	DA Mod Fee:	
		CC Mod Fee:	
		Receipt Number:	
		Date:	

Application is made for a Section 96 EPA Act / Clause 115 EPA Regulation 2000, in relation to the whole of the building identified below.

Name/s of Applicant/s: Please refer to the attached documents

Postal Address: _____

Suburb/Town: _____

Postcode: _____

Contact Details: _____

Description of Consent

DA Number.: _____ Date of Consent: _____

C.C Number: _____ Date of Certificate: _____

Description of Approved Development: _____

Land: _____ Lot: _____ DP: _____ House No: _____

Street Name: _____

Suburb/Town: _____

Postcode: _____

Particulars

Details of Proposed Modification: _____

Reasons Why Council Should Modify The Consent

Attachments

I. 2 x sets of modified development plans: yes no

II. 2 x sets of modified construction plans: yes n/a no

Applicants Signature _____ Date: 27/10/11

Owners consent required if the owner is not the applicant

Wonawinta Silver Project

Application for modification of development consent pursuant to section 96(2) of the Environmental Planning and Assessment Act 1979

(Clauses referenced below are those contained in clause 115 of the Environmental Planning and Assessment Regulation 2000 which outline application requirements)

115(1)(a) the name and address of the applicant

Cobar Consolidated Resources Ltd
P.O. Box 7693
St Kilda Road
Victoria 8004

Ph 03 9866 8613

115(1)(b) a description of the development to be carried out under the consent

Development Consent 2010/LD-00074 approved the Wonawinta Silver Project.

The proposed development as described in the Determination Notice is "Wonawinta Silver Project. Note: Mirrabooka Water Pipeline Route excepted pursuant to s80(4) of the Environmental Planning and Assessment Act 1979."

This application for modification of development consent relates to;

1. the source of water for the Project and the means by which it will be transported to the Project Site (as assessed by the EIS dated December 2010). Accordingly, this description details the development to be carried out under the consent in so far as water is concerned. It does not attempt to re-describe the entire Project; and
2. the re-alignment of the Mine Access Road and to the date by which an agreed upgrade of Shire roads will be undertaken. Accordingly, this description details the development to be carried out under the consent in so far as those issues are concerned. It does not attempt to re-describe the entire Project.

Water

Water requirements of the Processing Plant at the Wonawinta Project Site, incorporating a conservative estimate for water return from the tailings storage facility, approximate 50m3/hr (14L/s). This is far in excess of the surface water and groundwater harvesting capacity of the Project Site. Water therefore has to be obtained from an external source and delivered to the Project Site.

Regardless of the source of the groundwater, the water is to be discharged into the Raw Water Dam within the Processing Plant and Office Area of the Project Site. This water storage is to be

constructed with a capacity of 5ML, which is the capacity required for 2 days processing (4.35ML) plus a contingency of 15% to account for evaporation losses.

Two sources of water were identified and assessed by the EIS dated December 2010 and supplementary environmental assessments. They were the McKinnon's Mine borefield via the McKinnon's Water Pipeline route, and water from a new borefield to be developed within the Mirrabooka groundwater source via the Mirrabooka Water Pipeline route.

The approved water source for the Wonawinta mine is the McKinnon's Mine borefield 52km to the north of the Project Site.

Roads

Mine Access Road

The Cobar Consolidated Resources Limited (CCR)-Wonawinta Silver Project Environmental Impact Statement (December 2010) makes reference to the proposed Mine Access Road as follows:

"2.4.2.3 Mine Access Road and Intersection

The Applicant would construct a new access road to the Project Site (the "Mine Access Road") from Shire Road (SR) 13 ("Cobar - Bedooba Road") to the car park of the Processing Plant and Office Area(**Figure 2.1**). A new intersection with the Cobar - Bedooba Road would be constructed with the Mine Access Road following the southern boundary of the "Manuka" property before arcing to the north about 250m east of the open cuts. The alignment of the Mine Access Road where it bends to the north is largely controlled by the occurrence of two open scatters of Aboriginal artefacts (WOS3 and WOS7), which would be retained in-situ on the Project Site and protected from mine-related disturbance.

The Mine Access Road would be an all-weather, unsealed two lane road of approximately 4km in length suitable for use by light and heavy vehicles and sufficiently wide that two loaded semitrailer trucks can pass safely. The road would be elevated approximately 0.3m above the natural ground surface and appropriate road-side drainage would be installed in accordance with the requirements of *Managing Urban Stormwater – Soils and Construction – Volume 2C Unsealed Roads* published by the Department of Environment and Climate Change in 2008 (DECC, 2008a).

The intersection with Cobar - Bedooba Road would be constructed to the standard identified in the *RTA Road Design Guide* for rural property access, with the major movements being right-in and left-out. The road would cross a minor drainage line approximately 1 800m from Cobar - Bedooba Road. A culvert would be installed where the Mine Access Road crosses the drainage line which would be constructed in accordance with the requirements identified in the document *"Why do fish need to cross the road?"* (DPI, 2003)."

Shire Road Reconstruction

Development Consent 2010/LD-00074 Condition #27 reads as follows:

"The Bedooba (SR13B) and Manuka (SR14) Roads which form the route from the project site to the Kidman Way (MR410) must be upgraded to achieve a suitable standard to service the proposed development. As a minimum the required upgrading must include:

a) a heavy formation grade to 8 metres wide,

b) new and/or restored table and mitre drains as needed,

c) elimination or replacement of existing stock grids to suit the 8 metre wide formation,

d) spreading and compacting 8metres by 150mm thick suitable gravel to construct a good trafficable surface,

e) installation of guide posts and

f) construction of four concrete causeways located at 8.0km, 9.8km, 10.9km and 27.7km along the route measured from the Kidman Way.

The required upgrading works must be financed by the developer at no cost to Cobar Shire Council. Road Occupancy Licences as relevant must be obtained in respect of the required upgrading works. The required upgrading works must be completed prior to the commencing of mining operations. Specifications for the work must meet the minimum requirements of AUS-SPEC. The roads must be maintained in a safe and trafficable condition for the duration of the upgrading works project."

115(1)(c) the address, and formal particulars of title, of the land on which the development is to be carried out

Lot 3632 DP766014; WLL 6238, "Manuka"
Lot 863 DP761939; WLL 2810, "The Bluff"
Lot 864 DP 761939; WLL 2811, "Buckambool"
Lot 5074 DP45018; WLL 12903, "Belford"
Lot 4225 DP766852; WLL 9260, "Lachlan Downs"
Part of Bedooba Road (SR13B) – Road Reserve
Part of Lerida Road (SR13A) – Road Reserve

Due to the content of this application for modification of development consent, Lot 3633 DP 766015 WLL 6239 "Wirlong" is also now considered to be land on which the development is to be carried out.

115(1)(d) a description of the proposed modification to the development consent

Water

CCR now wishes to obtain approval for the sourcing of water for the Project from a groundwater source identified on the Wirlong property, 1.3 km from the Project Site, and to the transportation of that water north to the Project Site (Refer to Map included as figure 3 in Appendices E&F). The water will then be pumped a further 2.6km to the Raw Water Dam. (Refer to Map attached as Appendix A). The total length of the pipeline from the Wirlong groundwater source to the Raw Water Dam is 3.9km.

Roads

Mine Access Road

CCR is seeking a modification of Development Consent 2010/LD-00074 to allow the Mine Access Road to be realigned to utilise the existing "Manuka" property intersection with Shire Road (SR) 13 (Cobar-Bedooba Road) and to follow the existing Manuka homestead road West , veering North and then West along an existing farm track, then extend West to the car park of the Processing Plant and Office Area . Refer to Map in Appendix A.

Shire Road Reconstructionn

CCR is seeking a modification of Development Consent 2010/LD-00074 Condition #27 to recognise that the upgrade of the shire roads will not be completed prior to the commencement of mining operations. Instead, it will be completed in accordance with the timetable agreed between CCR and the Cobar Shire Council Engineering staff at a meeting held on 7th September and as confirmed in a letter a letter sent to CSC from CCR attached as Appendix B. As explained below, this request is made in order to address the issue with regard to the timing of the winning of gravel for the upgrade project.

115(1)(e) a statement that indicates either;
(i) that the modification is merely intended to correct a minor error, misdescription or miscalculation, or
(ii) that the modification is intended to have some other effect, as specified in the statement.

Water

As noted previously, the approved water source for the Wonawinta mine is the McKinnon's Mine borefield 52km to the north of the Project Site.

The concept of looking for water closer to the Project Site than the McKinnon's Mine borefield has been understood by all stakeholders for some time. For example, reference was made in section 2.4.2.2 of the EIS to one possible source of water on CCR's own Manuka property.

CCR now wishes to obtain approval for the sourcing of water for the Project from a groundwater source identified on the Wirlong property, 1.3 km from the Project Site, and to the transportation of that water north to the Project Site via a water pipeline.

Roads

Mine Access Road

The modification of the development consent is intended to ensure that the construction of a shorter Mine Access Road to the Project Site is approved.

Shire Road Reconstruction

The modification of the development consent is intended to ensure that the agreed upgrade of the Shire Roads by CCR takes place in a realistic time frame, taking into account the availability of suitable material to enable CCR to carry out that work in accordance with best practice.

115(1)(f) a description of the expected impacts of the modification

Water

A comprehensive hydrogeological investigation and assessment of impact has been carried out by Environmental Earth Sciences Pty Ltd (EES) (Executive Summary attached as Appendix C). This study has confirmed that the Wirlong groundwater source can support pumping at a rate in the order of 1GL/yr for a continuous period of 5 years which is more than sufficient to meet the Project's raw water requirement of 14L/s (440MLpa). The report also concluded that the potential impacts of such long-term pumping at a rate in the order of up to 1Gl/yr are predicted to be negligible to minimal.

CCR has been working closely with the NSW Department of Water to ensure that all its requirements in relation to the transfer of a water licence to CCR and production bore licence applications, can be met. Indeed, a formal licence transfer application was lodged on 14th October 2011.

One requirement of the water licence transfer is that the owner of Wirlong Station, Mr MCDougall, enter into an access arrangement with CCR. Such an arrangement has been agreed and documented and has been attached as Appendix D. (Confidential commercial information has been blacked out]. The agreement includes a provision that "The Licensor hereby grants to the Licensee a licence to enter the Land and to occupy the same to permit the carrying out of some or all the purposes described in Recital C on the terms and conditions hereinafter set out and to create an easement or easements across the Land by the shortest practical route to the Licensee's Land up to 20 metres wide for access and egress and for water pipelines and pumping stations and to maintain the same in good order and repair."

The water pipeline from the Wirlong farm bore to the Project Site will require surface disturbing activities over a 1.3km x 3m area. The pipeline will be constructed of 315mm OD polypipe and will require a disturbance area approximately the width of a backhoe (c.3m) along its length. The pipeline will be buried up to approximately 1m below the surface for the entire pipeline route, with the exception of each end of the pipeline, and outlets constructed along the pipeline route. All joins in the pipeline will be butt fusion welded and tests will be undertaken to ensure the integrity of each join before it is buried.

The Wirlong groundwater source is clearly a great deal closer to the Project Site than either the McKinnon's Mine Borefield or the Mirrabooka groundwater source. Not only is this economically more attractive to CCR (and therefore will contribute to the success of the Project), as water will not have to be pumped great distances to the Project Site, but it is also far more attractive from an environmental perspective as a great deal less vegetation will have to be disturbed for the construction of the pipeline, than if one was constructed to transport water from either of the aforementioned water sources. The proposed pipeline will follow an existing track, hence direct impacts associated with the pipeline will be minimised.

A Terrestrial Ecology Assessment of the proposed pipeline route was commissioned by CCR in May 2011. It is attached as Appendix E. It concluded that the impacts associated with the water pipeline are considered minimal and discrete.

A Cultural Heritage Assessment of the proposed pipeline route was commissioned by CCR in May 2011. It is attached as Appendix F. It identified one Aboriginal Site (isolated find WIF-11) outside the proposed Impact Footprint, which was assessed as being of low scientific significance and holding low public significance. It concluded that WIF 11 will not be impacted as a result of the proposed pipeline. CCR is working with local aboriginal stakeholders to determine what is to be done with WIF -11 and whether or not it needs to be included in an AHIP, which appears unlikely.

Roads

Mine Access Road

- The Mine Access route which is currently approved, is 6.3km long from the Manuka Homestead entrance to the Plant Site (that distance comprises 1.8km from the Manuka Homestead entrance along SR13 to the proposed new intersection, 2.5km of new road across the bottom of Manuka Station and 2.0km of new road from there to the Plant Site).The re-aligned Mine Access Road will be 3.4km long from the Manuka Homestead entrance to the Plant Site (that distance comprises 1.6km of existing road and 1.8km of new road). Clearly, the re-aligned Mine Access Road provides a shorter access route to the Plant Site, thereby saving time and costs associated with the reduction in distance required to be travelled by traffic to and from the Plant Site. This will not only be of economic benefit to CCR (thereby assisting to ensure the success of the Project), but will also result in a reduction in fossil fuel use. A shorter route also necessitates a reduction in the amount of native vegetation required to be cleared to construct the road, which is obviously of benefit to the environment generally. Finally, the construction of a shorter access road will provide more direct access to the area where materials for the upgrade of the shire roads (as per Development Consent #27),are to be sourced from the identified mining area.

- A site visit by the Cobar Shire Council engineering staff to Site identified a potential safety issue with the currently approved access road intersection. There was concern that an additional intersection located not far from a bend in SR 13 and within close proximity to the neighbouring "Wirlong" property gateway intersection to SR 13, had the potential to create a traffic hazard for local road users as well as for the large vehicle traffic anticipated for the life of the project. Eliminating the proposed intersection for the access road and utilising the existing intersection addresses this identified safety issue.

- It has been suggested that the Biodiversity Offset area illustrated in the EIS as Figure 2.15 *Concept Compensatory Habitat Strategy* may be impacted by the new road alignment. In fact, the Biodiversity Offset area has not yet been determined. The Biodiversity Offset Strategy as outlined in Development Consent Condition #32 will be determined in consultation with the Office of Environment and Heritage, and relevant stakeholders including the Western Catchment Management Authority, the sub-lessees, and the Buckwaroon Landcare Group et.al. The road re-alignment will not compromise CCR's ability to identify a suitable Offset Area as there are will be a number of alternative, and

possibly better, options to consider. Likewise, Development Conditions 33 and 34 will not be affected by the proposed realignment.

- To ensure there are no environmental or cultural impacts upon the area across which the Mine Access Road is proposed to be re-aligned, CCR commissioned OzArk Environmental & Heritage Management Pty Ltd to undertake both a Terrestrial Ecology Assessment (Appendix E) and a Cultural Heritage Assessment (Appendix F) which compliment the original assessments contained in the EIS. The Ecological Assessment concluded that "impacts associated with the Haul Road (which is the same as Mine Access Road) are minimal and discreet." No threatened flora, fauna, threatened ecological communities, critical habitat or endangered populations were recorded in the area and the project would not adversely affect local biodiversity. The Cultural Heritage Assessment found no additional sites or artefacts within the road re-alignment area.

- It has been suggested that the proximity of the new access road to the "Manuka" homestead might create a noise issue. CCR, as the owner of Manuka, has not yet determined who, if anyone, will live in Manuka homestead. However, as owner it is possible for CCR to adequately address any issues with noise that might arise.

Shire Road Reconstruction

CCR is committed to carrying out the upgrade project as required pursuant to Development Consent Condition#27. However, it is impossible to complete the upgrade of the shire roads unless CCR can access suitable quality material and in the quantity necessary to undertake these works. Material has been identified within the existing mining area. Yet in order to access and extract material of suitable quality and quantity to complete the 27 km road upgrade project, CCR needs to commence quarrying or mining prior to the completion of the road upgrade project , not afterwards. CCR is committed to undertaking the upgrade project in a realistic timeframe as discussed with CSC, who will be contractor for the project. In the meantime, CCR intends to comply with the requirements of Condition #28 regarding ongoing maintenance of the shire roads.

115(1)(g) an undertaking to the effect that the development (as to be modified) will remain substantially the same as the development that was originally approved.

Water

The development for which consent modification is sought, remains substantially the same development as the development for which the consent was originally granted. The requirements of water for the Processing Plant as noted under the section referable to 115(1)(b) above, remain in excess of the surface water and groundwater harvesting capacity of the Project Site. Water therefore has to be obtained from an external source and delivered to the Project Site. This development consent modification merely clarifies from which source water will be sourced and how it will be transported to the Project Site.

Roads

Mine Access Road

The development for which consent modification is sought, remains substantially the same development as the development for which the consent was originally granted. The requirement for an access road to the Project Site has always been recognised. This development consent modification merely recognises there is a more direct, and arguably more beneficial (from an environmental, economic and safety point of view) route to the Project Site.

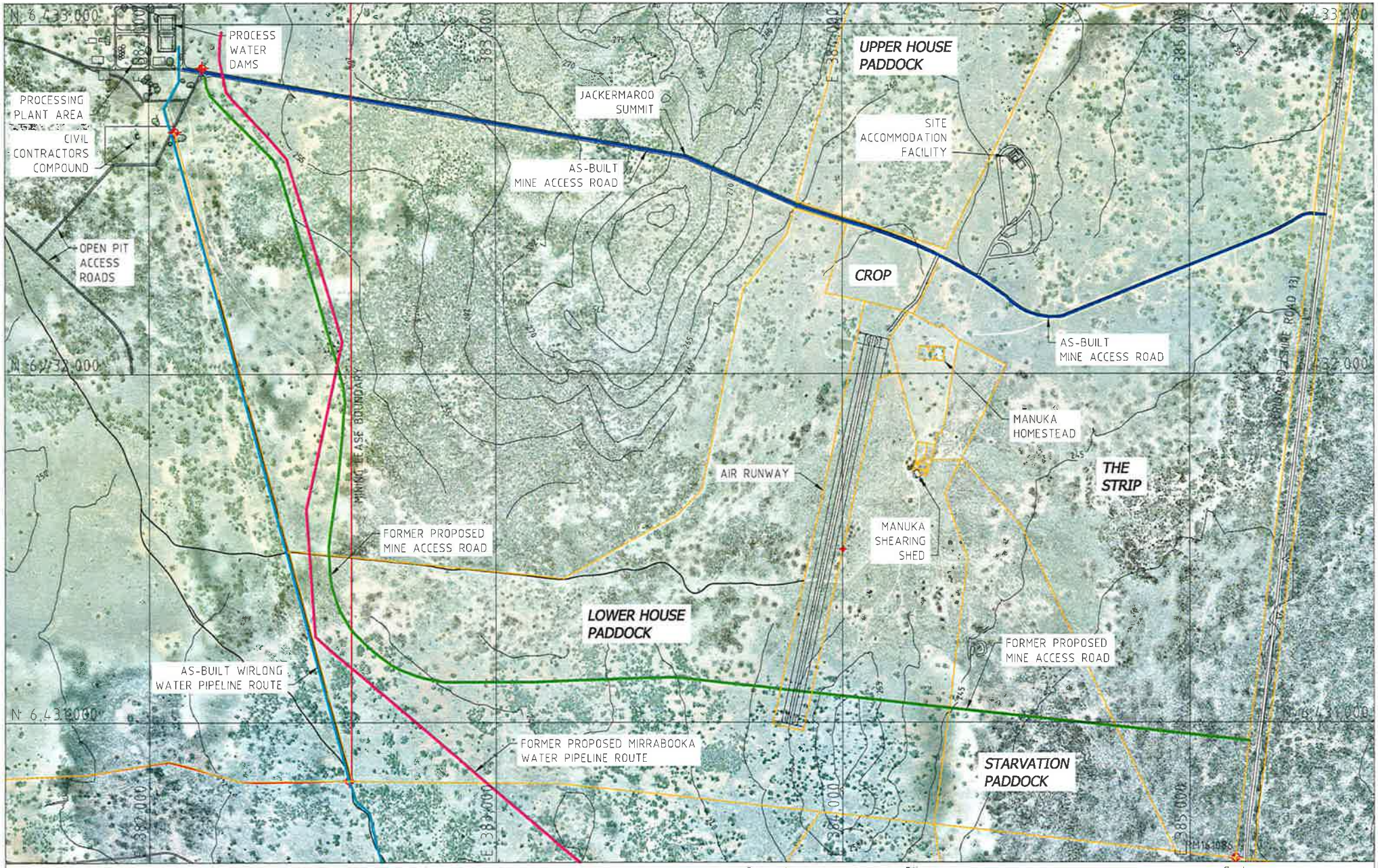
Shire Road Reconstruction

The development for which consent modification is sought remains exactly the same as the development that was originally approved. All that has changed is the time by which the shire road upgrade project must be completed.

Application for Modification of Consent

Appendices

Appendix A	**Site Plan Map**
Appendix B	**Letter to Shire Council 20110909**
Appendix C	**Environmental Earth Sciences Executive Summary**
Appendix D	**Licence Deed between Kenneth Gary McDougall and Silver Corporation of Australia**
Appendix E	**OzArk Terrestrial Ecology Assessment**
Appendix F	**OzArk Cultural Heritage Assessment**



Cobar Consolidated Resources
PO Box 7693, St Kilda Road,
Melbourne, VIC, 8004
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Website: www.ccrlimited.com.au

Project

WONAWINTA MINE
'MANUKA STATION'
COBAR, NEW SOUTH WALES

Designed by	AS BUILT
Drawn by	B.S.C.
Checked by	B.M.
Date	14-10-2011

Title

OVERALL SITE PLAN
GENERAL ARRANGEMENT
DRAWING

Scale	1:10,000m
Job No.	P1516
Drawing No.	P1516-01
Rev.	A

9 September 2011

Mr Stephen Taylor
Director Engineering Services
Cobar Shire Council
PO Box 223
Cobar NSW 2835

Dear Stephen,

Development Approval
Cobar Consolidated Resources Limited (CCR) Wonawinta Silver Project
Condition 27 – Upgrade Bedooba and Manuka Roads and General Term of Approval pursuant to s138 Roads Act 1993 re intersection of Manuka Road and Kidman Way

We appreciated the time you, Peter Morgan, and Maurice Bell took on Wednesday to meet and discuss plans for the upgrade of Manuka Road -Shire Road 14 and Bedooba Road- Shire Road 13 and the project to improve the intersection of Manuka Road and the Kidman Way.

It is our understanding that we have agreed on the following course of action:

1) Maurice Bell will provide CCR with an electronic version of the Kidman Way Intersection plan to us via email and an updated cost estimate for the Manuka Road/Kidman Way Intersection Project which will including the cost for eight double-wide grids.
2) CCR will submit this plan to the RTA for approval.
3) After viewing the Wonawinta quarry and the currently available rock materials, CCR and CSC have agreed that it would be best to wait until CCR accesses more suitable material for the full road upgrade project from deeper in the quarry.
4) CCR and CSC have agreed to an interim solution to improve the road conditions, whereby, CCR will deliver road material, such as those currently being used on the Wonawinta Access Road, to the areas of Manuka Road most in need of immediate repair and the Cobar Shire Council, in turn, has agreed to use those materials to fill in washouts etc, and provide a light grade of Manuka Road to make it passable until the larger road upgrade can commence.
5) CCR and CSC have agreed that they will commence a joint project to upgrade Manuka Road and Bedooba Road (DA Condition 27) in January 2011 to be completed by April 2012 including:
    a. a heavy formation grade to 8 metres wide,
    b. new and/or restored table and mitre drains as needed,
    c. elimination or replacement of existing stock grids to suit the 8 metre wide formation,
    d. spreading and compacting 8metres by 150mm thick suitable gravel to construct a good trafficable surface,
    e. installation of guide posts, and
    f. construction of four causeways located at 8.0km, 9.8km, 10.9km and 27.7km along the route measured from the Kidman Way.

EXECUTIVE SUMMARY

Findings from previous investigations

Previous exploration drilling identified a limestone aquifer, hereafter named the Wonawinta South aquifer, from which yields of tens of L/s were obtained at three locations approximately aligned in a NNW-SSE direction several hundred metres apart. Other boreholes drilled in the area all had air lifting yields of less than 1 L/s. From this information and from analysis of the recovery of groundwater levels following air lifting, it was concluded that the aquifer has a high transmissivity but is of limited extent. It was also concluded that pumping from this aquifer at rates on the order of 1 GL/yr for a continuous period of five years is likely to be sustainable but that, due to the uncertainty associated with air lift testing, pumping tests would be required to verify the sustainability of long-term pumping.

Pumping test methodology

Pumping tests took place at two locations, P20 and P21 approximately 840 m apart, in the same aquifer. Each test consisted of at least seven days of pumping at a rate of between 5 and 6 L/s with monitoring of groundwater levels taking place in several observation wells both during pumping and following pumping. Drawdowns were corrected for the effects of atmospheric pressure fluctuations prior to analysis.

Pumping test findings

The hydraulic gradient through the aquifer is negligible, i.e. the water table surface in the aquifer is flat, which is evidence of a high transmissivity. The baseline depth to the water table is in the range 34 to 36 m below ground, depending on the ground elevation. Drawdowns were induced in observation wells at least 1.4 km from the pumping well in the test of P21 and at least 900 m away from the pumping well in the test of P20. Drawdowns did not exceed 0.5 m in any observation well in either pumping test. Drawdowns in monitoring wells hundreds of metres from the pumping well were only slightly less than drawdowns in monitoring wells within 30 m of the pumping well.

Where wells were screened up to the water table, an unconfined aquifer response was observed. Elsewhere, in observation wells in which the top of screen was tens of metres below the water table, an initial confined response was observed, followed by an unconfined response (delayed yield). These observations are diagnostic of an unconfined aquifer.

The previous conceptualisation of the aquifer has been confirmed by the pumping tests, with additional details. The flow regime during pumping has the signature of linear flow, i.e. flow along a long, narrow trench-like aquifer, rather than radial flow from all directions. The aquifer is interpreted as a high transmissivity system of cavities aligned along the crest of an anticline aligned approximately north-northwest to south-southeast (NNW-SSE). It is interpreted to be bounded to the east and west by limestone of the same formation which has a significantly lower transmissivity.

There is evidence that this linear aquifer is also bounded at least at one end, which has the effect of increasing drawdown further during pumping. However, there is also evidence of leakage into the aquifer, which has the inverse effect, i.e. the effect of attenuating drawdown during pumping. This leakage could be lateral from the east and west, or upward leakage from greater depth.

Primary Author
Alan Wade
Principal Hydrogeologist

Technical Reviewer
Mark Stuckey
Principal Hydrogeologist

LICENCE DEED

DATE OF DEED

PARTIES

KENNETH GARY MCDOUGALL
of Wirlong,Station 9870 Bedooba Road, Cobar NSW 2835
("The Licensor")

AND

SILVER CORPORATION OF AUSTRALIA PTY LTD (ABN 84 147 443 249) of Level 4, 448 St Kilda Road, Melbourne VIC 3006
("The Licensee")

RECITALS

A The Licensor is the owner/leasee of land referred to in the First Schedule hereto ("the Land")

B The Licensee is the holder of Exploration Licence EL 6651 ("The Authority") issued pursuant to the Mining Act 1992 (NSW).

C The Licensee and the Licensor are parties to a Rural Access Compensation Agreement dated 6 November 2008 for the purposes of the Licensee carrying out exploration activities on the Land

D The Licensor agrees to grant a licence ("the Licence") to the Licensee to permit the Licensee by its agents, workmen, contractors, successors and assigns to enter the Land to explore for underground water by drilling bore holes or by such other lawful method of exploration, to establish a water bore field, to sink water bore holes and to maintain the same, to build and maintain necessary infrastructure, to create easements across the land for access and egress and to build and maintain pumps and pumping stations and construct and maintain pipe lines on or in the ground to carry water to the Licensees land referred to in the Second Schedule hereto (the Licensee's Land).

E The Licensee agrees to apply for all permits, licences, authorities and consents necessary to give effect to this Deed.

F "The Licensor hereby acknowledges that the outright purchase by the Licensee of all the volumetric entitlement attached to a water licence issued pursuant to the Water Act 1912 (a "permanent transfer of groundwater rights"), which shall enable the Licensee to draw water from the Licensor's Land, shall not become now or at any

10 The Licensee shall pay compensation to the Licensor in addition to the annual Licence Fee referred to above and the Licensee shall accept an amount calculated in accordance with the following rates as the amount of compensation payable for any loss suffered or likely to be suffered as a result of the granting of the Licence or the exercise of the rights conferred upon the Licensee by this Deed:

[redacted] per megalitre pumped from the borefield to the Licensee's Land

11 The parties agree that in the event of actual loss by the Licensor exceeding in value the amount of compensation calculated in accordance with clause 9 hereof then the parties shall at the request of the Licensor negotiate to determine the amount of compensation for loss actually suffered as a result of operations performed pursuant to this Deed and in default of agreement the matter may be referred to an arbitrator or the Land and Environment Court for assessment.

12 So far as it is relevant to any of the operations under this Deed the Licensor gives his consent in accordance with the provisions of Section 31(1) and section 31(2) Mining Act 1992 for operations to be performed on any part of the Land within the bore field area to be determined

13 This Deed shall be effective for the term of any extension or renewal thereof.

14 In periods of drought the Licensee shall make available to the Licensor at the Licensor's request an amount of water from the borefield as may be reasonably required for the purposes of watering stock.

15 This Deed shall be subject to the following special provisions:

13.1 The Licensee, (referred to in the Code of Conduct as "the Explorer"), shall comply at all times with the Code of Conduct approved for the time being by the NSW Minerals Council and the NSW Farmers' Association as far as practical and provided that the Licensee uses its best endeavours to comply with the said Code to the extent that it has not complied it shall not constitute a breach of the terms of this Deed.

13.2 No dogs or firearms shall be allowed on the property without the written consent of the Licensor.

13.3 All gates on the property shall be closed or left open in accordance with the requirements of the Licensor or otherwise left closed if already closed or left open if already open at the relevant time of usage.

13.4 The Licensee shall not carry out any operations within 50 metres of any dam on the property without the prior consent of the Licensor.

13.5 No water shall be taken from any dam without the prior consent of the Licensor.

SIGNED SEALED AND DELIVERED
by the said **KENNETH GARY McDOUGALL**
in the presence of:
NANCY JUNE MOSELY
Nancy Mosely

G. McDougall

Per the Duly Authorised Agent

SILVER CORPORATION OF AUSTRALIA PTY LTD
in the presence of:

Environmental &
Heritage Management P/L

Wonawinta Silver Project: Change of Scope

Terrestrial Ecology Assessment

Cobar Local Government Area

May 2011

Report Prepared by

OzArk Environmental & Heritage Management Pty Ltd

For Cobar Consolidated Resources (CCR)

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Executive Summary

This report was commissioned by Cobar Consolidated Resources Limited (CCR). It details the results of an ecological assessment undertaken on the 12th of May 2011 by Phillip Cameron of OzArk Environmental & Heritage Management (OzArk EHM). The assessment aimed to identify threatened species, populations, critical habitats and ecological communities that could be affected by a change in scope and additional works not included in the approved Wonawinta Silver Project ("the Project") Environmental Impact Statement (EIS).

The Proposal consists of two additional features a water pipeline and haul road, which both connect to infrastructure within the already approved Project Site (**Figure 1**).

No threatened flora fauna, threatened ecological communities, critical habitat or endangered populations were recorded as a result of the subsequent assessment.

Having given consideration to the ecology of the two Study Areas, it is apparent that the Project is:

- unlikely to significantly affect any of the listed threatened species, fauna populations or communities (if amelioration measures as stated are adopted, implemented and maintained);
- unlikely to augment or significantly contribute to any of the National or State listed key threatening processes (if amelioration measures as stated are adopted, implemented and maintained and appropriate safeguards regarding the control of potential vertebrate pests and exotic weeds are effectively applied);
- unlikely to significantly affect any Ramsar wetland or any CAMBA, JAMBA or ROKAMBA listed species;
- unlikely to significantly affect any of the creeks if adequate safeguards are adopted for water run-off from the Project Site; and
- would be consistent with ESD principles with regard to fauna and would not adversely affect the local biodiversity and no issue of inter-generational or value added matters are relevant in this instance.

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1.0 Introduction

1.1 Brief Description of the Proposal

This report was commissioned by Cobar Consolidated Resources Limited (CCR). It details the results of an ecological assessment undertaken on the 12th of May 2011 by Philip Cameron of OzArk Environmental & Heritage Management (OzArk EHM). The assessment aimed to identify threatened species, populations, critical habitats and ecological communities that could be affected by a change in scope and additional works not included in the approved Wonawinta Silver Project ("the Project") Environmental Impact Statement (EIS).

1.2 Background

An EIS and specialist ecological assessment was prepared for the Project by R.W. Corkery & Co. Pty. Limited (RWC) and OzArk EHM on behalf of CCR in 2010. The area assessed in the 2010 EIS comprised two distinct pipelines "McKinnon's pipeline route" and "Mirrabooka pipeline route" and the area of mine infrastructure 'Project Site'. The Development Application (DA) and EIS were lodged with Cobar Shire Council on 22 December 2010 and approved in May 2011.

Since this time, the scope of works has changed and the McKinnon's and Mirrabooka pipelines are no longer a feature of the Project. Instead a proposed pipeline south of the approved Project Site will supply water to the mine site. In addition to the pipeline, a new haul road is also proposed. As these impacts were not envisaged during the concept development stage, the additional works were not covered in the RWC (2010) EIS. Thus, the purpose of this report is to provide additional information on areas not assessed by the original EIS and supporting ecological assessment undertaking by OzArk in 2010.

For ease of identification, and to obtain an understanding of the wider impacts of the Project, this ecological report should be read in conjunction with the *Wonawinta Silver Project Flora and Fauna Assessment* (OzArk 2010) and *Wonawinta Silver Project Environmental Impact Statement* (RWC 2010).

1.3 Location

The Project is located 88 km south of Cobar. The Haul Road Study Area starts at the "Manuka" pastoral property (Lot 3632, DP766014), bears 250 m north then west for 400 m before joining to the approved Project Site (**Figure 1**).

The Water Pipeline Study Area is located south of the approved Project Site, starting at an existing farm bore tracking north 1.3km before joining to the approved Project Site (**Figure 1**).

1.4 Definitions

The following definitions and term as are used through this report.

Activity — has the same meaning as defined by the EP&A Act. The EP&A Act definition refers to physical 'activity' in relation to land that is specified by a regulation to be a work for the purposes of the Act. The nature of the proposed activity is described in Section 2.

Bioregion — means a biogeographical region that has been recognised and documented such as the Interim Biogeographical Regions of Australia (IBRA). The region which the Study Area falls within is the NSW Cobar Peneplain Bioregion (CPBR).

Endangered population — is as specified in Part 2 of Schedule 1 of the Threatened Species Conservation Act 1995 (TSC Act).

Endangered ecological community (EEC) — is as specified in Part 3 of Schedule 1 of the TSC Act 1995, or **Threatened ecological community** (TEC) within the schedules of the EPBC Act 1999.

Impact Footprint — refers to an area within a given Study Area that would be mechanically destroyed, disturbed or altered to construct infrastructure associated with the activity. The Impact Footprint for the Project is described in section 2.1

Likely — taken to be a real chance or possibility (NPWS 1996).

Locality — means the area within a 50 km radius of the Study Area centred on the Project Site.

Local population — refers to the population that occurs within a given Study Area, unless the existence of contiguous or proximal occupied habitat and the movement of individuals or exchange of genetic material across the boundary can be demonstrated (NPWS 1996). In this instance a local population are those that occur within the Project Site.

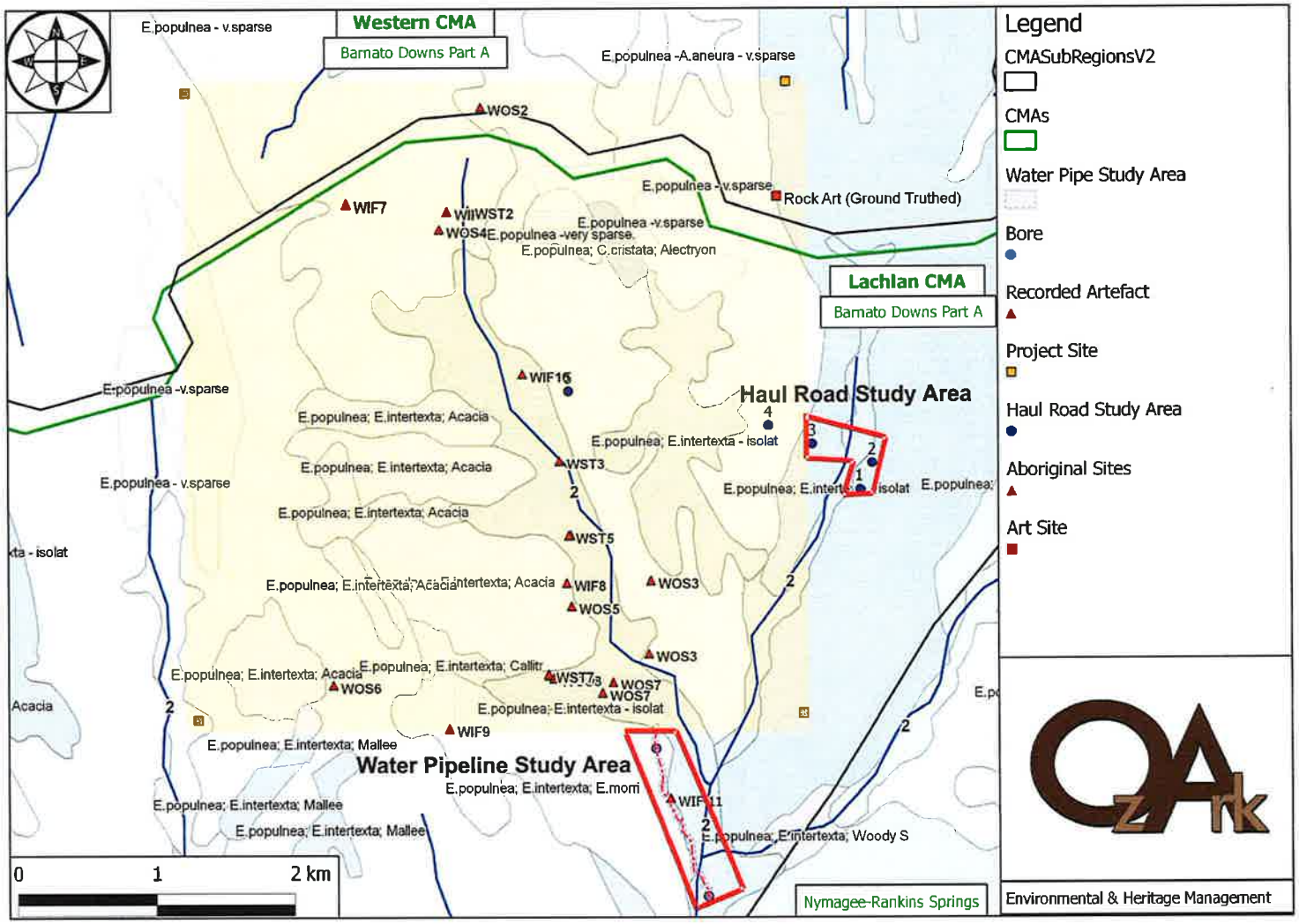
Study Area — is a specific area that has been ecologically assessed. A 1.3 km x 20 m wide area was assessed for the Water Pipeline Study Area as identified on **Figure 1**. A 650 m x 20 m wide area was assessed for the Haul Road Study Area as identified on **Figure 1**.

Threatened biota — means those threatened species, endangered populations or endangered ecological communities which are considered known or likely to occur in one or more Study Area.

Threatened species — is a species specified in Schedule 1 Part 1 (endangered species), Part 4 (presumed extinct) and Schedule 2 (vulnerable species) of the TSC Act 1995 or within the Schedules of the EPBC Act 1999.

Unlikely — not taken as a real chance or possibility (NPWS 1996). In this instance species are unlikely to occur based on a lack previous records and inconsistent habitat availability.

Figure 1: Location of Water Pipeline Study Area and Haul Road Study Area in relation to the approved Project Site.



2.0 The Proposal

2.1 Proposed Works

The Proposal consists of two additional features to the already approved Project. Specifically, a water pipeline and haul road, which both connect to infrastructure within the already approved Project Site (**Figure 1**).

2.1.1 Haul Road Study Area.

Only a portion of the proposed haul road (weigh points 1 to 3) is situated outside the approved Project Site. Construction of the road will require ground surface disturbance and clearing over a 650 x 20 m area (Impact Footprint). The area will be stripped of all vegetation by backhoes or bulldozers and a small windrow of dirt established either side of the formed road (see **Plate 1**).

2.1.2 Water Pipeline Study Area

The Water Pipeline Study Area will require ground surface disturbing activities over a 1.3 km x 3 m area.

The pipeline would be constructed of 315mm OD polypipe and would require a disturbance area approximately the width of a backhoe (c. 3m) along its length. The pipelines would be buried up to approximately 1m below the surface for the entire pipeline route. With the exception of each end of the pipeline, and outlets constructed along the pipeline route. All joins in the pipeline would be butt fusion welded and tests would be undertaken to ensure the integrity of each join before it is buried.

2.2 OzArk Project Scope

The Project Site was delineated via aerial and topographic maps. The investigation and report included the following aspects:

- A review of current legislation including the *NSW National Parks and Wildlife Service Act 1974 (NP&W Act), Threatened Species Conservation Act 1995 (TSC Act 1995), Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999), Fisheries and the Environmental Planning and Assessment Act (EPA Act 1979);*
- A search of the Office of Environment and Heritage (OE&H)[1] and Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) online databases and NSW Wildlife Atlas to identify species within the Local Government Area (LGA) of Catchment Management Authority (CMA) that are protected within the schedules of the TSC Act 1995 and EPBC Act 1999;
- A review of relevant literature including previous consulting reports, academic theses, articles and available works on the ecology, flora, fauna, of the approved Prject Site and additional Study Areas;
- Pedestrian field survey to identify and record all species of flora and fauna within the Project Site for the proposed road works;

[1] The departments formally known as the NSW DEC, DECC, and DECCW are now a division in the Department of Premier and Cabinet (DPC) known as The Office of Environment and Heritage (OE&H).

- Seven-part Tests / Assessments of Significance of affected threatened species, populations and EECs and the formulation of appropriate management strategies; and,
- Completion of documentary evidence (e.g. updates for the OE&H Wildlife Atlas) for any species located during the survey for the notification of the relevant authorities.

2.3 Survey Constraints

2.3.1 General

The assessment was undertaken under the general auspices of the DEC[2] Biodiversity Survey Guidelines Working Draft 2004 (DEC 2004). Due to the discrete nature of the Proposal (being additional works to the already approved Project), quick habitat assessment was considered requisite to identify potential constraints. The rapid assessment was 'habitat based' and reliant on the author's field experience, previous work and knowledge of habitats used by threatened species in immediate area. The experience based assessment backed by Wildlife Atlas records, OE&H fact sheets from the threatened species online data base and commercially available field guides and botanical books where required.

Due to the small scope of the additional works, no formal 20 x 20 m vegetation plots or 50 m transects were undertaken. Local knowledge of vegetation was applied in the field with a copy of the *BioMetric* list in hand so the ecologist could work thorough the various structural layers described for a given *BioMetric* community to ensure accurate allocation of the vegetation name/number to the community observed.

Not all animals and plants can be fully accounted for within any given Project Site. The potential for inaccuracy increases exponentially with the size of a Project Site. This report is based upon data acquired from recent and current surveys, however, it should be recognised that the data gathered is indicative of the environmental conditions of the site at the time the report was prepared. The presence of threatened species is not static. It changes over time, often in response to longer term natural forces that can, at any time, be dramatically influenced by anthropomorphic disturbance.

This report has reviewed State and National agency records centred on the Project Site to establish a predictive model concerning the likelihood of flora and fauna species to occur within the Project Site. Any failings of the database records have been mentioned within the appropriate sections of this report.

3.0 Environmental Settings

Both Study Areas are situated within the Lachlan (Barnato Downs) Catchment Management Authority (LBD-CMA) within the Cobar Peneplain Bioregion CPBR. For further information on the approved Project Site, refer to the original EIS (RWC 2010) and ecological report (OzArk 2010).

[2] The departments formally known as the NSW DEC, DECC, and DECCW are now a division in the Department of Premier and Cabinet (DPC) known as The Office of Environment and Heritage (OE&H).

4.0 Field Assessment Methodology

4.1 Introduction

The assessment was undertaken following the general auspices of the DEC Threatened *Biodiversity* Assessment Guidelines: Guidelines for Developments and Activities (DEC 2004), *Threatened Species Assessment Guidelines: The Part 5A of the EP&A Act 7-part Assessment of Significance and DECCW Field Survey Methods 2009*. Notable constraints have been included in Section 2.3 of this report. To predict the likely effect of the Proposal on species generally detected through this type of survey effort, the precautionary principle has been applied.

This assessment applied the DEC 'precautionary principle'. The DEC Threatened Biodiversity Survey and Assessment Guidelines (2004: 30–34) state '*It is advised that where adequate surveys have not been conducted within the* Project Site *due to time limitations (*you can also infer season timing etc)*, the precautionary principle should always be adopted. This involves assuming that threatened biodiversity which are likely to occur in the* Project Site *(based upon the presence of suitable habitat and recent records) inhabit the whole of the* Project Site. *The Assessment of Significance (7-part tests) would then be conducted on this basis*'

4.2 Flora Survey Methodologies

4.2.1 Rationale and mapping

Survey of the Project Site was conducted according to the Random Meander Method described by Cropper (1993: 30). Detailed botanical survey for native plants was carried out and the observed species composition within the community was aligned to *BioMetric*. Plant identification was made according to recent nomenclature in Harden 1990–2002, Cunningham *et al.* 1992, Royal Botanic Gardens (RBG 2010), and PlantNet NSW Flora Online (RBG 2010). The national conservation significance of flora was determined by referencing *Rare or Threatened Australian Plants* (ROTAP–Briggs and Leigh 2006) and the Schedules associated with the *Threatened Species Conservation Act 1995* (TSC Act) or the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Special consideration was given to locating rare or threatened plants identified in the NSW Wildlife Atlas database (OE&H 2011) or those being predicted to occur by OE&H (OE&H 2011b) or SEWPAC (SEWPAC 2010) for the Local Government Area (LGA) respectively (**Appendix I**).

Visibility was good and plants without flowers/seed heads were relatively straightforward to identify given that the *BioMetric* database provides detailed lists of known species associations with the greatest affiliation with the community.

Where areas had a combination of key habitat elements which were more likely to provide an environment in which a threatened plant would be recorded, it was given closer inspection.

Community composition, health, age status, habitat value for fauna and flora species, overall conservation significance and structural or habitat importance of the vegetation present was assessed. The extent/distribution of the vegetation communities was mapped in the field.

4.3 Fauna Survey Methodology

Identification of the species present, and their diversity, can indicate the type of habitat that is present within the Project Site. Further, an assessment of the habitat present within the Project Site will also

dictate which identified threatened species, although they remained unobserved during the current survey, may utilise it (the basis of the precautionary principle). The likely impacts of development can be addressed through this process.

5.0 Background: Terrestrial Ecology

5.1 Database Searches

A desktop search was conducted on the following databases to identify any potential issues (**Table 1**).

Table 1: Database search results for ecological issues.

Name of database searched	Date of search	Type of search	Comment
Department of Environment, Water Resources, Heritage and the Arts (SEWPAC) Protected Matters (EPBC Act) Database; http://www.environment.gov.au/erin/ert/epbc/index.html	26.5.2011	Polygon surrounding the Project Site (with 1 km buffer)	2 TECs, 10 threatened species, 11 migratory, 1 Place on the RNE, 1 State and Territory Reserve and 6 Invasive Species. See **Appendix 2** for details.
Office of Environment and Heritage (OE&H) Threatened Species online database; http://www.threatenedspecies.environment.nsw.gov.au/index.aspx	26.5.2011	Lachlan Barnato Downs CMA	31 items are listed within the Lachlan (Barnato Downs) CMA. This includes 1 vulnerable plant species (A Spear Grass) and 30 threatened animal species. Of these, there is 1 Critically endangered bird (Red-lored Whistler).
NSW Wildlife Atlas online database 2011 http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlasSpecies.jsp	23.7.2010	Lachlan Barnato Downs CMA	Within the larger Lachlan CMA, 84 threatened fauna species have been previously recorded from a total of 7914 records. 37 species threatened plant species have been previously recorded from a total of 317 records. 2 Endangered Populations and 12 Endangered Ecological Communities are listed as having potential to occur in the Lachlan CMA.
NSW Legislation website: SEPP 44: Koala Habitat Protection http://www.legislation.nsw.gov.au/fragview/inforce/epi%2B5%2B1995%2Bcd%2B0%2BN?	26.5.2011	Cobar LGA	Cobar LGA is not listed. However, koalas have potential to occur.
Cobar Local Environment Plan	27.5.2011	Cobar LGA	Nothing Applicable.

5.2 Vegetation Mapping

Vegetation within the Cobar LGA has been previously mapped by Dykes (2002). The approved Project Site adjacent to the current Study Areas has also been previously mapped by OzArk (OzArk 2010), using Dykes(2002) as the base map.

5.3 Previous Ecological Surveys

OzArk conducted an ecological survey over the approved Project Site in 2010. Refer to this document for further detail.

5.4 Predictive Model for Threatened Species Detection

Threatened species previously recorded during the original OzArk ecological survey over the Wonawinta Project Site have the highest potential to occur, specifically the:

- Grey-crowned Babbler (Eastern Subspecies) (listed under the TSC Act).
- Halls Babbler (listed under the TSC Act).
- Major Mitchell Cockatoo (listed under the TSC Act).
- Superb Parrot (listed under both the TSC & EPBC Act).
- Yellow-bellied Sheathtail Bat (listed under the TSC Act).
- Little Pied Bat (listed under the TSC Act).

The Kultarr, (listed under the TSC Act) and Malleefowl (listed under the TSC Act) have been observed within and adjacent to the Project Site however were not recorded during the OzArk survey.

Species listed by the NSW Wildlife Atlas, OE&H and EPBC database searches also have potential to be recorded.

Section 7.5 of the original ecological assessment (OzArk 2010) surmises the threatened species, communities and populations predicted to occur over the approved Project Site which can be extrapolated to apply to the current Study Areas. Threatened species profiles with predictions can be found in **Appendix 3**. Migratory / wetland dependant species are not considered likely to occur in the Study Areas as no suitable habitat exists.

6.0 Survey Results

6.1 Vegetation Recorded

6.1.1 Haul Road Study Area (Figure 2)

Vegetation in the Haul Road Study Area is consistent with vegetation previously described by Dykes (2002) (as part of the Cobar LGA vegetation mapping) and Benson *et. al.* (2006) (as part of the NSW wide BioMetric vegetation mapping project). Between weigh points 1 and 2 either side of the drainage line (eastern side of the ridge) and between weigh points 2 and 3, vegetation is mapped as 'Box Pine Shrubby Woodland' (Dykes 2002). A small area between weigh points 2 and 3 is mapped as 'Belah Rosewood Woodland'(Dykes 2002).

Ground truthing showed that all vegetation in the Haul Road Study Area is consistent with Benson et. al. 2006 'Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion' (Benson 103) (**Plate 2 and 3**).

6.1.2 Water Pipeline Study Area (Figure 3 and 4)

Vegetation in the Water Pipeline Study Area is assessed as being consistent with vegetation previously described by Dykes (2002) (as part of the Cobar LGA vegetation mapping) and Benson et. al. (2006) (as part of the NSW wide BioMetric vegetation mapping project). The pipeline weaves across vegetated and cleared areas. The vegetated areas are mapped as 'Box Pine Shrubby Woodland' (Dykes 2002) which is consistent Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103). The unvegetated areas are mapped as 'Mulga Grey Mallee Tall Shrubland', however on ground-truthing showed this to be a grassland community generally absent of trees.

6.2 Threatened Ecological Communities (TEC)

No TECs were recorded in either Study Area.

6.3 Habitat Values in the Project Site

One main vegetation type (Benson 103) was identified within the Water Pipeline and Haul Road Study Areas along with small portions of previously cleared areas (see **Figures 2** to **4**). The habitat values provided by Benson 103 are described in detail in Section 6.7 of the original ecological assessment for the approved Project Site (OzArk 2010).

6.4 Fauna Species Recorded

Due to inclement weather and the proximity of the Water Pipeline Study Area and Haul Road Study Area to the approved Project Site, a fauna list was not compiled. Fauna species recorded in the original ecological report (OzArk 2010) in similar habitat are considered likely to occur in the current Study Areas. Common species were observed in the broader environs, however no new species were observed in the additional Study Area.

6.5 Threatened Species

No threatened species were recorded. However, those threatened species previously recorded by Ozark in 2010 over the approved Project Site and those known to occur in the area are considered likely to have some part of their lifecycle occur in the two Study Areas (see list in **Section 5.4**).

6.6 Noxious Weeds

No noxious weeds were recorded.

Figure 2: Vegetation communities mapped in the Haul Road Study Area.

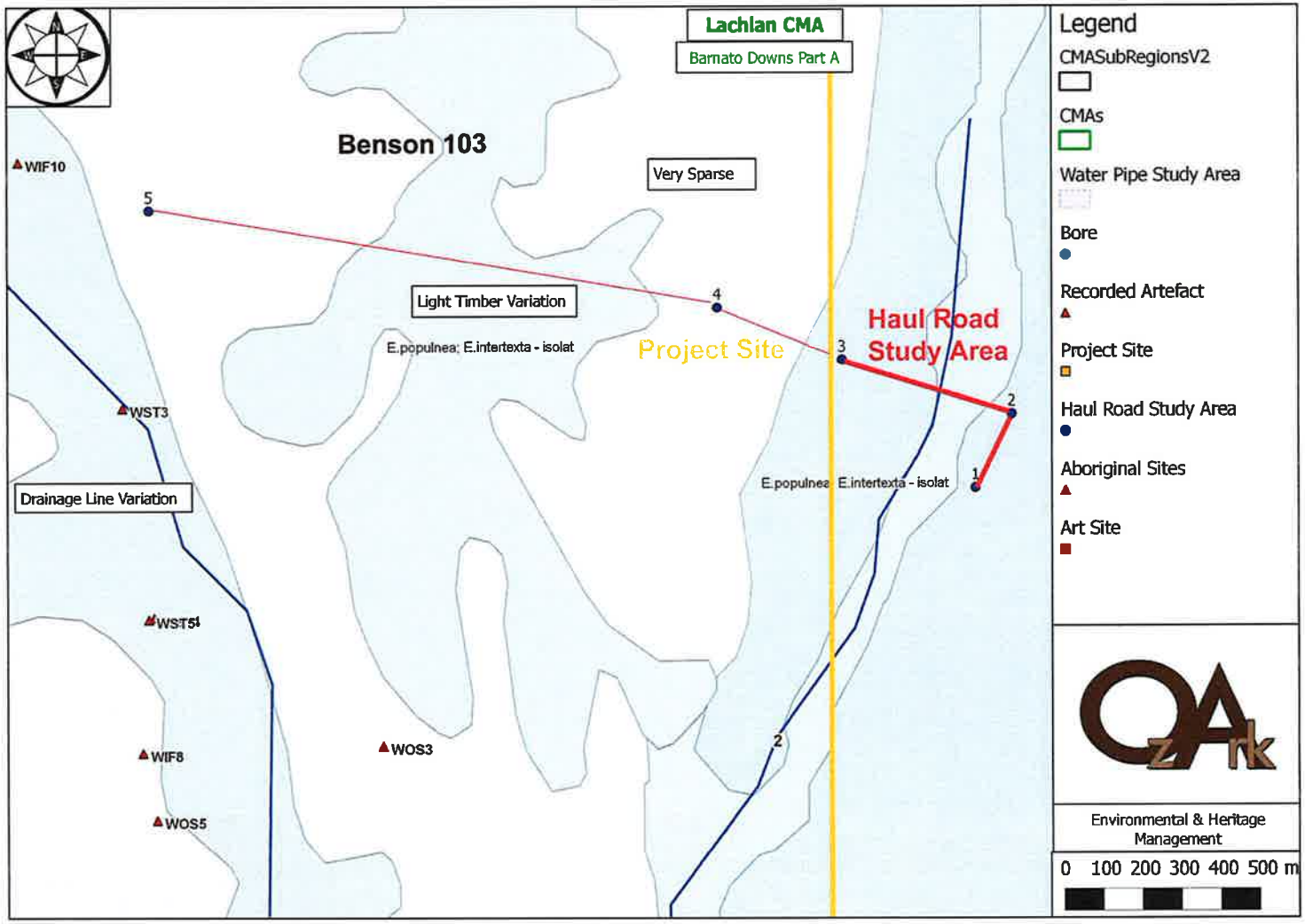


Figure 3: Vegetation communities mapped in the Water Pipeline Study Area.

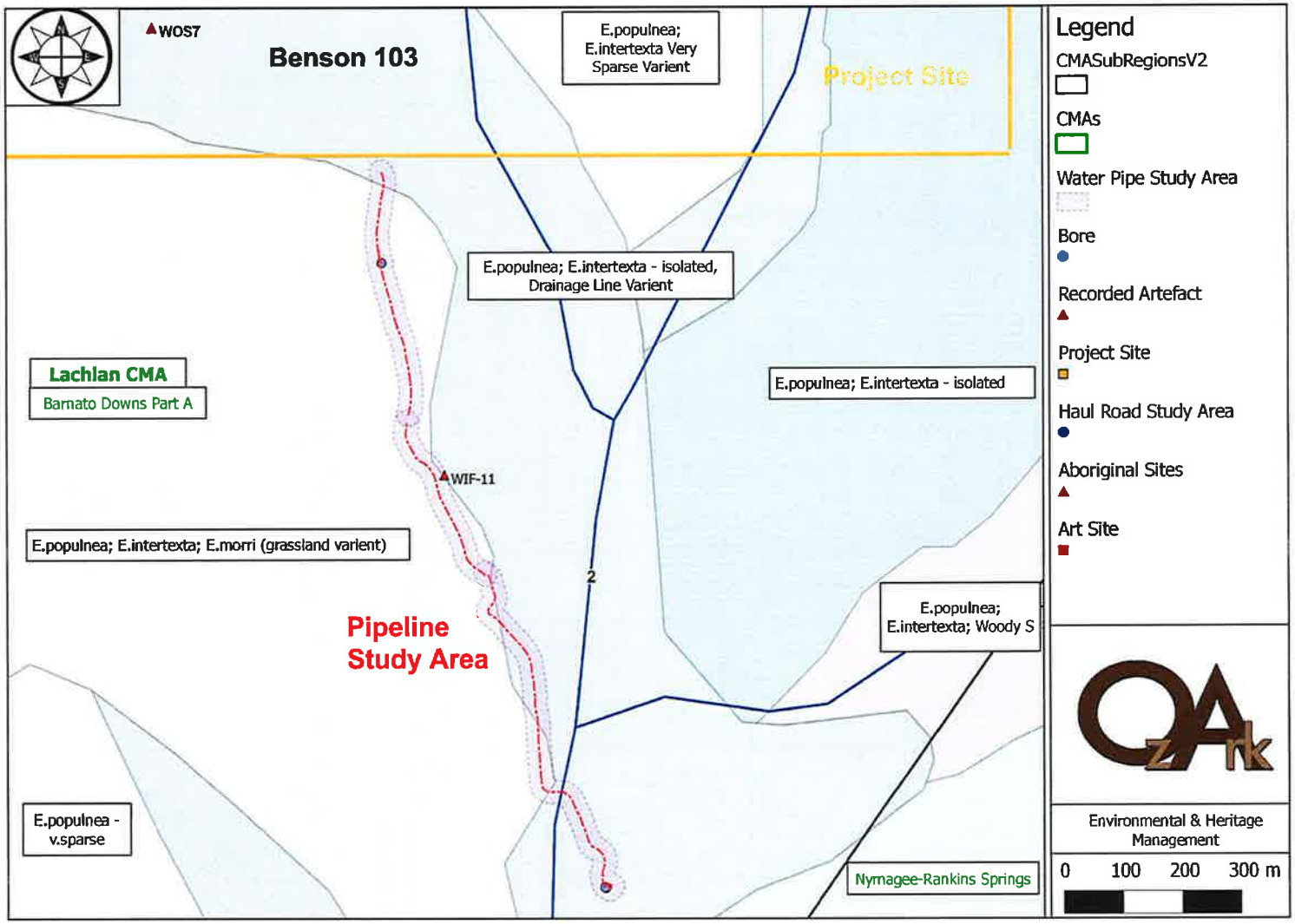
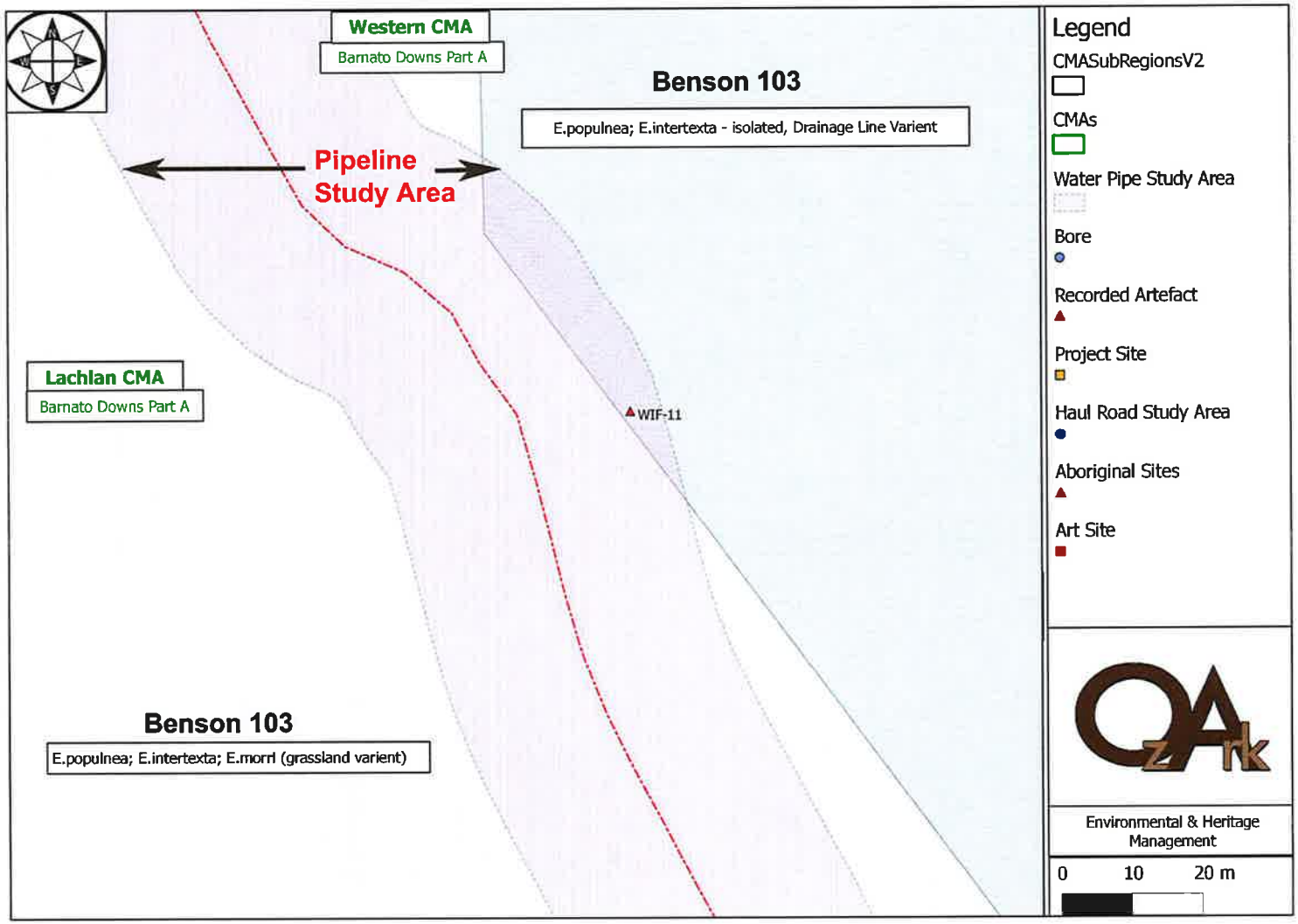


Figure 4: Vegetation communities mapped in the Water Pipeline Study Area- close up view..



7.0 Discussion

7.1 Likely Changes to Habitat Value of Communities and Trees Assessed

Vegetation to be impacted within the additional Study Areas is sparse. Areas of thick understorey along the pipeline route would quickly re-establish, with impacts in general minimised as the pipeline has the potential to avoid tree clearing. Furthermore, habitats and vegetation types within the Study Area are well represented.

2.1.1 Haul Road Study Area.

Approximately 650 x 20 m (1.3 ha) of Benson 103 will be directly impacted/ removed as a result of the Proposal.

2.1.2 Water Pipeline Study Area

Approximately 250 x 3 (1.3 ha) of Benson 103 will be directly impacted/ removed as a result of the Proposal.

Approximately 1050 x 3 (0.315) of cleared / disturbed land will be impacted as a result of the Proposal.

As the proposed pipeline will follow an existing track direct impacts associated with pipeline will be minimised.

7.2 Likely Impacts to Threatened Fauna.

The additional works will not result in any direct impacts to threatened fauna.

7.3 Indirect and Operational Impacts

Indirect and Operational impacts associated with the Proposal are consistent with those described in section

7.4 Key Threatening Processes

The TSC and EPBC list of Key Threatening Processes (KTP) was reviewed (search date: 15.3.11:http://www.environment.nsw.gov.au/threatenedspecies/KeyThreateningProcessesByDoctype.htm) and http://www.environment.gov.au/cgi-bin/sprat/public/publicgetkeythreats.pl.

One TSC Act listed KTPs ('clearing of native vegetation' will be exacerbated by the Proposal. One EPBC listed KTP 'Land Clearance' will be exacerbated by the Proposal. The nature and extent of the proposed impacts have been discussed in the preceding sections.

7.5 TSC Act: 7–Part Tests and EPBC Act Assessment of Significance

No threatened species are considered to be 'affected' and as such require no further consideration. Assessments of Significance for the larger approved project can be found in Appendix B of the original ecological report (OzArk 2010).

7.6 Matters of National Environmental Significance

No items of National environmental significance will be impacted as a result of the proposed additional works (**Table 2**).

Table 2: Matters of National Environmental Significance.

	Issue	Impact
a)	Any environmental impact on a World Heritage property	No.
b)	Any impacts on wetlands of international importance	No.
c)	Any environmental impact on Commonwealth listed threatened species or ecological communities	No.
d)	Any environmental impact on Commonwealth listed migratory species	No.
e)	Does the project affect any national heritage places	No.
f)	Does any part of the proposal involve a nuclear action?	No.
g)	Any environmental impact on Commonwealth marine area?	No.
h)	Any direct or indirect effect on Commonwealth land?	No.

8.0 Recommendations and Management

Appropriate management of ecological items is primarily determined on the basis of their assessed significance as well as the likely impacts of the proposed development. The following management options are general principles, in terms of best practice and desired outcomes based upon a 'maintain or improve' outcome for biodiversity. Management of impacts of the additional works are c

Recommended impact amelioration measures have been described in detail in the original ecological assessment undertaken by OzArk and are applicable to the additional works.

9.0 Conclusion

Impacts associated with the Haul Road and Water Pipeline are considered minimal and discrete.

Having given consideration to the ecology within the Project Site, it is apparent that the Proposal is:

- unlikely to significantly affect any of the listed threatened species, fauna populations or communities;
- unlikely to augment or significantly contribute to any of the National or State listed Key Threatening Processes, if the appropriate safeguards regarding the control of potential vertebrate pests are effectively applied;
- unlikely to significantly affect any Ramsar wetland or any CAMBA, ROKAMBA or JAMBA listed species;
- unlikely to significantly affect any of the creeks if adequate safeguards are adopted for water run-off from the site; and

- consistent with ESD principles with regard to fauna and would not adversely affect the local biodiversity and no issue of inter-generational or value added matters are relevant in this instance.

The proposed activity should not be considered to constitute a controlled action and, as such, no Species Impact Statement (SIS) is warranted. No Koala Habitat Management Plan pursuant to SEPP 44 should be required.

10.0 References

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Plates:

Plate 1:

Example of haul road to be constructed as result of the additional works. This is a standard design.

Plate 2:

View west over the Manuka property. Example of vegetation over the slight sandstone range.

Plate 3:

Benson 103 (drainage line variant). The pipeline will follow the existing track shown in this picture near the bore. The disturbed grassland area recorded in the Water Pipeline Study Area consists of the same grassy understorey.

Appendix 1: OE&H NSW Threatened Species Search.

OE&H threatened Species database search **Table 3**. Your search returned 31 results. You searched for the following information: geographic region: Lachlan > Barnato Downs vegetation type: all, type: all

Table 3: OE&H Combined geographic and habitat search results.

Scientific Name	Common Name	Level of Threat
Austrostipa metatoris	A spear-grass	Vulnerable
Ninox connivens	Barking Owl	Vulnerable
Hamirostra melanosternon	Black-breasted Buzzard	Vulnerable
Oxyura australis	Blue-billed Duck	Vulnerable
Grus rubicunda	Brolga	Vulnerable
Cinclosoma castanotus	Chestnut Quail-thrush	Vulnerable
Stagonopleura guttata	Diamond Firetail	Vulnerable
Petroica phoenicea	Flame Robin	Vulnerable
Pachycephala inornata	Gilbert's Whistler	Vulnerable
Nyctophilus timoriensis (South-eastern form)	Greater Long-eared Bat	Vulnerable
Falco hypoleucos	Grey Falcon	Endangered
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable
Vespadelus baverstocki	Inland Forest Bat	Vulnerable
Hieraaetus morphnoides	Little Eagle	Vulnerable
Chalinolobus picatus	Little Pied Bat	Vulnerable
Cacatua leadbeateri	Major Mitchell's Cockatoo	Vulnerable
Leipoa ocellata	Malleefowl	Endangered
Grantiella picta	Painted Honeyeater	Vulnerable
Certhionyx variegatus	Pied Honeyeater	Vulnerable
Pachycephala rufogularis	Red-lored Whistler	Critically Endangered
Hylacola cauta	Shy Heathwren	Vulnerable
Crinia sloanei	Sloane's Froglet	Vulnerable
Drymodes brunneopygia	Southern Scrub-robin	Vulnerable
Pyrrholaemus saggitatus	Speckled Warbler	Vulnerable
Circus assimilis	Spotted Harrier	Vulnerable
Amytornis striatus	Striated Grasswren	Vulnerable
Neophema pulchella	Turquoise Parrot	Vulnerable
Tiliqua occipitalis	Western Blue-tongued Lizard	Vulnerable
Epthianura albifrons	White-fronted Chat	Vulnerable
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable

Appendix 2 : EPBC Protected Matters Search Tool.

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

EPBC Act Protected Matters Report: Coordinates

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information about the EPBC Act including significance guidelines. forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

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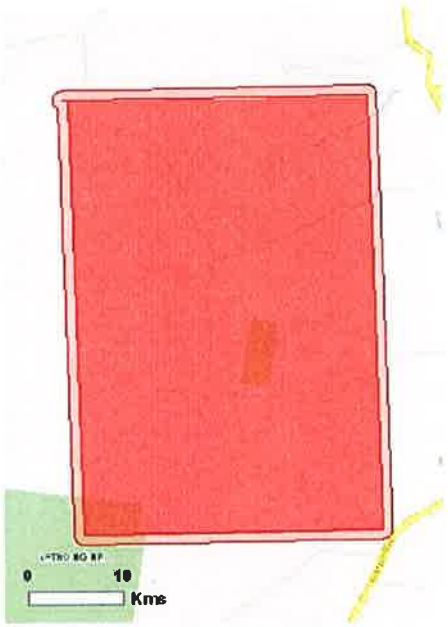

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance (Ramsar Wetlands):	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communitites:	2
Threatened Species:	10
Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	8
Whales and Other Cetaceans:	None

Critical Habitats:	None
Commonwealth Reserves:	None

Report Summary for Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	1
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	6
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans. State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community may occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area

Threatened Species [Resource Information]

Name	Status	Type of Presence
BIRDS		
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Vulnerable	Species or species habitat may occur within area
FISH		
Maccullochella peelii peelii Murray Cod, Cod, Goodoo [68443]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
MAMMALS		
Nyctophilus timoriensis (South-eastern form) Greater Long-eared Bat,	Vulnerable	Species or species habitat may occur within area

South-eastern Long-eared Bat [66888]		
PLANTS		
Acacia curranii Curly-bark Wattle [3908]	Vulnerable	Species or species habitat likely to occur within area
Austrostipa metatoris [66704]	Vulnerable	Species or species habitat likely to occur within area
Pterostylis cobarensis Cobar Greenhood Orchid [12993]	Vulnerable	Species or species habitat likely to occur within area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat likely to occur within area
Migratory Species		**[Resource Information]**
Name	Status	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe [889]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands	**[Resource Information]**

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land - Telstra Corporation Limited

Listed Marine Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe [889]		Species or species habitat may occur within area

Extra Information

Places on the RNE	[Resource Information]
Note that not all Indigenous sites may be listed.	
Name	Status
Natural	
Yathong Nature Reserve NSW	Registered

State and Territory Reserves	[Resource Information]
Yathong, NSW	

Invasive Species		[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.		
Name	Status	Type of Presence
Mammals		
Capra hircus Goat [2]		Species or species habitat may occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		

Rabbit, European Rabbit [128]	Species or species habitat likely to occur within area
Sus scrofa Pig [6]	Species or species habitat likely to occur within area
Plants	
Lycium ferocissimum African Boxthorn, Boxthorn [19235]	Species or species habitat may occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]	Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:
- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:
- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

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Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Protected Matters Search Tool

EPBC Act Protected Matters Report: Coordinates

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

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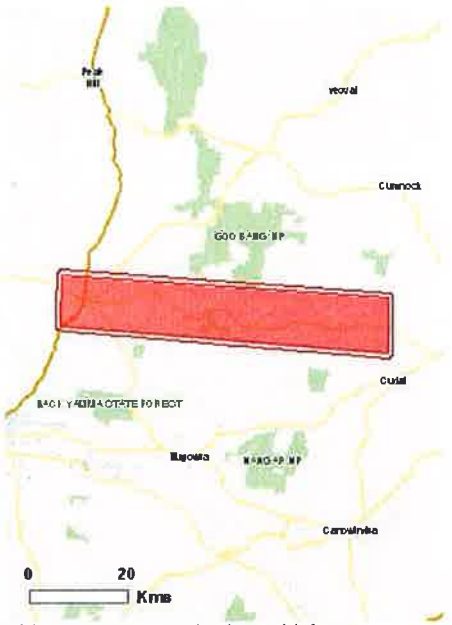

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1Km

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance (Ramsar Wetlands):	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communitites:	3
Threatened Species:	12
Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	5
Commonwealth Heritage Places:	None
Listed Marine Species:	9

Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Report Summary for Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	9
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	13
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Wetlands of International Significance (RAMSAR Sites)	[Resource Information]
Name	Proximity
Coorong and lakes alexandrina and albert	Upstream from Ramsar site
Banrock station wetland complex	Upstream from Ramsar site
Riverland	Upstream from Ramsar site

Threatened Ecological Communities	[Resource Information]	
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.		
Name	Status	Type of Presence
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community may occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area

Threatened Species	[Resource Information]	
Name	Status	Type of Presence
BIRDS		
Anthochaera phrygia Regent Honeyeater [82338]	Endangered	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area

Polytelis swainsonii Superb Parrot [738]	Vulnerable	Breeding likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Vulnerable	Species or species habitat may occur within area
FISH		
Maccullochella peelii peelii Murray Cod, Cod, Goodoo [68443]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
MAMMALS		
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Nyctophilus timoriensis (South-eastern form) Greater Long-eared Bat, South-eastern Long-eared Bat [66888]	Vulnerable	Species or species habitat may occur within area
Pseudomys novaehollandiae New Holland Mouse [96]	Vulnerable	Species or species habitat known to occur within area
PLANTS		
Austrostipa wakoolica [66623]	Endangered	Species or species habitat likely to occur within area
Tylophora linearis [55231]	Endangered	Species or species habitat likely to occur within area
Zieria ingramii Ingram's Zieria [56734]	Endangered	Species or species habitat likely to occur within area

Migratory Species		[Resource Information]
Name	Status	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Xanthomyza phrygia		

Regent Honeyeater [430]	Species or species habitat may occur within area
Migratory Wetlands Species	
Ardea alba	
Great Egret, White Egret [59541]	Species or species habitat may occur within area
Ardea ibis	
Cattle Egret [59542]	Species or species habitat may occur within area
Gallinago hardwickii	
Latham's Snipe, Japanese Snipe [863]	Species or species habitat may occur within area
Rostratula benghalensis s. lat.	
Painted Snipe [889]	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land - Commonwealth Scientific & Industrial Research Organisation
Commonwealth Land - Australian Postal Commission
Defence - PARKES TRAINING DEPOT ; PARKES ACS LAND
Commonwealth Land - Airservices Australia
Commonwealth Land - Australian Telecommunications Commission

Listed Marine Species [Resource Information]

Name	Status	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Lathamus discolor		
Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Rostratula benghalensis s. lat.		
Painted Snipe [889]		Species or species habitat may occur within area

Extra Information

Places on the RNE [Resource Information]

Note that not all Indigenous sites may be listed

Name	Status
Natural	
Curumbenya Nature Reserve (former), now part Goobang National Park NSW	Registered
Indigenous	
Manildra Carved Tree NSW	Registered
Historic	
Goobang Cemetery NSW	Indicative Place
Methodist School Hall NSW	Indicative Place
Parkes General Cemetery NSW	Indicative Place
Parkes Stick Shed NSW	Indicative Place
Parkes Uniting Church NSW	Indicative Place
Parkes Uniting Church Group NSW	Indicative Place
Parkes Courthouse Group NSW	Registered

State and Territory Reserves [Resource Information]

Goobang, NSW

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Mammals		
Capra hircus Goat [2]		Species or species habitat may occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat may occur within area
Sus scrofa Pig [6]		Species or species habitat may occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat may occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat may occur within area
Nassella trichotoma Serrated Tussock, Yass River		Species or species habitat may occur within area

Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]	
Pinus radiata	
Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]	Species or species habitat may occur within area
Rubus fruticosus aggregate	
Blackberry, European Blackberry [68406]	Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtiji	
Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]	Species or species habitat may occur within area
Ulex europaeus	
Gorse, Furze [7693]	Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:
- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

148.13223
-33.08925,148.73066
-33.13446,148.73066
-33.13446,148.72947
-33.23678,148.12866
-33.18443,148.13223 -33.08925

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Other groups and individuals

Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Appendix 3: Threatened Species Profiles (Lachlan Barnato Downs) CMA.

Note: Distribution and ecology notes taken from the OE&H and DSEWPaC websites.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
A Spear-grass	*Austrostipa metatoris*	Vulnerable	Known	**Habitat and ecology**. Flowers in response to rain. Grows in sandy areas of the Murray Valley; habitats include sandhills, sandridges, undulating plains and flat open mallee country, with red to red-brown clay-loam to sandy-loam soils. Associated species include *Eucalyptus populnea, E. intertexta, Callitris glaucophylla, Casuarina cristata, Santalum acuminatum* and *Dodonaea viscosa*. It is not known if fire plays a role in the ecology of this species although most species of *Austrostipa* provide an abundance of highly flammable ephemeral fuel in periods following above-average rainfall. Recorded in populations as locally frequent or dominant only in scattered patches.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
A Spear Grass	*Austrostipa wakoolica*	Conservation status in NSW: Endangered National conservation status: Endangered	Predicted (EPBC search)	A densely-tufted, perennial spear-grass that grows to 1 m tall. The leaves are flattened or rolled, 1.5 - 2.5 mm wide at their bases, slightly to strongly ribbed, and densely hairy. The flower-heads are spreading and moderately dense, to 36 cm long, comprising gaping spikelets 11 - 15 mm long (excluding the awn). The awn (bristle) is twice-bent and 3.5 - 6 cm long. **Distribution** Confined to the floodplains of the Murray River tributaries of central-western and south-western NSW, with localities including Manna State Forest, Matong, Lake Tooim, Merran Creek, Tulla, Cunninyeuk and Mairjimmy State Forest. **Habitat and ecology** • Grows on floodplains of the Murray River tributaries, in open woodland on grey, silty clay or sandy loam soils; habitats include the edges of a lignum swamp with box and mallee; creek banks in grey, silty clay; mallee and lignum sandy-loam flat; open Cypress Pine forest on low sandy range; and a low, rocky rise. • Associated species include Callitris glaucophylla, Eucalyptus microcarpa, E. populnea, Austrostipa eremophila, A. drummondii, Austrodanthonia eriantha and Einadia nutans. • Flowers from October to December, mainly in response to rain. • Seed dispersal is mainly by wind, rain and flood events; the awn and sharp point of the floret appear to be an adaptation for burying the seed into the soil; grass seed is traditionally believed to be viable for three to five years, so a long-lived seed bank is considered unlikely for this species. • Recorded as common in the Mairjimmy State Forest population.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Box-Gum	White Box	Conservation	Predicted (EPBC	**Distribution**	Database searches indicate that this

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
Woodland	Yellow Box Blakely's Red Gum Woodland	status in NSW: Endangered National conservation status: Critically Endangered	search)	Box-Gum Woodland is found from the Queensland border in the north, to the Victorian border in the south. It occurs in the tablelands and western slopes of NSW. **Habitat and ecology** • Characterised by the presence or prior occurrence of White Box, Yellow Box and/or Blakely's Red Gum. • The trees may occur as pure stands, mixtures of the three species or in mixtures with other trees, including wattles. • Commonly co-occurring eucalypts include Apple Box (E. bridgesiana), Red Box (E. polyanthemos), Candlebark (E. rubida), Snow Gum (E. pauciflora), Argyle Apple (E. cinerea), Brittle Gum (E. mannifera), Red Stringybark (E. macrorhyncha), Grey Box (E. microcarpa), Cabbage Gum (E. amplifolia) and others. • The understorey in intact sites is characterised by native grasses and a high diversity of herbs; the most commonly encountered include Kangaroo Grass (Themeda australis) Poa Tussock (Poa sieberiana), wallaby grasses (Austrodanthonia spp.), spear-grasses (Austrostipa spp.), Common Everlasting (Chrysocephalum apiculatum), Scrambled Eggs (Goodenia pinnatifida), Small St John's Wort (Hypericum gramineum), Narrow-leafed New Holland Daisy (Vittadinia muelleri) and blue-bells (Wahlenbergia spp.). • Shrubs are generally sparse or absent, though they may be locally common. • Remnants generally occur on fertile lower parts of the landscape where resources such as water and nutrients are abundant. • Sites with particular characteristics, including varying age classes in the trees, patches of regrowth, old trees with hollows and fallen timber on the ground are very important as wildlife habitat. • Sites in the lowest parts of the landscape often support very large trees which have leafy crowns and reliable nectar flows - sites important for insectivorous and nectar feeding birds. • Sites that retain only a grassy groundlayer and with few or no trees remaining are important for rehabilitation, and to rebuild connections between sites of better quality. • Remnants support many species of threatened fauna and flora. • Retention of remnants is important as they contribute to productive farming systems (stock shelter, seed sources, sustainable grazing and water-table and salinity control). • The fauna of remnants (insectivorous birds, bats, etc) can contribute to insect	species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				control on grazing properties. • Some of the component species (e.g. wattles, she-oaks, native legumes) fix nitrogen that is made available to other species in the community, while fallen timber and leaves recycle their nutrients. • Disturbed remnants are considered to form part of the community, including where the vegetation would respond to assisted natural regeneration.	
Barking Owl	*Ninox connivens*	Vulnerable	Known	**Distribution.** The barking owl is distributed sparsely throughout temperate and semi-arid areas of mainland Australia, however is most abundant in the tropical north (Kavanagh 2002a). Most records for this species occur west of the Great Dividing Range (Kavanagh 2004). **Habitat and ecology.** Habitat for this species includes dry forests and woodlands (Kavanagh 2002a), often in association with hydrological features such as rivers and swamps (Taylor *et al.* 2002). Large hollows are required for breeding.	Database searches indicate that this species is unlikely to occur and was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. (This species is associated with rivers etc) This species would not be affected by the proposed additional work.
Black-breasted Buzzard	*Hamirostra melanosternon*	Vulnerable	Known	**Distribution.** The Black-breasted Buzzard is found sparsely in areas of less than 500mm rainfall, from north-western NSW and north-eastern South Australia to the east coast at about Rockhampton, then across northern Australia south almost to Perth, avoiding only the Western Australian deserts. **Habitat and ecology.** Lives in a range of inland habitats, especially along timbered watercourses which is the preferred breeding habitat. Also hunts over grasslands and sparsely timbered woodlands. Not a powerful hunter, despite its size, mostly taking reptiles, small mammals, birds, including nestlings, and carrion. Also specialises in feeding on large eggs, including those of emus, which it cracks on a rock. Breeds from August to October near water in a tall tree. The stick nest is large and flat and lined with green leaves. Normally two eggs are laid (DEC threatened species website 2005).	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Blue-billed Duck	*Oxyura australis*	Vulnerable	Known	**Distribution.** The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. It is generally only during summer or in drier years that they are seen in coastal areas. **Habitat and ecology.** The Blue-billed Duck prefers deep water in large permanent	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. It will fly if disturbed, but prefers to dive if approached. Blue-billed Ducks will feed by day far from the shore, particularly if dense cover is available in the central parts of the wetland. They feed on the bottom of swamps eating seeds, buds, stems, leaves, fruit and small aquatic insects such as the larvae of midges, caddisflies and dragonflies. Blue-billed Ducks are partly migratory, with short-distance movements between breeding swamps and over-wintering lakes with some long-distance dispersal to breed during spring and early summer. Blue-billed Ducks usually nest solitarily in Cumbungi over deep water between September and February. They will also nest in trampled vegetation in Lignum, sedges or Spike-rushes, where a bowl-shaped nest is constructed. The most common clutch size is five or six. Males take no part in nest-building or incubation. Young birds disperse in April-May from their breeding swamps in inland NSW to non-breeding areas on the Murray River system and coastal lakes (DEC threatened species website 2005).	The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Brolga	*Grus rubicunda*	Vulnerable	Known	**Distribution** Wetlands and farmland. Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. **Habitat and ecology.** They feed using their heavy straight bill as a 'crowbar' to probe the ground or turn it over, primarily on sedge roots and tubers. They will also take large insects, crustaceans, molluscs and frogs. The famous Brolga 'dance' is apparently at least in part a courtship or bonding display where a pair or many pairs face each other, crouch down and stretch upwards, trumpet, leap and toss grass and sticks into the air. The nest comprises a platform of grasses and sticks, augmented with mud, on an island or in the water. Two eggs are laid from winter to autumn. (DEC threatened species website 2005).	Database searches indicate that this species is unlikely to occur and was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Chestnut Quail-thrush	*Cinclosoma castanotus*	Vulnerable	Known	Throughout its distribution it occurs in a wide range of arid and semi-arid habitats; mainly in the low shrubs and undergrowth of mallee scrub, but also in Acacia scrubs, dry sclerophyll woodland, heath, and native pine. However, in NSW it seems to occur almost exclusively in mallee habitats, with understorey dominated by spinifex, chenopods or other shrubs including Acacia species. Only rarely, such as in Cocoparra NP, is it recorded in other types of woodland, and in these areas a dense understorey may be a prerequisite. Occupies vegetation with a wide range of fire histories, though appears to occur at highest densities in areas two to fifteen years post fire. There is some evidence from the Victorian mallee that if the interval between fires is too short (less than fifteen years) local declines may occur. These birds forage on the ground, often among spinifex clumps, on a wide range of	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				invertebrates (including grasshoppers, bugs, beetles, flies, caterpillars and ants), seeds of both native and introduced species and, more rarely, fruits. Its nest is a depression in the ground lined with strips of bark, fine grass or sticks, placed near a mallee trunk, against a fallen branch, under a low bush or in a sparse tuft of grass. Almost always lays a clutch of two eggs.	the proposed additional work.
Diamond Firetail	*Stagonopleura guttata*	Vulnerable	Known	**Distribution.** The diamond firetail is a sedentary finch species which has a recorded habitat of open grassy woodland, mallee and forest, usually in the vicinity of watercourses, wooded urban fringes and smaller town outskirts. **Habitat and ecology.** This species may opportunistically use the woodland galleries The diamond firetail requires regular visits to watering sites during feeding activities.	Database searches indicate that this species is likely to occur (around drainage lines), however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Cattle Egret	*Ardea ibis*	Migratory Species EPBC Act	Predicted	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It has occasionally been seen in arid and semi-arid regions however this is extremely rare. High numbers have been observed in moist, low-lying poorly drained pastures with an abundance of high grass; it avoids low grass pastures. It has been recorded on earthen dam walls and ploughed fields. It is commonly associated with the habitats of farm animals, particularly cattle, but also pigs, sheep, horses and deer. The Cattle Egret is known to follow earth-moving machinery and has been located at rubbish tips. It uses predominately shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and abundant aquatic flora. They have sometimes been observed in swamps with tall emergent vegetation .	No habitat in the Study Areas.
Flame Robin	*Petroica phoenicea*	Vulnerable	Known	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The groundlayer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. Occasionally occurs in temperate rainforest, and also in herbfields, heathlands, shrublands and sedgelands at high altitudes. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains). Often occurs in recently burnt areas; however, habitat becomes unsuitable as vegetation closes up following regeneration. In winter lives	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees. In winter, occasionally seen in heathland or other shrublands in coastal areas. Birds forage from low perches, from which they sally or pounce onto small invertebrates which they take from the ground or off tree trunks, logs and other coarse woody debris. Flying insects are often taken in the air and sometimes gleans for invertebrates from foliage and bark. In their autumn and winter habitats, birds often sally from fence-posts or thistles and other prominent perches in open habitats. Occur singly, in pairs, or in flocks of up to 40 birds or more; in the non-breeding season they will join up with other insectivorous birds in mixed feeding flocks. Breeds in spring to late summer. Nests are often near the ground and are built in sheltered sites, such as shallow cavities in trees, stumps or banks. Builds an open cup nest made of plant materials and spider webs. Eggs are oval in shape and are pale bluish- or greenish-white and marked with brownish blotches; clutch size is three or four eggs.	inspection for this species. This species would not be affected by the proposed additional work.
Fork-tailed swift	*Apus pacificus*	Migratory Species EPBC Act	Predicted	In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. The sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines. They forage aerially, up to hundreds of meters above ground, but also less than 1 m above open areas or over water. They often occur in areas of updraughts, especially around cliffs. They are said to search along edges of low-pressure systems, which assist flight. Low-flying Swifts are said to be precursors of unsettled weather, possibly because insect prey fly at a lower altitude when the air is humid and when the air density is low. They sometimes feed aerially among tree-tops in open forest. They probably roost aerially, but are occasionally observed to land. They were once recorded roosting in trees, using a bare exposed branch emergent above the foliage. Sometimes they loaf in the air, by allowing strong winds to support them). There have been rare records of loafing elsewhere including Swifts briefly resting on ground and alighting on wire netting of a tennis court. Once, one was seen attempting to land on the wall of a lighthouse.	No habitat in the Study Areas.
Gilbert's Whistler	*Pachycephala inornata*	Vulnerable	Known	**Distribution**. The Gilbert's Whistler is sparsely distributed over much of the arid and semi-arid zone of inland southern Australia, from the western slopes of NSW (south from the Warrumbungles) to almost the Western Australian coast. The species was once distributed almost continuously across the southern mallee of	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				NSW. There are now only three separate populations left in NSW. Most of the eastern population occurs in an area enclosed by a line joining Gilgandra to Cobar, then south to Narrandera, east to Wagga Wagga, north to Wellington and back to Gilgandra. The species is also recorded along the Murray River Valley between Mathoura and Wentworth. There is a restricted population in the Scotia mallee area north of Wentworth. The Gilbert's Whistler occurs in ranges, plains and foothills in arid and semi-arid timbered habitats. In NSW it occurs mostly in mallee shrubland, but also in box-ironbark woodlands, Cypress Pine and Belah woodlands and River Red Gum forests. Within the mallee the species is often found in association with an understorey of spinifex and low shrubs including acacias, hakeas, sennas and grevilleas. In woodland habitats, the understorey comprises dense patches of shrubs. **Habitat and ecology.** The Gilbert's Whistler forages on or near the ground in shrub thickets and in tops of small trees. Its food consists mainly of spiders and insects such as caterpillars, beetles and ants. Occasionally, seeds and fruits are eaten. The young are fed insects. Breeding takes place from August to November. Patches of dense understorey shrubs associated with mallee or woodland are essential for territorial pairs to breed. Aggregations of nesting pairs are sometimes recorded. At Cowra three pairs nested in a 25 ha area. Nests are built 2 m above the ground in the fork of dense foliage of prickly plants such as acacias. The nest is either a lined cup or sometimes birds use the old nests of other species, particularly disused babblers' nests. Two or three eggs, occasionally four, are laid. The pair holds and defends the territory all year round. Whistlers do not make any regular large-scale movements, though young disperse after fledging.	2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Greater Long-eared Bat	*Nyctophilus timoriensis (South-eastern form)*	Vulnerable	Known	**Distribution.** The Greater Long-eared Bat is found across much of inland southern Australia and north-eastern Tasmania. It reaches the coast in subtropical Queensland and from the Eyre Peninsula to north of Perth. **Habitat and ecology.** Generally associated with the semi-arid woodlands and mallee. Roosts in tree hollows, crevices, and under loose bark. Slow flying agile bat, utilising the understorey to hunt non-flying prey - especially caterpillars and beetles - and will even hunt on the ground. Mating takes place in autumn with one or two young born in late spring to early summer.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Great Egret	*Ardea alba*	Migratory	Predicted	The Great Egret is partially migratory, with northern hemisphere birds moving south	No habitat in Study Area.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
		Species EPBC Act		from areas with colder winters. It breeds in colonies in trees close to large lakes with reed beds or other extensive wetlands. It builds a bulky stick nest.	
Grey Falcon	*Falco hypoleucos*	Endangered	Known	**Distribution**. Arid zone woodland and scrub. **Habitat and ecology.** It has been recorded along the Culgoa, Paroo, Darling and Murray Rivers on flat mainly treeless or lightly timbered plains with open, drier vegetation types or along the timbered drainage systems where it nests in tall trees near to or overhanging water.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*	Vulnerable	Known	**Distribution**. The Grey-crowned Babbler is found throughout large parts of northern Australia and in south-eastern Australia. In NSW, the eastern sub-species occur on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Hay. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands. **Habitat and ecology.** Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Flight is laborious so birds prefer to hop to the top of a tree and glide down to the next one. Birds are generally unable to cross large open areas. Live in family groups that consist of a breeding pair and young from previous breeding seasons. A group may consist of up to fifteen birds. All members of the family group remain close to each other when foraging. A soft 'chuck' call is made by all birds as a way of keeping in contact with other group members. Feed on invertebrates, either by foraging on the trunks and branches of eucalypts and other woodland trees or on the ground, digging and probing amongst litter and tussock grasses. Build and maintain several conspicuous, dome-shaped stick nests about the size of a football. A nest is used as a dormitory for roosting each night. Nests are usually located in shrubs or sapling eucalypts, although they may be built in the outermost leaves of low branches of large eucalypts. Nests are maintained year round, and old nests are often dismantled to build new ones. Breed between July and February. Usually two to three eggs are laid and incubated by the female. During incubation, the adult male and several helpers in the group may feed the female as she sits on the nest. Young birds are fed by all other members of the group. Territories range from one to	Recorded in McKinnons Pipeline as a result of the original ecological assessment (OzArk 2010). A 7-part test has been provided in OzArk 2010 for this species. This species would not be affected by the proposed additional work.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				fifty hectares (usually around ten hectares) and are defended all year. Territorial disputes with neighbouring groups are frequent and may last up to several hours, with much calling, chasing and occasional fighting (OE&HW threatened species web page 2010).	
Halls Babbler			Known	Inhabits dry Acacia scrub, mainly Mulga, with a grassy understorey including spinifex, on ridges and plains with either sandy or stony soils. Occasionally occurs in open dry Eucalyptus (Bimblebox) woodland, and mulga- or eucalypt-lined watercourses. Hall's Babblers construct neat spherical dome nests, each with a side entrance, from twigs within the outer branches of acacias, in the upright forks of mulgas and Casuarina, or in a horizontal eucalypt branch 3-10 m above the ground. Probably sedentary, maintaining home ranges of up to several hectares which contain a clump of roosting nests, each securely attached to small branches just inside the foliage, 3-7 m above the ground. Appear to occur in very localised patches. These noisy birds are frequently observed in flocks of up to 20 individuals. These birds feed mostly on the ground in grassy areas, they also glean and probe on trunks and branches. Diet includes insects (especially beetle pupae and caterpillars), spiders and seeds.	Recorded in McKinnons Pipeline as a result of the original ecological assessment (OzArk 2010). A 7-part test has been provided in OzArk 2010 for this species. This species would not be affected by the proposed additional work.
Hooded Robin (south-eastern form)	*Melanodryas cucullata cucullata*	Vulnerable	Known	**Distribution**. The Hooded Robin is common in few places, and rarely found on the coast. It is considered a sedentary species, but local seasonal movements are possible. The south-eastern form is found from Brisbane to Adelaide throughout much of inland NSW, with the exception of the north-west. The species is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. **Habitat and ecology.** The nest is a small, neat cup of bark and grasses bound with webs, in a tree fork or crevice, from less than 1 m to 5 m above the ground. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey. Territories range from around 10 ha during the breeding season, to 30 ha in the non-breeding season. May breed any time between July and November, often rearing several broods. The nest is defended by both sexes with displays of injury-feigning, tumbling across the ground. A clutch of two to three is laid and incubated for fourteen days by the female. Two females often cooperate in brooding (OE&HW threatened species web page 2010)	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
Inland Grey Box Woodland	*Inland grey box woodland EEC in the SW Slopes, Brigalow Belt South, Cobar Peneplain, and Riverina Bioregions – Gazetted April 2007.*	Conservation status in NSW: Endangered Ecological Community National conservation status: Endangered Ecological Community	Known (EPBC search)	Inland Grey Box Woodland occurs predominately within the Riverina and South West Slopes regions of NSW down to the Victorian border. It includes Albury to the east and may extend out west towards Hay. This community also extends across the slopes and plains in Central and Northern NSW up to the Queensland Border. This includes Yetman and Inverell in the North, Molong to the east of the Central Slopes and plains and out towards Nymagee to the west.	Was not recorded in the Project Site.
Inland Forest Bat	*Vespadelus baverstocki*	Vulnerable TSC Act	Known	Roosts in tree hollows and abandoned buildings. Known to roost in very small hollows in stunted trees only a few metres high. The habitat requirements of this species are poorly known but it has been recorded from a variety of woodland formations, including mallee, mulga and River Red Gum. Most records are from drier woodland habitats with riparian areas inhabited by the Little Forest Bat. However, other habitats may be used for foraging and/or drinking. Colony size ranges from a few individuals to more than sixty. Females congregate to raise young in November and December, with young carried for the first week following birth. Young are independent by January. These bats fly rapidly and cover an extensive foraging area and are presumed to feed on flying insects.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Kultarr	Antechinomys laniger	Threatened TSC Act	Known (although not listed in the search area)	**Distribution.** The Kultarr is a mouse-sized marsupial with very large ears, long delicate legs and a thin tail that is tipped with a dark tuft. Widespread across arid and semi-arid NSW but present in very low numbers. Records typically derive from captures by domestic cats or are collected after falling into steep-sided holes. Recent records have come primarily from the Cobar and Brewarrina region. The Kultar has been recorded within 15 km of the Project Site. **Habitat and ecology**. It's a terrestrial insectivore that inhabits open country, especially claypans among Acacia woodlands. Nocturnal, sheltering by day in hollow logs or tree-stumps, beneath saltbush and spinifex tussocks, in deep cracks in the soil and in the burrows of other animals. Populations appear to fluctuate seasonally in response to environmental stresses, including declines following periods of drought and intensive flooding. (OE&HW threatened species web page 2010).	Previously recorded close to the Project Site Further work recommended continuing to trap for species and manage any extant population. A 7-part test has been provided in OzArk 2010 for this species. This species would not be affected by the proposed additional work.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
Latham's Snipe	*Gallinago hardwickii*	Migratory Species EPBC Act	Predicted	In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. Latham's Snipe occurs in temperate and tropical regions of Australia. Its altitudinal range extends from sea-level (i.e. the coast) or possibly below. For example, there are records from near Lake Eyre to approximately 2000 m above sea-level. In Australia, Latham's Snipe occurs in a wide variety of permanent and ephemeral wetlands. They usually occur in open, freshwater wetlands that have some form of shelter (usually low and dense vegetation) nearby. They generally occupy flooded meadows, seasonal or semi-permanent swamps, or open waters, but various other freshwater habitats can be used including bogs, waterholes, billabongs, lagoons, lakes, creek or river margins, river pools and floodplains. The structure and composition of the vegetation that occurs around these wetlands is not important in determining the suitability of habitat. As such, snipe may be found in a variety of vegetation types or communities including tussock grasslands with rushes, reeds and sedges, coastal and alpine heathlands, lignum or tea-tree scrub, button-grass plains, alpine herbfields and open forest. Latham's Snipe sometimes occur in habitats that have saline or brackish water, such as saltmarsh, mangrove creeks, around bays and beaches, and at tidal rivers. These habitats are most commonly used when the birds are on migration. They are regularly recorded in or around modified or artificial habitats including pasture, ploughed paddocks, irrigation channels and drainage ditches, ricefields, orchards, saltworks, and sewage and dairy farms . They can also occur in various sites close to humans or human activity (e.g. near roads, railways, airfields, commercial or industrial complexes).The foraging habitats of Latham's Snipe are characterized by areas of mud (either exposed or beneath a very shallow covering of water) and some form of cover (e.g. low, dense vegetation) The snipe roost on the ground near (or sometimes in) their foraging areas, usually in sites that provide some degree of shelter, e.g. beside or under clumps of vegetation, among dense tea-tree, in	No wetland habitat in the Study Areas.
Little Eagle	*Hieraaetus morphnoides*	Vulnerable	Known	Occupies open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Lays two or three eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
					The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Little Pied Bat	*Chalinolobus picatus*	Vulnerable	Known	**Distribution.** The Little-Pied Bat is found in inland Queensland and NSW (including Western Plains and slopes) extending slightly into South Australia and Victoria. **Habitat and ecology.** Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress-pine forest, mallee, Bimbil box. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. Can tolerate high temperatures and dryness but need access to nearby open water. Feeds on moths and possibly other flying invertebrates.	Recorded in the Project Site as a result of the original ecological assessment (OzArk 2010). A 7-part test has been provided in OzArk 2010 for this species. This species would not be affected by the proposed additional work.
Major Mitchell's Cockatoo	*Cacatua leadbeateri*	Vulnerable	Known	**Distribution.** Found across the arid and semi-arid inland, from south-western Queensland south to north-west Victoria, through most of South Australia, north into the south-west Northern Territory and across to the west coast between Shark Bay and about Jurien. In NSW it is found regularly as far east as about Bourke and Griffith, and sporadically further east than that. **Habitat and ecology.** Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pines. Normally found in pairs or small groups, though flocks of hundreds may be found where food is abundant. Nesting, in tree hollows, occurs throughout the second half of the year; nests are at least 1 km apart, with no more than one pair every 30 square kilometres.	Recorded in the Project Site as a result of the original ecological assessment (OzArk 2010). Habitat for the species would not be removed (i.e. breeding trees etc) and mitigation reduced access to the TSF. A 7-part test has been provided in OzArk 2010 for this species. This species would not be affected by the proposed additional work.
Myall Woodland	*Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South western Slopes*	Conservation status in NSW: Endangered Ecological Community National conservation status: Endangered Ecological	Known (EPBC search)	Distribution. This EEC is known from parts of the Local Government Areas of Berrigan, Bland, Bogan, Carrathool, Conargo, Coolamon, Coonamble, Corowa, Forbes, Gilgandra, Griffith, Gwydir, Inverell, Jerilderee, Lachlan, Leeton, Lockhart, Moree Plains, Murray, Murrumbidgee, Narrabri, Narranderra, Narromine, Parkes, Urana, Wagga Wagga and Warren, and but may occur elsewhere in these bioregions.	This EEC was not recorded in the Project Site.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
	bioregions	Community			
Malleefowl	*Leipoa ocellata*	Endangered	Known	**Distribution.** Recorded mainly from the southern half of the western NSW, from the Pilliga forest, south-west to the Griffith and Wentworth districts, excluding the southern Riverina. Marked declines in both distribution and abundance have occurred throughout its range in the last 50 years; for example, in NSW they previously occurred east to Temora and north to around Cobar. Disjunct records occur at "Wallanburra" Station, 45 km south west of Bourke in Mulga/Bimble Box during 1991, Gongolgon in 1994, and Goulbourn River National Park in 1989, however the current status of these populations is unknown. Malleefowl will occupy areas within five years of fire, however they prefer older age classes. **Habitat and ecology**. Predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee found in higher rainfall (300-450 mm mean annual rainfall) areas. Less frequently found in other eucalypt woodlands (e.g., mixed Western Grey Box and Yellow Gum or Bimble Box, Ironbark-Callitris Pine, Callitris Pine, Mulga Acacia aneura, and Gidgee A. cambagei). Prefers areas of light sandy to sandy loam soils and habitats with a dense but discontinuous canopy, dense and variable shrub and herb layers. A pair may occupy a range of between 50 and 500 ha, overlapping with those of their neighbours. Mainly forage in open areas on seeds of acacias and other native shrubs (Cassia, Beyeria, Bossiaea), buds, flowers and fruits of herbs and various shrubs, insects (cockroaches, ants, soil invertebrates), and cereals if available. Incubate eggs in large mounds that contain considerable volumes of sandy soil. The litter within the mounds must be dampened for it to decompose and provide heat for incubation of eggs. (OE&HW threatened species web page 2010)	Previously recorded close to the Project Site Targeted assessment of the impact footprints demonstrated that the species would not be affected (habitat is unlikely to support the species). This species would not be affected by the proposed additional work.
Macquarie Perch	*Macquaria austrslssica*	Vulnerable EPBC	Predicted	The Macquarie Perch is a riverine, schooling species. It prefers clear water and deep, rocky holes with lots of cover. As well as aquatic vegetation, additional cover may comprise of large boulders, debris and overhanging banks. Spawning occurs just above riffles (shallow running water). Populations may survive in impoundments if able to access suitable spawning sites. Spawning sites used by the Macquarie Perch in the rivers flowing into Lake Eildon (between 1966–69) consisted of rubble substrate of small boulders, pebbles and gravel. Water depth was 0.2–0.9 m (usually 0.4–0.6 m) and water velocity was 0.3–0.6 m/s. There was also a pool (usually 15–30 m long and at least 1.5 m deep) immediately upstream and fast-flowing broken water immediately downstream. Although this species can tolerate temperatures of < 9 °C (the temperature of the water at the bottom of Lake Eildon) they appear to require a temperature of at least 16.5 °C for spawning to occur. Newly hatched yolk sac larvae shelter amongst pebbles. In Seven Creeks, this	No habitat in the Study Areas.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				species occurred in deep pools and riffles above falls where the substrate was gravel and boulders.	
Murray Cod	*Maccullochella peelii peelii*	Vulnerable EPBC	Predicted	The Murray Cod is found in a wide range of warm water habitats, from clear, rocky streams to slow-flowing turbid rivers and billabongs. Generally, they are found in waters up to 5 m deep and in sheltered areas with cover from rocks, timber or overhanging banks. The species is highly dependent on wood debris for habitat, using it to shelter from fast-flowing water.	No habitat in the Study Areas.
New Holland Mouse	*Pseudomys novaehollandiae*	National conservation status: Vulnerable	Predicted (EPBC search)	**Distribution and Habitat:** The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. In 2006 there were known to be 6 - 8 metapopulations of the species (NSW Atlas of Wildlife, VIC Atlas of Wildlife, TAS Natural Values Atlas). Across the species' range, the total population size of mature individuals estimated to be less than 10,000 individuals (Menkhorst et al., 2008). A high percentage of the known New Holland Mouse populations have not been surveyed between 1999 and 2009 and therefore the species' actual distribution may be smaller or larger than current estimates. However, given the number of sites from which the species is known to have disappeared between 1999 and 2009, it is likely that the species' distribution is actually smaller than current estimates. Including sites in which the species has not been confirmed between 1999 and 2009, the estimated extent of occurrence of the New Holland Mouse is estimated to be around 108,000 km2 and the area of occupancy is estimated to be around 680 km2. However, including only sites from which the species has been confirmed between 1999 and 2009, the current extent of occurrence is estimated to be around 90,000 km2 and the species' area of occupancy is estimated to be around 420 km2.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Painted Snipe (Australian subspecies) -	*Rostratula benghalensis australis*	Conservation status in NSW: Endangered National conservation status: Vulnerable	Predicted (EPBC search)	Distribution. In NSW, this species has been recorded at the Paroo wetlands, Lake Cowell, Macquarie Marshes and Hexham Swamp. Most common in the Murray-Darling Basin. Habitat and ecology. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. The nest consists of a scrape in the ground, lined with grasses and leaves. Breeding is often in response to local conditions; generally occurs from September to December. Forages nocturnally on mud-flats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter.	Has very low potential to occur and was not recorded. The assessment included targeted inspection for this species. This species would not be affected by the proposed work.
Painted Honeyeater	*Grantiella picta*	Vulnerable	Known	**Distribution.** The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding	Database searches indicate that this species is likely to occur, however

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. **Habitat and ecology.** Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema. Insects and nectar from mistletoe or eucalypts are occasionally eaten. Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches.	was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Pied Honeyeater	*Certhionyx variegatus*	Vulnerable	Known	**Distribution.** Widespread throughout acacia, mallee and spinifex scrubs of arid and semi-arid Australia. Occasionally occurs further east, on the slopes and plains and the Hunter Valley, typically during periods of drought. **Habitat and ecology**. Inhabits wattle shrub (primarily Mulga, *Acacia aneura*), mallee, spinifex and eucalypt woodlands, usually when shrubs are flowering; feeds on nectar, predominantly from various species of emu-bushes (*Eremophila* spp.); also from mistletoes and various other shrubs (e.g. *Brachysema* spp. and *Grevillea* spp.); also eats saltbush fruit, berries, seed, flowers and insects. Highly nomadic, following the erratic flowering of shrubs; can be locally common at times. Constructs a relatively large cup-shaped nest, usually robust, although occasionally loose, constructed of grasses and fine twigs, bound with spider webs, in the fork of a shrub or tree up to 5 m above the ground.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Red-lored Whistler	*Pachycephala rufogularis*	Critically Endangered	Known	Generally occurs singly or in pairs, where it can be secretive, keeping within dense vegetation. In spring, males may sing from the top of low shrubs. Inhabits mallee woodlands with a relatively dense understorey of shrubs and heath plants. The central NSW population (for example in Cocoparra NP) also occurs at low densities in rocky hilltop vegetation with a thick shrub layer such as Broombush or Tea-tree. Appears to occur in all age classes of vegetation, though believed to prefer either one to five years following fire when the resprouting eucalypts provide dense vegetation cover or in long unburnt (greater than 40 years) areas which have a well developed shrub layer. Feeds on the ground, almost entirely on insects (cockroaches, grasshoppers, bugs, lerps, beetles, caterpillars, moths, ants, spiders and insect eggs) and rarely on seeds, including those of saltbush. Breeds late winter to early summer and builds a dome-shaped nest in a concealed location on the ground, using a variety of plant materials.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Rainbow Bee-eater	*Merops ornatus*	Migratory Species	Predicted	In northern Australia, it often inhabits mangroves. The bee-eater has also been recorded in other vegetation types including heathland, sedge land, semi-evergreen	No habitat in the Study Areas.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
		EPBC Act		mesophyll vine forest, and semi-deciduous vine thicket, and at the ecotone between open forest and closed monsoon forest. It also inhabits sand dune systems in coastal areas and at inland sites that are in close proximity to water, and has occasionally been recorded on beaches and coral cays. The Rainbow Bee-eater is also common in cleared and semi-cleared habitats. It occurs in farmland, orchards and vineyards, and is regularly recorded in other disturbed habitats including roadside vegetation and in quarries, mines or gravel pits, where they often breed. It has also been recorded in towns and suburbs and around homesteads. On migration, the Rainbow Bee-eater may also fly over the top of non-preferred habitats such as rainforest or treeless plains. The Rainbow Bee-eater has not been formally identified to occur in any threatened ecological communities. However, the widespread distribution of the bee-eater, and the variety of habitats that it has been recorded in, indicate that it could potentially occur in some of the threatened ecological communities listed under the *EPBC Act 1999*.	
Regent Honeyeater	*Anthochaera phrygia*	Conservation status in NSW: Endangered National conservation status: Endangered	Predicted (EPBC search)	**Distribution** The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Once recorded between Adelaide and the central coast of Queensland, its range has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests. **Habitat and ecology** • The Regent Honeyeater is a flagship threatened woodland bird whose conservation will benefit a large suite of other threatened and declining woodland fauna. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. • Every few years non-breeding flocks are seen foraging in flowering coastal Swamp Mahogany and Spotted Gum forests, particularly on the central coast and occasionally on the upper north coast. Birds are occasionally seen on the south coast.	Database searches indicate that this species has potential to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. This species would not be affected by the proposed additional work.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				• In the last 10 years Regent Honeyeaters have been recorded in urban areas around Albury where woodlands tree species such as Mugga Ironbark and Yellow Box were planted 20 years ago. • The Regent Honeyeater is a generalist forager, which mainly feeds on the nectar from a wide range of eucalypts and mistletoes. Key eucalypt species include Mugga Ironbark, Yellow Box, Blakely's Red Gum, White Box and Swamp Mahogany. Also utilises : E. microcarpa, E. punctata, E. polyanthemos, E. mollucana, Corymbia robusta, E. crebra, E. caleyi, Corymbia maculata, E.mckieana, E. macrorhyncha, E. laevopinea, and Angophora floribunda. Nectar and fruit from the mistletoes A. miquelii, A. pendula, A. cambagei are also eaten during the breeding season. When nectar is scarce lerp and honeydew comprise a large proportion of the diet. Insects make up about 15% of the total diet and are important components of the diet of nestlings. A shrubby understorey is an important source of insects and nesting material. • Colour-banding of Regent Honeyeater has shown that the species can undertake large-scale nomadic movements in the order of hundreds of kilometres. However, the exact nature of these movements is still poorly understood. It is likely that movements are dependent on spatial and temporal flowering and other resource patterns. To successfully manage the recovery of this species a full understanding of the habitats used in the non-breeding season is critical. • There are three known key breeding areas, two of them in NSW - Capertee Valley and Bundarra-Barraba regions. The species breeds between July and January in Box-Ironbark and other temperate woodlands and riparian gallery forest dominated by River Sheoak. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria. • An open cup-shaped nest is constructed of bark, grass, twigs and wool by the female. Two or three eggs are laid and incubated by the female for 14 days. Nestlings are brooded and fed by both parents at an average rate of 23 times per hour and fledge after 16 days. Fledglings fed by both parents 29 times per hour.	
Shy Heathwren	*Hylacola cauta*	Vulnerable	Known	**Distribution** Occurs across southern Australia extending from the wheatbelt in southern Western Australia east to central NSW, including Kangaroo Island. Two subspecies occur in NSW. The first (*macrorhyncha*) is confined to central NSW between Griffith, Roto, Nymagee and West Wyalong, with most records within DECC managed reserves (including Yathong, Nombinnie, Round Hill and The Charcoal Tank NRs and Cocoparra NP). The nominate subspecies (*cauta*) occurs in the far south west	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				between Balranald and Trentham Cliffs (including Mallee Cliffs NP), north into the Scotia Mallee (including Tarawi NR and Scotia Sanctuary). This subspecies also occurs in north west Victoria and eastern South Australia (as far west as the Flinders Ranges). **Habitat and ecology** • Generally occurs singly or in pairs, where it can be secretive, keeping within dense vegetation. In spring, males may sing from the top of low shrubs. • Inhabits mallee woodlands with a relatively dense understorey of shrubs and heath plants. The central NSW population (for example in Cocoparra NP) also occurs at low densities in rocky hilltop vegetation with a thick shrub layer such as Broombush or Tea-tree. • Appears to occur in all age classes of vegetation, though believed to prefer either one to five years following fire when the resprouting eucalypts provide dense vegetation cover or in long unburnt (greater than 40 years) areas which have a well developed shrub layer. • Feeds on the ground, almost entirely on insects (cockroaches, grasshoppers, bugs, lerps, beetles, caterpillars, moths, ants, spiders and insect eggs) and rarely on seeds, including those of saltbush. • Breeds late winter to early summer and builds a dome-shaped nest in a concealed location on the ground, using a variety of plant materials.	The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Sloane's Froglet	*Crinia sloanei*	Vulnerable	Known	It is typically associated with periodically inundated areas in grassland, woodland and disturbed habitats.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Southern Scrub-robin	*Drymodes brunneopygia*	Vulnerable	Known	**Distribution** This species is restricted to mallees and shrublands across southern Australia and in NSW is confined to two main areas. The first is in central NSW and is centred on	Database searches indicate that this species is likely to occur, however was not recorded as a result of the

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				Round Hill and Nombinnie Nature Reserves, though suitable habitat probably exists on adjoining leasehold lands. This population once extended south and east to near Griffith and West Wyalong, but clearing appears to have led to its local extinction in most of this region. The final record from The Charcoal Tank NR was in 1993, while in Pulletop NR it has not been observed since 1982. The other population occurs in the far south west of NSW, mainly within the Scotia mallee centred on Tarawi NR and Scotia Sanctuary. Records east of the Darling River are more scattered, with recent confirmation in Mallee Cliffs NP, and a new population recently detected on leasehold land to the north of Euston. Other populations may still occur in other areas of mallee, particularly those with a well developed shrub layer in the south west corner of the state. **Habitat and ecology** • Inhabits mallee and acacia scrub, particularly with dense sub-shrubs in the understorey, including Broombush and other dry shrubs. • Occupies vegetation with a post fire age of 4-80 years, but is most abundant in areas with a post fire age of 26-40 years as dependent on a well-developed shrub layer. • Forages around the base of mallee trees and on the ground beneath shrubs for ground- and litter-dwelling invertebrates, with certain ant species dominating. • Constructs a shallow cup-shaped nest of twigs, bark and grass, which is normally located on the ground and usually concealed in the shelter of a tree, shrub or fallen branch. This species usually has a clutch of only one egg.	original ecological assessment (OzArk 2010) or as a result of the current assessment. No Wildlife Atlas records are for this in the Cobar LGA. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
Speckled Warbler	*Pyrrholaemus saggitatus*	Vulnerable	Known	**Distribution.** The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. There has been a decline in population density throughout its range, with the decline exceeding 40% where no vegetation remnants larger than 100ha survive. **Habitat and ecology.** The Speckled Warbler lives in a wide range of eucalypt dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. The diet consists of seeds and insects, with most foraging taking place on the ground around tussocks and under bushes and trees. Pairs are sedentary and occupy a breeding territory of about ten hectares, with a slightly larger home-range when not breeding. The rounded, domed, roughly built nest of dry grass and strips of bark is located in	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				a slight hollow in the ground or the base of a low dense plant, often among fallen branches and other litter. A side entrance allows the bird to walk directly inside. A clutch of 3-4 eggs is laid, between August and January, and both parents feed the nestlings. The eggs are a glossy red-brown, giving rise to the unusual folk names 'Blood Tit' and 'Chocolatebird'. Some cooperative breeding occurs. The species may act as host to the Black-eared Cuckoo. Speckled Warblers often join mixed species feeding flocks in winter, with other species such as Yellow-rumped, Buff-rumped, Brown and Striated Thornbills.	
Superb Parrot	*Polytelis swainsonii*	Vulnerable	Known	**Distribution.** The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. It is estimated that there are less than 5000 breeding pairs left in the wild. **Habitat and ecology.** Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakelys Red Gum, Yellow Box, Apple Box and Red Box. Nest in small colonies, often with more than one nest in a single tree. Breed between September and January. May forage up to 10 km from nesting sites, primarily in grassy box woodland. Feed in trees and understorey shrubs and on the ground and their diet consists mainly of grass seeds and herbaceous plants. Also eaten are fruits, berries, nectar, buds, flowers, insects and grain.	Recorded in the Project Site as a result of the original ecological assessment (OzArk 2010). A 7-part test has been provided in OzArk 2010 for this species. This species would not be affected by the proposed additional work.
Spotted Harrier	*Circus assimilis*	Vulnerable	Known	The Spotted Harrier *Circus assimilis* is a medium-sized (50-60 cm), slender bird of prey having an owl-like facial ruff that creates the appearance of a short, broad head, and long, bare yellow legs. The upperparts are blue-grey with dark barring, and the wingtips are black. The face, innerwing patch, and underparts are chestnut. The long tail is boldly banded, with a wedge-shaped tip. Juveniles are mottled and streaked ginger and brown, with prominent ginger shoulders, fawn rump and banded tail. The very similar Swamp Harrier is generally browner with a prominent white rump, a more rounded, less banded tail, and barred rather than solid black wingtips. The Square-tailed Kite has a pale face, short legs, and longer, boldly banded wingtips. The Spotted Harrier occurs in grassy open woodland including	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe (*e.g.* chenopods) (Marchant and Higgins 1993; Aumann 2001a). It is found mostly commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. The species builds a stick nest in a tree and lays eggs in spring (or sometimes autumn), with young remaining in the nest for several months.	This species would not be affected by the proposed additional work.
Striated Grasswren	*Amytornis striatus*	Vulnerable	Known	**Distribution** This species is widely distributed through the arid and semi-arid regions of mainland Australia, with three subspecies currently recognised. In NSW, the race striatus was formerly distributed from the Namoi Valley area through the southern half of the Murray-Darling Basin. It is now currently known from only two disjunct localities. In central NSW, populations remain extant in Yathong Nature Reserve and surrounding areas of leasehold land. A second population occurs in south-western NSW in the Scotia Mallee west of the Darling River, including Tarawi NR, Scotia Sanctuary and adjoining properties. This population is contiguous with populations in adjoining mallee country in South Australia. **Habitat and ecology** • Confined to areas with mature spinifex (Triodia irritans), usually in association with mallee eucalypts and sandy soils. • Usually recorded in pairs, though often in small parties, and first often detected by its call. Can be shy and difficult to observe, though may also be inquisitive and respond to observers, particularly during the breeding season. • Occupies vegetation with a post fire age of six to 30 years. • Feeds on the ground upon small invertebrates and seeds. • Nests are a substantial dome of interwoven grasses, bark and spinifex, well-hidden towards the top of a spinifex clump.	This species was not recorded during the assessment. Habitat critical for breeding etc would remain unaffected. This species will not be affected by the proposed works.
Swift Parrot	*Lathamus discolor*	Conservation status in NSW: Endangered National conservation status: Endangered	Predicted (EPBC search)	**Distribution** Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. **Habitat and ecology** • Migrates to the Australian south-east mainland between March and October. • On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. • Favoured feed trees include winter flowering species such as Swamp Mahogany	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				Eucalyptus robusta, Spotted Gum Corymbia maculata, Red Bloodwood C. gummifera, Mugga Ironbark E. sideroxylon, and White Box E. albens. • Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box E. moluccana and Blackbutt E. pilularis. • Return to some foraging sites on a cyclic basis depending on food availability. • Following winter they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum Eucalyptus globulus.	This species would not be affected by the proposed additional work.
Turquoise Parrot	*Neophema pulchella*	Vulnerable	Known	**Distribution.** The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. **Habitat and ecology.** Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. Usually seen in pairs or small, possibly family, groups and have also been reported in flocks of up to thirty individuals. Prefers to feed in the shade of a tree and spends most of the day on the ground searching for the seeds or grasses and herbaceous plants, or browsing on vegetable matter. Forages quietly and may be quite tolerant of disturbance. However, if flushed it will fly to a nearby tree and then return to the ground to browse as soon as the danger has passed. Nests in tree hollows, logs or posts, from August to December. It lays four or five white, rounded eggs on a nest of decayed wood dust.	Has potential to occur but was not recorded. The assessment included targeted inspection for this species. This species would not be affected by the proposed work.
Tylophora linearis	Tylophora linearis	Conservation status in NSW: Endangered National conservation status: Vulnerable	Predicted (EPBC search)	**Distribution** Found in the Barraba, Mendooran, Temora and West Wyalong districts in the northern and central western slopes of NSW. Records include Crow Mountain near Barraba, Goonoo SF, Pillaga West SF, Cumbil SF, Eura SF, Coolbaggie NR, Goobang NP and Beni CCA. Also occurs in Qld, from near Glenmorgan in the western Darling Downs. **Habitat and ecology** • Grows in dry scrub and open forest. Recorded from low-altitude sedimentary flats in dry woodlands of Eucalyptus fibrosa, Eucalyptus sideroxylon, Eucalyptus albens, Callitris endlicheri, Callitris glaucophylla and Allocasuarina luehmannii. • Also grows in association with Acacia hakeoides, Acacia lineata, Melaleuca uncinata, Myoporum species and Casuarina species. • Flowers in spring, with flowers recorded in November or May with fruiting probably 2 to 3 months later.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				• Very low number of confirmed populations and has been recorded in very low abundances.	
Western Blue-tongued Lizard	*Tiliqua occipitalis*	Vulnerable	Known	**Habitat and ecology** • Diurnally forages for insects, snails, native vegetation and carrion. • Inhabits plains, swales, ranges and sometimes dunes of loamy or clayey/sandy soils vegetated by woodlands, especially mallee, shrublands (including chenopods), heaths or hummock grasslands. Preferred vegetation type appears to be mixed mallee/Triodia communities. • Terrestrial, and known to utilise rabbit warrens for shelter	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
White-fronted Chat	*Epthianura albifrons*	Vulnerable	Known	The White-fronted Chat is found across the southern half of Australia, from southernmost Queensland to southern Tasmania, and across to Western Australia as far north as Carnarvon. Found mostly in temperate to arid climates and very rarely sub-tropical areas, it occupies foothills and lowlands up to 1000 m above sea level. In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas. **Habitat and ecology** • Gregarious species, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feedin mainly on flies and beetles caught from or close to the ground. • Have been observed breeding from late July through to early March, with 'open-cup' nests built in low vegetation. Nests in the Sydney region have also been seen in low isolated mangroves. Nests are usually built about 23 cm above the ground (but have been found up to 2.5 m above the ground). • Two to three eggs are laid in each clutch, and the complete nesting cycle from nest-building to independent young is approximately 50 days • Birds can breed at one year of age and are estimated to live for five years.	Database searches indicate that this species is likely to occur, however was not recorded as a result of the original ecological assessment (OzArk 2010) or as a result of the current assessment. No Wildlife Atlas records are for this in the Cobar LGA. The assessment included targeted inspection for this species. This species would not be affected by the proposed additional work.
White-bellied Sea-eagle	*Haliaeetus leucogaster*	Migratory Species EPBC Act	Predicted	The White-bellied Sea-Eagle is found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle	No coastal habitat in the Study Areas.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). Birds have been recorded in (or flying over) a variety of terrestrial habitats. The species is mostly recorded in coastal lowlands, but can occupy habitats up to 1400 m above sea level on the Northern Tablelands of NSW and up to 800 m above sea level in Tasmania and South Australia. Birds have been recorded at or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds. They also occur at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest (including rainforest) and even urban areas. Breeding has been recorded on the coast, at inland sites, and on offshore islands. Breeding territories are located close to water, and mainly in tall open forest or woodland, although nests are sometimes located in other habitats such as dense forest (including rainforest), closed scrub or in remnant trees on cleared land. The White-bellied Sea-Eagle generally forages over large expanses of open water; this is particularly true of birds that occur in coastal environments close to the sea-shore, where they forage over in-shore waters. However, the White-bellied Sea-Eagle will also forage over open terrestrial habitats (such as grasslands). Birds may move to and congregate in favourable sites during drought or food shortage. There are no published sources that state that the White-bellied Sea-Eagle occurs in any threatened ecological communities. However, given the widespread distribution of the species, its ability to make long-distance movements, and the broad range of habitats that it may be recorded in or flying over, it is possible that the sea-eagle may occur in one or more of the threatened communities listed under the EPBC Act 1999. The White-bellied Sea-Eagle is not known to associate with any other listed threatened species.	
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	Vulnerable	Known	**Distribution.** The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes. **Habitat and ecology**. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Breeding has been recorded from December to mid-March, when a single young is born. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late	Recorded in the Project Site as a result of the original ecological assessment (OzArk 2010). A 7-part test has been provided in OzArk 2010 for this species. This species would not be affected by the proposed additional work.

Common Name	Scientific Name	Level of Threat	Known or predicted to Occur	Ecology	Prediction /Comment
				summer and autumn.	
Zieria ingramii	*Zieria ingramii*	Conservation status in NSW: Endangered National conservation status: Endangered	Predicted (EPBC search)	**Distribution** Known only from Goonoo Goonoo State Forest, about 40 km north-east of Dubbo. An old record exists from a locality east of Mogriguy on the Mendooran Road, however searches of the area have not relocated the species. **Habitat and ecology** • Grows in dry sclerophyll forest on light sandy soils. All known populations have been recorded in Eucalyptus-Callitris woodland or open forest with a shrubby to heathy understorey. • Mostly from gentle slopes in red-brown and yellow-brown sandy loams, often with a rocky surface. • Associated and understorey species include Eucalyptus crebra, Eucalyptus fibrosa, Eucalyptus dwyeri, Eucalyptus beyeriana, Eucalyptus microcarpa, Callitris endlicheri, Allocasuarina diminuta, Allocasuarina distyla, Allocasuarina verticillata, Leptospermum divaricatum, Leptospermum parvifolium, Acacia triptera, Acacia gladiiformis, Acacia brownii, Grevillea floribunda, Grevillea triternata, Hakea decurrens, Boronia glabra, Philotheca salsolifolia, Leucopogon attenuatus, Melaleuca uncinata, Melaleuca erubescens, Kunzea parvifolia, Calytrix tetragona, Brachyloma daphnoides, Melichrus urceolatus, Cassinia aculeata, Dodonaea viscosa subsp. spatulata, Dodonaea peduncularis, Dodonaea heteromorpha, Dillwynia sericea, Hibbertia riparia, Dampiera lanceolata, Dianella longifolia, Prostanthera species and Goodenia species. • Flowering time is in spring and plants bear fruit in summer. Plants can produce flowers and fruits any time between July and March. • Grows only in small localised populations within the north-east and central areas of Goonoo State Forest. Population sizes vary from 6 to 80 individuals. The age structure within populations may be even and single-aged or uneven and multi-aged.	

Location of Wonawinta Isolated Find 11 (WIF-11).

Environmental &
Heritage Management P/L

WONAWINTA SILVER PROJECT: CHANGE OF SCOPE

Cultural Heritage Assessment

Cobar Local Government Area

May 2011

Report Prepared by

OzArk Environmental & Heritage Management Pty Ltd

For Cobar Consolidated Resources (CCR)

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EXECUTIVE SUMMARY

This report was commissioned by Cobar Consolidated Resources Limited (CCR). It details the results of a cultural heritage assessment undertaken on the 12th of May 2011 by Dr Jodie Benton of OzArk Environmental & Heritage Management (OzArk EHM). The assessment aimed to identify Aboriginal items or objects that could be affected by a change in scope and additional works not included in the approved Wonawinta Silver Project ("the Project") Environmental Impact Statement (EIS).

The Proposal consists of two additional features to the already approved Project. Specifically, a water pipeline and haul road, which both connect to infrastructure within the already approved Project Site (**Figure 1**).

One Aboriginal Site (isolated find WIF-11) was recorded in the Water Pipeline Study Area.

It is recommended that:

- High visibility nightline is installed around site WIF-11 to ensure the protection of the artefact during both the short term construction phase of development and the long term operation of the Project. If the Proposal is altered, care must be taken to ensure that sites previously assessed as not impacted, remain so.
- Management of the isolated find can be incorporated into an Aboriginal Heritage Management Plan (AHMP), should one be developed for the Project (see OzArk 2010).
- Should any other 'objects' or other Aboriginal sites be identified during the course of construction, work in that area should cease and OEH be contacted to discuss how to proceed.

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Figures

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Appendix

1.0 INTRODUCTION

1.1 Brief Description of the Proposal

This report was commissioned by Cobar Consolidated Resources Limited (CCR). It details the results of a cultural heritage assessment undertaken on the 12th of May 2011 by Dr Jodie Benton of OzArk Environmental & Heritage Management (OzArk EHM). The assessment aimed to identify Aboriginal items or objects that could be affected by a change in scope and additional works not included in the approved Wonawinta Silver Project ("the Project") Environmental Impact Statement (EIS).

1.2 Background

An EIS and specialist cultural heritage assessment was prepared for the Project by R.W. Corkery & Co. Pty. Limited (RWC) and OzArk EHM on behalf of CCR in 2010. The area assessed in the 2010 EIS comprised two distinct pipelines 'McKinnon's pipeline route' and "Mirrabooka pipeline route" and the area of mine infrastructure 'Project Site'. The Development Application (DA) and EIS were lodged with Cobar Shire Council on 22 December 2010 and approved in May 2011.

Since this time, the scope of works has changed and the McKinnon's and Mirrabooka pipelines are no longer a feature of the Project. Instead a proposed pipeline south of the approved Project Site will supply water to the mine site. In addition to the pipeline, a new haul road is also proposed. As these impacts were not envisaged during the concept development stage, the additional works were not covered in the RWC (2010) EIS. Thus, the purpose of this report is to provide additional information on areas not assessed by the original EIS and supporting cultural heritage assessment undertaken by OzArk in 2010.

For ease of identification, and to obtain an understanding of the wider impacts of the Project, this cultural heritage report should be read in conjunction with the *Wonawinta Silver Project Aboriginal Cultural Heritage Assessment* (OzArk 2010) and *Wonawinta Silver Project Environmental Impact Statement* (RWC 2010).

1.3 Location

The Project is located 88 km south of Cobar. The Haul Road Study Area starts at the "Manuka" pastoral property (Lot 3632, DP766014), bears 250 m north then west for 400 m before joining to the approved Project Site (**Figure 1**).

The Water Pipeline Study Area is located south of the approved Project Site. The pipeline stats at a farm bore, then tracks north for 1.3k m before joining to the approved Project Site (**Figure 1**).

1.4 Definitions

The following definitions and term as are used through this report.

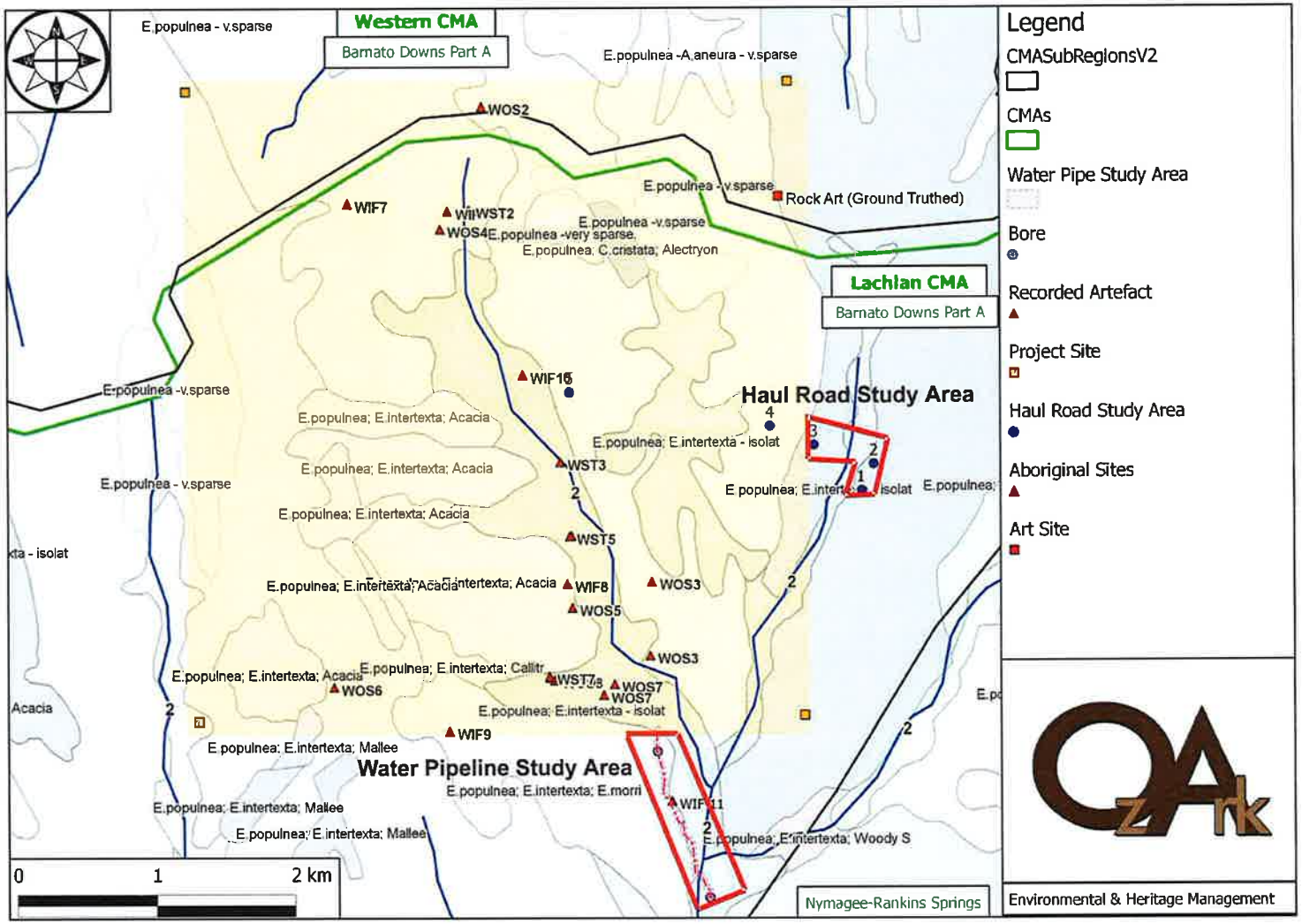
Activity — has the same meaning as defined by the EP&A Act. The EP&A Act definition refers to physical 'activity' in relation to land that is specified by a regulation to be a work for the purposes of the Act. The nature of the proposed activity is described in Section 2.

Impact Footprint — refers to an area within a given Study Area that would be mechanically destroyed, disturbed or altered to construct infrastructure associated with the activity. The Impact Footprint for the Project is described in section 2.1

Locality — means the area within a 50 km radius of the Study Area centred on the Project Site.

Study Area — is a specific area that has been assessed. A 1.3 km x 20 m wide area was assessed for the Water Pipeline Study Area as identified on **Figure 1**. A 650 m x 20 m wide area was assessed for the Haul Road Study Area as identified on **Figure 1**.

Figure 1: Location of Water Pipeline Study Area and Haul Road Study Area in relation to the approved Project Site and previously recorded Aboriginal sites.



2.0 THE PROPOSAL

2.1 Proposed Works

The Proposal consists of two additional features to the already approved Project. Specifically, a water pipeline and haul road, which both connect to infrastructure within the already approved Project Site (**Figure 1**).

2.1.1 Haul Road Study Area.

Only a portion of the proposed haul road (weigh points 1 to 3) is situated outside the approved Project Site. Construction of the road will require ground surface disturbance activities and clearing over a 650 x 20 m area (Impact Footprint). The area will be stripped of all vegetation by backhoes or bulldozers and a small windrow of dirt established either side of the formed road (see **Plate 1**).

2.1.2 Water Pipeline Study Area

The Water Pipeline Study Area will require ground surface disturbing activities over a 1.3 km x 3 m area (Impact Footprint).

The pipeline would be constructed of 315mm OD polypipe and would require a disturbance area approximately the width of a backhoe (c. 3m) along its length. The pipelines would be buried up to approximately 1m below the surface for the entire pipeline route. With the exception of each end of the pipeline, and outlets constructed along the pipeline route. All joins in the pipeline would be butt fusion welded and tests would be undertaken to ensure the integrity of each join before it is buried.

2.2 OzArk Project Scope

This heritage assessment included the following aspects.

- Searches of all relevant registers of information for Aboriginal heritage namely:
  - the NSW Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS);
  - the NSW Heritage Office State Heritage Register and Inventory;
  - the Australian Heritage Database; and
  - the Cobar Local Environment Plan (LEP) 2001.
- Review of current legislation including:
  - the New South Wales Heritage Act 1977 (Heritage Act);
  - New South Wales National Parks & Wildlife Act 1974 (NPW Act);
  - Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act); and
  - the Environmental Planning and Assessment Amendment (Infrastructure and Other Planning Reform) Act 2005 (EP&A Act).
- Review and synthesis of available relevant literature including previous Aboriginal heritage assessment reports, academic theses/articles and available works on the history and ethnography of the Cobar region:

- Consultation with the Cobar Local Aboriginal Land Council (CLALC);
- Pedestrian field survey to identify and record cultural heritage sites and objects over the Study Area;
- Assessment of the significance of recorded sites and the formulation of appropriate management strategies; and
- Completion of documentary evidence (e.g. AHIMS site cards, NSW State Heritage site cards) for any sites/objects located during the survey for the notification of the relevant authorities.

2.3 Heritage Survey Constraints

Ground surface visibility was the only constraint that affected the efficacy of the field survey. In places the visibility may have been low, but there were always extensive bare patches nearby to afford visibility. See section 1.4 of the original cultural heritage assessment (OzArk 2010) for further detail on ground surface visibility in the approved Project Site.

2.4 Heritage Assessment Methodology

Both Study Areas were assessed in entirety on foot with personnel spaced 5 m apart.

2.4.1 Aboriginal Community Involvement

Extensive consultation has taken place for the approved Project. Aboriginal community consultation for the Project was initially undertaken as per the "Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005) and Part 6 Approvals of the National Parks & Wildlife Act 1974 (as amended) and OEH Interim Aboriginal Community Consultation Requirements 1995 (ICCRs). New legislation detailing the requirements of Aboriginal community consultation "Aboriginal cultural heritage consultation requirements for proponents 2010" (ACHCR) under Part 6 of the NPW Act came into force midway through the Project.

This Proposal is a sub component of the aforementioned project and additional Aboriginal community consultation was undertaken directly with Cobar Local Aboriginal Land Council (Cobar LALC).

Two positions were made available to Cobar LALC representatives to participate in the additional heritage assessment fieldwork.

Mr Norman Ohlsen representing Cobar LALC participated in the survey on the 12th of May 2011, unfortunately Bill Lord also representing Cobar LALC was unable to participate in the field survey.

Appendix 1 shows correspondence with the Aboriginal communities while **Appendix 2** provides a letter from Mr Ohlsen regarding the survey results.

2.4.2 OzArk EHM Involvement

Field assessment

- The heritage assessment was conducted on the 12th of May 2011 by Dr Jodie Benton of OzArk.

Reporting

The reporting component of the current project was undertaken by:

- Report author: Heidi Kolkert (BA, BSc [Hons] University of Tasmania; and
- Reviewer: Dr Jodie Benton (BA [Hons] University of Sydney, PhD University of Sydney).

3.0 ENVIRONMENTAL SETTINGS

Both Study Areas are situated within the Lachlan (Barnato Downs) Catchment Management Authority (LBD-CMA) within the Cobar Peneplain Bioregion CPBR. For further information on the approved Project Site and general environs, refer to the original EIS (RWC 2010) and cultural heritage report (OzArk 2010).

3.1 Haul Road Study Area

The Haul Road Study Area is situated in vegetation consistent with Benson 103 (Benson et.al. 206) on relatively flat low-lying land (**Plate 1**). An unnamed ephemeral drainage line traverses the Study Area between weigh points 2 and 3 (**Figure 1**).

3.2 Water Pipeline Study Area

The Water Pipeline Study Area weaves through vegetation consistent with Benson 103 (Benson et.al. 206) and cleared / disturbed grasslands (**Plates 2** and **3**). An unnamed ephemeral drainage line traverses the southern portion of the proposed pipeline (**Figure 1**).

4.0 INDIGENOUS HERITAGE

Details of ethno-historic sources of past aboriginal culture and archaeology relevant to the Project have been examined in the original cultural heritage report (refer to Section 4.0 of the OzArk 2010 report).

4.1 Local Archaeological Context

25 Aboriginal sites were recorded in the approved Project Site as a result of the original cultural heritage assessment (OzArk 2010). Specifically, 18 were recorded in the Project Site Study Area, one in the 'McKinnons pipeline Study Area' and six in the 'Mirrabooka pipeline Study Area'. In total, eight open sites were recorded along with seven modified trees and ten isolated finds. The closest site to the current Study Areas is an isolated find (WIF-10) and is located approximately 400 m west of the Haul Road Study Area (**Figure 2**).

4.2 Predictive Model For Site Location

As a result of the original cultural heritage survey over the approved Project Site, no landform apart from those with sites recorded was assessed as holding potential to contain further, undetected archaeological deposits. Further, the flat topography and ill-defined drainage systems within the two Study Areas indicate that permanent water would have been rare.

As discussed in the original cultural heritage assessment (Section 4.4 OzArk 2010) archaeological research across the region has indicated that there is a strong association between the location of open sites and the proximity to water. Further, larger, more complex open sites tend to be located near more-permanent water and artefact densities and complexity tend to diminish as the distance to water increases. While this general observation was true, sites could also be located due to a range of factors such as camp sites on pathways through the landscape, food gathering sites, ceremonial sites and quarry sites. These site types may be used sporadically when compared to base camps, but they may have been used for a long period and will also display signs of size and complexity.

5.0 SURVEY RESULTS

5.1 Aboriginal sites recorded

One (1) isolated find was identified in the Water Pipeline Study Area (GDA Zone 55; 382832.2118 E 6429946 N). Wonawinta Isolated Find-11 (WIF-11) is a chert / mudstone artefact. The artefact is a flake with three negative scars, evident bulb and wide platform measuring 36 x 28 x 10 mm. The flake was recorded in vegetation type Benson 103 (Benson *et. al* 2006) in an area of high visibility and no background noise. WIF-11 is outside the proposed Impact Footprint (**Figures 3** and **4; Plates 4** and **5**).

5.2 Aboriginal Sites Re-located

The site of a second isolated find (WIF-10) recorded as part of the original heritage assessment (OzArk 2010) was revisited during this survey for the purpose of undertaking ameliorative measures (fencing off) as specified in the original cultural heritage report (OzArk 2010). WIF-10 is situated in the Impact Footprint of the approved project (RWC 2010) and will be the subject of a future AHIP. It is noted that in the Aboriginal Community letter in **Appendix 2**, Mr Ohlsen has indicated the recording of two isolated finds which includes WIF-11 and previously recorded WIF-10.

6.0 DISCUSSION

The landform of the two Study Areas is flat and relatively low-lying. Creeks that traverse the Study Areas, tend to be temporary; although swampy areas may well have existed where farm dams/tanks have now been constructed.

The isolated find recorded during the survey shows the pattern of site type distribution is consistent with the predictive model outlined in Section 4.4 of the original cultural heritage report (**OzArk 2010**).

Figure 2: Aboriginal Sites mapped in the Haul Road Study Area.

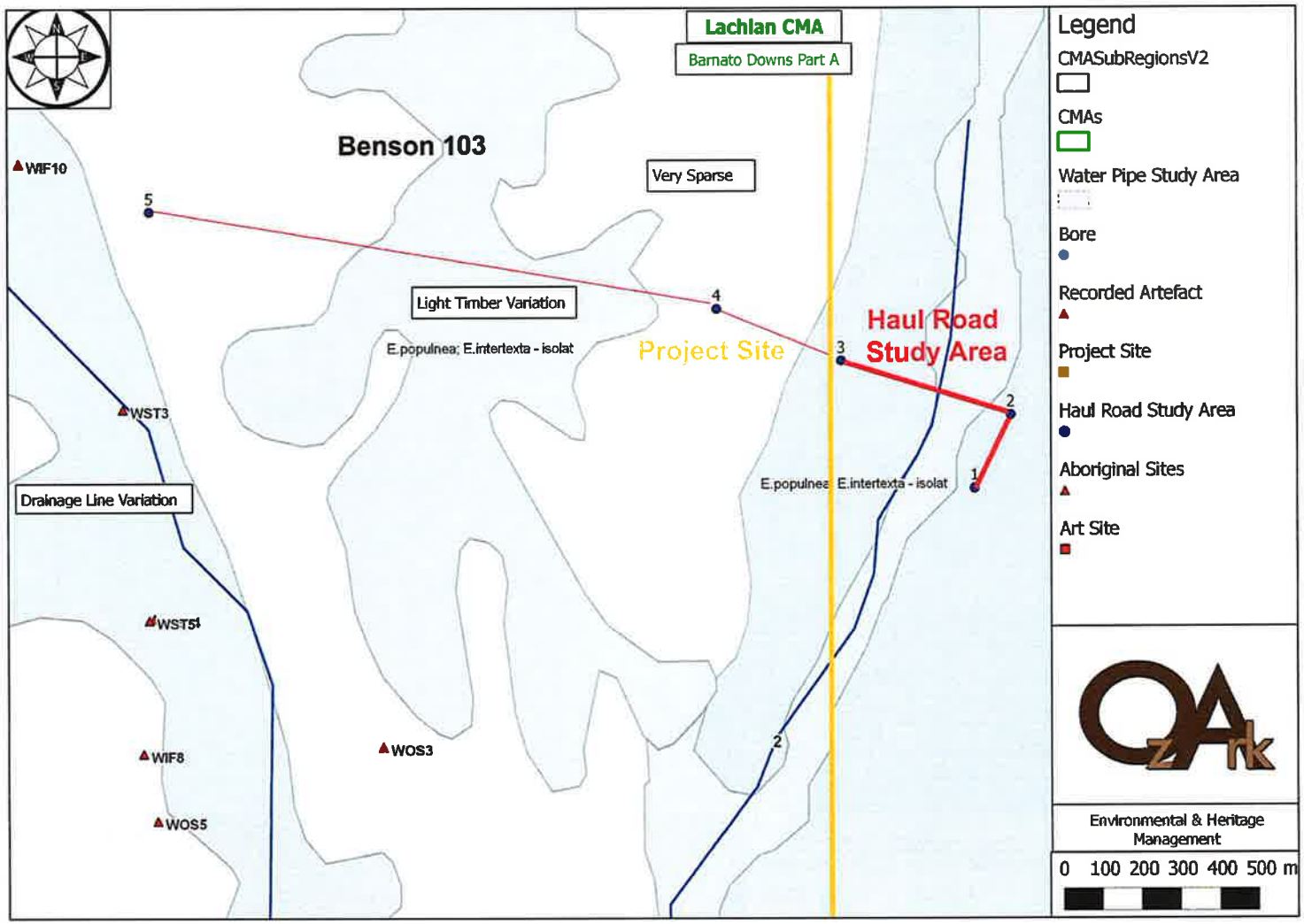


Figure 3: Aboriginal Sites mapped in the Water Pipeline Study Area.

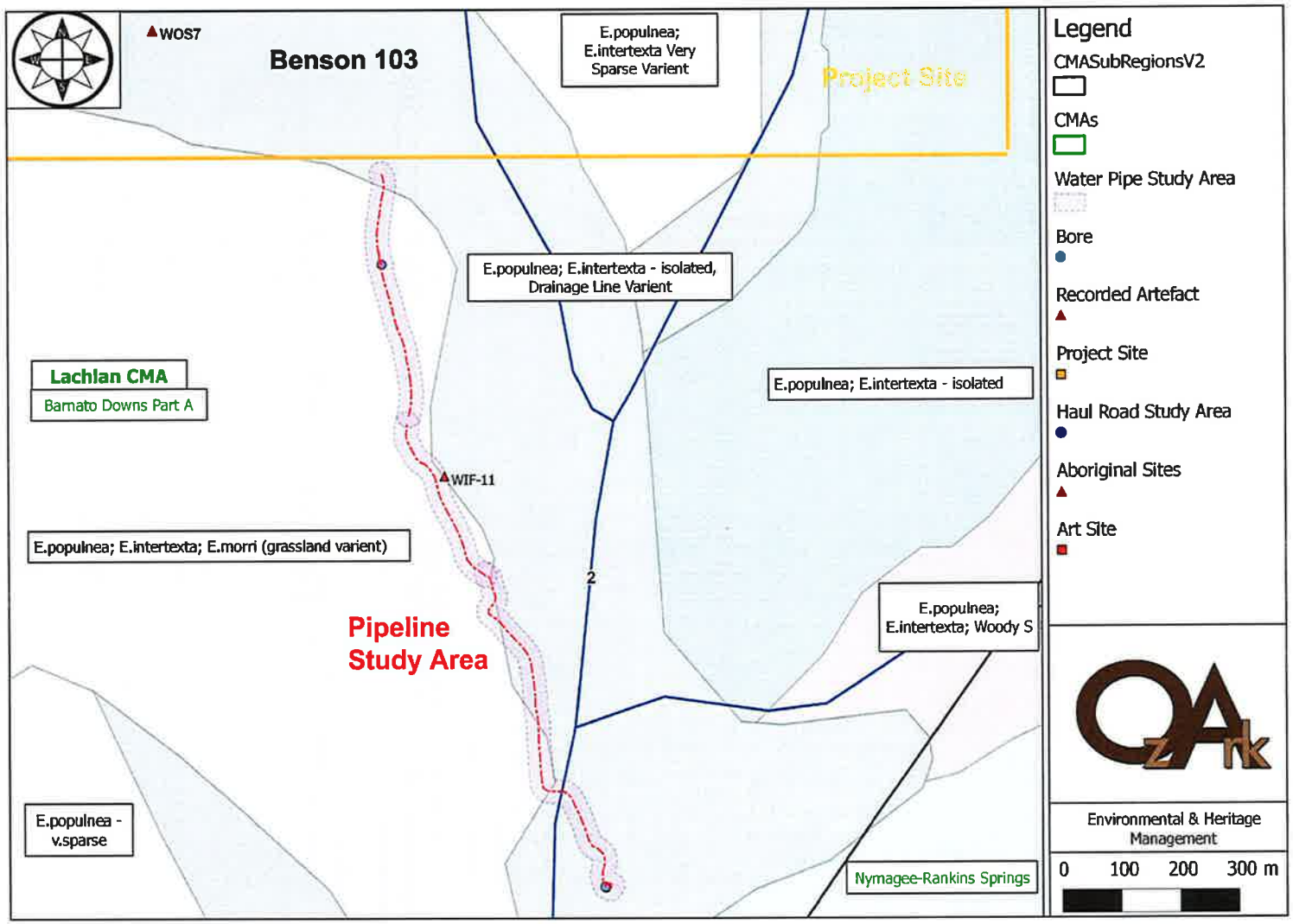
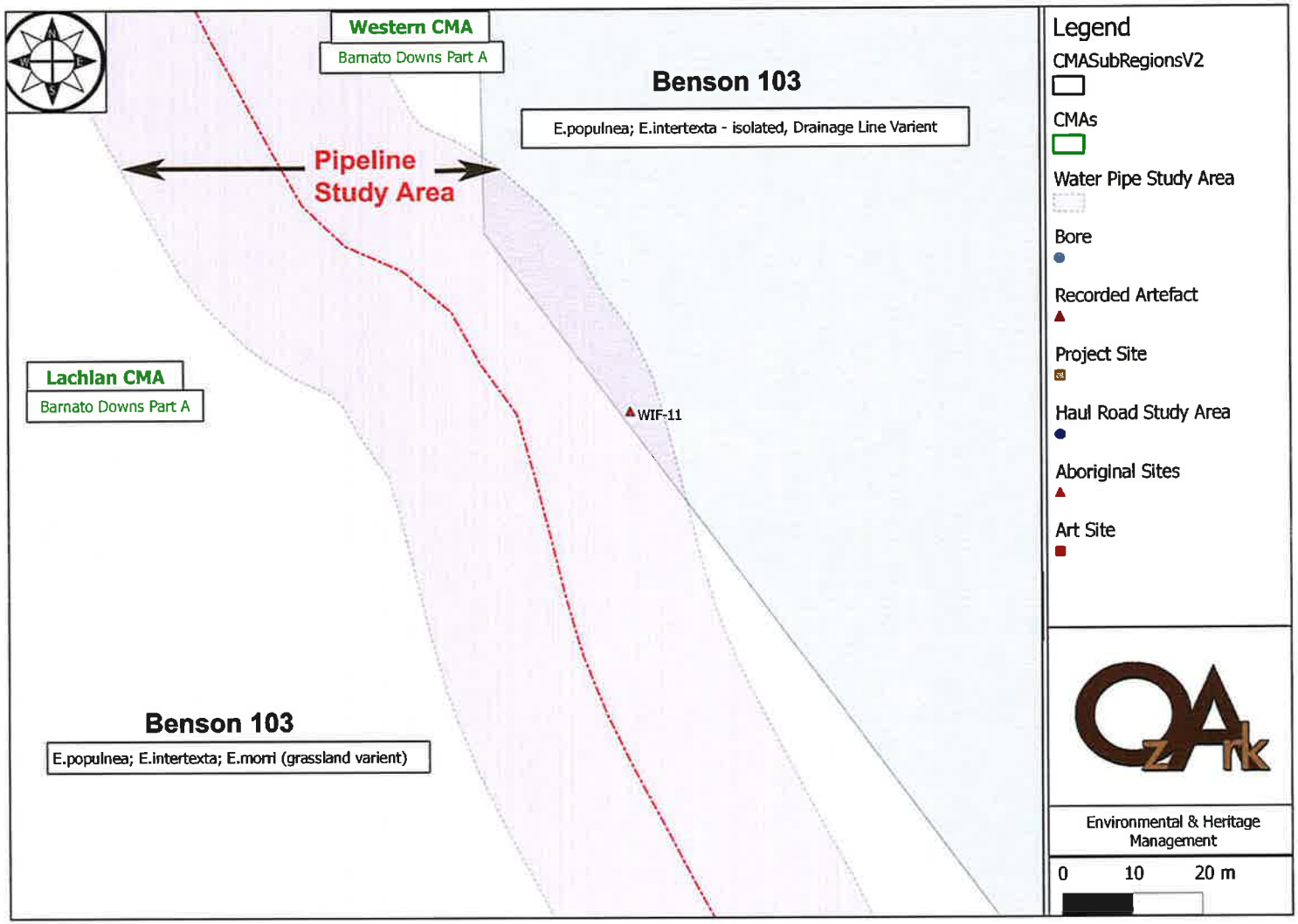


Figure 4: Aboriginal Sites mapped in the Water Pipeline Study Area- close up view.



7.0 ASSESSMENT OF HERITAGE SIGNIFICANCE

7.1 Introduction

The appropriate management of cultural heritage items is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural, scientific and public significance are identified as baseline elements of significance assessment, and it is through the combination of these elements that the overall cultural heritage values of a site, place or area are resolved.

7.1.1 Cultural Significance

This area of assessment concerns the importance of a site or features to the relevant cultural group - in this case the Aboriginal community. Aspects of cultural significance include assessment of sites, items, and landscapes that are traditionally significant or that have contemporary importance to the Aboriginal community. This importance involves both traditional links with specific areas as well as an overall concern by Aboriginal people for their sites generally and the continued protection of these. This type of significance may not be in accord with interpretations made by the archaeologist - a site may have low scientific significance but high Aboriginal significance, or vice versa.

The significance of the archaeological sites located within the study area was addressed during the survey with the community representatives, and is further addressed through the consultation process.

7.1.2 Scientific significance

Assessing a site in this context involves placing it into a broader regional framework, as well as assessing the site's individual merits in view of current archaeological discourse. This type of significance relates to the ability of a site to answer current research questions and is also based on a site's condition (integrity), content and representativeness.

The overriding aim of cultural heritage management is to preserve a representative sample of the archaeological resource. This will ensure that future research within the discipline can be based on a valid sample of the past. Establishing whether or not a site can contribute to current research also involves defining 'research potential' and 'representativeness'. Questions regularly asked when determining significance are: can this site contribute information that no other site can? Is this site representative of other sites in the region? In general terms, any Aboriginal object has the ability to either add to our knowledge about an area's Indigenous history, comment on the technological developments of a people or may act as potential markers for subsurface deposits.

Open Sites

The scientific significance of open sites is extremely variable and dependent upon several factors relating to:

- Preservation: Their integrity and potential to be conclusively proven to be Aboriginal in origin;
- Representativeness: Is this the type of site one may expect in this landscape (i.e. does it relate back to the predictive model)?; Do many such sites occur nearby? Etc; and

- Are there artefacts or other sites present (material, types or combinations thereof) that are rare in the area or unusual concentrations/ or rarity for the area?

The open site recorded in the current assessment was considered to have PAD, as discussed in the Survey Results section.

Public significance

Sites that have public significance do so because they can educate people about the past. By reducing ignorance about why sites are important to the Aboriginal and scientific community, important sites can be protected from ignorant or inadvertent destruction. Educating the public to understand the need for site preservation should increase the likelihood of maintaining an archaeological resource into the future. For a site to have high public significance it should contain easily identifiable and interpretable elements, and be relatively easily accessed. If an artefact scatter is in some way outstanding (either in terms of spatial size or artefact density) it may be recognisable by the lay person and hence interpretable, but if not, this site type is usually assessed as having low public significance.

Artefact sites and / or PADs are generally difficult for the lay-person to appreciate without interpretative aids.

7.2 Assessed significance of the recorded site

7.2.1 Cultural significance

As a result of the original cultural heritage assessment (OzArk 2010) it was determined that all site types are culturally significant to the Aboriginal community because they provide physical evidence of Aboriginal occupation of the local area.

7.2.2 Scientific significance

The isolated find is assessed as being Aboriginal in origin. By their nature, isolated finds have either been moved from their original archaeological context or are the product of a chance discard. In neither case would further archaeological investigation be warranted and as a consequence are awarded low scientific significance.

7.2.3 Public significance

As WIF-11 is located on private land, public access is difficult. As a single artefacts, this site is extremely difficult for the layperson to identify and interpret and as such is considered as holding low public significance.

8.0 PROJECT IMPACTS AND MANAGEMENT

8.1 Likely impacts on Indigenous Heritage

WIF-11 will not be impacted as result of the Proposal. The pipeline trajectory can be slightly altered within the Water Pipeline Study Area to ensure no inadvertent impacts occur.

8.2 Management Options

Management of the isolated find to ensure impacts are avoided is the optimal way to manage potential impacts.

If impact is unavoidable then an Aboriginal Heritage Impact Permit1 (AHIP) may be applied for from the NSW OEH and approval will depend on many factors including the site's assessed significance. To obtain an AHIP Aboriginal community consultation will need to occur following the OEH Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010. If granted, the local Aboriginal communities may wish to collect or relocate any evidence of past Aboriginal occupation (Aboriginal objects), whether temporarily or permanently, if necessary[2].

8.3 Relevant Legislation

Legislation relevant to the approved Project can be found in Section 8 of the original cultural heritage report (OzArk 2010) and will not be repeated here.

9.0 RECOMMENDATIONS

Under Section 89A of the NPW Act (1974 as amended) the Director General of the NSW OEH must be notified of the location of all Aboriginal sites recorded under any auspices. As a professional in the field of cultural heritage management it is the responsibility of OzArk EHM to ensure this process is undertaken. To this end it is noted that one (1) isolated find of Aboriginal origin was recorded in the two study areas.

A site card for WIF-11 has been forwarded to OEH for registration on the AHIMS database.

The following recommendations are made on the basis of:

- Legal requirements under the terms of the *National Parks and Wildlife Act of 1974* (as amended) whereby it is illegal to damage, deface or destroy an Aboriginal relic/object without the prior written consent of the Director, OEH or approval from the Director of the DoP;
- The findings of the current investigations undertaken within the study area; and,
- The interests of the local Aboriginal Traditional Owners, the Cobar Local Aboriginal Land Council and the Indigenous community.

It is recommended that:

- High visibility nightline is installed around site WIF-11 to ensure the protection of the artefact during both the short term construction phase of development and the long term operation of the Project. If the Proposal is altered, care must be taken to ensure that sites previously assessed as not impacted, remain so. This may be facilitated where necessary through the fencing off of sites during construction so as to minimise inadvertent, short term impacts.

[1] The developer must apply to the Director-General of NSW DECCW to obtain an AHIP under either a Section 90 or Section 87(1), before any impact to the site/object is affected. This process usually takes at least eight weeks and requires instigation of the DECCW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, which has already been initiated for this project.

[2] The fate of all artefacts remains within the statutory control of the NSW DECCW. A care and control permit may be issued to local Aboriginal groups or, with Aboriginal community consent, to other parties, for educational or display purposes.

- Management of the isolated find can be incorporated into an Aboriginal Heritage Management Plan (AHMP), should one be developed for the Project (see OzArk 2010).
- Should any other 'objects' or other Aboriginal sites be identified during the course of construction, work in that area should cease and OEH be contacted to discuss how to proceed.
- Two copies of this report should be sent to:

  Office of Environment and Heritage
  AHIMS Registrar
  Attention: Cheryl Brown
  PO Box 1967
  Hurstville NSW 1481

10.0 REFERENCES

Benson *et al.* 2006. — Benson, J.S., Allen, C.B., Togher, C. & Lemmon, J. New South Wales Vegetation Classification and Assessment: Part 1 Plant Communities of the NSW Western Plains. *Cunninghamia* 9(3): 383–450.

OzArk 2010 — *Wonawinta Silver Project: Cultural Heritage Assessment. Report to R. W Corkery.*

R.W Corkery 2010 — *Wonawinta Silver Project Environmental Impact Statement.*

PLATES:

Plate 1:

Example of haul road to be constructed as result of the additional works. This is a standard design.

Plate 2:

View west over the Manuka property. Example of vegetation over the slight sandstone range.

Plate 3:

The pipeline will follow the existing track shown in this picture near the bore. Grasses obscure visibility off the exposures on the track.

Plate 4:

Exposure where Wonawinta Isolated Find-11 (WIF-11) was recorded. The four flags triangulate the location of the artefact.

Plate 5:

Wonawinta Isolated Find-11 (WIF-11).

APPENDIX 1: ABORIGINAL COMMUNITY CONSULTATION LOG.

Table 1: Aboriginal Community Consultation Log.

WONAWINTA # 2 - COMMUNITY CONSULTATION				
Date	**Organisation /**	**Contact Name**	**Comment**	**OzArk staff/ method**
05.05.11	Bill Lord / Mount Grenfell Board of Management	ph: 0427 282 681 e: wilyaml@hotmail.com	left message on mobile message bank and texted from Phil's phone requesting Bill either contact this office or the CLALC office for details.	PHONE
05.05.11	Cobar LALC / Norm Ohlsen	Rena Clements ph: 6836 1144 fx: 6836 1292 cobarlalc@bigpond.com	spoke to Rena who asked that I email details through as she was intending to contact Norm today about some other work. Emailed details and asked Rena to contact the office when it was confirmed.	OzArk - CB
05.05.11	Paul Cohan / CLALC	cobarlalc@bigpond.com	Hi Cheryl Norm was is today and would like to confirm that he will be able to attend and we will contact Bill Lord today , Norm will call you tomorrow once we have conformation from Bill Paul Cohen	EMAIL
06.05.11	Elaine & Norm Ohlsen	6 Lamrock Street Cobar 2835 ph: 0488 690 287 e: 'elaineohlsen@hotmail.com	Norm called and confirmed that he & Bill will be able to do the survey. He was keen to see a map of the area prior to going into the field. I advised that should this figure be available prior to Thursday I would email it through to the LALC office.	

12.5.2011	Norm Ohlsen		FIELDWORK - DR JODIE BENTON & PHIL CAMERON/OZARK NORM OHLSEN / COBAR LALC	
20.07.11	Cobar LALC	Members – Cobar LALC c/- Ms R Clements / Mr P Cohan PO Box 410 Cobar NSW 2835	sent copy of AHIP application and addendum report for review and comment. **Replies due by COB 19th August 2011.**	
20.07.11	Elaine Ohlsen	Mrs E Ohlsen 6 Lamrock Street Cobar NSW 2835	sent copy of AHIP application and addendum report for review and comment. **Replies due by COB 19th August 2011.**	
20.07.11	Mt Grenfell Historic Site Board of Management	Members – Mt Grenfell Historic Site Board of Management Richard Kennedy 6 Moonya Drive Wondonga VIC 3690	sent copy of AHIP application and addendum report for review and comment. **Replies due by COB 19th August 2011.**	
20.07.11	Mt Grenfell Historic Site Board of Management	Members – Mt Grenfell Historic Site Board of Management Bill Lord 13 Bourke Street Cobar NSW 2835	sent copy of AHIP application and addendum report for review and comment. **Replies due by COB 19th August 2011.**	

20.07.11	Nyngan LALC	Members – Nyngan LALC Mrs Lesley Ryan PO Box 43 Nyngan NSW 2825	sent copy of AHIP application and addendum report for review and comment. **Replies due by COB 19th August 2011.**	
21.07.11	Bill Lord / MGBOM	0427 282 681	Mr Lord phoned to advise Grenfell Board of Aboriginal members will have a meeting re this AHIP the weekend after next. He is doing a presentation and hopes to get management recs from the outcome of this meeting. Phoned to check if we can wait for comments until after the meeting.	

APPENDIX 2 : ABORIGINAL COMMUNITY CONSULTATION

13/05/2011 02:24 61-2-68361292 COBAR LAND COUNCIL PAGE 01/04

Aboriginal Sites Survey

BACKGROUND

1. **Title of Survey:**

WONAWINTA SILVER PROJECT

2. **This report was produced for (proponent's name):**

COBAR CONSOLIDATED RESOURCES

3. **Report prepared by (please include full name address and contact details):**

NORMAN OHLSEN 6 HOGAN PL COBAR NSW 2835
PH 68 363424

4. **Date survey was carried out:**

THURSDAY 12TH MAY 2011

5. **Are you representing an Aboriginal community organisation?**

[O] Yes [ ] No

6. **Name and address of the Aboriginal community organisation:**

COBAR LOCAL ABORIGINAL LAND COUNCIL
RAILWAY PARADE SOUTH COBAR NSW 2835

7. **Location of study area:**
(description eg. closest town/road, attach a map if available)

8. **Reason why the study is being done:**

ACCESS ROAD AND WATER PIPE LINE

9. **The following people/organisations have been consulted:**
(eg. Elders, LALC, Traditional Owners, NPS)

COBAR LOCAL ABORIGINAL LAND COUNCIL

10. **The following are sites that I believe may occur in the study area:**
(to be filled out before the survey is done)

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☒ Scarred Trees ☒ Camp Sites ☒ Grinding Grooves

☒ Art/Ceremonial ☒ Isolated Artefacts ☒ Carved Trees

☒ Burials ☒ Hearths ☒ Stone Arrangements

Other:

SURVEY PROPER

11. Names of other people carrying out the survey:

PHIL CAMERON & JODIE BENTON OZARK ENH P/L

12. This survey was conducted by the following method:
(please identify areas on an attached map)

☐ From a vehicle ☒ On foot ☐ Other.....

SITE DESCRIPTION

13. General visibility:
(vegetation domination/land topography etc)

☒ Very Poor ☐ Poor ☐ Good ☐ Very Good

14. Name of Property:

MANUKA

15. Property Owners Name:

MOSELY

16. Area to be surveyed (ha.):

N/A

17. Vegetation:

☒ Black Box ☒ Gum ☒ Ironbark ☒ Pine

Aboriginal Sites Survey

☒ Coolabah ☒ Grassland ☒ Chenopod scrub ☒ Leopardwood

☐ ..... ☐ ..... ☐ ..... ☐ .....

RESULTS

18. The following number of sites have been identified during this survey:

☐ Scarred Trees	☐ Camp Sites	☐ Grinding Grooves
☐ Art/Ceremonial	☒ Isolated Artefacts	☐ Carved Trees
☐ Burials	☐ Hearths	☐ Stone Arrangements

Other

19. Recommendations:

All Aboriginal sites in NSW are protected by law. It is an offence to damage, deface or destroy any site without first obtaining the written permission of the Director General of the NSW National Parks Service.

I make the following recommendations in relation to the Aboriginal Sites (if any) located during this survey.

☒ **That the sites located be avoided**

☒ **That all staff working in the area of the site/s be informed of its location, to ensure the site/s are not damaged.**

☒ **That if any further archaeological material is found during any further development and or activity then work should stop immediately and the National Parks Service and the Local Aboriginal Land Council be notified.**

☒ **That any licence and or approval given to the developer not interfere with the preservation of any sites located.**

☒ **That any activity and or development not occur outside of the area surveyed.**

☒ **That the Local Aboriginal Land Council be consulted before any licence and or approval is given in relation to this survey.**

Other:

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Aboriginal Sites Survey

20. The above survey was carried out to identify visible cultural material present within the boundaries of the survey area, as outlined on the attached map. I have attached to this report the following:

- ☐ **Site forms from any sites located**
- ☐ **Map of the study area, showing site locations (if any) and area surveyed**
- ☐ **Photos of sites found**
- ☐ **General photos of the landscape**
- ☐ **Printout from the National Parks Service Sites Register**

Other:

REF OZ ARK REPORTS AND MAPS

If any further information in relation to this survey is required please contact the author of this report at the previously given address.

NORMAN OHLSEN
Print full name

Norman Ohlsen
Signature

13/5/2011
Date

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