STATE SIGNIFICANT DEVELOPMENT: Dubbo Zirconia Project (SSD 5251)

Secretary's
Environmental Assessment Report

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EXECUTIVE SUMMARY

Australian Zirconia Ltd (AZL), a wholly owned subsidiary of Alkane Resources Ltd (Alkane), proposes to develop the Dubbo Zirconia Project adjacent to the small village of Toongi, approximately 20 kilometres south of Dubbo.

The project involves:

- extracting up to 19.5 million tonnes of rare metals and rare earths ore from a small open cut mine on the site over 20 years at a rate up to 1 million tonnes of ore a year;
- processing the ore on site to produce up to 75,000 tonnes of rare metals and rare earth concentrate, which would be trucked and/or railed to Port Botany or Newcastle for export;
- storing and disposing of the processing waste produced on site, including:
  - up to 2 million tonnes of solid residue waste a year, which would be put in a specially designed Solid Residue Storage Facility (SRSF);
  - up to 2.5 gigalitres of liquid residue waste a year, which would be put in one of four Liquid Reside Storage Facilities (LRSFs); and
  - up to 7 million tonnes of salt over the life of the project, which would be collected from the LRSFs and put in one of six Salt Encapsulation Cells (SECs);
- developing a range of infrastructure to support the facility, including a:
  - large processing facility;
  - 30 kilometre gas supply pipeline to Dubbo; and
  - 7.5 kilometre water supply pipeline to the Macquarie River; and
- progressively rehabilitating the site for a combination of agricultural and conservation uses, although the site administration area could be used for future commercial or industrial uses.

It has a capital investment value of $1.06 billion, and would employ up to 400 people during construction and 250 people during operations.

Rare metals - such as zirconium, niobium, hafnium, tantalum, yttrium, europium and *rare earths* – such as dysprosium and neodymium – are used in the production of a range of products for the computing, renewable energy, automotive, entertainment, medical and military industries. These products include catalytic convertors, magnets, oxygen sensors, ceramics, specialty glasses, paints, LED lights and hybrid car batteries.

Demand for these advanced technologies and consumer products are growing rapidly, and consequently the demand for rare metals and rare earths is also increasing.

The project is classified as a State Significant Development under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and requires the Minister for Planning's consent. However, under existing Ministerial delegations the Planning Assessment Commission (PAC) will determine the development application for the project.

The project is classified as a "controlled action" under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, as it could have a significant impact on Commonwealth-listed threatened species. Consequently, the project requires a separate approval from the Commonwealth Minister for the Environment. The Commonwealth has accredited the State's assessment process, so there will be a single assessment process before separate State and Commonwealth decisions would be made.

The Department exhibited the development application and environmental impact statement for the project between 18 September and 18 November 2013. During the exhibition period, the Department received 66 submissions, including 10 from government authorities, 10 from special interest groups and 46 from the general public.

None of the government authorities objected to the development, although some either raised concerns or sought clarifications on certain aspects of the project.

Of the 56 public submissions, 40 objected to the project, 7 supported the project and 9 simply commented on the project. Supporters, including the Local Aboriginal Land Council, were in favour of the economic benefits of the project. Objectors raised concerns about the potential impacts of the project, including:

- *Air quality* – the potential amenity/health impacts of the dust and processing emissions leaving the site;
- *Noise* – mostly associated with the disused railway line from the site into Dubbo that is proposed to be reopened as part of the project;
- *Radiation* – the potential exposure of people and animals to the radioactive dust from the ore or gas (radon);
- *Waste management* – the disposal on site of large quantities of waste from the processing operations;
- *Water resources* – the use of large volumes of water from the Macquarie River, and potential water pollution impacts;
- *Traffic* – the potential road safety and noise impacts along the haulage route;
- *Biodiversity* – the potential impacts on threatened species, in particular the Pink-tailed Worm Lizard; and
- *Socio-economics* – including the potential impacts on Dubbo's image as a clean rural area; and the fact that AZL did not carry out a detailed cost benefit analysis of the project.

Some objectors, including Uranium Free NSW, suggested the project was a precursor to uranium mining in NSW following the recent lifting of the ban on uranium exploration. In this regard, it is important to note that uranium mining remains prohibited in NSW, and the project does not propose to mine any uranium.

AZL has provided a detailed response to the issues raised in submissions. This response includes commitments to further minimise and/or mitigate the impacts of the project, including:

- expanded road upgrades to address road safety and traffic noise concerns;
- the inclusion of caesium catalyst and/or scrubber system in the processing plant, which would greatly reduce sulphur dioxide emissions; and
- commitments not to withdraw water from its farm dams within the Undefined Macquarie River Catchment so downstream water users would not affected.

On 7 July 2014, the Minister asked the PAC to review the merits of the project, and to conduct public hearings during this review.

The PAC's terms of reference are to assess the merits of the project as a whole, paying particular attention to the likely:

- air quality impacts, including any exposure to radioactive material;
- water impacts;
- transport impacts; and
- long term land use impacts of the project, including the suitability and feasibility of the proposed rehabilitation strategy.

To inform the PAC's review, the Department has completed its preliminary assessment of the merits of the project.

This assessment has found that the project would result in a range of economic benefits for both NSW and the region, including:

- developing a new resource in NSW that is in demand internationally for the manufacture of technologically advanced products;
- capital spending of $1.06 billion;
- annual spending of around $50 million in the local economy;
- providing jobs for up to 250 people during operations;
- the payment of around $600,000 to Dubbo Council each year for community enhancement; and
- the payment of around $12 million to the State each year in royalties.

It has also found that the project is unlikely to result in any significant environmental or social impacts, as:

- it has been designed to comply with all the relevant air, radiation, noise and vibration criteria;
- AZL should be able to secure the water it requires for the project, including 4.05 GL of water a year for processing, from the existing water market in the region;
- water pollution risks are low as there would be no discharges from the site, and the waste residue storage facilities would be isolated from local groundwater resources via impermeable liners;
- upgrades to both Toongi Road and Obley Road would ensure the road network can safely accommodate the project's heavy vehicle traffic;

- the proposed biodiversity offset strategy, which includes the permanent conservation and enhancement of 1,021 ha of land, would improve the biodiversity values of the region in the medium to long term; and
- the site would be suitably rehabilitated.

At this stage, the Department is satisfied that the benefits of the project would outweigh its impacts, and that it should be approved subject strict conditions.

Following the PAC review, the Department will finalise its assessment of the project taking into consideration the findings of the PAC review. It will then refer the development application for the project to the PAC for determination.

1. PROPOSED PROJECT

1.1 Introduction

Australian Zirconia Ltd (AZL), a wholly owned subsidiary of Alkane Resources Ltd (Alkane), proposes to develop the Dubbo Zirconia Project adjacent to the small village of Toongi, approximately 20 kilometres (km) south of Dubbo (see Figure 1).

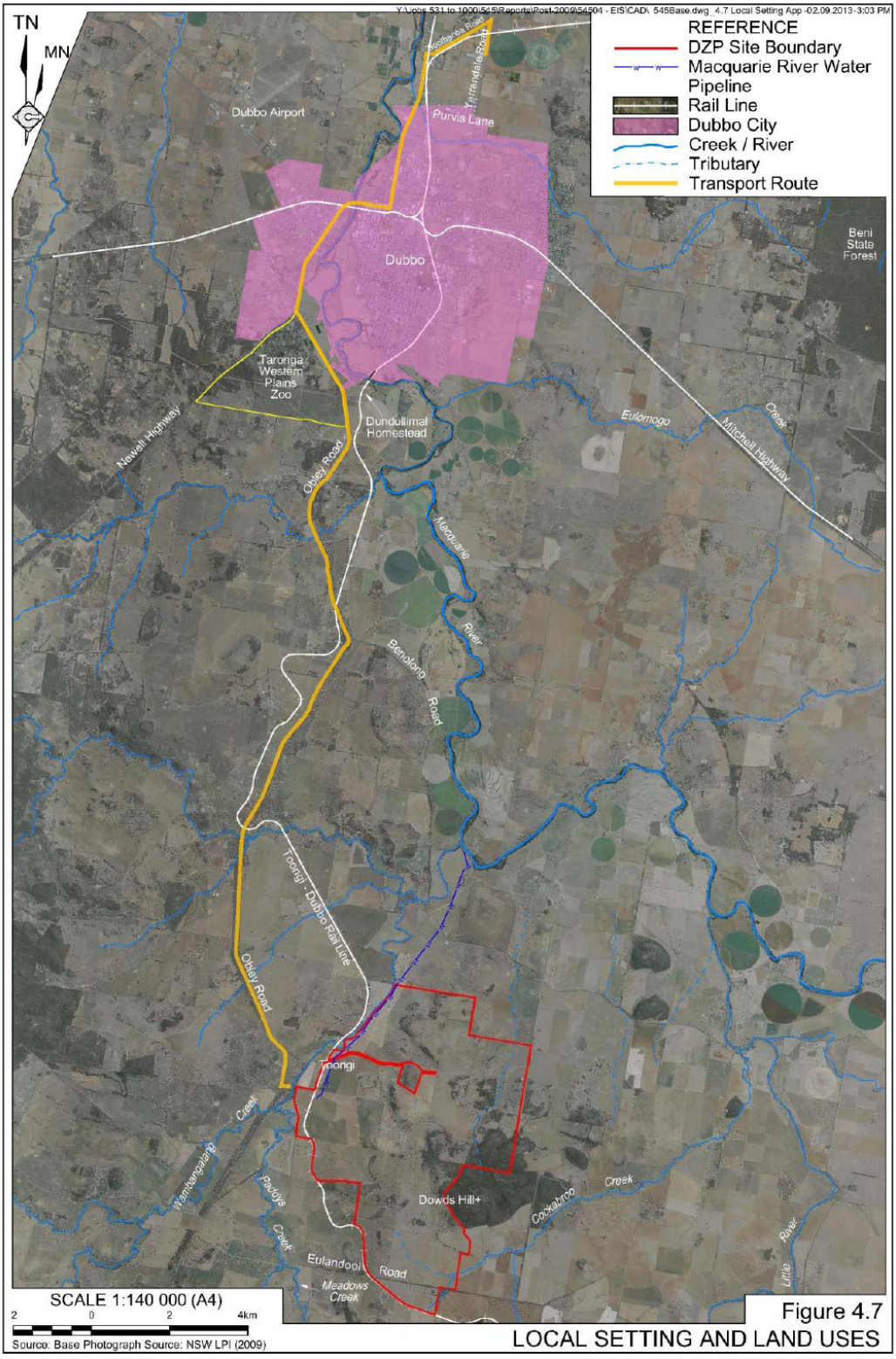


***Figure 1**: Locality Plan*

1.2 Project Description

The Dubbo Zirconia Project involves:

- extracting up to 19.5 million tonnes of rare metals and rare earth elements (REE) ore from a small open cut mine over 20 years at a rate up to 1 million tonnes of ore a year;
- processing the ore on site to produce up to 75,000 tonnes of rare metals and rare earth concentrates, which would be trucked and/or railed to Port Botany or Newcastle for export;
- storing and disposing of the processing waste produced on site, including:
  - up to 2 million tonnes of solid residue waste a year, which would be put in a specially designed Solid Residue Storage Facility (SRSF);
  - up to 2.5 gigalitres of liquid residue waste a year, which would be put in one of four Liquid Reside Storage Facilities (LRSFs); and
  - up to 7 million tonnes of salt over the life of the project, which would be collected from the LRSFs and put in one of six Salt Encapsulation Cells (SECs);
- developing a range of infrastructure to support the facility, including a:
  - large processing facility;
  - 30 kilometre gas supply pipeline to Dubbo; and
  - 7.5 kilometre water supply pipeline to the Macquarie River; and
- progressively rehabilitating the site for a combination of agricultural and conservation uses, although the site administration area could be used for future commercial or industrial uses.

While the project includes an option to upgrade the disused railway line between Dubbo and Toongi, and to use the line to import goods (such as reagents for processing) or export concentrate, this is unlikely to occur due to the costs associated with upgrading the line. Consequently, the goods and concentrate are likely to be trucked to and from the site.

The project has a capital investment value of $1.06 billion, and would employ up to 400 people during construction and 250 people during operations.

The development is described in full in the environmental impact statement (EIS) for the project (see Appendix A) and associated Response to Submissions (RTS - see Appendix B). The major components of the development are summarised in Table 1, and depicted in Figures 2 to 8.

***Table 1**: Major components of the development (see Figures 2 and 3)*

Aspect	*Description*
Proposal Summary	Establishment of a new rare metals and REE mine including: • extracting and processing up to 1 million tonnes (Mt) of ore a year for up to 20 years; • construction of a processing plant, site administration area, waste rock and liquid / solid residue (ie tailings) structures and various related infrastructure (see Figures 2, 3 and 4); • construction of a pumping station and 7.5 km water pipeline to the Macquarie River; • construction of 30 km gas pipeline to Dubbo to supply up to 970 terajoules a year; • construction of a site access to Toongi Road and road widening and other upgrades to Obley and Toongi Roads; • upgrades to the Dubbo-Molong rail line to a Class 1 track from Toongi to Dubbo, upgrades to several level crossings and bridges and construction of a rail siding; • transportation of products and reagents by either road or rail to and from the site; and • progressive rehabilitation of the site. Construction of a 20 km 132 kilovolt (kV) electricity transmission line from Guerie to the site and an 11 kV electricity transmission line to provide power for the pumping station would be constructed. However these transmission lines would be subject to a separate approval under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).
Mining Reserves and Depths	• Extracting 19.5 Mt of ore by open cut methods from a inferred resource of 37.5 Mt; and • maximum extraction depth would range from 5-32 m below ground surface.
Development Life	22 years (2 years construction and 20 years operation)
Total Site Area	2,860 hectares (ha)
Disturbance Area	Total development footprint - 808 ha, consisting of: Open Cut – 40 ha; Waste Rock Emplacement 20.4 ha; ROM pad – 4.2 ha; Processing and Admin Facilities 43.3 ha; Solid Residue Storage Facility – 102.8 ha; Liquid Residue Storage Facility – 425.4 ha; Salt Encapsulation Cell – 34.6 ha; and Soil Stockpiles – up 156 ha

Aspect	Description
Hours of Operation	• Mining Operations: 7 am – 6 pm Monday to Friday and 6 am – 12 pm Saturday; • Processing Operations: 24 hours a day, seven days a week; and • Product and Reagent Transport by road and rail: 24 hours a day, seven days a week.
Processing and Production	Up to 1 million tonnes per annum (Mtpa) of ore would be processed, to produce up to 75,000 t annually of a combination of Zirconium (Zr) products, Niobium (Nb) concentrate, heavy rare earth elements and light rare earth elements solutions (see Figure 4).
Water Demand and Supply	The maximum predicted water demand is 4.13 gigalitres per year (GL/year) comprising 4.05 GL/year for processing and 79 mega litres per year (ML/year) for dust suppression. AZL would source 4.05 GL/year of process water from the Macquarie River under licence(s). AZL also has a harvestable right dam capacity of 182ML.
Waste Residue Management	• Solid Residue Waste - approximately 2 Mtpa of solid residue (at 35% moisture) classified as 'general solid waste' would be generated. It would be disposed of onsite in the solid residue storage facility (SRSF), which would be double lined with a high density polyethylene (HDPE) liners or equivalent with a leak detection system installed. • Liquid Residue Waste - approximately 2.5 GL/year of liquid residue waste would be generated classified as 'general liquid waste'. The liquid residue storage facility (LRSF) would comprise of a series of terraced narrow cells and lined with a single HDPE liner or equivalent. • Accumulated Salt - over the life of the operation approximately 7 Mt of accumulated salt would be collected within the base of each cell in the LRSF. It would be classified as a 'restricted solid waste' and placed within 6 separate salt encapsulation cells, which would be fully lined with a double HDPE liner with a leak detection system installed. All other non-production wastes would be disposed of by licensed waste contractors at licenced facilities.
Employment	Construction workforce of up to 400 (full-time equivalent) positions and an operational workforce of up to 250 full-time positions.
Biodiversity Offsets	808 ha of land would be impacted, including 72 ha of native vegetation and 414 ha of derived native grasslands (with >50% weeds). The biodiversity offset strategy comprises approximately 1021 ha of vegetation, with 653.1 ha (64%) comprising native vegetation and 306.8 ha (30%) comprising derived native grass lands, with the remaining 61.1 ha (6%) currently cleared land (without derived native grasslands) or white cypress pine monoculture.
Final Landform	All site buildings and processing infrastructure from the processing and administration area would be removed, excluding the water and gas pipelines and electricity transmission lines. This land would be profiled to the pre-establishment landform and vegetated and the administration area may be used for future commercial / industrial purposes. The waste residue structures and waste rock emplacement would be shaped and revegetated, compromising undulating upper surfaces and outer faces with maximum slopes of approximately 14° to 16°. The rehabilitated structures would be used for low intensity grazing land. The LRSF compromising 425.4 ha would be returned to its pre-disturbance landform and revegetated for agricultural purposes.
Capital Value	$1.06 billion
Voluntary Planning Agreement	$600,000 per annum or $12 million over the life of the project (note in addition to rates)

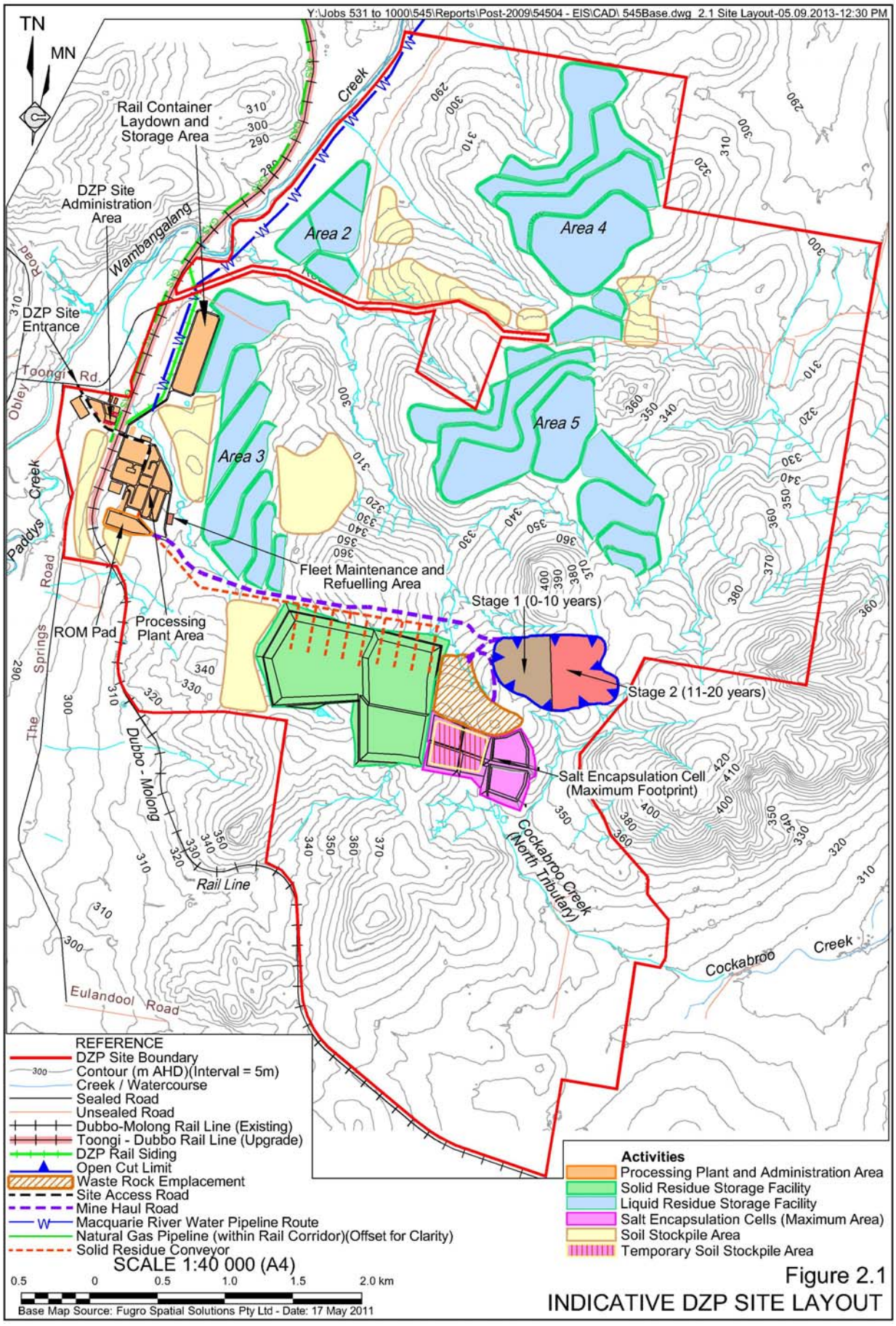


***Figure 2**: Proposed Site Layout*

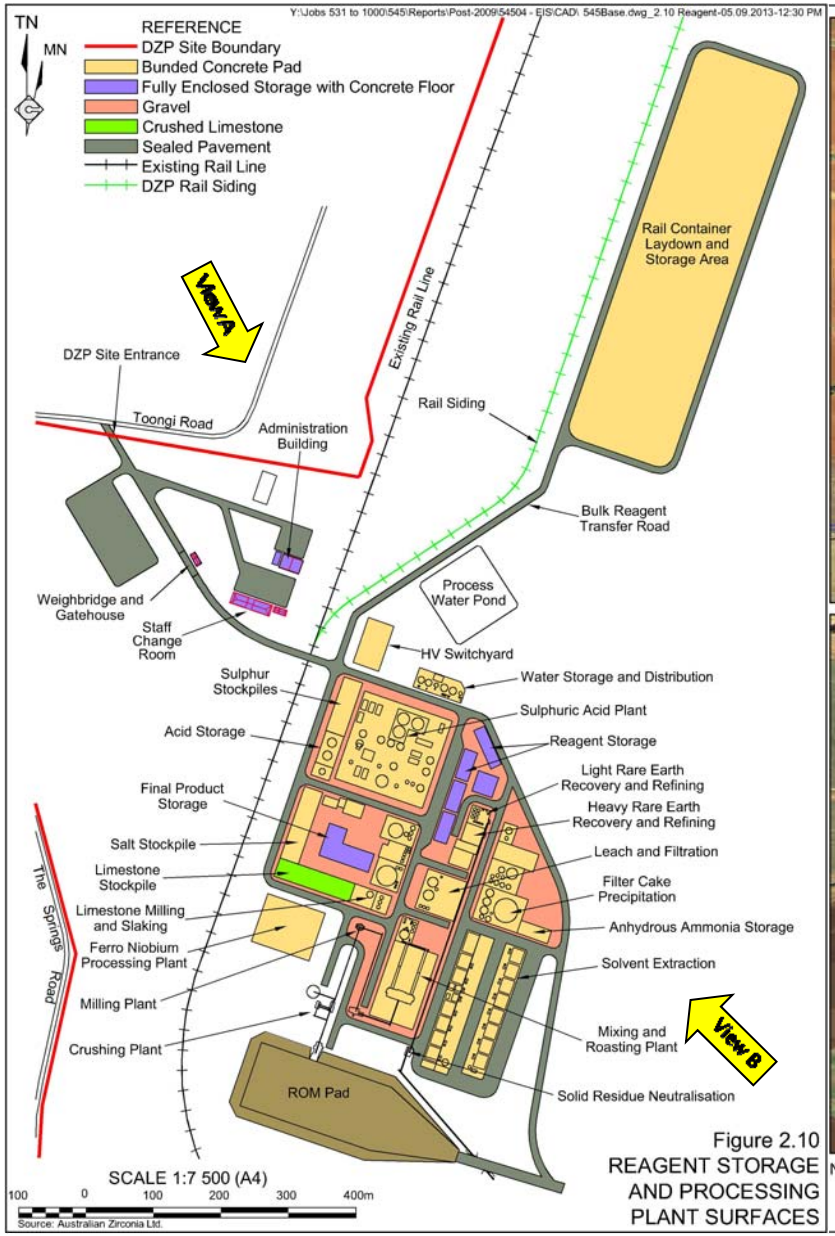
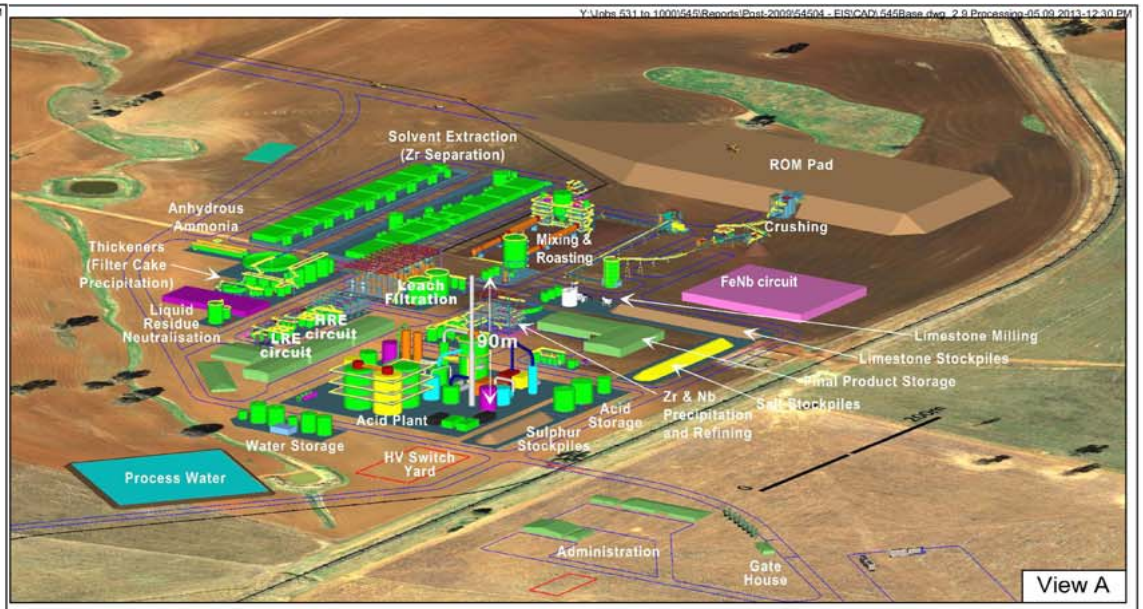
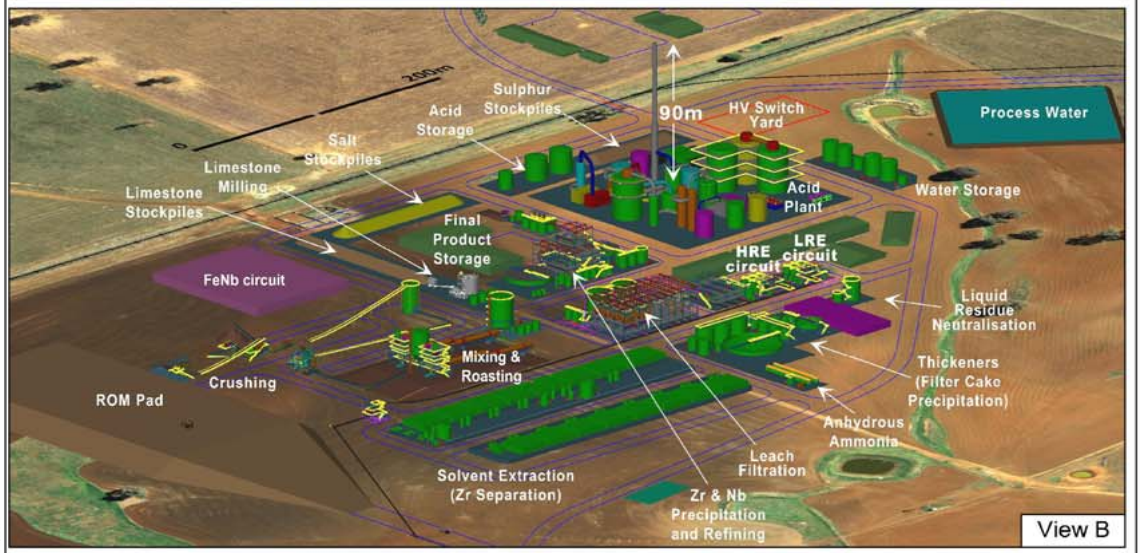


Figure 2.10
REAGENT STORAGE AND PROCESSING PLANT SURFACES

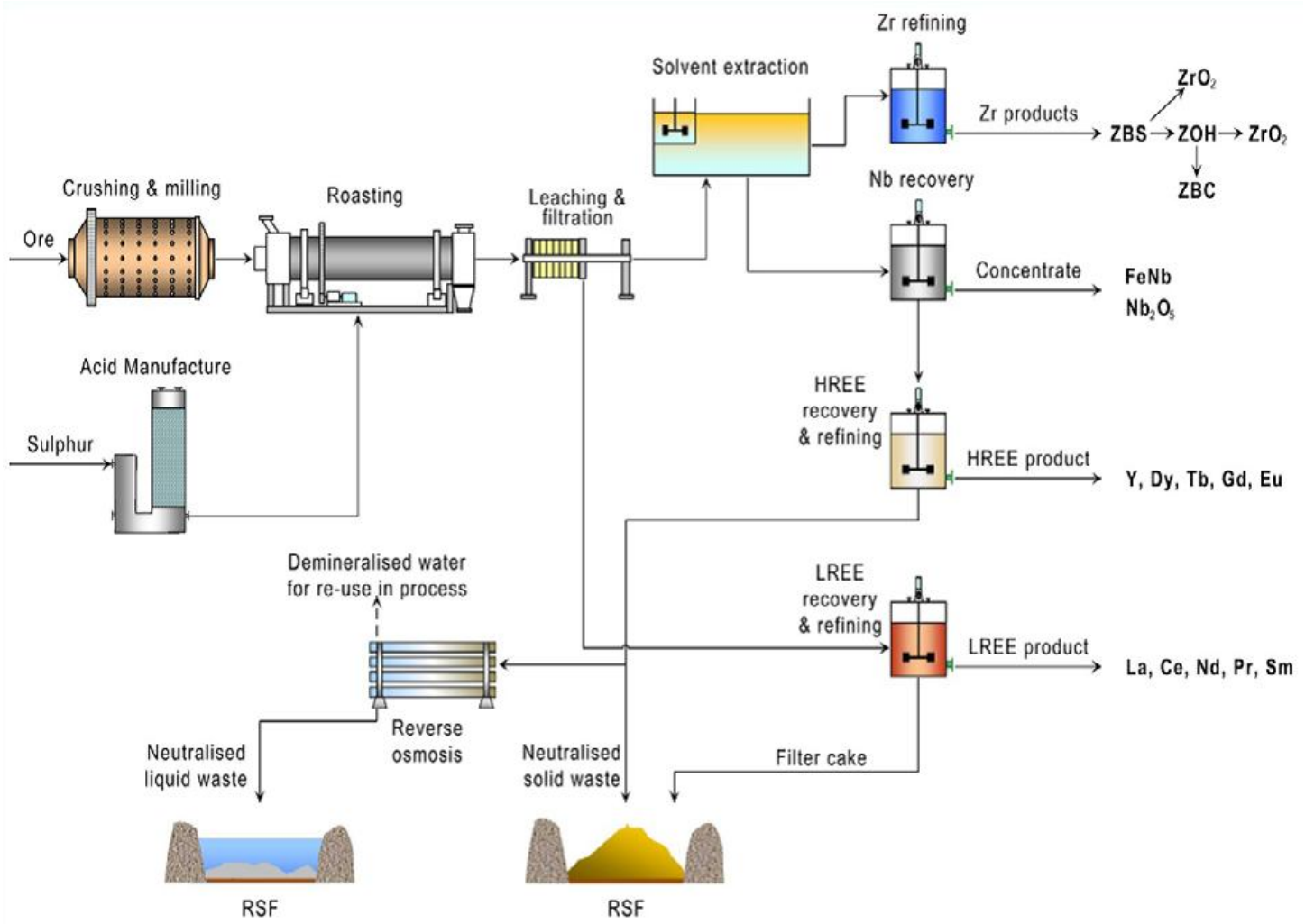




Note: Columns are provided only to allow for identification of different facilities

Figure 2.9
PROCESSING PLANT AND DZP SITE ADMINISTRATION AREA

***Figure 3**: Processing Plant and Site Administration Area (note colours used are for contrast and are not representative of the materials to be used)*



Source: AZL

***Figure 4**: Schematic of Ore Processing Flow Path*

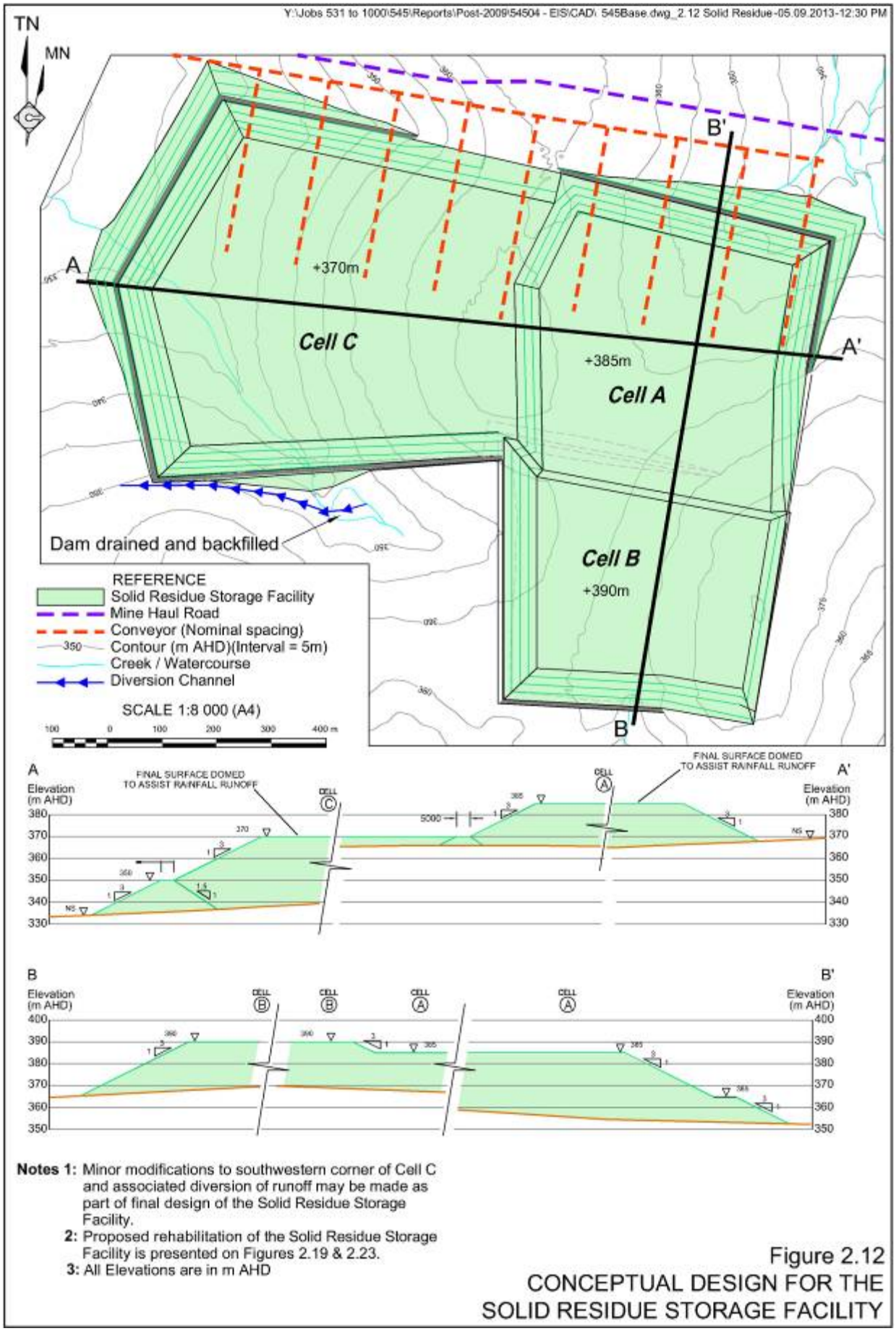


***Figure 5**: Solid Reside Storage*

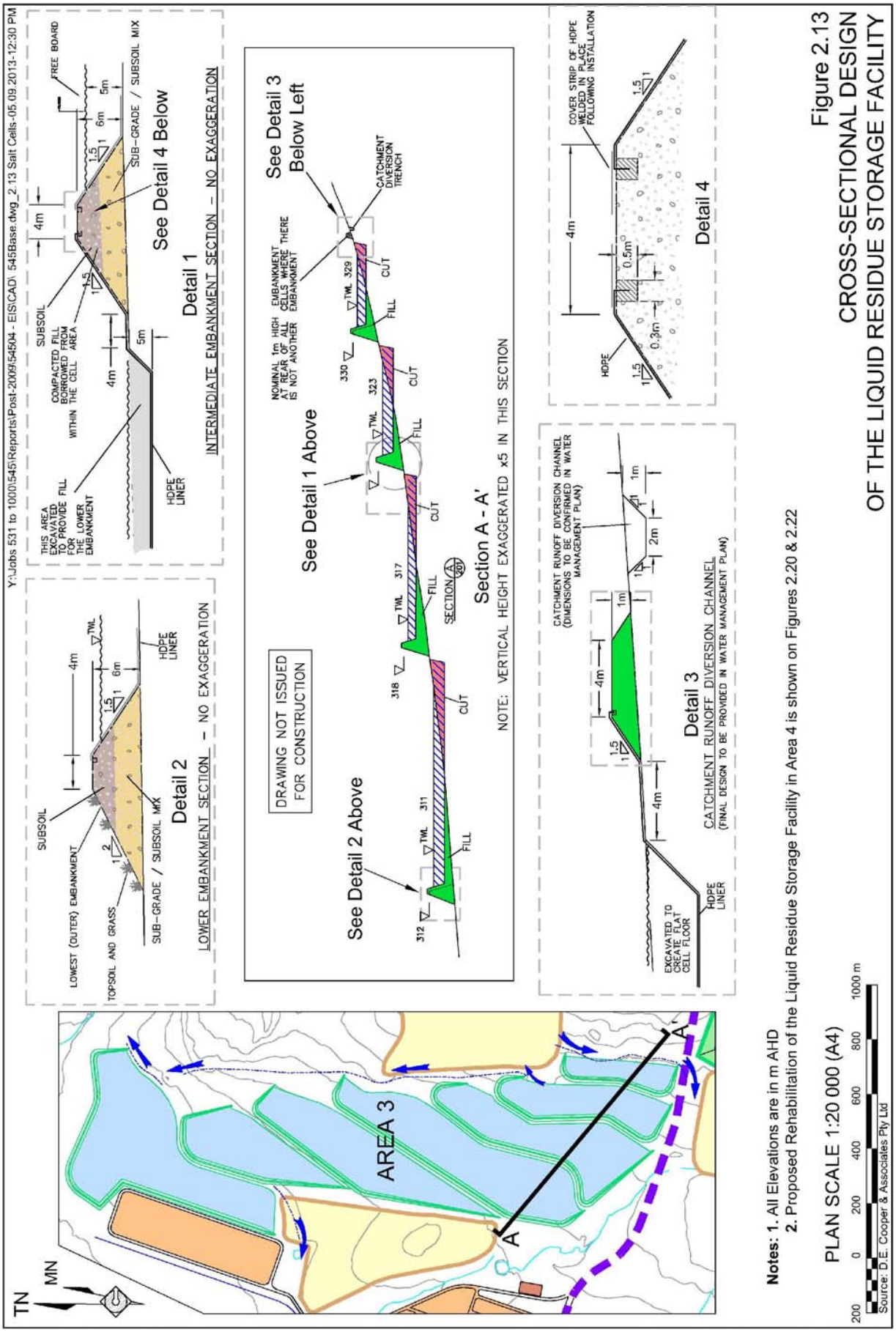


***Figure 6**: Liquid Residue Storage*

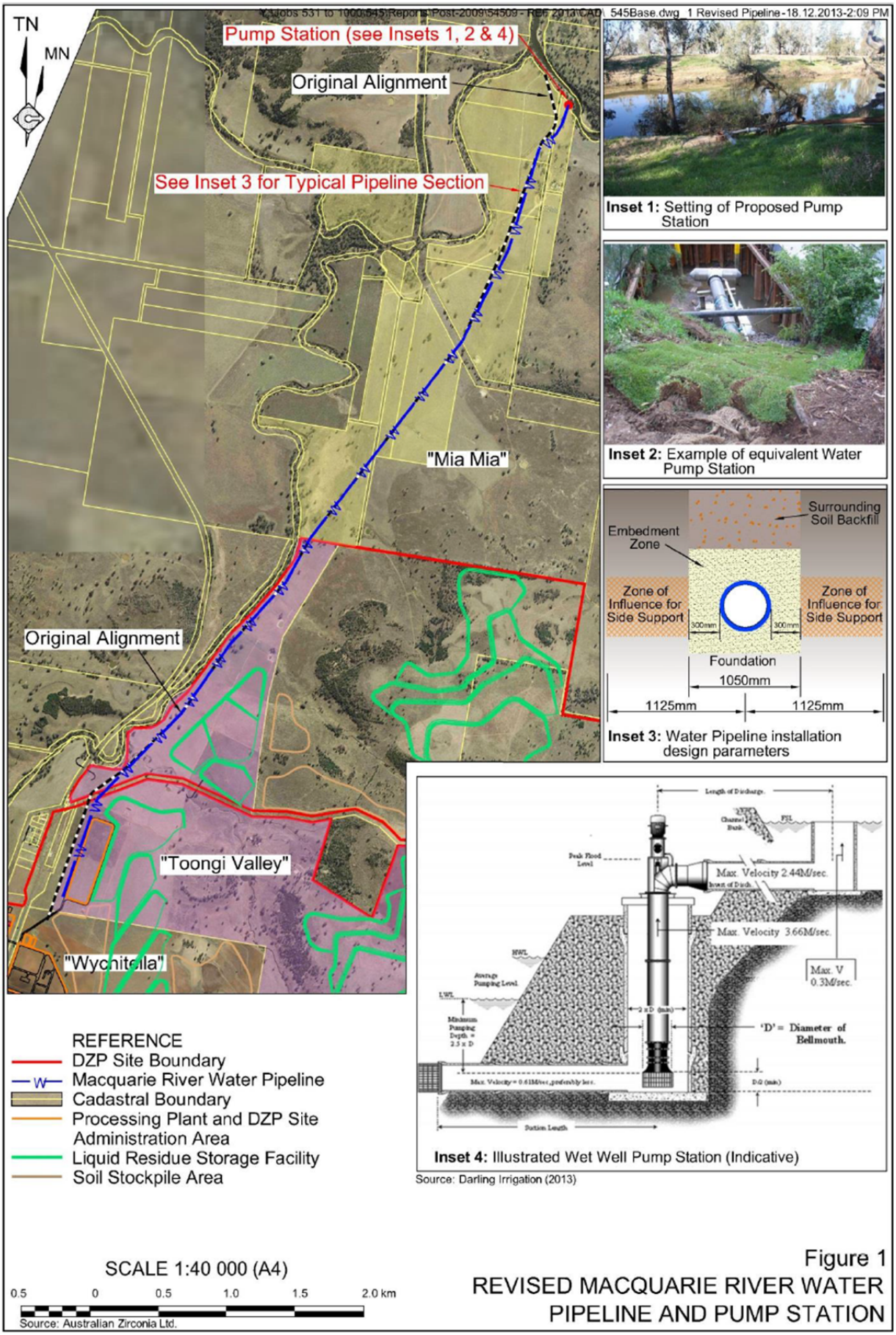


***Figure 7**: Macquarie River Water Pipeline*

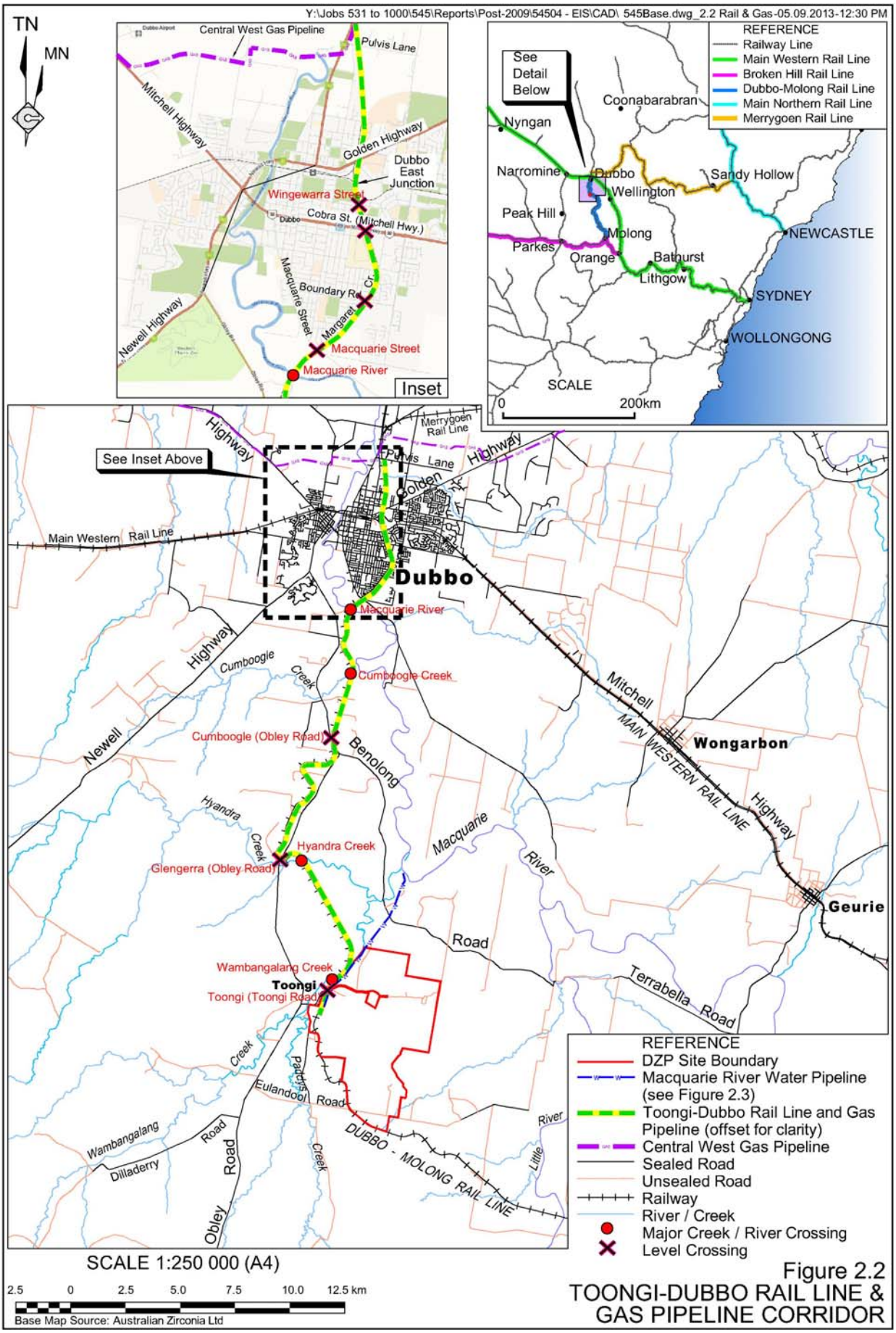


***Figure 8**: Proposed Gas Pipeline*

1.3 Project Justification

AZL claims the project has a number of significant benefits which include the following.

Significance of the Resource
The site has a large deposit of rare metals and rare earths.

Rare metals - such as zirconium, niobium, hafnium, tantalum, yttrium, europium and *rare earths* – such as dysprosium and neodymium – are used in the production of a range of products for the computing, renewable energy, automotive, entertainment, medical and military industries. These products include catalytic convertors, magnets, oxygen sensors, ceramics, specialty glasses, paints, LED lights and hybrid car batteries.

Demand for these advanced technologies and consumer products are growing rapidly, and consequently the demand for rare metals and rare earths is also increasing.

At this stage, China dominates the market for supplying and consuming rare earths. It accounts for approximately 97% of the world's supply and 70% of the world's consumption. However, China has implemented export quotas for some rare earths, and this has served to significantly increase the price of these resources on the international market.

While there are existing mineral sands mines in western NSW that produce some rare metals, the Dubbo Zirconia Project represents the first rare earth elements mine in NSW. Given the size of the resource and the international demand for rare metals and rare earth elements, the project has the potential to enable NSW to become a major long term supplier of these essential materials to the international market.

Economic Benefits
According to AZL, the project would result in a range of economic benefits for the region and NSW as a whole, including:

- capital spending of $1.06 billion;
- annual spending of around $50 million in the local economy;
- providing jobs for up to 250 people during operations;
- $600,000 a year for the provision of local infrastructure and services under a Voluntary Planning Agreement (VPA) with Dubbo City Council; and
- around $12 million to the NSW Government each year in royalties.

Project Design
AZL claims it has incorporated a range of mitigation measures into the design of the project to minimise its likely impacts. These measures include:

- expanded road upgrades to address road safety and traffic noise concerns;
- the inclusion of a caesium catalyst and/or scrubber system in the processing plant, which would greatly reduce sulphur dioxide emissions; and
- targeting cleared land for the project infrastructure to minimise the need for clearing of native vegetation, and avoiding the most important habitat for threatened species (particularly for the Pink-tailed Worm-lizard).

2. STRATEGIC CONTEXT

2.1 Land Use and Ownership

Agriculture
Agriculture is the dominant land use in the Macquarie River catchment with over 80% of the land being used for grazing, 9% for dryland cropping and 5% for forestry or conservation.

Land uses both on, and in the vicinity of the site, reflect the land uses within the wider catchment. While most of the site has an agricultural land class capability of Class III, the open cut pit would be located on Class IV land.

Dubbo
Dubbo is the regional centre, and has a population of around 42,000. It is located 20 kilometres to the north of the site, and is a major road and rail freight hub in the region.

Toongi Village
The project is located next to the small village of Toongi (see Figure 9). The village is comprised of four dwellings, land previously owned by GrainCorp for siloing, the disused Toongi Railway Station, Crown Land reserves as well as a community hall, waste transfer station, sport fields, tennis courts and a camping ground.

AZL has purchased the former GrainCorp land and two of the residential properties within the township. It also has options to purchase the remaining two residential properties in the village, and has expressed interest in acquiring the Crown Land reserves

AZL has bought or has contractual options in place to purchase all the properties within the project boundary, which includes six dwellings, four within the project boundary and two to the east ('Wynchitella' and 'Pacific Hill').

Property 50
Property '50' in the EIS is surrounded on all sides, but does not form part of the site (see Figure 2). The property does not currently have a dwelling, although a development consent was granted to construct one some time ago.

While AZL does not have an option to purchase the property, it has indicated it is willing to do so.

The property would be surrounded by large evaporation ponds and soil stockpiles. However, access from Toongi Road would be maintained (see Figure 2).

Other Residences
The site is fairly isolated, with the next closest non-project related dwellings located on four small rural residential blocks approximately 1 km to the west of the site entrance near the intersection of Toongi and Obley Roads (see Figure 9 – denoted as 'Rural Residential Blocks'). Further out, there are another 28 privately-owned residences within 2 – 5 km of the site (see Figure 9).

Other Facilities
Nearby tourist and education facilities include:
- the Taronga Western Plan Zoo on the southern outskirts of Dubbo (see Figure 1); and
- the Wambangalang Environmental Education Centre, which is located 4.2 km southwest of the site.

2.2 Natural Environment

The area surrounding the site is characterised by undulating hills with moderate to gentle slopes, surrounded by creek flats and floodplains. Elevations vary between 425 m Australian Height Datum (AHD) at Dowds Hill near the western boundary of the site down to 275 m AHD at Wambangalang Creek near the eastern boundary of the site (see Figure 9).

Remnant vegetation is largely restricted to the riparian corridors of the Macquarie River and its tributaries, elevated hill tops and ridges and road easements.

Notable vegetated areas include the land associated with Dowds Hill, which is one of the largest privately-owned native vegetation remnants (approximately 800 ha) in the Central West Catchment Management Area (CMA).

2.3 Water Resources

The project is located in the upper section of the Macquarie River Catchment, which forms part of the wider Macquarie-Bogan Catchment that covers 74,800 km^2.

The Macquarie River is located about 4 kilometres to the north of the site, and has highly productive alluvial aquifers.

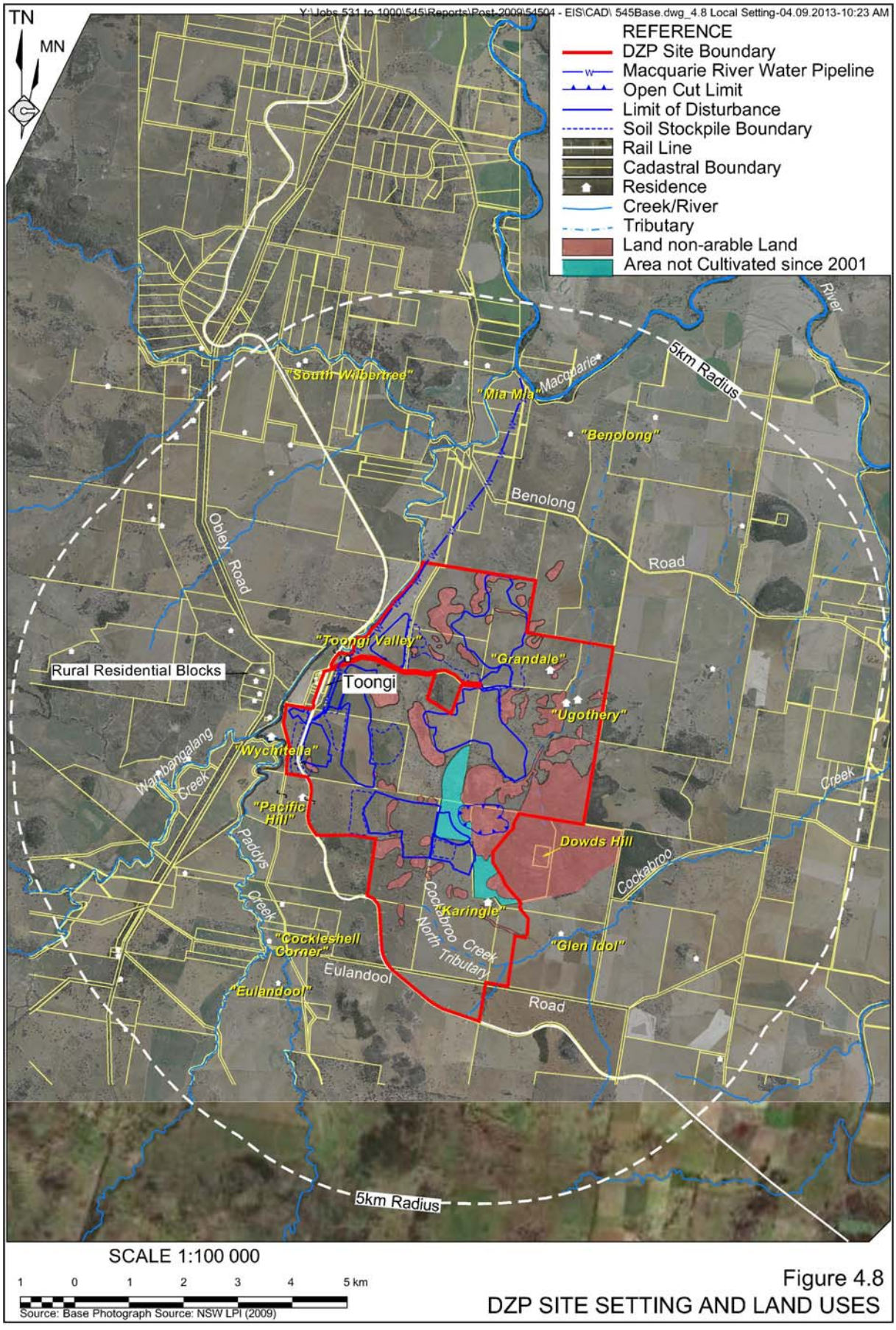


***Figure 9**: Project Setting*

Water take from the Macquarie River is regulated under the *Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source* (WSP).

2.4 Infrastructure

Key infrastructure in the region includes.
- the Newell, Mitchell and Golden Highways;
- Toongi and Obley Roads, which connect the site to the Newell Highway; and
- the disused Dubbo-Toongi railway line, which connects to the Main Western Railway line in Dubbo.

3 STATUTORY CONTEXT

3.1 State Significant Development

The project is classified as State Significant Development under the EP&A Act as it is "development for the purpose of mining that has a capital investment value greater than $30 million", and therefore meets the criteria in Clause 5 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011.*

Consequently, the Minster for Planning is the consent authority for the development application. Under existing Ministerial delegations, however, the Planning Assessment Commission will determine the development application on behalf of the Minister. This is because there were more than 25 public submissions which objected to the project.

3.2 Permissibility

Under the *Dubbo Local Environmental Plan 2011* (Dubbo LEP), the project is permissible with development consent (see Table 2).

Table 2: *Dubbo LEP Permissibility of Development Components*

Zone	***Development Component***	***Permissible***
	Dubbo LEP	
Zone RU1 – Primary Production	• Mining; gas pipeline & water supply infrastructure	Yes
Zone SP2 – Infrastructure Railway	• Gas pipeline	Yes
Zone W2 – Recreational Waterways.	• Water supply infrastructure	Yes

It is also permissible with development consent under clause 7(1)(b) of the *State Environmental Planning Policy (Mining, Petroleum, Production and Extractive Industries) 2007*, as it is development for the purpose of mining that would be carried out on land where development for the purposes of agriculture may be carried out (with or without development consent).

3.3 Integrated Approvals

Under Section 89J(1) of the EP&A Act, a number of approvals are not required to be separately obtained for the proposal. These include:
- various approvals and permits under the *Fisheries Management Act 1994*, *Coastal Protection Act 1979*, *National Parks and Wildlife Act 1974* and the *Heritage Act 1997*;
- a bush fire safety authority under the *Rural Fires Act 1997;*
- an authorisation under the *Native Vegetation Act 2003* for the clearing of native vegetation; and
- certain water approvals under the *Water Management Act 2000.*

The Department has considered the relevant matters covered by this legislation in its assessment of the merits of the project (see Section 5), and is satisfied they can be suitably regulated under any development consent for the project.

Under Section 89K of the EP&A Act, a number of further approvals are required, and must be substantially consistent with any development consent granted for the proposal. These include:

- a mining lease under the *Mining Act 1992*;
- an environment protection licence under the *Protection of the Environment Operations Act 1997*;
- a licence under the *Pipelines Act 1967*; and
- a consent for road works under Section 138 of the *Roads Act 1993*.

The Department has consulted with the agencies responsible granting these approvals during the assessment process. These agencies all support the project, subject to the imposition of suitable conditions.

3.4 Commonwealth Approval

The project also requires approval from the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) because it could have a significant impact on Commonwealth-listed threatened species.

The Commonwealth has accredited the State's approval process for the Dubbo Zirconia Project. This means there will be a single assessment process for both State and Commonwealth matters, even though the State and Commonwealth will still make separate decisions on the merits of the project.

3.5 Environmental Planning Instruments

Several environmental planning instruments apply to the project, including:

- *SEPP (State and Regional Development) 2011*;
- *SEPP (Mining, Petroleum and Extractive Industries) 2007*;
- *SEPP (Infrastructure) 2007*;
- *SEPP No.33 – Hazardous and Offensive Development*;
- *SEPP No.44 – Koala Habitat Protection*;
- *SEPP 55 (Remediation of Land)*; and
- *Dubbo LEP*.

Both the Department (see Section 5 and Appendix 1) and AZL (see section 3.3 of the EIS) have considered the merits of the project against the relevant provisions of these instruments.

Based on this assessment, the Department is satisfied that the development can be undertaken in a manner that is consistent with the aims, objectives and provisions of these instruments.

3.6 Objects of the Environmental Planning and Assessment Act 1979

The Minister is required to consider the objects of the EP&A Act when making decisions under the Act. The objects of most relevance to the Minister's decision on whether or not to approve the development are found in section 5(a)(i),(ii),(vi)&(vii) of the Act. They are:

- *to encourage:*
  - *(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
  - *(ii) the promotion and co-ordination of the orderly and economic use and development of land…*
  - *(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
  - *(vii) ecologically sustainable development"*

The Department is satisfied that the project encourages the proper development of resources (Object 5(a)(i)) and the promotion of orderly and economic use of land (Object 5(a)(ii)), particularly as the project is a permissible land use and the subject resource is significant from a State and international perspective. However, the Department also recognises the potential conflict with other land uses (particularly agriculture), and has assessed the potential impacts on these land uses in detail in Section 5 of this report.

Consideration of environmental protection (Object 5(a)(vi)) is provided in Section 5 of this report. Following its consideration, the Department is satisfied that the project is able to be undertaken in a manner that would maintain or improve the biodiversity values of the region in the medium to long-term. The Department is also satisfied that the impacts to threatened species and habitats can be managed and/or mitigated by imposing appropriate conditions, including a requirement to implement a comprehensive biodiversity offset strategy and to progressively rehabilitate the site.

The Department has considered the encouragement of ecologically sustainable development (Object 5(a)(vii)) in its assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences. AZL has also considered the project in the light of the ESD principles. Following its consideration, the Department is satisfied that the project is able to be carried out in a manner that is consistent with the principles of ESD.

4 CONSULTATION

The Department exhibited the development application and EIS for the project between 18 September and 18 November 2013.

It also:

- advertised the exhibition of the EIS in the Sydney Morning Herald and the Dubbo Liberal Daily newspapers;
- notified relevant Commonwealth and State government authorities and Councils; and
- notified relevant road and infrastructure authorities, in accordance with the relevant provisions of the Mining SEPP and Infrastructure SEPP.

In doing this, the Department has satisfied the notification requirements of Section 89F of the EP&A Act, the Mining SEPP, and the Infrastructure SEPP.

During the exhibition period, the Department received 66 submissions on the project, including:

- 10 from public authorities, including Dubbo and Wellington Councils;
- 10 from special interest groups; and
- 46 public submissions.

A summary of the key issues raised in submissions is provided below. A full copy of the submissions is provided in Appendix C.

AZL provided a detailed response to the submissions which was placed on the Department's website and sent to the agencies and Council's and is provided in Appendix B.

4.1 Public Authorities

None of the public authorities object to the development. However, most of the authorities raised concerns and/or made recommendations relevant to their regulatory responsibilities.

The ***Environment Protection Authority (EPA)*** supports the project, subject to conditions. It has indicated it would be prepared to grant an environmental protection licence for the project, and outlined the conditions it would include on the licence to control the potential air, noise and water pollution impacts of the project.

The ***Division of Resources and Energy (DRE)*** - within the *Department of Trade and Investment,* supports the project subject to the inclusion of conditions to ensure the site is suitably rehabilitated.

The ***Department of Primary Industries (DPI)***, which includes the ***NSW Office of Water***, ***Fisheries NSW***, ***Crown Lands*** and the ***Office of Agricultural Sustainability and Food Security***, has no objection to the project, subject to the imposition of suitable conditions requiring AZL to:

- secure water licences under the relevant water legislation for all "water take" associated with the project;

- ensure it has sufficient water for all stages of the project, and if necessary adjust the scale of operations on site to match the available water supply;
- minimise any impacts on downstream water users whose basic landholder rights could be affected by the project;
- ensure all the works on waterfront land, such as the various creek crossings of the proposed gas pipeline, are designed in accordance with NOW's and NSW Fisheries' guidelines for such works;
- prepare a detailed water management plan for the project, which included regular monitoring of the potential water impacts; and
- minimise the impacts on surrounding agricultural enterprises, and rehabilitate the site for future agricultural use.

While NOW noted that there was still some uncertainty about precisely how AZL would secure the water required for the project, it accepted that this was primarily a commercial risk for AZL.

The ***Office of Environment and Heritage (OEH)*** is satisfied with the assessment of the potential biodiversity impacts of the project, and supports the proposed biodiversity offset strategy. OEH has concerns about the potential biodiversity impacts of two developments that are associated with the project:

- the 20 km 132 kV electricity transmission line corridor from the site to Guerie; and
- the proposed establishment of a lime stone quarry at Guerie.

However, AZL is not seeking approval for either of these development proposals as part of the Dubbo Zirconia Project. Instead, they will be the subject of other approvals processes under the EP&A Act, and OEH accepts that it will be able to comment on the merits of these proposals at another stage.

Heritage Council of NSW (Heritage NSW) noted the project would not affect any State-listed heritage items, and asked the Department to include standard conditions for archival recording of local historic heritage items and the discovery of any new relics.

Transport for NSW (**TfNSW**), including the **Roads and Maritime Service** (**RMS**), supports the project subject to conditions. While TfNSW supports the proposed reopening and use of the disused railway line between Dubbo and Toongi, it was critical of the lack of detail about the proposed upgrades to the line, and in particular the proposed upgrades to the level crossings in Dubbo. Following several meetings with AZL, TfNSW agreed these matters could be resolved during the detailed design of the upgrades (if this part of the project proceeds) following any approval.

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NSW Health did not raise any concerns about the project.

Dubbo City Council (*DCC*) is "overwhelmingly supportive" of the project, and has agreed to enter into a Voluntary Planning Agreement (VPA) with AZL for the project. Under this agreement, DCC would receive around $600,000 a year during the life of the project for the provision of local infrastructure and services. DCC has also recommended conditions for the detailed design of the proposed railway upgrades (should they proceed) and the proposed road and intersection upgrades. These conditions will be incorporated into any development consent. Finally, DCC raised some residual concerns about the adequacy of the proposed biodiversity offset strategy. These concerns are considered in more detail in Section 5.

Wellington Council sought contributions from AZL for the provision of local infrastructure and services for the project. AZL rejected this request, saying the workforce would be based primarily in the Dubbo LGA, and the project was unlikely to generate any demand for infrastructure and services in the Wellington LGA. This matter is considered further in Section 5.

The ***Taronga Conservation Society Australia*** supports the project subject to the incorporation of suitable measures to minimise the potential traffic safety and noise impacts of the project on the Taronga Western Plains Zoo. This is considered further in Section 5.

4.2 Public Submissions

Most of the public submissions were from local residents in the Dubbo LGA, however, several special interest groups made submissions, including the:

- Dubbo Local Aboriginal Land Council;
- Central West Environment Council;

- Dubbo Field Naturalists & Conservation Society Inc.;
- Hunter Environment Lobby Inc (HEL Inc);
- Indigenous Concepts and Networking (ICaN);
- Mudgee District Environment Group (MDEG);
- Rylstone District Environment Society Inc (RDES Inc);
- The Australia Institute;
- The Newcastle Wilderness Society (NWS); and
- Uranium Free NSW.

Of the 56 public submissions, 40 objected to the project, 7 supported the project and 9 simply commented on the project.

Objectors raised a wide range of concerns about the potential impacts of the project, including:
- *Air quality* – the potential amenity/health impacts of the dust and processing emissions leaving the site;
- *Noise* – mostly about the potential noise impacts associated with the re-opening of the disused rail line into Dubbo;
- *Radiation* – the potential exposure of people and animals to the radioactive dust from the ore or gas (radon);
- *Waste management* – the disposal on site of large quantities of waste from the processing operations;
- *Water resources* – the use of large volumes of water from the Macquarie River, and potential water pollution impacts;
- *Traffic* – the potential road safety and noise impacts along the haulage route;
- *Biodiversity* – the potential impacts on threatened species, in particular the Pink-tailed Worm Lizard; and
- *Socio-economics* – including the potential impacts on Dubbo's image as a clean rural area; and the fact that AZL did not carry out a detailed cost benefit analysis of the project.

A number of objectors, including Uranium Free NSW, suggested the project was a precursor to uranium mining in NSW following the recent lifting of the ban on uranium exploration. In this regard, it is important to note that uranium mining remains prohibited in NSW, and the project does not propose to mine any uranium.

Supporters were in favour of the economic benefits of the project.

A full copy of the submissions received is included in Appendix C.

5 ASSESSMENT

During its assessment of the merits of the project, the Department has considered the:
- EIS, RTS, and additional information provided by AZL;
- issues raised in submissions;
- relevant environmental planning instruments, policies and guidelines; and
- relevant requirements of the EP&A Act, including the requirements in section 79C of the Act and the objects of the Act.

The following is a summary of the findings of this assessment.

5.1 Water

Introduction
The proposal could affect water resources in a number of ways, including:
- taking water from both surface and groundwater sources;
- reducing water flows for downstream users and the environment;
- polluting surface and groundwater water resources; and
- carrying out development on waterfront (or riparian) land and in areas that are liable to flooding.

The EIS includes specialist surface and groundwater impact assessments prepared by Strategic Environmental and Engineering Consulting (SEEC) and Environmental Earth Sciences NSW. These

assessments include baseline information on the area's surface and groundwater resources, modeling to predict the potential water impacts of the project, and recommended measures to minimise and manage these impacts.

Catchment Context
The site has several minor watercourses. These watercourses radiate out from Dowds Hill near the ore body (see Figure 10), and drain into three separate catchments: the Wambangalang/Paddy Creek catchment (57% of the site), Cockabroo Creek catchment (20%) and Undefined Macquarie River Catchment (23%).

These creeks are ephemeral, and often have no flow. Water quality within the creeks tends to be moderately saline with elevated nitrogen, phosphorous and turbidity.

5.1.1 Water Flows & Levels

Water Use
The EIS predicts the project would need up to 4.13 GL of water a year, with most of this water to be used for processing ore (4.05 GL) or dust suppression (79.2 ML). However, the Department notes these predictions are based on conservative assumptions, and that the project's actual demand is likely to be substantially lower than this.

AZL proposes to supply this water from a combination of the following:
- rainfall on the site (using its harvestable rights); and
- the Macquarie River.

However, it may also seek to extract groundwater from either the Lachlan Fold Belt Water Source or Upper Macquarie Alluvial Water Source if it is unable to secure enough water from the Macquarie River.

At this stage, AZL has licences to extract around 1,596 ML of water a year from the Macquarie River, including 846 ML of High Security licences and 750 ML of General Security licences. This coupled with AZL's harvestable rights should give AZL access to around 1,778 ML of water a year under a typical rainfall scenario.

This means AZL would need to secure a significant quantity of additional water from the region's water sources before it could operate the project at full capacity (ie up to 2.3 GL a year).

The EIS includes a detailed review of the water market in the region by a specialist in irrigation water trading (see Appendix 7 of the EIS). This review suggests AZL should have little trouble in securing enough water for the project in the current market under a broad range of rainfall scenarios, including when there are low flows in the Macquarie River and restrictions on General Security licences are imposed by NOW.

While the Department and NOW accept the broad findings of this review, they note that securing sufficient water for the project is largely a commercial risk for AZL; and that under standard conditions of consent, AZL would be required to adjust the intensity of operations on site to match its available water supply.

Water Recycling
Several submissions suggested that AZL should be required to do more to reduce water use on site and to increase the level of water recycling. These submissions focused mainly on the fact that AZL would lose up to 2.5 GL of water a year through evaporation from its various tailings dams.

In response, AZL indicated that:
- it has a significant commercial interest in reducing its water use on site;
- it has reduced the project's water demand by 20% by including two reverse osmosis plants in its ore refining process at significant capital cost; and
- there are major constraints to further reduce its water demand/use as:
  - the waste water from the processing operations would be highly saline (62,000 ppm) and contaminated with chemicals and other impurities, making it unsuitable for reuse in the processing process; and
  - the cost of treating this water to a reasonable standard would be prohibitive at this stage.

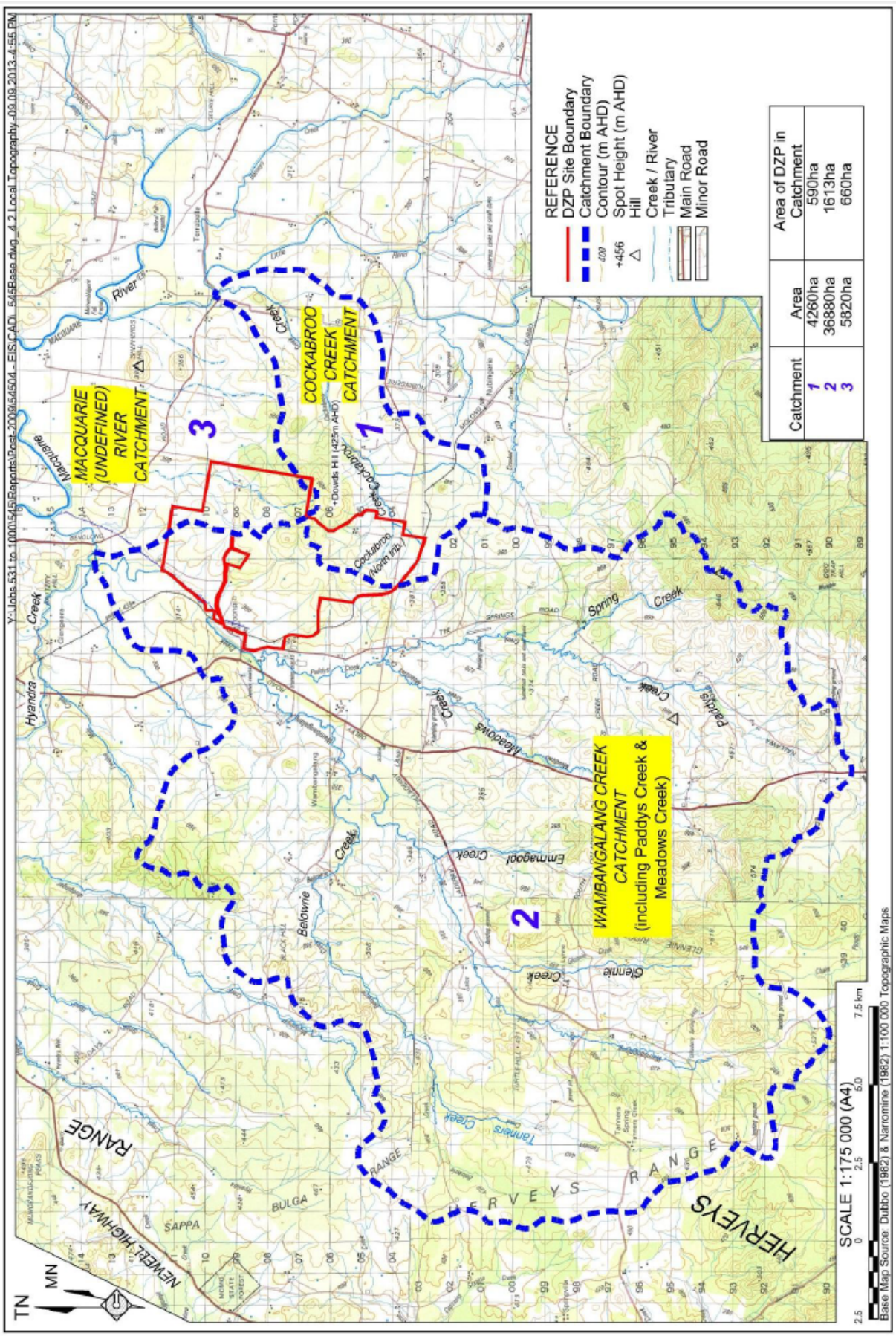


***Figure 10**: Local Surface Water Catchments*

Nevertheless, AZL accepts there may be some scope for improving the water efficiency of the operations over time, particularly as the processing operations are refined, and has committed to continue investigating ways to reduce the project's water use.

The Department believes AZL should be required to implement all reasonable and feasible measures to improve the water efficiency of the project.

Catchment Loss
At its peak, the project would disturb about 640 ha of the local surface water catchments.

This disturbance is predicted to result in a mean annual runoff loss of 453 ML of water a year from these catchments, with:
- 338 ML coming from the Wambangalang Creek catchment (1.3% of total runoff);
- 95 ML coming from the Undefined Macquarie River catchment (7% of total runoff); and
- 20 ML coming from the Cockabroo Creek catchment (1% of total runoff).

According to NOW, there are no registered water licence holders on the watercourses downstream of the site. This is unsurprising, given the ephemeral nature of these watercourses. Nevertheless, some landowners have basic landholder rights (stock and domestic) to extract water from these watercourses when they are flowing, and NOW asked AZL to carry out further analysis of the potential impacts of the project on these rights.

AZL provided this analysis in the RTS, and argues that the predicted loss of 7% in the Undefined Macquarie River catchment is less than what is permissible under the Harvestable Rights regulations, and would consequently be imperceptible to downstream users. Further, it notes that AZL does not intend to source water for the project from the existing farm dams in this catchment. This is likely to increase the availability of water to downstream users when the creek is flowing.

Notwithstanding this analysis, AZL has committed to provide a compensatory water supply to any landowner whose basic landholder rights are adversely affected by the project.

Given the ephemeral nature of the creeks, the minor water take from these watercourses, the limited number of water users relying on these watercourses, and AZL's commitment to provide compensatory water, the Department is satisfied that the project would have a negligible impact on local water catchments and downstream water users.

Nevertheless, the Department believes AZL should be required to comply with a range of standard conditions, which include obligations to:
- minimise the surface disturbance of the mine;
- maximse the diversion of clean water around the mine; and
- re-establish natural drainage lines across the site and restore catchment values following mining.

Groundwater
The project is expected to have very little impact on the region's groundwater resources.

This is primarily because the proposed open cut pit would be relatively small (around 40 ha), extending only 5 to 32 metres below the ground's surface, and would not intersect the groundwater table.

While the lined waste residue storages would reduce rainfall recharge to the local shallow aquifer, the groundwater drawdown is not predicted to extend beyond the boundary of the site, and would not affect surrounding groundwater users or groundwater dependent ecosystems.

The Department believes AZL should be required to carry out regular monitoring to confirm this is indeed the case.

5.1.2 Water Quality

AZL proposes to establish a comprehensive water management system on site. This system would divert clean water around the site, contain dirty water on site, and isolate potential contaminants from the environment.

With this system in place, the mine would be a "zero discharge" site.

Erosion and Sediment Control
To divert clean water around the site and control erosion and the discharge of sediments, AZL would install a range of measures in accordance with the relevant standards in the "Blue Book".

These measures would include:
- constructing diversion drains on site to divert clean surface water away from the LRSF, SRSF, waste rock emplacement, disturbed areas, soil stockpiles, haul roads, Container Storage Area, Processing Area and ROM pad;
- minimising surface disturbance;
- stabilizing ground and soil stockpiles, and reducing slope length on disturbed surfaces to control soil loss;
- progressively installing up to 12 sediment basins over the life of the project; and
- using sedimentation fencing and sediment traps where appropriate.

Both the EPA and Department support the implementation of the proposed measures, and believe AZL should be required to prepare and implement a detailed Erosion and Sediment Plan for the project, as a component of the site's Water Management Plan, and regularly update this plan over the life of the project.

Processing Facility/Mining Area
The project involves the use of several reagents (such as sulphur, sulphuric acid, hydrochloric acid) and fuels, which have the potential to cause water pollution if not properly handled.

AZL proposes to store these chemicals and fuels in appropriately bunded areas (see Figure 3) with sufficient capacity to trap 110% of the volume of the largest storage tank. Water from these bunded areas would be pumped to either the Process Water Dam or the LRSF, which are nil discharge structures (see Figures 2 and 5).

It also proposes to monitor the use of these reagents and fuels and to implement suitable clean up procedures if there is a spill.

With regard to incidental rainfall run-off from active mining areas:
- the ROM pad and the Waste Rock Emplacement would be designed to drain to dedicated dams SB12 and SB4 / SB5 respectively. These dams would be designed to have a capacity to exceed the requirements for a 100 year storm event by a factor of two; and
- the open cut pit would be internally draining.

Both the EPA and the Department are satisfied with the proposed "dirty water" management system, and believe suitable measures can be installed to isolate any of the potential sources of water contamination from the environment.

Waste Residue Structures
The processing of ore on site would generate three types of waste residues: liquid, solid and salt (see Table 1).

These wastes would be stored and disposed of on site in purpose built storage facilities: the LRSF, SRSF and Salt Encapsulation Cell (see Figures 5 and 6). Each of these facilities would be designed to isolate potential contaminants from the environment.

LRSF - each cell would have a 6 metre embankment, providing for a water storage height of 5 metres with a 1 metre freeboard. The 1 metre freeboard would provide for the capture and storage of rainfall during a 1 in 10 000 year storm event (460mm), and also any possible wave run-up under windy conditions. Each cell and embankment would be lined with a single 1.5 mm HDPE welded sheet. Under normal circumstances, AZL

proposes to operate the LRSF with more than 1 metre of freeboard, as this would promote evaporation and help minimise the water level in each cell.

SRSF and Salt Encapsulation Cells - these cells as well as the upstream faces of their embankments would be double-lined. The upper liner would be comprised of HDPE (or material with an equivalent permeability) while the lower liner would be HDPE or compacted clay with a permeability of $1x10^{-9}$ m/s and thickness of 900 mm (or equivalent combination of permeability and thickness) (refer to Drawing 120-12-304, Appendix 6 of the EIS). A leak detection system would be installed between the two liners. Once they are full, each cell would be capped with a layer of clay (or alternatively a bentonite mat or equivalent) to prevent water ingress. The capping layer would be protected from desiccation by a layer of rock, then covered in soil and vegetated to prevent erosion.

To ensure these controls for the above structures are effective, AZL proposes to establish a comprehensive monitoring system on site, and take corrective action if the system is not working properly.

All the relevant State agencies support the proposed mitigation measures, and are satisfied that the various waste streams produced by the project can be suitably controlled on site. To ensure this occurs, these agencies believe AZL should be required to:

- comply with a number of water quality performance measures, and contain all contaminated water on site;
- ensure the cells meet certain design requirements, such as the relevant standards for liners in the *NSW Environmental Guidelines for Solid Waste Landfills* (EPA 1996) or equivalent;
- ensure the cells are long-term stable under all expected loading conditions and appropriately capped;
- carry out regular monitoring of the effectiveness of the cells, and take corrective action if necessary; and
- prepare and implement a detailed Water Management Plan for the project.

5.1.3 Watercourses Crossings

The proposed upgrade of the Dubbo-Molong rail line would require 17 watercourse crossings to be upgraded, while the upgrades for Toongi and Obley Roads would require three road crossings to be upgraded and the installation of the gas supply pipeline would involve four watercourse crossings (see Figure 8). The pipeline crossings would all be achieved via under-boring the watercourses (if the pipeline is not able to be suspended from existing bridges).

Further the project involves the installation of a water extraction pump on the Macquarie River.

AZL has committed to carrying out these works in accordance with the:

- *Guidelines for Controlled Activities on Waterfront Land (NOW)*;
- *Guidelines and Policies for Aquatic Habitat Management and Fish Conservation* (NSW Fisheries); and
- *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries).

The various State agencies (the Department, NOW, NSW Fisheries) are satisfied with AZL's commitments, but believe AZL should be required to prepare detailed plans for the proposed upgrades of existing watercourse crossings or new crossings, to the satisfaction of the Secretary, prior to carrying out these works.

5.1.4 Flooding

Parts of the site could be affected by localized flooding in a 1 in a 100 year storm event. This includes the Processing Plant, Administration areas and a section of the LRSF (see Figure 2).

AZL proposes to protect these areas from flooding with standard flood management measures.

These measures are not predicted to cause any adverse flooding impacts on adjoining landowners.

The Department believes AZL should be required to prepare detailed plans for the proposed flood protection works, to the satisfaction of the Secretary, prior to carrying out these works.

5.1.5 Conclusion

The project would:
- use up to 4.05 GL/y of water for processing ore;
- use chemicals and fuels, cause surface disturbance and generate several waste streams that could pollute local watercourses and aquifers;
- divert local flood flows around key infrastructure on site.

However, the relevant agencies are satisfied that AZL has incorporated a range of measures into the design of the project to minimise water use, isolate and suitably control any contaminants on site, and avoid any significant impacts on local water resources.

With these measures in place, there is a low risk of AZL not being able to secure enough water for the project, or the project resulting in water pollution or adverse flooding impacts.

Nevertheless, the Department believes AZL should be required to comply with a range of strict conditions. These conditions include requiring AZL to:
- ensure it has sufficient water for each stage of the project, and if necessary adjust the intensity of its operations to match its water supply entitlements;
- maintain a detailed water balance for the project, and investigate ways to minimise water use on site;
- maximize the diversion of clean water around the site;
- implement suitable erosion and sediment controls during the project;
- ensure key water-related infrastructure associated with the project is designed and implemented to comply with relevant standards and guidelines;
- ensure the mine operates as a "zero discharge" site;
- monitor the water impacts of the project and the effectiveness of any mitigation measures;
- prepare and implement a detailed Water Management Plan for the project; and
- regularly review and update this plan to ensure it remains effective.

5.2 Transport

Introduction
The project would generate road and potentially rail traffic (see Figures 8 and 11).

This traffic would be comprised of:
- construction traffic - employees and the delivery of equipment; and
- operational traffic – employees and the delivery of various goods, including up to:
  - 360,000 tonnes of chemical reagents to the site each year;
  - 240,000 tonnes of limestone to the site from Geurie; and
  - 75,000 tonnes of ore concentrate from the site.

While all employee traffic would be by road, there is a chance that some of the deliveries (reagents and ore concentrate) would be by rail.

There are two options for this:
- AZL would upgrade the disused railway line between Dubbo and the site, and transport reagents by rail directly to the site and ore concentrate to the relevant port for export; or
- AZL would deliver these goods to / from the site via the existing 'Fletchers' inter-modal terminal in Dubbo.

The EIS includes an assessment of the potential road and rail impacts of the project, and includes:
- a road traffic impact assessment by Constructive Solutions;
- a study by CR Rail to identify the works required to upgrade the disused railway line to Class 1 standard; and
- a study by UTS Rail to identify the signalling and level crossing requirements of the upgraded railway line.

AZL augmented these studies with further work in the RTS to address criticisms raised in submissions, particularly by Transport for NSW, RMS and Dubbo Council.

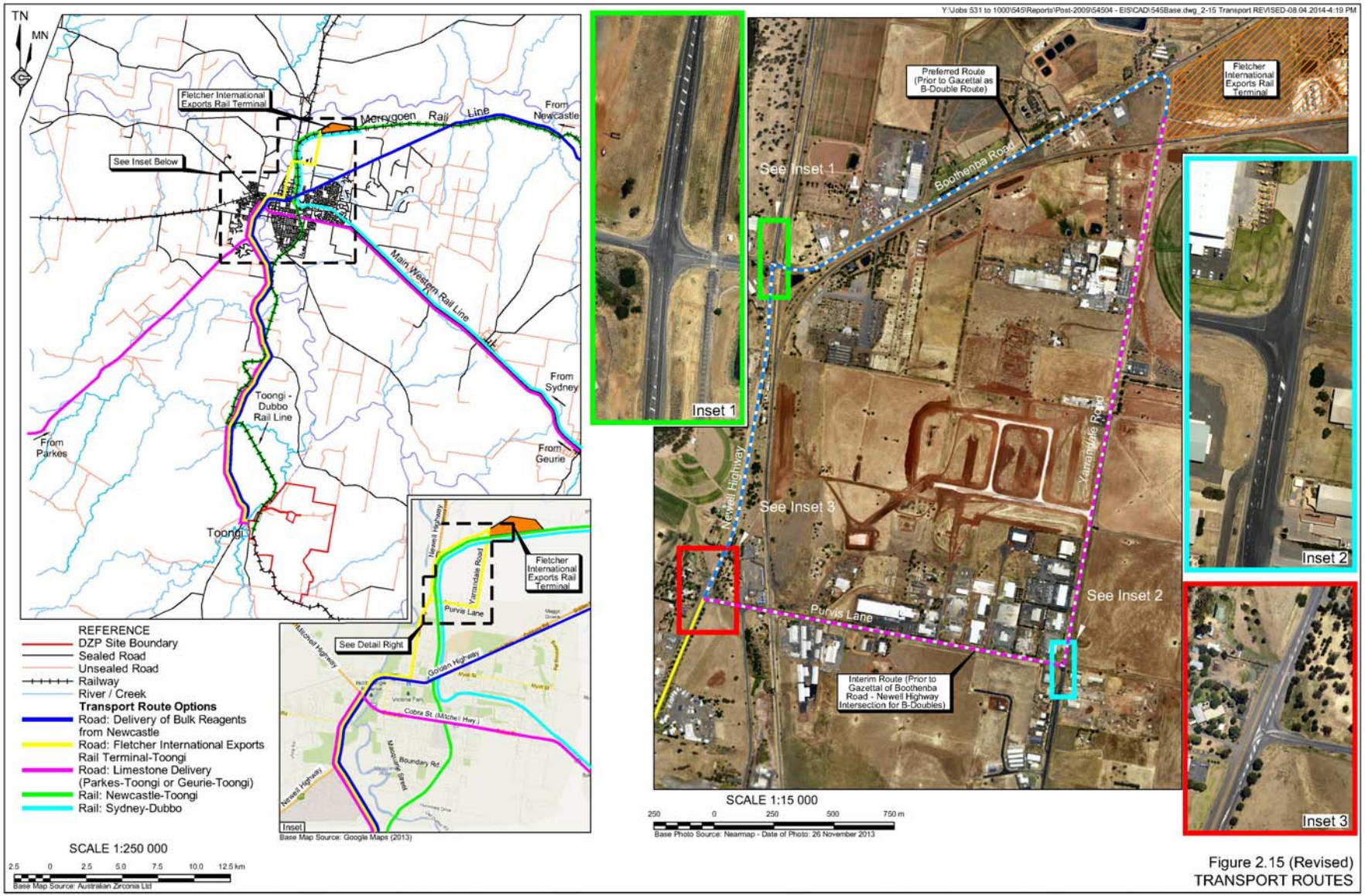


***Figure 11**: Proposed Transport Routes*

5.2.1 Road

Road Upgrades
Access to the site would be via the Newell Highway, Obley Road and Toongi Road (see Figure 11).

To ensure both Obley and Toongi Road meet the relevant Austroad standards to accommodate the proposal, AZL proposes to:

- upgrade the pavement of both roads to provide a 20 year design life;
  - Obley Road – 12 m formation between the Newell Highway and Toongi Road (two 3.5 m lanes and two 1.5 m shoulders of sealed pavement and 1 m gravel shoulders);
  - Toongi Road – 10 m formation with 8.5 m sealed pavement with 75 cm gravel shoulders from Obley Road;
- provide Obley Road with a 7.5 m clear zone for straight sections and 9 m for the outside of all curves, or install wire rope safety barriers where appropriate;
- upgrade the intersection of Obley Road with the main Zoo entrance to provide an extended channelised right hand turn lane into the Zoo;
- provide an asphalt concrete seal to a 2.4 km section of Obley Road from the Newell Highway and a 950 m section of Obley Road from Toongi Road to reduce road noise at the Zoo and other receivers;
- upgrade the intersection of Obley and Toongi Roads to the relevant standard to provide appropriate deceleration, acceleration and auxiliary turning lanes;
- upgrade the Hyandra, Twelve Mile and Wambangalang Creek crossings (see Figure 8); and
- provide additional pavement seal as required on approach and exit from existing bus shelters along Obley Road.

Both RMS and the Council are generally satisfied with the proposed upgrades, which would need to be carried out to the satisfaction of Council (as the relevant road authority).

Performance of the Road Network
The traffic impact assessment considered the impacts of the project on both the road network and key intersections (see Tables 3 & 4). It concluded that the project would result in substantial increases in traffic near the site on Toongi and Obley Roads (even though actual traffic levels would still be quite low) with very minor increases on the Newell Highway. However, even with the predicted increases, the proposed upgrades to Toongi and Obley Roads would ensure the road network could safely accommodate the traffic generated by the project and the project would not reduce the level of service (LoS) at key intersections during peak periods.

***Table 3**: Vehicle Movement Count With and (Without Mine Vehicles)*

Road	Location	Forecast Traffic (2036)*		DZP Traffic		Combined Traffic (2036)		Increase	
		LV	HV	LV	HV	LV	HV	TOTAL	%
Obley Road	Btwn Newell Hwy & TWP Zoo Entry	2,968	363	320	158	3,288	521	3,809	14%
	100m North of Toongi Road	344	211	320	158	664	369	1,033	86%
Toongi Road	East of Obley Road	108	22	320	158	428	180	608	368%
Boothenba Road	50m west of Saleyard	1,889	493	0	98	1,889	591	2,480	4%
Yarrandale Road	200m North of Purvis Lane	2,415	1,563	0	98	2,415	1,661	4,076	2.5%
LV & HV stand for light vehicles and heavy vehicles respectively. * Forecast background traffic is based on recent counts available (refer Part 11 Vol 3 of EIS)									

***Table 4**: Intersection Performance With and Without Mine Vehicles*

Intersection	Scenarios	Peak Flow	DoS	Delays (Sec)	LoS (worst)	Queue (m)
Newell Highway and Obley Road	Background Traffic (2036)	905	0.312	15.0	B	10.3
	Background Traffic (2036) + DZP Traffic	939	0.339	15.1	B	11.8
Newell Highway and Boothenba Road	Background Traffic (2036)	1,217	0.500	32.4	C	20.6
	Background Traffic (2036) + DZP Traffic	1,238	0.508	33.8	C	20.8

Notwithstanding these conclusions, the RMS raised concerns about the potential road safety risks associated with the predicted increase in heavy vehicle traffic from the project turning right from Obley Road onto the Newell Highway. These concerns relate to through traffic on the Newell Highway having to slow down to accommodate merging B-double trucks.

The RMS indicated that AZL should be required to carry out a traffic safety audit of this intersection prior to the commencement of operations on site, and then every three years; and implement any findings of the audit to improve the safety of this intersection.

AZL has agreed to do this, but argues that it should only be liable for implementing those aspects of the audit that are directly related to its project, and not general upgrades that would be required regardless of the project.

The Department considers this to be reasonable.

Dangerous Goods Transport
Many of the reagents to be used on site are classified as dangerous goods.

The transport of these dangerous goods to the site will be regulated by the EPA under the *Dangerous Goods (Road and Rail Transport) Act 2008*, and carried out in accordance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail*.

After concerns were raised about the potential impacts associated with transporting these dangerous goods, AZL commissioned Sherpa Consulting to assess these risks in more detail. This assessment included consideration of the *Hazardous Industry Planning Advisory Paper No. 11 – Route Selection guidelines* (HIPAP 11), and was included in the RTS. Sherpa concluded that there are no major constraints to transporting the goods to the site, and the risks would be acceptable if suitable management measures were employed.

The Department agrees with this conclusion.

Traffic Management
Although the project is unlikely to generate any significant traffic impacts, the Department believes AZL should be required to:

- minimise the construction traffic impacts of the project;
- stage shift changes outside peak hours;
- restrict heavy vehicle movements to/from the site to the day period, unless there is an emergency;
- prepare and implement a Drivers Code of Code for the project; and
- monitor the effectiveness of these measures.

The implementation of these measures would further reduce the traffic impacts of the project.

5.2.2 Rail

The project raises four matters that are worth consideration.

First, the project would only generate three trains a week, and there is more than enough spare capacity in the regional network to accommodate these trains.

Second, while there is broad support for the use of rail - and particularly the reopening of the disused railway line – there are serious doubts about whether this is option is viable. The track needs to be upgraded to a suitable standard (Class 1) before it could be reused, and based on the assessment carried out to date this would involve:

- replacing the track, sleepers, ballast and several bridges and structures along the 27 kilometre route;
- installing suitable controls at seven levels crossings (lights, bells, boom gates, signage); and
- upgrading the signalling along the line.

AZL indicates that it would only be able to make a final decision on the matter following a detailed feasibility study of the option, and that it is only likely to commission this study 2 to 3 years after the commencement of operations once the processing operations have been bedded down and reagent supply contracts have been finalised.

The Department considers this to be reasonable, and notes that it is not in a position to compel AZL to re-open and utilise the railway line. Nevertheless, the Department believes AZL should be required to carry out this feasibility study within three years of the commencement of operations, and upgrade and use the railway line if it is feasible, to minimise the need for heavy vehicle movements on the road network.

Third, the design of the proposed railway works is still at the conceptual stage, and would need to be substantially refined in consultation with the relevant rail and road authorities before they could be implemented. Consequently, if AZL decides to pursue the rail option, then it should be required to prepare detailed plans for the proposed upgrade of the railway line to the satisfaction of the Secretary before the upgrades could be carried out.

Finally, if AZL is going to use the railway line then it should be required develop a detailed schedule for the trains in accordance with the relevant rail authorities. This schedule would need to:

- reduce the potential amenity impacts of the train trips, by minimising the use of the railway at night; and
- reduce the potential traffic impacts of the train trips on key level crossings, such as the Cobra Street (Mitchell Highway) intersection, by minimising the use of the railway during the day.

Given there are only likely to be three trips a week, the Department believes AZL should have a fair amount of flexibility to optimise the timing of the train trips to minimise any environmental impacts.

5.2.3 Conclusion

AZL has demonstrated that the project is unlikely to cause significant impacts on the road and rail networks.

With suitable upgrades to Obley and Toongi Road, the road network would have sufficient capacity to accommodate the traffic generated by the project. While the RMS has some residual concerns about the possible safety impacts of the project on the Obley Road-Newell Highway intersection, due to the increase in heavy vehicle movements through the intersection, it has recommended that AZL be required to carry out regular traffic safety audits of the performance of the intersection during the life of the project, and contribute to the upgrade of the intersection if necessary.

While upgrading and using the disused railway line is technically feasible, it may not be viable. AZL has agreed to carry out a detailed feasibility study of this option once the project is up and running, and to pursue the option if it is viable. The Department believes that in any conditions of consent, AZL should be required to do this in consultation with the relevant authorities.

To ensure the potential transport impacts of the project are properly managed, the Department believes AZL should be required to:

- upgrade Obley Road and Toongi Road to the satisfaction of Council;
- carry out a traffic safety audit of the Obley Road-Newell Highway intersection prior to the commencement of operations, and every three years thereafter, and implement any recommendations of the audit that are relevant to the project;
- ensure all dangerous goods are transported to the site in accordance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail;*
- carry out a detailed feasibility study of the rail option within three years of the commencement of operations, and implement the option if it is feasible;

- prepare detailed plans for any rail upgrade works in consultation with the relevant rail and road authorities prior to these works being carried out;
- implement a range of other mitigation measures to reduce the road and rail traffic impacts of the project; and
- prepare and implement a detailed Transport Management Plan for the project.

5.3 Noise

Introduction
The site is located in a relatively quiet rural area with low background noise levels.

The EIS includes a detailed assessment of the potential noise impacts of the project by EMGA Mitchell McLennan (EMM) in accordance with applicable guidelines, such as the NSW *Industrial Noise Policy* (INP). This assessment was subsequently revised to address various criticisms raised during the assessment process.

Both the Department and the EPA consider the predictions in the noise assessment to be sufficiently robust for decision-making.

Construction Noise
Consistent with current practice, all construction noise - apart from the noise generated by the construction of linear infrastructure to the site - was treated as operational noise (see below).

The noise assessment predicts that the noise levels from the construction of linear infrastructure and associated watercourse crossing upgrades (see Table 5) would not exceed the maximum noise goal (75 dB(A)) set in the *Interim Construction Noise Guideline* (ICNG).

Table 5: *Construction Activities and Predicted Noise Levels at Receivers*

Linear Construction Activity	Type / Duration	Nearest Receiver (m)	Modelled Leq (15-min), dB(A)
Rail Line Upgrade	Transient / 50 weeks	25 (Margaret Cres Dubbo)	64
Gas Pipeline	Transient / 50 weeks	25 (Margaret Cres Dubbo)	63
Water Pipeline	Transient / 40 weeks	70 (R 36)	57
Obley Road Upgrade	Transient / 40 weeks	65	62
Wambangalang Bridge	Static / 25 weeks	780	30
Hyandra Creek Bridge	Static / 25 weeks	200	37
12 Mile Creek Bridge	Static / 25 weeks	235	38

The Department notes that these predictions are conservative, and that very few residences would be affected by these construction noise impacts. Further, it notes that AZL is likely to be able to further reduce these noise impacts by implementing a range of standard mitigation measures and restricting construction works to daylight hours on weekdays, and between 7 am and 1 pm on Saturdays.

With these measures in place, both the Department and EPA are satisfied the construction noise impacts of the project can be controlled to acceptable levels at all residences in proximity of the proposed linear infrastructure.

Operational Noise
AZL is proposing to implement a range of standard noise mitigation measures.

These measures include:
- restricting the extraction operations on site to between 7 am and 6 pm on weekdays and 7 am and 1 pm on Saturdays;
- attenuating various plant on site;
- using bunds and other barriers to shield the project from sensitive receivers; and
- managing the intensity of operations on site during adverse weather conditions.

With these measures in place, the noise assessment predicts the project would comply with the relevant project specific noise levels at all privately-owned residences surrounding the site (see Table 6), even during adverse weather conditions.

While there is predicted to be a minor exceedance (i.e. 2 dB(A)) of the project specific noise levels at receivers R1 and R50, AZL has a contractual agreement in place to purchase R1 if the project is approved, so it should be treated as a mine-owned property. There is no dwelling on property R50, yet there is an old consent to build one. AZL does not have a contract to purchase this property, but indicated its willingness to do so (refer to Section 5.7 for further discussions regarding mitigation impacts on property R50).

***Table 6**: Predicted Noise Emissions at Receivers*

Receptor ID	**$L_{eq(15\ min)}$ criteria, dB(A)**	**Modelled Activity $L_{eq(15\ min)}$ noise level, dB(A)**	
		(no attenuation)	**(with attenuation)**
		Privately owned receptors	
R11	50[1]	50	35
R13	35[2]	33	<30
R18	35	33	<30
R19	35	33	<30
R20	35	41	<30
R21	35	43	<30
R22	35	34	<30
R23	35	45	<30
R24	35	48	<30
R25,R26	35	47	<30
R27	35	34	<30
R28A, R28B, R30A, R30B, R31A, R31B, R32, R35A, R36, R4, R42, R43, R46, R6	35	<30	<30
R35B, R61	35	30	<30
R38	35	32	<30
R40, R7, R8A	35	31	<30
R8B	35	38	<30
R50	35	-	**37**
Receptors with a contractual agreement in place with AZL			
R1	35	52	**37**
R2	35	45	30
R3	35	36	<30
R51	35	48	33
R55	35	50	35
R58	35	49	34

Note 1 : Leq(period) for passive recreation area (when in use)
Note 2 : Internal noise level for school classroom

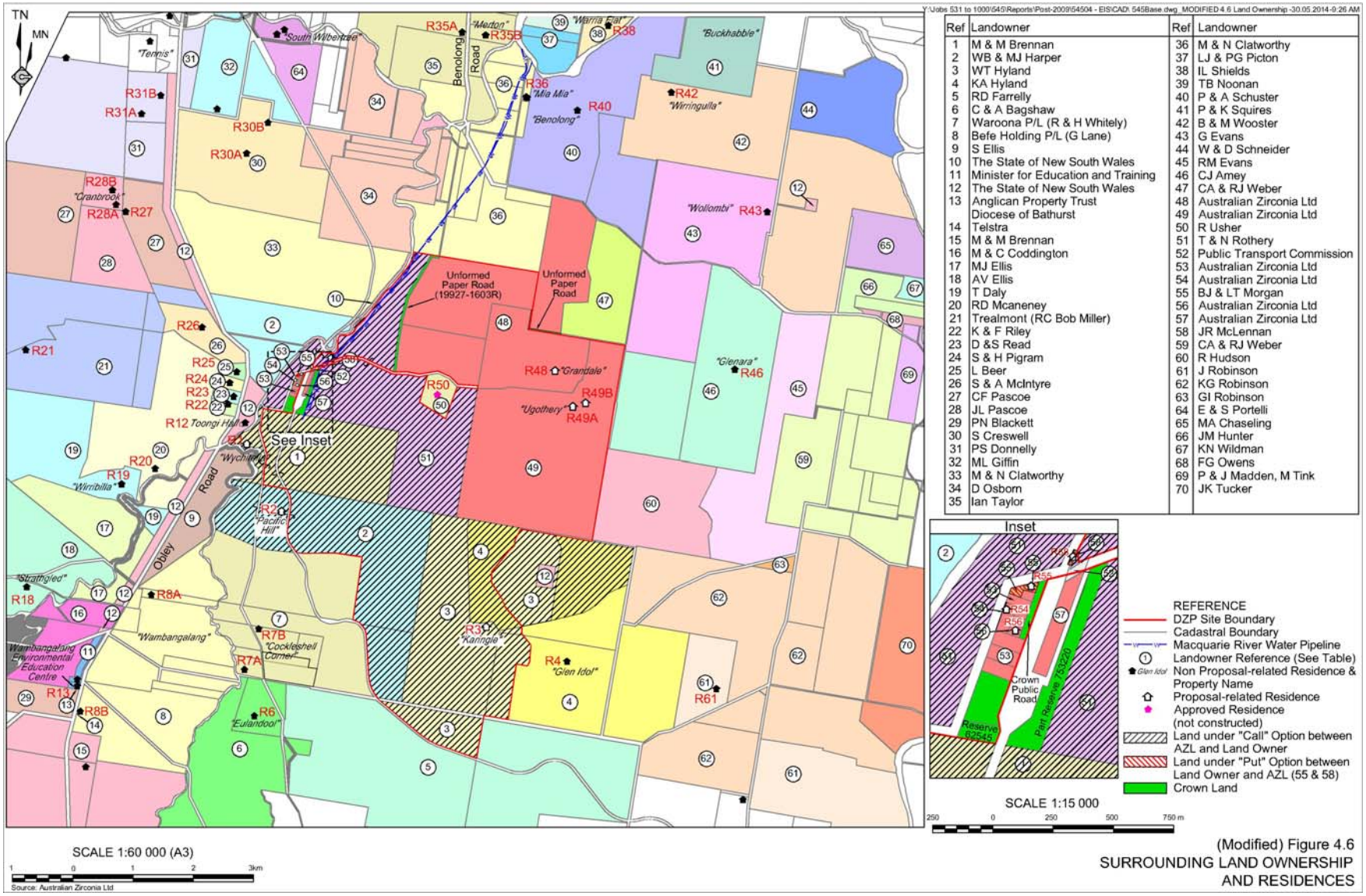
Both the Department and the EPA consider the predicted impacts to be acceptable, and believe AZL should be required to:

- comply with the project specific noise levels at all privately-owned properties;
- implement best noise management practice; and
- carry out regular monitoring of the noise impacts of the project on surrounding properties.

Sleep Disturbance

The noise assessment predicts there could be exceedances of the EPA's sleep disturbance criteria at 4 residences to the west of the site (R22, R23, R24 and R25 – see Figure 12). These exceedances would only occur if the disused railway line is upgraded, and trains are loaded and unloaded at night.

In the Department's view, these exceedances can be avoided by restricting the hours when AZL is allowed to load and unload trains on site. This should have no material impact on the project, as the project would only generate three train trips a week, and AZL is likely to have considerable flexibility to schedule the loading and unloading of its trains outside of these hours.



Ref	Landowner	Ref	Landowner
1	M & M Brennan	36	M & N Clatworthy
2	WB & MJ Harper	37	LJ & PG Picton
3	WT Hyland	38	IL Shields
4	KA Hyland	39	TB Noonan
5	RD Farrelly	40	P & A Schuster
6	C & A Bagshaw	41	P & K Squires
7	Waroona P/L (R & H Whitely)	42	B & M Wooster
8	Befe Holding P/L (G Lane)	43	G Evans
9	S Ellis	44	W & D Schneider
10	The State of New South Wales	45	RM Evans
11	Minister for Education and Training	46	CJ Amey
12	The State of New South Wales	47	CA & RJ Weber
13	Anglican Property Trust Diocese of Bathurst	48	Australian Zirconia Ltd
		49	Australian Zirconia Ltd
14	Telstra	50	R Usher
15	M & M Brennan	51	T & N Rothery
16	M & C Coddington	52	Public Transport Commission
17	MJ Ellis	53	Australian Zirconia Ltd
18	AV Ellis	54	Australian Zirconia Ltd
19	T Daly	55	BJ & LT Morgan
20	RD Mcaneney	56	Australian Zirconia Ltd
21	Trealmont (RC Bob Miller)	57	Australian Zirconia Ltd
22	K & F Riley	58	JR McLennan
23	D &S Read	59	CA & RJ Weber
24	S & H Pigram	60	R Hudson
25	L Beer	61	J Robinson
26	S & A McIntyre	62	KG Robinson
27	CF Pascoe	63	GI Robinson
28	JL Pascoe	64	E & S Portelli
29	PN Blackett	65	MA Chaseling
30	S Creswell	66	JM Hunter
31	PS Donnelly	67	KN Wildman
32	ML Giffin	68	FG Owens
33	M & N Clatworthy	69	P & J Madden, M Tink
34	D Osborn	70	JK Tucker
35	Ian Taylor		

Figure 12: *Receiver Locations*

Rail Noise
The noise assessment concludes that the noise from the project's trains could exceed the L_{max} criterion in the *Rail Infrastructure Noise Guideline* by 1-2 dBA at 6 residences within 20-25 m of the Dubbo-Molong rail line within Dubbo, west of Rosella Street.

Once again, the Department believes AZL should be able to manage its rail operations to either ensure compliance with the L_{max} criterion at night, or avoid any such non-compliances by scheduling its rail operations during the day and / or evening.

Road Traffic Noise
The noise assessment concludes that road traffic noise at residences along Toongi and Obley Roads would be well below the relevant road traffic noise criteria in the *NSW Road Noise Policy*. Nevertheless, the Department believes AZL should be required to restrict the project's heavy vehicles movements to the day.

Blasting
Blasting would occur between 9 am to 5 pm on weekdays.

The noise assessment predicts that with suitable blast design, the project would be able to comply with the blast overpressure and vibration ANZECC criteria at all privately-owned properties in the vicinity of the site.

Both the EPA and Department accept this conclusion, and believe AZL should be required to comply with standard blast conditions to ensure the blasting impacts of the project are suitably regulated.

Conclusion
The project will introduce an industrial noise source into a relatively quite rural area.

Nevertheless, the noise assessment has shown that:
- construction and operations on site would be able to comply with the relevant project specific noise levels under the *NSW Industrial Noise Policy* at all privately-owned residences surrounding the site;
- the construction of linear infrastructure associated with the project is unlikely to generate any significant noise impacts, but would need to be closely managed to ensure these impacts are kept to a minimum; and
- the project would comply with the relevant road noise criteria in the *NSW Road Noise Policy*.

If the disused railway line is upgraded and used, the noise assessment predicts there may be some minor exceedances of the project specific noise levels at a number of properties in the vicinity of the rail loading facility and the maximum train pass-by noise levels at 6 properties in Dubbo that are less than 25 metres from the railway line. However, the Department notes there would only be three trains a week, and believes AZL should be required to schedule the timing of its rail operations to either avoid or minimise these impacts.

To ensure the noise impacts are acceptable, the Department believes AZL should be required to:
- comply with the project specific noise levels at all properties;
- comply with the requirements in the *Interim Construction Noise Guideline* during the construction of the project's linear infrastructure;
- employ best management practice to minimise the construction, operational, road, and rail noise of the project;
- restrict the use of the railway line to minimise any adverse noise impacts along the railway line particularly at night;
- comply with the Department's standard conditions to control blasting impacts;
- carry out regular monitoring to check whether the project is complying with the relevant noise and blasting requirements; and
- prepare a detailed Noise Management Plan for the project.

5.4 Air

Introduction
The EIS includes an Air Quality and Greenhouse Gas Assessment (AQGGA) undertaken by Pacific Environment Ltd (PEL). This assessment was carried out in accordance with relevant methods and guidelines, including the EPA's *Approved Methods for the Modelling and Assessment* of *Air Pollutants in*

NSW. The RTS included a revised AQGGA, as further pollution controls were added to the processing plant to reduce stack emissions.

Processing Plant Emissions
The processing plant would generate sulphur dioxide (SO_2), nitrogen dioxide (NO_2) and hydrogen Chloride (HCl) emissions.

AZL is proposing to install a range of standard pollution controls in the processing plant to keep these emissions to acceptable levels.

The revised AQGGA predicts that the SO_2 NO_2 and HCl emissions from the project's processing operations would be below the relevant criteria at all sensitive receivers, including those properties that are either owned by AZL or where AZL has an option to purchase the property.

The EPA accepts these predictions, but noted that they were not based on the final design of the processing plant. To address this, the EPA has recommended that AZL be required to revise the predictions once the design of the processing plant is finalised. It has also recommended that AZL be required to validate the actual emissions from the project's processing plant against these revised predictions once the plant is operational.

The Department supports these recommendations, and believes these emissions can best be regulated under any environment protection licence for the project.

Particulate Matter
The project will generate a range of particulate matter.

With the implementation of standard dust control measures on site, the revised AQGGA predicts that dust deposition, total suspended particulate and short and long term particulate matter levels would be well below the EPA's relevant criteria at all sensitive receivers, even during the worst-case operational scenarios modelled.

The Department, EPA and NSW Health accept these predictions and believe AZL should be required to comply with the Department's standard conditions in regard to air quality.

Radiation
Some parts of the ore body have low levels of naturally occurring radioactive material (120 ppm for Uranium and 300 ppm of Thorium), and one of the waste products from the processing stream for ferro-neobium (FeNb) would be classified as a "radioactive substance".

The vast majority of radioactive material from processing the ore, including the intermediary processing streams, would be mixed and diluted before reporting to the final waste emplacements. Importantly these residues in the LRSF, SRSF and Salt Encapsulation Cells would not be classified as "radioactive substances" because they would be highly diluted with other material. Each year, around 4,000 tonnes of intermediary "radioactive substance" would be diluted with up to 2.5 million tonnes of other non-radioactive material in these waste residues.

The EIS includes a specialist Radiation Assessment (RA) undertaken by JRJC Enterprises Pty Ltd. This assessment has been carried out in accordance with the *Recommendations for Limiting Exposure to Ionizing Radiation (1995)* and the *National Standard for Limiting Occupational Exposure to Ionizing Radiation (republished 2002)*, both of which are published by the Australian Radiation Protection and Nuclear Safety Agency (ARPNSA).

The RA determined that the primary mechanism for exposure for offsite receivers would be by airborne pathways, such as the inhalation of radioactive dust or radon (radioactive gas) from the active pit, processing plant or ROM ore stockpiles (see Figures 2 and 3).

The RA assessment estimated the potential doses to the closest residential receivers R22-R25 to these sources (see Figure 12). The results from the AQGGA were used to establish the likely dust and radon concentrations at these receivers.

The RA conservatively assumed that all the dust at these receivers would be ore dust as opposed to a combination of ore and inert sources. The RA calculated an exposure level based on the predicted concentrations received and occupancy rates and used standard dose conversion factors to predict the total doses received by residents, as shown in Table 7.

***Table 7**: Predicted Public Radiation Dose*

Residences	Dose From Pathway (mSv/year)				ARPNSA Public Dose Limit (mSv/year)
	Inhalation of RnDP (Rn^{222})	Inhalation of Dust	Gamma Radiation	Total Dose	
R22 to R25	0.0075	0.020	0	0.028	1

Note: sievert (Sv) and 1Sv = 1000 millisievert (mSv)

As shown in Table 7, the predicted level of radiation at the nearest receivers would be significantly below the ARPNSA - Public Dose Limit.

Consequently, the exposure level to radioactive material from the proposal is considered to be acceptable as it is significantly below the level that may cause impacts upon human health or the environment.

For comparison the world average radiation exposure is 2.4 mSv/year, the average Australian background radiation dose is around 2 mSv each year, while the average background concentration in Dubbo is 0.5 mSv/year (ARPNSA, 2012).

The Department accepts the findings of this assessment, but believes AZL should be required to monitor the potential radiation impacts of the project on surrounding properties to ensure they remain well below the ARPNSA limit.

Greenhouse Gas Emissions

The EIS includes an assessment of greenhouse gas (GHG) undertaken by Pacific Environment Ltd. This assessment was carried out in general accordance with the applicable guidelines, including the *National Greenhouse Accounts and Factors 2012*.

Table 8 shows that the annual average GHG emissions are comparatively low for a mining project.

***Table 8**: Direct and Indirect Greenhouse Gas Emissions*

Scope	*GHG source(s)*	*Annual average GHG emissions (tonnes carbon dioxide equivalent, tCO_2-e)*
Scope 1	On-site fuel use	140,040
Scope 2	Upstream electricity	120,560
Scope 3	Extraction, processing and transport of fuels	1,107
Total		262,101

Nevertheless the EIS proposes a number of GHG mitigation measures, including undertaking fuel efficiency measures, installing energy efficient appliances (eg lighting and hot water) and monitoring fuel and electricity use.

The Department believes AZL should be required to take practical measures to minimise its GHG emissions.

Conclusion

The project has been designed to minimise air emissions, and to comply with the relevant air quality and radiation criteria.

AZL should be required to:

- comply with the applicable air quality criteria for radiation and stack emissions from the processing plant;
- employ best management practice to minimise the dust and greenhouse gas emissions from the project;
- carry out regular air monitoring to check the project is complying with the relevant air quality requirements; and
- prepare a detailed Air Quality Management Plan for the project.

5.5 Biodiversity

Introduction
The proposal would disturb about 810 ha of land. Most of this land has been cleared for agricultural use. The rail line upgrades and pipeline installations would be located on cleared land or within existing easements.

The watercourses that would be impacted by bridge upgrades or pipeline installation have been substantially altered and have experienced impacts due to upstream and adjacent land use practices including, roads, clearing, weed invasion, alteration of flows, cropping, erosion, sedimentation and salinisation.

The EIS included a specialist terrestrial ecological assessment, undertaken by OZArk (refer to Volume 2 – Part 6 of the EIS). This assessment incorporated the findings of previous flora studies undertaken on the site in 2002 by GCNRC and vertebrate studies undertaken by Goldney.

The OZark report contains an assessment using OEH's Biobanking Assessment Methodology (BBAM) to quantify the nature and extent of credits generated by the clearing of land, and the offsets required for vegetation communities and threatened fauna species.

The EIS also contains a specialist aquatic ecology study, undertaken by Alison Hunt and Associates Pty Ltd (refer to Volume 2 – Part 7 of the EIS).

Avoidance and Mitigation
The project includes several avoidance and mitigation measures:
- the processing plant has been located mainly on cleared land;
- the waste residue structures and stockpiles have been configured to avoid high and medium quality habitat for the Pink-tailed Worm-lizard, which is listed as a threatened species under the *Threatened Species Conservation Act 1994* (TSC Act) and EPBC Act (which broadly corresponds with vegetation community CW212 on Figure 13);
- the size of LRSF has been reduced by incorporating reverse osmosis plants into the processing plants;
- the site would be progressively cleared and rehabilitated;
- remnant vegetation outside the disturbance area would be fenced and actively managed for conservation purposes; and
- standard mitigation measures would be implemented including minimising clearing during winter and spring, and carrying out pre-clearance surveys.

The Department acknowledges that AZL has gone to considerable lengths to avoid and minimise the biodiversity impacts of the project, and believes there is little scope for further reducing these impacts without significantly compromising the design of the project.

5.5.1 Terrestrial Ecology

The ecological assessment identified six vegetation communities in the study area (see Figure 13 and Table 9). The majority of vegetation to be cleared is low diversity derived native grasslands with >50% weeds (414 ha). The project would also disturb around 323 ha of cleared grazing and cropping land.

OzArk recorded 185 vertebrate fauna species (178 native and 7 introduced) within the study area, including:
- 23 reptile species (including the threatened Pink-tailed Worm-lizard);
- 9 frog species;
- 117 bird species (including 19 threatened bird species); and
- 36 mammal species (including 8 threatened bat species).

A total of 234 vascular flora species were recorded, including 67 (28%) introduced species. This reflects the effect of a long history of grazing and cropping in cleared areas on the site. No threatened plant species were recorded on site.

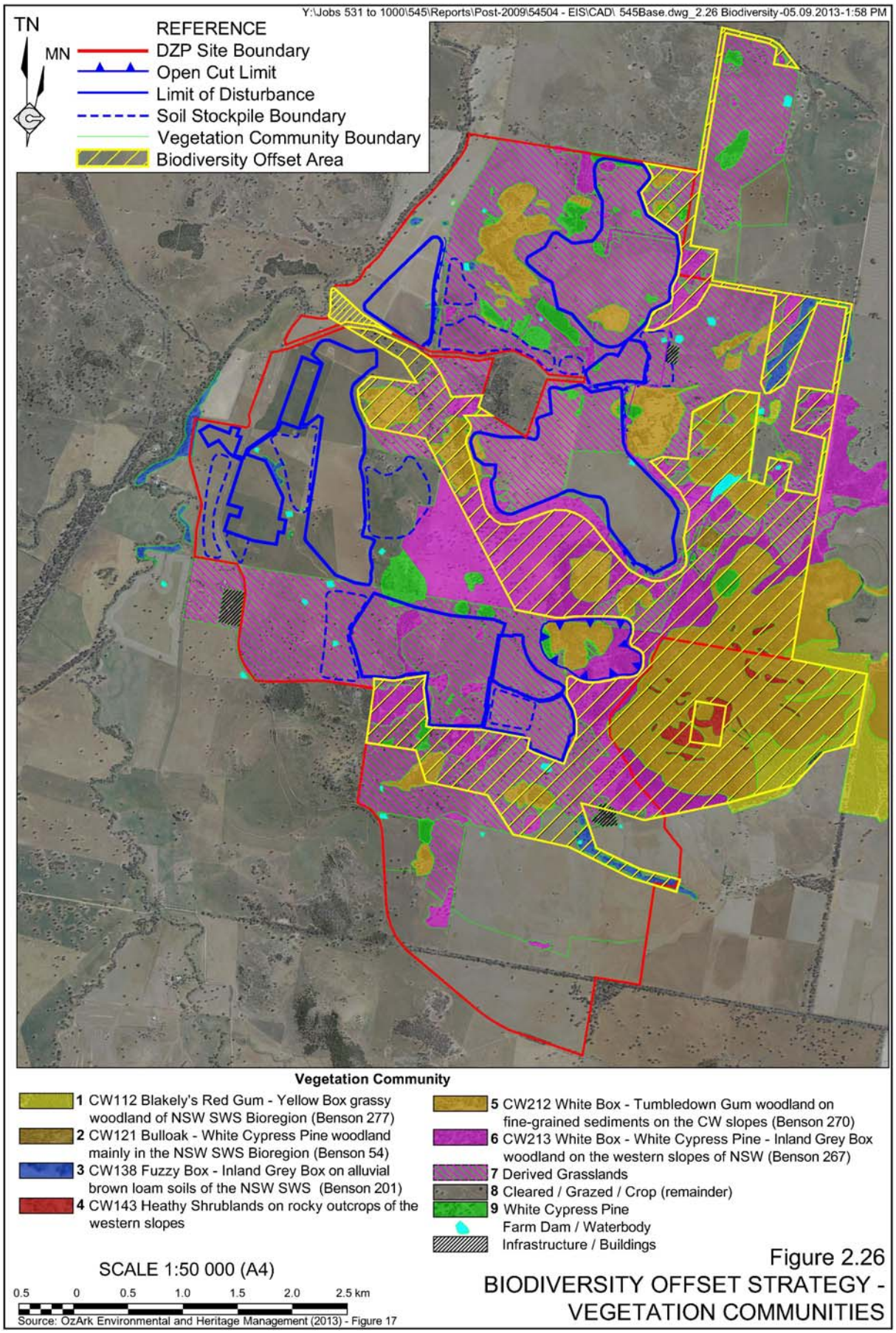


***Figure 13**: Proposed Biodiversity Offset Area and Vegetation Communities*

Table 9: *Native Vegetation Communities to be disturbed by the Project*

Vegetation Community	Area to be Disturbed	BBAM credits generated
Mine Site		
(CW 213) White Box – White Cypress Pine – Inland Grey Box woodland on the central western slopes of NSW endangered ecological community (EEC)	457.7 hectares	
• Quality Remnants	43.7 hectares	2 462
• Derived Grasslands (>50% weeds, rotational cropping)	414 hectares	6 127
(CW 212) White Box – Tumbledown Gum woodland on fine-grained sediments on the Central West slopes	27.1 hectares	1 303
(CW 138) Fuzzy Box – Inland Grey Box on alluvial brown loam soils of the NSW South West Slopes Bioregion EEC	0.1 hectares	17
Obley Road Upgrade		
(CW 213) White Box – White Cypress Pine – Inland Grey Box woodland on the central western slopes of NSW EEC	2.1 hectares	47
Total	**487**	**10 427**

According to OzArk, a further 28 threatened fauna species and 9 threatened flora species have the potential to occur on the site.

OzArk conducted a "test of significance" to determine the project's potential impact on *all* threatened species, and concluded that the project was unlikely to have a significant impact on *any* of these species due to the limited amount of vegetation clearing, the proposed avoidance and mitigation measures, and the proposed biodiversity offset strategy.

Pink-tailed Worm-Lizard (Aprasia parapulchella)

During surveys, OZark found the Pink-tailed Worm-Lizard at 30 locations within 5 km of the proposed site. This is one of the largest known populations of the species in NSW (dubbed the 'Toongi Population'). According to OzArk none of this population is currently under conservation management.

The project would remove 25.5 ha of high and 9.8 ha of medium quality habitat for the lizard. However, the loss of this habitat would be offset by the permanent protection of 82.3 ha of good, 114.7 ha of medium and 42 ha of low quality habitat for the lizard within the project's biodiversity offset area (see Figure 13).

Using the BBAM calculator, OZark determined the biodiversity offset strategy would generate a surplus of 148 species credits for the Pink-tailed Worm-lizard. In OZark's view, the biodiversity offset strategy offers the opportunity to conserve and enhance the wider Toongi population which is currently at risk of decline.

Dr Arthur White, a herpetological expert, has prepared a draft Pink-tailed Worm-Lizard recovery plan for the project, setting out the specific measures that would be implemented to minimise the impact of the project, and enhance the habitat for the species in the biodiversity offset area.

Both OEH and the Commonwealth Department of Environment are satisfied with the proposed mitigation and offset measures, and have recommended that AZL be required to implement these measures, and finalise the draft recovery plan prior to carrying out any construction on site.

Biodiversity Offset Area

AZL proposes to implement a biodiversity offset strategy for the project, which includes permanently conserving and enhancing a large biodiversity offset area (see Figure 13).

The size of the biodiversity offset area has been determined using OEH's *BBAM* calculator. It covers an area of 1,021 ha, and is comprised of 653.1 ha of native vegetation communities, 306.8 ha of derived grassland communities and 61.1 ha of cleared land.

The biodiversity offset area would build on the existing remnant vegetation on Dowds Hill, and establish linkages with other significant remnant vegetation in the region, including:

- Wambangalang Creek, which links to the Macquarie River;
- the vegetation along Benolong Road to the north; and
- potentially isolated habitat (denoted as CW212) for the Pink-tailed Worm-Lizard, to the west, northwest and north of Dowds Hill.

Table 10 summarises the attributes of the biodiversity offset area, and compares it to the attributes of vegetation that would be cleared on site. This comparison shows a surplus of credits for all communities apart from the low diversity White Box derived native grassland EEC (CW213).

***Table 10**: Biodiversity Offset Area Ecosystem Credits*

Veg Type ID	Veg Type Name	% cleared in CMA	Total Disturbed	Total within BOA	OFFSET RATIO Ha.	BBAM Credit Surplus / Deficit
CW112	Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (Benson 277)	95%	0	39.2 ha	**39.2 ha with no impact to EEC**	**Surplus of 374**
CW121	Bulloak – White Cypress Pine woodland mainly in the NSW South Western Slopes Bioregion (Benson 54)	95%	0	3.9 ha	**3.9 ha with no impact**	**Surplus of 404**
CW138	Fuzzy Box – Inland Grey Box on alluvial brown loam soils of the NSW South Western Slopes Bioregion and southern BBS Bioregion - EEC	95%	0.1[18]	21.9 ha	**219.0**	**Surplus of 221**
CW143	CW143 Heathy shrublands on rocky outcrops of the western slopes	10%	0	25.5 ha	**25.5 ha with no impact**	**Surplus of 237**
CW212	White Box - Tumbledown Gumwoodland on fine grained sediments on the NSW central western slopes	40%	27.1 ha	256.1 ha	**9.5**	**Surplus of 2 619**
CW213	White Box – White Cypress Pine – Inland Grey Box woodland on the western slopes of NSW - EEC	90%	45.75 ha	306.5 ha	**6.7**	**Deficit of 2 404**
CW213	Derived Native Grassland, Scattered trees and tree clumps >50% weeds used for grazing and cropping	N/A	414 ha	306.8 ha	**0.7[1]**	
N/A	Cleared / Grazed Crop (remainder)		313.5	53.7	N/A	N/A
N/A	White Cypress Pine monoculture	N/A	9.6	7.4	N/A	N/A
			810	**1,021**		

Note 1: Variation of Offset Rules Applied to the satisfaction of OEH

However, OzArk argues that the derived native grassland on site has an extremely low conservation value, and should not be treated as a threatened community given its low diversity, the presence of >50% weeds and the fact that this vegetation community would not improve under existing management arrangements (i.e. rotational cropping / grazing). It also notes that this species is abundant in western NSW.

Both the Department and OEH accept this argument, and along with the Commonwealth Department of Environment are satisfied that the proposed biodiversity offset strategy would enhance the biodiversity values of the region in the medium to long term.

To ensure the biodiversity offset strategy is implemented properly, the Department recommends that AZL should be required to:

- protect the offset area in perpetuity;
- prepare and implement a detailed Biodiversity Management Plan for the project, setting out the detailed management measures for biodiversity offset strategy;
- monitor the performance of the implementation of the strategy; and
- lodge a conservation bond to ensure sufficient funds are available to complete the implementation of the strategy.

5.5.2 Aquatic Ecology

The site has limited aquatic habitat, and only two aquatic species were recorded during surveys: the common Yabby and Eastern Snake-necked Turtle. The project is not expected to have an adverse impact on either of these species.

The proposed upgrade of the wooden rail bridge over Wambangalang Creek, near Toongi, is located about 50 m downstream of some relatively deep pools in the creek. These pools provide habitat for the Eel-tailed Catfish (*Tandanus tandanus)*, which is an endangered species under the *Fisheries Management Act 1994*. The Macquarie River also forms part of the Lowland Darling River Aquatic EEC, and is classified as a key fish habitat.

The construction and operation of the water pumping station on the river could have an adverse impact on this habitat. However, it is important to note that the extraction point for the pumping station would be located near an existing pump take-off point for the “Mia Mia” property where the river is at its deepest (see bottom right cover photo and Figure 7). This area has been highly modified and substantially cleared of vegetation.

While the project is unlikely to have any impact on either habitat, the Department recommends that AZL be required to ensure the construction works are managed properly and in accordance with the relevant NSW Fisheries and NOW guidelines to ensure there is no impact on this habitat (refer Section 5.1.3).

AZL proposes to design the pumping station to minimise the entrapment of juvenile fish and larvae. AZL has also committed to monitor water quality and aquatic biota (in accordance with relevant guidelines) in the vicinity of the pumping station to verify that the project is not having any adverse impacts on the river or any fish habitat.

With the implementation of these measures, the Department is satisfied that the project is unlikely to have any significant impact on aquatic ecology, but recommends AZL should be required to design the pumping station, implement the proposed mitigation measures, and monitor the impacts of the project in consultation with NSW Fisheries.

5.5.3 Conclusion

AZL has designed the mine to avoid and/or minimise its potential biodiversity impacts, most notably by avoiding the high quality *White Box – White Cypress Pine – Inland Grey Box Woodland* EEC and Pink-tailed Worm-Lizard habitat on site.

While there would be some residual biodiversity impacts associated with the vegetation clearing on site, both OEH and the Department are satisfied that the proposed biodiversity offset strategy would more than compensate for these impacts, and enhance the biodiversity values of the region in the medium to long term.

To ensure the biodiversity impacts of the project are managed appropriately, the Department believes AZL should be required to:

- minimise the biodiversity impacts of the project on site by implementing a range of standard mitigation measures, such as staging the clearing of vegetation during suitable times;
- minimise the potential aquatic ecology impacts of the project;
- implement the biodiversity offset strategy;
- protect the biodiversity offset area in perpetuity;
- finalise and implement the Pink-tailed Worm-Lizard recovery plan;
- prepare and implement a detailed Biodiversity Management Plan for the project; and

- carry out a range of monitoring to ensure the project is complying with the various biodiversity requirements.

5.6 Heritage

Introduction
The EIS includes an Aboriginal Cultural Heritage Assessment (ACHA) and a Historic Heritage Assessment (HHA), both undertaken by OzArk.

The ACHA is based on several existing studies, a literature review and targeted field surveys involving representatives of the Aboriginal community. Three Registered Aboriginal Parties were represented during the field survey: Binjang Wellington Wirdjuri Heritage Survey, Dubbo Local Aboriginal Land Council, and Wirrimbah Direct Descendents.

The ACHA states that the original occupation of the Dubbo LGA by Aboriginal people is evident from the presence of cultural heritage sites and items such as rock grinding grooves, scar trees, and middens. When Europeans arrived in the early 19th century, the area was within the Dundullimal territory, a sub group of the Tubba Gah – Wiradjuri nation. The area is overseen by the Dubbo Local Area Lands Council (LALC), which remains active in the identification and management of Aboriginal heritage in the region.

The HHA is based on various historical heritage surveys, which were conducted during eight separate site visits between 22 May 2012 and 5 February 2013.

Heritage Sites
The ACHA identified 52 Aboriginal sites of heritage significance, 14 of which would be directly affected by the project (see Table 11 and Figure 14).

The HHA identified five sites of potential local historic (i.e. non-Aboriginal) heritage significance, which would be affected by the project, including the Dundullimal Rail Bridge. However, none of these sites are listed on any heritage registers. A summary of the historic heritage sites that would be affected is provided in Table 14 and illustrated in Figure 14.

Table 11: *Summary of Impacts on Heritage Sites*

Site Name	Site Type	Project Area
Aboriginal		
UG-AS1	Open site (artefact scatter including flakes, cores and chips)	Liquid Residue Storage Facility
UG-ST1	Scarred Tree	Liquid Residue Storage Facility
GI-AS1	Two Isolated Artefacts	Open Cut
GI-AS2	Isolated Artefact	Open Cut
PH-IF1	Isolated Artefact	Solid Residue Storage Facility
TV-AS1	Two Isolated Artefacts	Liquid Residue Storage Facility
TV-IF1	Isolated Artefact	Liquid Residue Storage Facility
36-1-0365 (TS-ST-04)	Scarred Tree	Processing Plant / Administration Area
36-1-0366 (TS-ST-05)	Scarred Tree	Liquid Residue Storage Facility
36-1-0367 (TS-ST-06)	Scarred Tree	Liquid Residue Storage Facility
36-1-0372 (TS-ST-02)	Possible Scarred Tree	Liquid Residue Storage Facility
36-1-0313 (TS-IF-01)	Isolated Artefact	Open Cut
36-1-0356 (TS-OS-03 with PAD)	Open site (artefact scatter including flakes, cores and chips)	Defined PAD traversed by the Macquarie River Water Pipeline
36-1-0364 (TS-OS-05 with PAD)	Open site (artefact scatter including flakes, cores and chips)	Defined PAD traversed by the Macquarie River Water Pipeline
Historic		
DZP-HS1	Brick and Concrete footings	Rail line upgrade
DZP-HS2	Cumboogle Rail Bridge	Rail line upgrade
DZP-HS3	Hyandra Rail Bridge	Rail line upgrade
DZP-HS4	Dundullimal / Miriam Timber Rail Bridge	Rail line upgrade

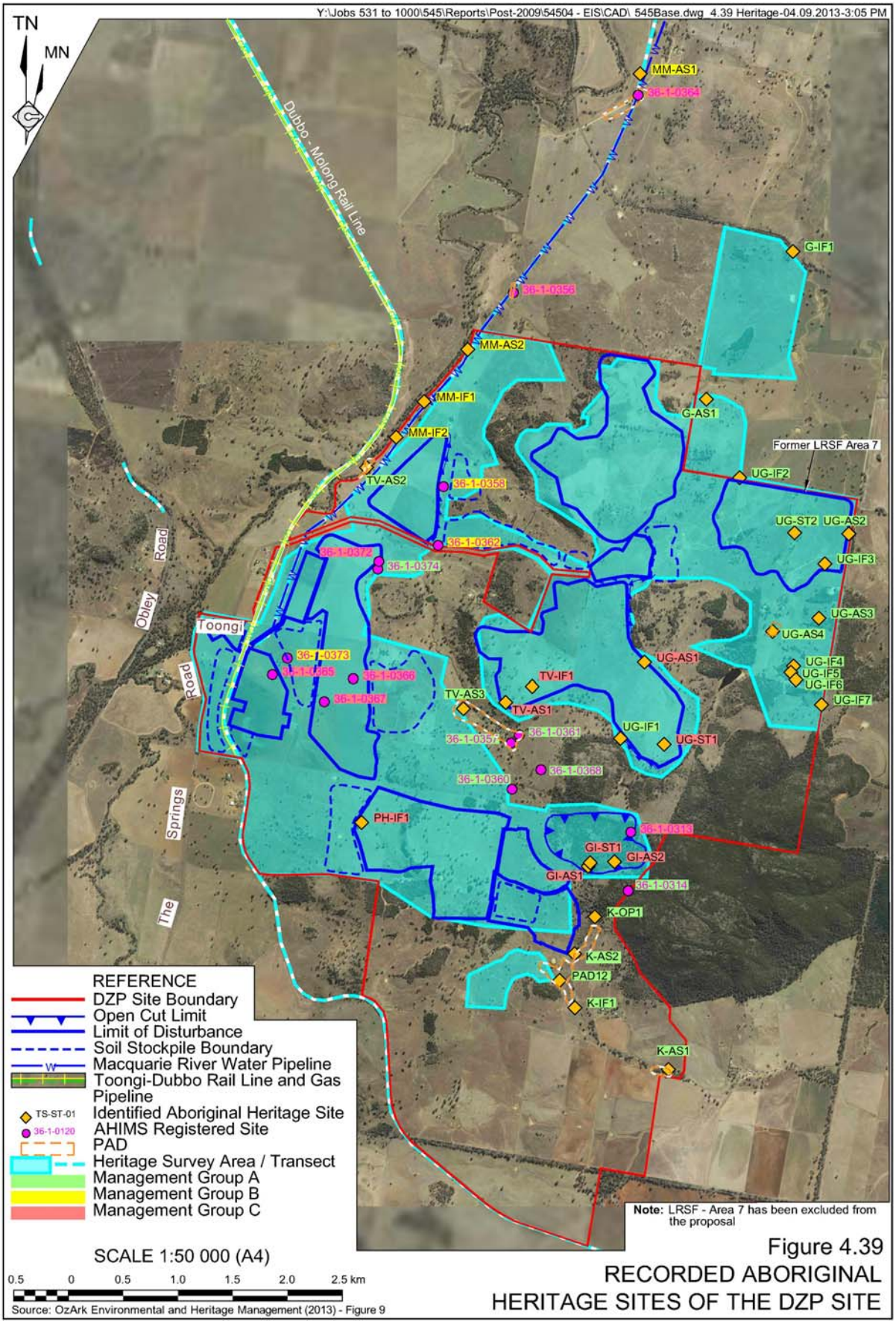


***Figure 14**: Location of Aboriginal cultural heritage sites*

Aboriginal Heritage
The ACHA found that 11 of the Aboriginal heritage sites to be impacted are of low archaeological significance as they were either:
- fair to poor representations of scarred trees, which were unlikely to yield further data regarding occupation; or
- random scatters of artefacts in disturbed locations, rather than concentrated sites.

The remaining three sites had a low-moderate archaeological significance (TS-OS-03, TS-OS-05 and UG-AS1) due to diversity of stone artefacts found. However, UG-AS1 was considered unlikely to yield further archaeological data due to the soil profile being disturbed, while test excavations at TS-OS-03 and TS-OS-05 revealed a very low possibility of yielding further data regarding Aboriginal occupation.

In consultation with the Aboriginal stakeholders, AZL has agreed to:
- carry out targeted sub-surface investigations on the land identified in the ACHA as having potential Aboriginal Cultural significance;
- collect the surface artefacts and scar-bearing trees within the disturbance area, and transfer them to a suitable keeping place; and
- ensure the project does not damage any of the heritage sites within the project site but outside the disturbance area.

Both OEH and the Department support the implementation of these measures. AZL should be required to prepare and implement a detailed Heritage Management Plan for the project, in consultation with the Aboriginal community.

Historic Heritage
AZL proposes to prepare archival recordings of four historic heritage sites that would be disturbed if the Dubbo to Toongi railway line is upgraded (see Table 11 above).The Department supports this proposal.

5.7 Visual Amenity

The project would introduce an industrial development into a wholly rural landscape.

Mitigation Measures
To reduce the visual impact of the project, AZL proposes to:
- construct a vegetated amenity bund to screen the processing plant from key vantage points on Toongi Road, the Springs Road and to a lesser extent Obley Road;
- vegetate the outer embankments of the waste residue storage facilities and waste rock emplacements to reduce the contrast between the surrounding agricultural paddocks and these structures;
- use non-reflective, neutral coloured construction materials on the processing plant and related infrastructure; and
- install permanent and temporary lights that:
  - are directed away from public roads and residences; and
  - minimise the glow created by the lights.

AZL has also committed to provide additional screening adjacent to any private residence that has direct views of the mine.

Residences R22-R25
The closest residences to the mine are R22-R25 (see Figure 12). Apart from residence R22, most of these residences would be shielded from the mine.

A graphical representation of the likely views from R22 is shown in Figure 15. While parts of the processing plant would be visible from the higher ground on the property (in particular the 90 m stack), the Department does not believe the project would have a significant visual impact, mostly because the processing plant would be shielded to some extent by existing vegetation and the intervening topography.

Nevertheless, the Department believes AZL should be required to implement additional visual mitigation measures on this property at the request of the landowner.

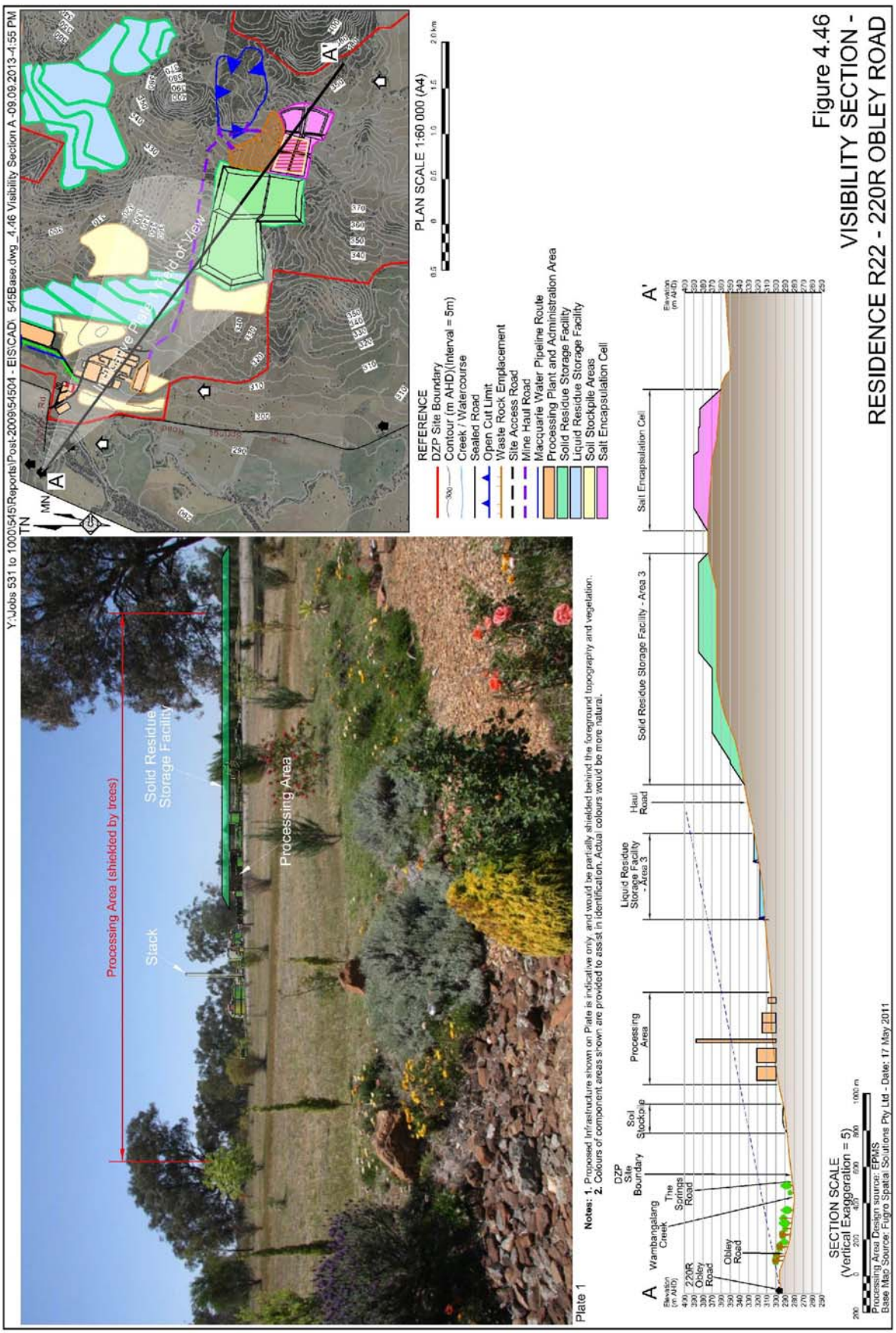


***Figure 15**: Indicative vantage from R22 to the west of the processing facilities – note the building shown in front of R22 in 'inset A' on this figure is the Toongi Town Hall and not a residential receiver.*

Property 50

There is currently no dwelling on Property 50, however, consent was granted some time ago for the construction of a dwelling on the property. RW Corkery has undertaken an analysis of the potential visual impact of the mine on the approved dwelling (see Figure 16). Given the location of the existing shed, the hill to the east, and the wooded vegetation to the north and west, the only available view of the mine from the dwelling is likely to be to the south-west towards the processing facilities (see Figure 16). The Department notes there are two intervening hills between the dwelling and processing plant, which would shield almost all of the available view of the processing facilities, except for the 90 m stack which would be about 2.5 km away.

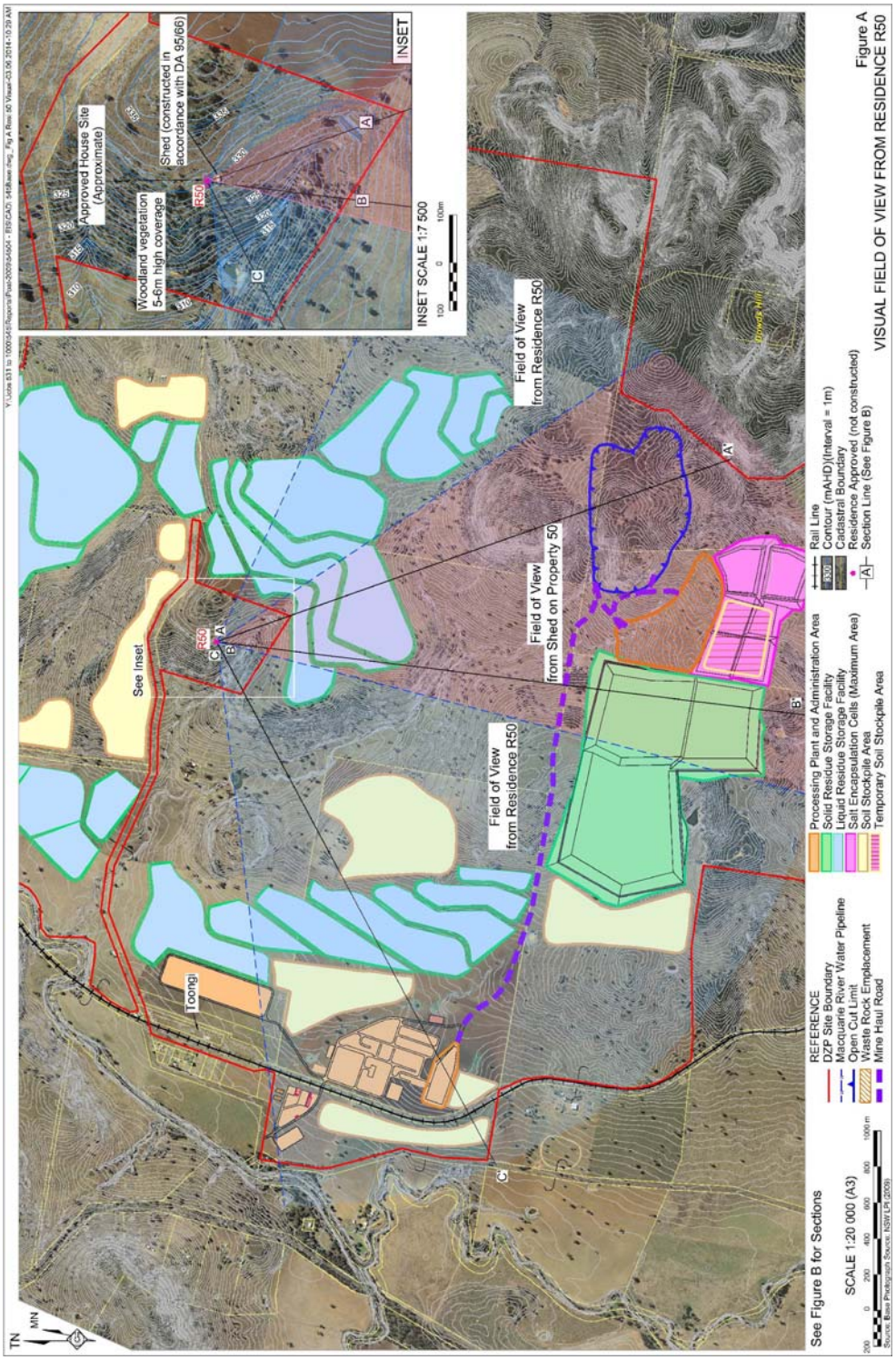


***Figure 16**: Visual Field of View from Property '50'.*

While the Department considers this visual impact to be relatively minor, it notes that there would be substantial views of other components of the mine from various vantage points on the property (i.e. not from the approved residence), including:

- the vegetated embankments of the LSRF to the south and west;
- the vegetated embankment of the SRSF (approximately 2 km away);
- vegetated soil stockpile to the north; and
- partial views of the LRSF, processing facilities, haul road and soil stockpiles to the south-west.

There is no doubt that these views would detract from current rural landscape.

Given the property would be surrounded by the mine, and the fact that AZL is prepared to acquire the property, the Department believes this landowner should be granted voluntary acquisition rights. This would provide a suitable safeguard for the landowner if the visual (or any other impacts of the mine) are considered to be unacceptable.

5.8 Assessment of other issues

The Department's assessment concludes that other potential impacts of the development would be acceptable or could be suitably managed by the imposition of appropriate conditions of consent. These issues and the Department's assessment are set-out in Table 12 below.

Table 12: *Assessment of Other Issues*

Issue	Assessment	Conclusion/Recommended Conditions
Agriculture	• An Agricultural Impact Statement (AIS) was prepared by Diana Gibbs & Partners, and a Soil and Land Capability Assessment was prepared by Sustainable Soils Management (SSM) Pty Ltd in general accordance with the applicable guidelines. • The development would result in the disturbance 808 ha of land comprising of the following land capabilities: o 613 ha of Class 3 (of which 148 ha is mapped as potential BSAL); o 193.4 ha of Class 4; and o 1.2 ha of Class 7. • Following rehabilitation, AZL proposes to restore land disturbed by the development to the following land capabilities o 112 ha of land associated with the processing plant to Class 3; o 487.6 ha of land associated with the LRSF to Class 4; o 123.2 ha associated with the WRE and SRSF to Class 6; o 34.6 ha of land salt associated with the encapsulation cells to Class 7; and o 40.3 ha of the open cut would remain Class 8 • 148 ha of the Class 3 land to be impacted is potentially Biophysical Strategic Agricultural Land (BSAL). However as the application predates the relevant amendments to the Mining SEPP, neither a site verification certificates or a gateway certificate are required for the project. • Although a large area of the mining operations are proposed to occur on Class 3 land, some which is potential BSAL, the Department notes that the mine has been carefully planned to avoid the site's remnant vegetation, which exists on less	• The Department considers that mining is currently the highest and best use for the land, and that any loss of agricultural productivity on site would be more than compensated for the economic benefits of the project. • The Department also considers that the loss of up to 148 ha of land that could be classified as BSAL is not significant on the regional scale. • AZL should be required to restore most of the disturbed land – apart from the mining pit and waste residue storage structure – for future agricultural use, and to ensure this restored land is productive as soon as possible.

Issue	Assessment	Conclusion/Recommended Conditions
	productive land and includes EECs, habitat for threatened species and provides a habitat corridor between native vegetation remnants within the Dubbo LGA. • The SSM report identified that current agricultural enterprises operating within the site do not reflect the Class 3 land use and more closely reflects Class 4 (ie grazing / dry cropping). • The AIS calculated that the total loss of agricultural production from the site is estimated at $6.25 million over a 40 year period (20 years mining, 20 years rehabilitation).	
Rehabilitation	• The final land uses would be for agriculture and biodiversity conservation. • For the processing area, AZL would remove all plant, buildings and ancillary infrastructure. AZL would shape the area in a manner similar to the existing landform. • The final void would remain open, however it would be appropriately bunded and fenced. • The waste rock emplacement, solid residue storage facility and salt encapsulation cells would form undulating landforms, with slopes of up to 18^{o} in some places, however the overall slope would be between 14^{o} - 16^{o}. • For the liquid residue storage facility, the liners would be removed and material contained within the embankments would be shaped in a manner similar to the existing landform. • Areas not suitable for agriculture would be re-vegetated with native species.	• The proposed final landform is acceptable, and would blend in with the surrounding area. • The proposed final land uses are also acceptable, and consistent with the zoning of the area. • AZL should be required to comply with detailed performance measures for the rehabilitation of the site, and to prepare a detailed Rehabilitation Management Plan for the project, in consultation with the Division of Resources and Energy and Dubbo Council.
Hazards and Risk	• Under SEPP 33, the project is classified as a potentially hazardous industry. This is due to the quantity of dangerous goods that would be transported to and used on site. • The EIS included a Preliminary Hazard Analysis (PHA) and Quantitative Risk Assessment (QRA) undertaken by Sherpa Consulting. These studies were carried out in accordance with the relevant HIPAP guidelines. • The PHA and QRA concluded the project would comply with the applicable individual fatality, injury and irritation risk criteria and land use safety criteria, and consequently would not pose a potential threat to either humans or the environment. • The Department's specialist hazardous assessment team reviewed both the PHA and QRA, and agreed with its findings. • The Department notes that the handling and storage of dangerous goods on site would be strictly regulated by DRE – Mine Safety under the *NSW Work Health and Safety (Mines) 2013 Act*.	• AZL should be required to comply with the Department's standard conditions for potential hazardous industries, which would require a Final Hazard Analysis to be carried out prior to the construction and commissioning of the processing plant, and regular hazard audits to be conducted over the life of the project.
Economic	• The EIS had a very basic assessment of the economic impacts of the project. This assessment claimed the project would generate a range of economic benefits in	• Although the preparation of a cost benefit analysis would certainly strengthen the rigour of the economic assessment of the project, the

Issue	Assessment	Conclusion/Recommended Conditions
	the region, without providing any detailed evidence to substantiate these claims. • The Australia Institute was critical of this approach, arguing AZL should be required to prepare a cost benefit analysis of the project.	Department does not believe that it is essential in this instance. • This is largely due to the fact that the merits of the project are not finely balanced, and even if drastic sensitivity testing is applied to AZL's claims, there is no doubt that the project would still generate substantial economic benefits for both the State and region as outlined in Section 1.3.

7 CONCLUSION

To inform the PAC's review, the Department has completed its preliminary assessment of the merits of the project.

This assessment has found that the project would result in a range of economic benefits for both NSW and the region, including:

- developing a new resource in NSW that is in strong demand internationally;
- capital spending of $1.06 billion;
- annual spending of around $50 million in the local economy;
- providing jobs for up to 250 people during operations;
- the payment of around $600,000 to Dubbo Council each year for community enhancement; and
- up to $240 million to the State in royalties over the life of the project.

It has also found that the project is unlikely to result in any significant environmental or social impacts, as

- it has been designed to comply with all the relevant air, radiation, noise and vibration criteria;
- AZL should be able to secure the water it requires for the project, including 4.05 GL of water a year for processing, from the existing water market in the region;
- water pollution risks are low as there would be no discharges from the site, and the waste residue storage facilities would be isolated from local groundwater resources via impermeable liners;
- upgrades to both Toongi Road and Obley Road would ensure the road network can safely accommodate the project's heavy vehicle traffic;
- the proposed biodiversity offset strategy, which includes the permanent conservation and enhancement of 1,021 ha of land, would improve the biodiversity values of the region in the medium to long term; and
- the site would be suitably rehabilitated.

At this stage, the Department is satisfied that the benefits of the project outweigh its impacts, and that it should be approved, subject strict conditions.

Following the PAC review, the Department will finalise its assessment of the project taking into consideration the findings of the PAC review. It will then refer the development application for the project to the PAC for determination.

Mike Young
Manager
Mining Project

3.9.14

David Kitto
Director
Mining Projects

3/9/14

Chris Wilson
Executive Director
Development Assessment Systems & Approvals

3.9.14

APPENDIX 1:
ENVIRONMENTAL PLANNING INSTRUMENTS

SEPP (State and Regional Development) 2011
See discussion in Section 3.1.

SEPP No.33 – Hazardous and Offensive Development
The proposal is classified as a potentially hazardous development and a PHA was undertaken as required by SEPP 33. The PHA demonstrated that the proposal would meet all the applicable criteria if the appropriate controls were implemented. Consequently, the Department is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 33.

SEPP No.44 – Koala Habitat Protection
SEPP 44 requires a consent authority to consider the presence of any core or potential Koala habitat. The EIS includes a detailed fauna assessment which found that there are no local populations of Koalas occur in the development area, and therefore the site contains no 'core Koala habitat'. There is potential Koala habitat within the project area due to the presence of feed tree species, namely isolated White-box paddock trees, which would be removed. However, the implementation of the biodiversity offset strategy would ensure that quality and quantity of feed trees in the locality is enhanced and increased over time. Consequently, the Department considers that the proposed development would not result in any significant impacts on potential Koala habitat and that the proposed development is consistent with the aims, objectives, and requirements of SEPP 44.

SEPP No.55 – Remediation of Land
The rail-way line is potentially contaminated. The Department believes that AZL should therefore be required to assess the level of contamination and undertake appropriate remediation prior to re-opening the rail line. The Department is satisfied that the other parts of the site do not have a significant risk of contamination given the historical land use. Consequently, subject to the appropriate conditions, the Department is satisfied that the development is consistent with the aims, objectives, and provisions of SEPP 55.

SEPP (Infrastructure) 2007
In accordance with clause 104 of the Infrastructure SEPP, the application was referred to TfNSW and RMS. The matters raised in the TfNSW and RMS's submission on the development were considered by the Department in the assessment of the project.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007
Under clause 7 of the Mining SEPP, the project is permissible with consent.

Part 3 of the Mining SEPP lists a number of matters that a consent authority must consider before determining an application for consent for development for the purposes of mining, including:

- the significance of the resource;
- certain non-discretionary development standards in relation to noise, air quality, blasting and aquifer interference;
- compatibility with other land uses;
- natural resource management and environmental management;
- resource recovery;
- transport; and
- rehabilitation.

The Department has considered all of these matters in its assessment (refer to Section 1.3 and Section 5) and is satisfied that the project is able to be managed in a manner that is generally consistent with these provisions. The Department has considered the significance of the resource and is satisfied that by developing the resource this would have economic benefits to both the region and NSW as a whole.

Part 4AA of the SEPP applies to mining and petroleum development on strategic agricultural land, and sets out the requirements in relation to the provision of gateway certificates for such development. However, as the

DGRs for the project were issued prior to 10 September 2012, the SEPP's savings provisions provide that Part 4AA does not apply to the project.

Dubbo LEP 2012

The zoning and permissibility of the development under the Dubbo LEP is addressed in Section 3.2 of this report.

There are no other provisions of the LEP that substantially govern the carrying out of the development, and the Department is satisfied that the project can be managed in a manner that is generally consistent with the aims, objectives and provisions of the LEP.

ATTACHMENT A: ENVIRONMENTAL IMPACT STATEMENT

See attached CD-Rom

ATTACHMENT B:
RESPONSE TO SUBMISSIONS

See attached CD-Rom

ATTACHMENT C: SUBMISSIONS

See attached CD-Rom