

Roseby Copper Project

Initial Advice Statement

Prepared for:

Universal Resources

November 2004

AUSTRALASIAN RESOURCE CONSULTANTS P/L



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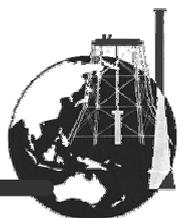
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SUITE 5B, 1 SWANN ROAD, TARINGA QLD 4068 PH: (61-7) 3217 8772

FAX: (61-7) 3217 8775 EMAIL: info@arc.net.au

Visit our Websites at www.arc.net.au and www.aspac-mine.com

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. INTRODUCTION	1
2. DESCRIPTION OF THE EXISTING ENVIRONMENT	4
2.1 PROJECT LOCATION.....	4
2.2 REGIONAL CLIMATE.....	4
2.3 GEOLOGY OF THE PROJECT AREA.....	7
2.4 LOCAL TOPOGRAPHY	8
2.5 PAST LAND USES.....	9
2.6 SOIL AND LAND CAPABILITY	9
2.7 FLORA AND FAUNA	10
2.7.1 Flora.....	10
2.7.2 Fauna.....	11
2.7.3 Aquatics	12
2.8 EUROPEAN CULTURAL HERITAGE.....	13
2.9 INDIGENOUS CULTURAL HERITAGE	13
2.10 NOISE.....	14
2.11 AIR QUALITY	16
2.12 ENVIRONMENTALLY SENSITIVE LOCATIONS.....	16
3. PROPOSED PROJECT ACTIVITIES.....	17
3.1 EXPLORATION.....	17
3.2 MINING METHODS.....	17
3.2.1 Vegetation Removal and Topsoil Stripping	17
3.2.2 Pits.....	17
3.2.3 Waste Rock Dump Design.....	18
3.3 PROCESSING.....	18
3.4 TAILINGS STORAGE FACILITY.....	20
3.5 WATER SUPPLY	20
3.6 POWER SUPPLY.....	21
3.7 DRAINAGE DIVERSIONS	21
3.8 PROJECT ACCESS AND TRANSPORT	21
3.9 WORKFORCE AND ACCOMMODATION	22
3.10 SOCIO-ECONOMICS	22
3.11 LAND ACCESS.....	22
3.12 TENEMENT DETAILS	23
3.13 REHABILITATION STRATEGY	26
3.13.1 Waste Rock Dumps.....	26
3.13.2 Final Voids.....	26
3.13.3 Tailings Storage Facility.....	27
3.14 ENVIRONMENTALLY RELEVANT ACTIVITIES	27
4. COMMUNITY CONSULTATION	29
4.1 INTERESTED PERSONS	29
4.2 AFFECTED PERSONS	30
4.3 CONSULTATION PROCESS.....	34

5. BIBLIOGRAPHY36

LIST OF TABLES

TABLE 1: SUPPORTING REPORTS 2
TABLE 2: OXIDE RESOURCES 7
TABLE 3: SULPHIDE RESOURCES 8
TABLE 4: VEGETATION COMMUNITIES IDENTIFIED ON THE PROJECT SITE 10
TABLE 5: BACKGROUND NOISE MONITORING LOCATIONS 14
TABLE 6: BACKGROUND NOISE LEVELS 15
TABLE 7: BACKGROUND DUST LEVELS 16
TABLE 8: EPMS OVER THE PROJECT AREA 22
TABLE 9: MLs AND MDLs OVER THE PROJECT AREA 24
TABLE 10: ERAS ASSOCIATED WITH THE PROJECT 27
TABLE 11: INTERESTED PERSONS 29
TABLE 12: AFFECTED PERSONS 31

LIST OF FIGURES

FIGURE 1: PROJECT LOCATION 5
FIGURE 2: SITE PLAN 6
FIGURE 3: ORE TREATMENT ROUTE 19
FIGURE 4: DOWNSTREAM PROCESSING OPTIONS 20
FIGURE 5: PROJECT TENEMENTS 25

LIST OF ABBREVIATIONS

AARC	Australasian Resource Consultants Pty Ltd
ASL	Above sea level
Bolnisi	Bolnisi Gold NL
°C	Degrees Celcius
CAMBA	China Australia Migratory Bird Agreement
cm	centimetre
DEH	Department of Environment and Heritage
DNRM	Department of Natural Resources and Mines
EA	Environmental Authority
EIS	Environmental Impact Statement
EPBC Act 1999	Environment Protection and Biodiversity Conservation Act 1999
EPM	Exploration Permits Minerals
ERA	Environmentally Relevant Activities
ha	hectares
JAMBA	Japan Australia Migratory Bird Agreement
km	kilometres
Logistics	Bolnisi Logistics Pty Ltd
m	metre
MDL	Mining Development Leases
ML	Mining Lease
MLA	Mining Lease Application
mm	millimetres

Mt	Million tonnes
NCWR 1994	Nature Conservation Wildlife Regulation 1994
PAF	Potentially Acid Forming
QEPA	Queensland Environmental Protection Agency
t	tonnes
TOR	Terms of Reference
TSF	Tailings Storage Facility
Universal	Universal Resources Limited

1. INTRODUCTION

This Initial Advice Statement contains supporting information as required by Section 2 of the *Approval to Prepare a Voluntary Environmental Impact Statement* (EIS) application form. Universal Resources Limited (Universal) are applying to the chief executive under Chapter 3, Part 1, Sections 70 and 71 of the *Environmental Protection Act 1994* for approval to prepare a voluntary EIS.

In August 2001, Universal acquired the Roseby Copper Project¹ from Pasminco Limited and on-sold a 50% interest to Bolnisi Logistics Pty Ltd (Logistics).

Logistics commenced the EIS process for an oxide Project in 2003. The Terms of Reference (TOR) for the EIS were finalised in December 2003. Many of the baseline studies for the Project were completed during 2004. In September 2004 Universal entered into an agreement to buy Logistics from Bolnisi Gold NL (Bolnisi) to gain a 100% share of the Roseby Copper Project. The acquisition is expected to be finalised in November 2004.

Universal proposes to expand the Roseby Copper Project to include seven open cut oxide pits and five open cut sulphide pits. It is therefore proposed to conduct combined EIS for the previously proposed Project and expanded Project.

Supporting documents used in the preparation of this Initial Advice Statement are shown in Table 1.

¹ The Roseby Copper Project will be referred to as the Project from herein.

TABLE 1: Supporting Reports

Document No.	Title
1.	Australasian Resource Consultants Pty Ltd (2004) <i>Roseby Copper Project Aquatic Survey Report</i>
2.	Australasian Resource Consultants Pty Ltd (2004) <i>Roseby Copper Project Flora and Fauna Assessment Report</i>
3.	Golder Associates Pty Ltd (2003) <i>Roseby Project Hydrological Input to EIS</i>
4.	Australasian Resource Consultants Pty Ltd (2004) <i>Roseby Copper Project Noise Assessment Report</i>
5.	Australasian Resource Consultants Pty Ltd (2004) <i>Roseby Copper Project Analogue Site Identification and Rehabilitation Completion Criteria</i>
6	Australasian Resource Consultants Pty Ltd (2004) <i>Roseby Copper Project Purple-necked Rock Wallaby Survey Report</i>
7	Queensland Government Environmental Protection Agency (2003) <i>Terms of Reference for the Proposed Roseby Copper Project</i>
8	Australasian Resource Consultants Pty Ltd (2003) <i>Supporting Information – Application to Prepare a Voluntary EIS</i>
9	Graeme Rabone and Associates (2002) Report on a Cultural Heritage Survey – Roseby Project
10	Graeme Rabone and Associates (2002) Report on a Cultural Heritage Survey No. 2 – Roseby Project
11	Central Queensland Cultural Heritage Management (2002) <i>Summary Report on the Cultural Heritage Values Associated with Prospect Areas Near Dugald River – Roseby Station, Northwest Queensland</i>
12	AGC Woodward Clyde (1991) <i>Dugald River Project Prefeasibility Environmental Baseline Studies</i>
13	Dr Ruth S. Kerr (2004) <i>History and Non-indigenous Cultural Heritage of Roseby Project Area</i>
14	SKM (1999) Dugald River Environmental Monitoring Report 1998-1999.
15	SKM (2000) Dugald River Environmental Monitoring Report 1999-2000.
16	SKM (2001) Dugald River Environmental Monitoring Report 2000-2001.



17	SKM (1998). Dugald River Project: November 1998 Ambient Noise Report.
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2. DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1 PROJECT LOCATION

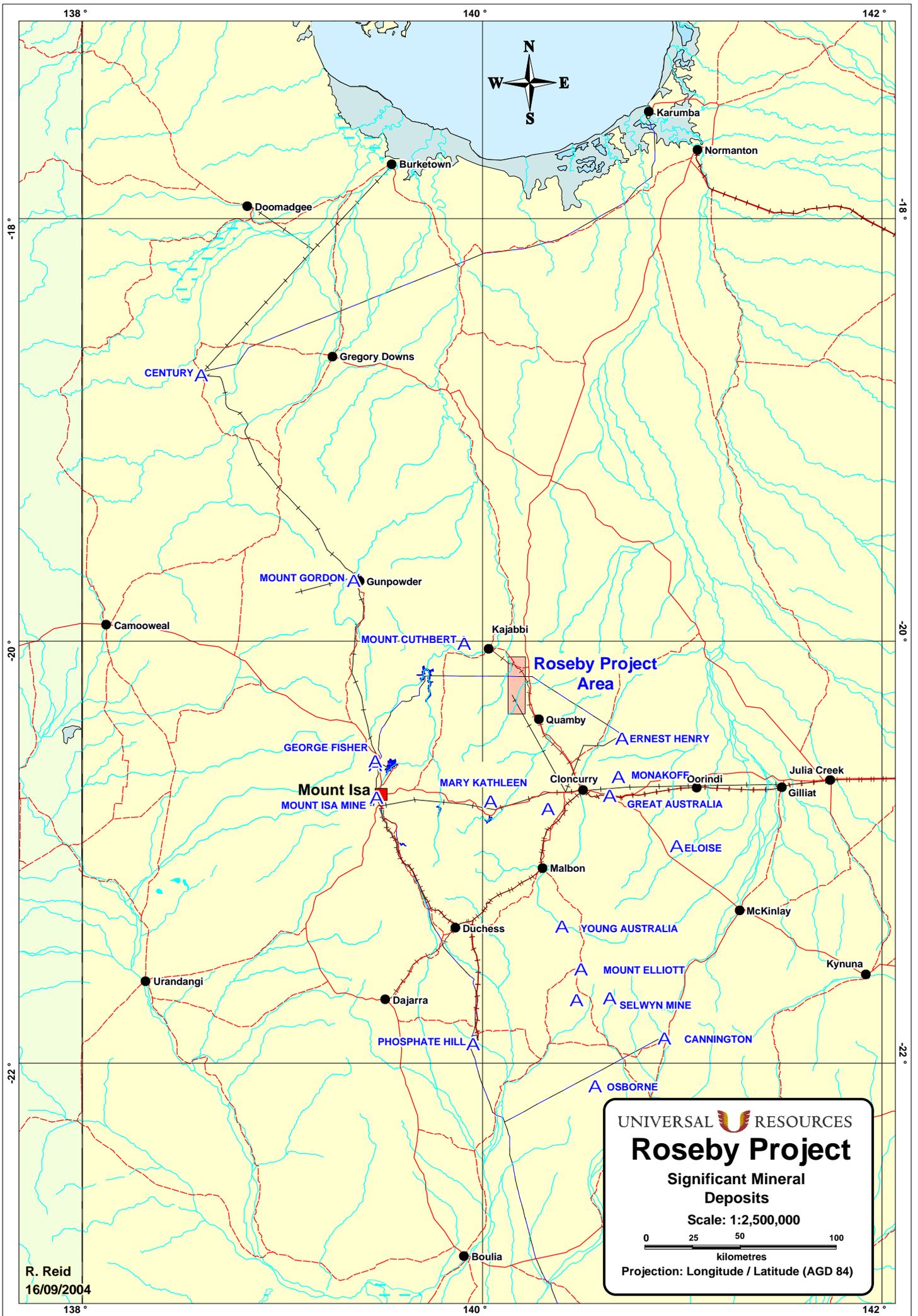
The Project area is located in north-west Queensland approximately 65 kilometres (km) north-west of Cloncurry and 90 km north-east of Mount Isa (see Figure 1). The site plan for the Project is presented in Figure 2.

2.2 REGIONAL CLIMATE

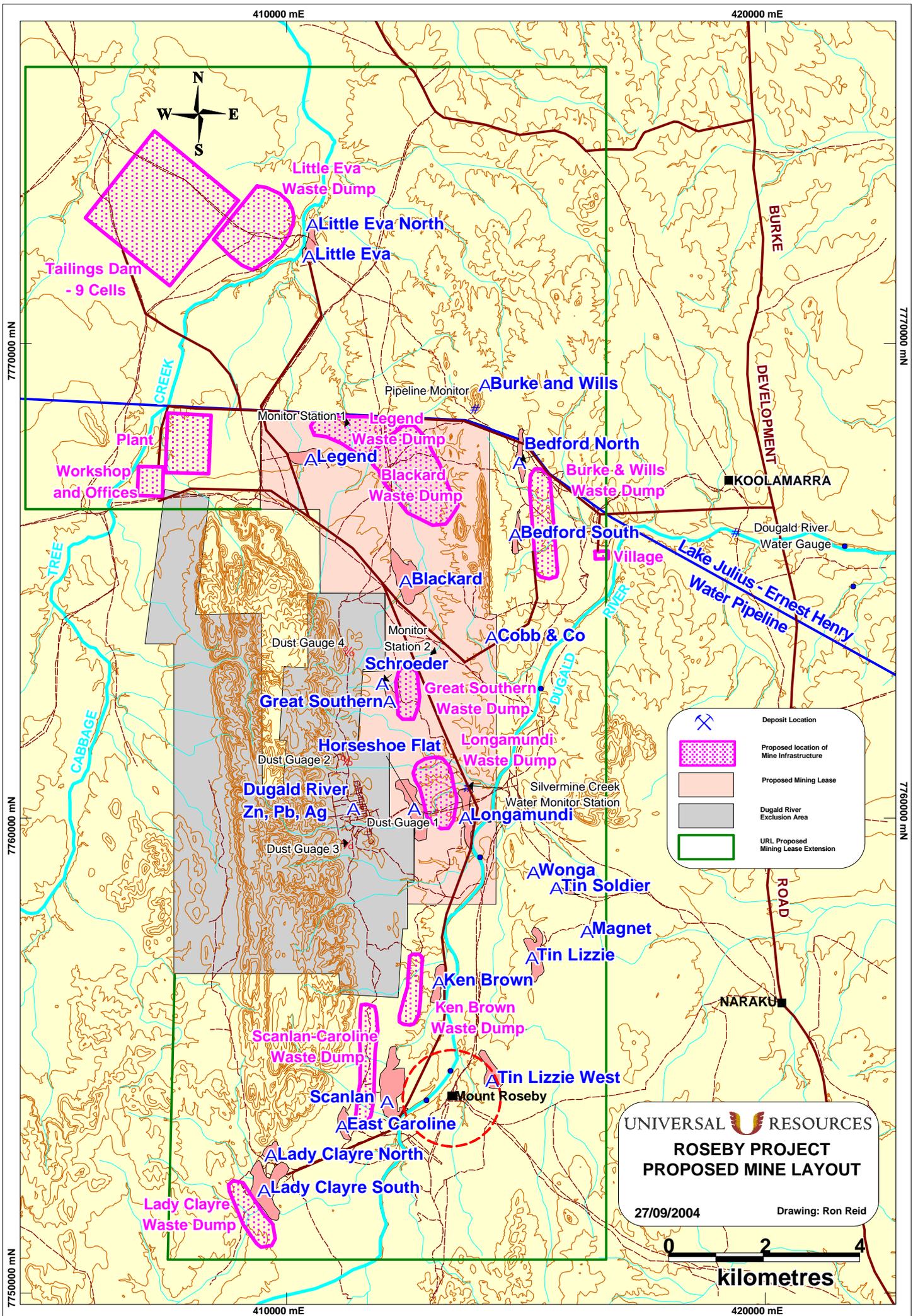
Information from the Australian Bureau of Meteorology indicates that the average annual rainfall for Cloncurry is approximately 473 millimetres (mm). Rainfall is typically highly seasonal, with the dry season peaking around August (average 3.9 mm) and the wet season peaking in January and February (average 114 mm and 115mm in each of these months respectively).

The coldest average temperatures occur in July (10.3 degrees Celsius [$^{\circ}\text{C}$]) and the hottest average temperatures occur in December (38 $^{\circ}\text{C}$).

The predominant wind direction in Cloncurry in summer has a northerly or easterly component, mostly north, north-east or east. For the rest of the year the wind has a southerly or easterly component, mainly south-east, south, or east. The average wind speed in Cloncurry seems fairly consistent throughout the year averaging between 12 and 19 km/hour. Months that experience a higher percentage of wind speeds between 21 -30 km/hour include September, October and November, specifically during the morning.



R. Reid
 16/09/2004



2.3 GEOLOGY OF THE PROJECT AREA

The Roseby copper deposits occur within Mesoproterozoic metamorphosed and complexly deformed sediments of the Eastern Fold Belt of the Mt Isa Inlier.

Seven native copper deposits occur within what is known as the Roseby Corridor, a northerly trending, 20 km long and 3 to 4 km wide zone. It is postulated that native copper formed within the regolith profile during weathering processes dominated by reducing and alkaline groundwater conditions. These stratabound native copper deposits are hosted by weathered, quartz-biotite-scapolite schists. These deposits are assigned to the Corella Formation. The depth of oxidation varies to >200 metres (m) from the surface. The largest is the Blackard deposit. Other deposits include Great Southern, Longamundi, Legend, Scanlan, Ken Brown and Caroline. Oxide resources are shown in Table 2.

The sulphide deposits belong to the Iron Oxide Copper Gold class of hydrothermal mineralisation such as that mined at Ernest Henry. These are hosted in fractured rock systems within a variety of host rocks. Oxidation due to weathering extends only to shallow depths varying 5 to 30 m depth below surface. The largest resource identified to date is the Little Eva deposit. There are five sulphide deposits including Little Eva, Lady Clayre A, Lady Clayre F, Bedford North and Bedford South. Sulphide resources are shown in Table 3.

TABLE 2: Oxide Resources

Deposit	Tonnes (M)	Grade		Contained Metal	
		Cu (%)	Au (gpt)	COPPER (T)	GOLD (Oz)
Blackard	26.82	0.75	0.00	200,706	0
Legend	3.74	0.65	0.00	21,310	0
Longamundi	5.06	0.81	0.00	40,986	0
Great Southern	3.72	0.78	0.00	29,016	0
Scanlan	13.30	0.79	0.00	105,070	0
Ken Brown	4.00	0.80	0.00	32,000	0

Caroline	4.00	0.80	0.00	32,000	0
TOTAL	60.64	0.77	0.00	464,088	0

TABLE 3: Sulphide Resources

Deposit	Tonnes (M)	Grade		Contained Metal	
		Cu (%)	Au (gpt)	COPPER (T)	GOLD (Oz)
Little Eva High Grade	9.00	1.05	0.15	94,500	43,403
Lady Clayre Zone A	3.60	1.19	0.55	42,840	63,658
Lady Clayre Zone F	0.90	0.86	0.38	7,740	10,996
Bedford North	1.31	1.22	0.34	15,982	14,320
Bedford South	0.71	1.25	0.32	8,875	7,305
Sub Total Highgrade	15.52	1.09	0.28	169,937	139,682
Little Eva Low Grade	27.00	0.30	0.05	81,000	43,403
GRAND TOTAL	42.52	0.59	0.13	250,937	183,085

2.4 LOCAL TOPOGRAPHY

The Project is bordered to the west by the Knapdale Range which rises to an approximate height of 300 m above sea level (ASL), and to the east by Mount Rose Bee with a height of 285 m ASL. Associated with these features are strike ridges of exposed metasedimentary rock dominated by quartzite.



The topography of the majority of the Project is gently undulating plains, dissected by several ephemeral creek lines. The lowest topographical feature of the Project is associated with the creek lines at approximately 180 m ASL.

The Project is located within a catchment divide for the Flinders and Leichhardt Rivers. Both of these river systems eventually empty into the Gulf of Carpentaria.

Surface water on the northern portion of the Project site, between the Knapdale Ranges and Mt Rose Bee, flows in a northerly direction, through Vieux Rose Creek. This creek runs past the Blackard deposit in a northerly direction leaving the Project via the northern boundary and joining Cabbage Tree Creek a short distance from the Project. Cabbage Tree Creek in turn joins the Leichhardt River.

Surface water in the western portion of the Project site, along the Knapdale Ranges, flows in a westerly direction to Cabbage Tree Creek which then joins the Leichhardt River.

Surface water in the southern portion of the Project site runs in an easterly direction via Silvermine Creek and other tributaries into the Dugald River. The Dugald River runs in a north-easterly direction once leaving the Project site and eventually joins the Cloncurry River and then the Flinders River.

Several waterholes exist along the Dugald River in the southern portion of the site.

2.5 PAST LAND USES

Mining has been a major industry in the Mt Isa/Cloncurry area since the 1860s. In 1990, Pasma Limited completed drilling at Dugald River, identifying 30.8 million tonnes (Mt) of resource comprising 13.1% zinc, 2.1% lead and 39 g/t silver, and purchased the Project in 1996. The Roseby Copper Project was sold to Bolnisi and Universal in 2001.

Past land uses for the Roseby Copper Project area include low-intensity cattle grazing, and mineral exploration.

2.6 SOIL AND LAND CAPABILITY

The pre-mining land capability of the Project has been described as Class VII, suitable for low intensity grazing, for the majority of the flatter areas of the Project. Some areas of the Project associated with the Mount Rose Bee ridge line are classified as Class VIII, not suitable for agricultural purposes, due to the steep slopes, lack of topsoil and potential for erosion. There are established pastoral and exploration tracks on the Project area that are also Class VIII land.



The Project area is characterised by alluvial red soils on the plains to a depth of 60 centimetres (cm). It is non saline, non sodic and low in nutrients, and contains naturally high levels of copper.

Further soils and land capability studies will be conducted over the extended Project area.

2.7 FLORA AND FAUNA

2.7.1 Flora

Four vegetation communities were identified on the Logistics Project site during the AustralAsian Resource Consultants Pty Ltd (AARC) survey in September 2002. The description of these communities and their conservation status is summarised in Table 4.

TABLE 4: Vegetation Communities Identified on the Project Site

RE Code	Description	VMR Status	QEPA Biodiversity Status	EPBC Act Status
1.5.4	Cloncurry Box and Western Bloodwood Low Open Woodland	No Concern at Present	Of Concern	Not Listed
1.5.5	Silver Leaved Box with Cloncurry Box and Western Bloodwood Low Open Woodland	No Concern at Present	Of Concern	Not Listed
1.3.7	Fringing Woodland of Northern Swamp Box and River Red Gum	No Concern At Present	Endangered	Not Listed
1.11.2	Snappy Gum Low Open Woodland with Rough-leaved Ghost Gum on Ridges	No Concern at present	No Concern at Present	Not Listed

The Cloncurry Box and Western Bloodwood Low Open Woodland and the Silver Leaved Box with Cloncurry Box and Western Bloodwood Low Open Woodland communities are listed under the Queensland Environmental Protection Agency (QEPA) Biodiversity Status as being Of Concern due to threatening processes other than land clearing. In addition, the Fringing Woodland of Northern Swamp Box and River Red Gum is listed as being Endangered under the QEPA Biodiversity Status due to other threatening processes other than land clearing. Threatening processes include inappropriate fire regimes, weed invasion and grazing. The Project will develop control strategies to reduce the likelihood of non-



natural fires and weed invasion on the Project to reduce the impact on these communities. These vegetation communities are widely distributed throughout the region and therefore, the areas of this community present on the Logistics Project site are not considered to be significant on a regional scale.

No flora species of conservation significance were found on the Logistics Project site, despite detailed searches in areas of suitable habitat.

No species declared under the *Rural Lands Protection Act 1985* or other weed species of management concern were recorded during the survey.

Further flora studies will be conducted over the extended Project area.

2.7.2 Fauna

A fauna study of the Logistics Project site was conducted by AARC in September 2002. Generally, habitat and observed species on the Logistics Project site are typical for the Mt Isa-Cloncurry region. A total of 95 fauna species were identified. Of the 95 fauna species observed there were four amphibians, eight reptiles, 65 birds and 18 mammals. Four introduced pest species were identified.

The Black-chinned Honeyeater (*Melithreptus gularis*), listed as Rare (Schedule 4) under the *Nature Conservation (Wildlife) Regulation 1994* (NCWR 1994), was observed on the Project site. The observed birds were the Golden-backed race (*M. g. laetior*) of the species. Some riparian vegetation that is currently being used by the local population will be lost due to the mining activities, particularly along the creek line adjacent to Blackard open cut pit. However similar habitat is available along nearby watercourses such as the Dugald River directly to the east, Cabbage Tree Creek to the west and Diorite Creek in the north. In addition to these creeks, others in the area that would also be accessible to these birds including Cattle Creek, Clayton Creek, and Lady Clayre Creek. Consequently it is unlikely that the Project will significantly impact on the local population.

At least seven Purple-necked Rock Wallaby (*Lateralis purpureicollis*), listed as Vulnerable (Schedule 3) under the NCWR 1994, were directly observed by AARC on the Project site. All animals were sited in rock outcrops that are associated with Mount Rose Bee. Here, caves or crevices were abundant and scats from the species were numerous. Given that this species is known to live in small family groups (Russell 1974), the observed animals may represent part of the territorial group that inhabits this location.

Purple-necked Rock-wallabies are generally nocturnal and shelter during the day in cool crevices and caves, emerging at night to feed on herbaceous vegetation, especially grasses



(Menkhorst and Knight 2001). They are generally never observed far from rock outcrops and are likely to be dependant on the structures for their long-term survival.

Additionally, three other species of conservation significance are considered possible occurrences on the Project site based on habitat assessment and local records. These three species are:

- ◆ Black-necked Stork (*Ephippiorhynchus asiaticus*) – Rare (Schedule 4) of the NCWR 1994;
- ◆ Square-tailed Kite (*Lophoictinia isura*) - Rare (Schedule 4) of the NCWR 1994; and
- ◆ Pictorella Mannikin (*Heteromunia pectoralis*) - Rare (Schedule 4) of the NCWR 1994.

If present, it is unlikely that the proposed development will have significant adverse impacts on any of the local populations of these species, as minimal suitable habitat for these species would be disturbed.

A total of 14 Migratory Species, as listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) were observed. An assessment of all 14 species, using the guidelines in the EPBC Act 1999, determined that there would be no significant impact and therefore the Project was not referred to the Department of Environment and Heritage (DEH). However, this assessment has been based on field surveys conducted only on the Logistic Project Area.

Further fauna studies will be conducted over the extended Project area.

2.7.3 Aquatics

An aquatic study of the Dugald River was undertaken by AARC between the 29th of February and the 2nd March, 2004. The survey identified 21 macroinvertebrate taxa and four fish. Numerous other vertebrate species such as frogs and birds were also identified. No aquatic flora or fauna species of significance were identified on the Logistics Project site or in nearby habitats. All aquatic invertebrates and vertebrates are typical of similar systems within the Cloncurry region.

Three vertebrate species listed under NCWR 1994 were identified along the Dugald River. While these are not aquatic species, they are reliant on water or aquatic prey items. The three identified species included:

- ◆ Pictorella Mannikin (*Heteromunia pectoralis*) – Rare (Schedule 4);
- ◆ Black Bittern (*Ixobrychus flavicollis*) – Rare (Schedule 4); and

- ◆ Black-necked Stork (*Ephippiorhynchus asiaticus*) – Rare (Schedule 4).

Further aquatic studies will be conducted over the extended Project area.

2.8 EUROPEAN CULTURAL HERITAGE

The first pastoral station in the Cloncurry and Dugald Rivers regions was taken up in late 1867, and was called Fort Constantine. The Roseby Copper Project area covers part of the original pastoral leases, Euston, Euston No. 5 and Alambra.

In the 1860s, Ernest Henry arrived in the Dugald River area in search of pastoral country. He discovered iron outcrops at Mount Leviathan in 1866, then located the Great Australia copper outcrop in 1867. The Great Australia Copper Mining Company commenced operations in 1868, and were quoted as yielding 70-80% copper. By the late 1800s the Cloncurry area was touted as the leading copper district in Queensland.

In 1884, prospectors and miners arrived in the area in search of gold. A prospecting party travelled along the route of the proposed Transcontinental Railway, finding copper mineralisation in the Cloncurry region and at the heads of the Leichhardt and Dugald Rivers.

In 1948, CRA Limited's forerunner, Zinc Corporation, acquired a lease. In 1990, Pasminco Limited completed drilling at Dugald River, identifying 30.8 million tonnes of resource comprising 13.1% zinc, 2.1% lead and 39 g/t silver, and Pasminco purchased the Project in 1996. The Roseby Copper Project was sold to Bolnisi and Universal in 2001.

Further European cultural heritage studies will be conducted over the extended Project area.

2.9 INDIGENOUS CULTURAL HERITAGE

In 2001 an Access and Cultural Heritage Agreement was executed between Logistics and Universal, and the Kalkadoon People. The objectives of the agreement were to allow land clearing and enable the companies to undertake close spaced drilling and other ground disturbing high impact activities.

An eight-day Cultural Heritage survey conducted in December 2001, covered the known copper resources at Legend, Blackard, Scanlan, Caroline, Ken Brown, Great Southern and Longamundi. Sites of significance relating to the former Logistics Project area have been fenced.



Further cultural clearance surveys were undertaken in March 2001, November 2003 and August 2004 to cover the Lady Clayre, Little Eva and Bedford North and South drilling programmes. All sites of significance for the two earlier surveys have been fenced and fencing is planned for any significant sites located within the recently cleared area.

An Indigenous Land Use Agreement is being negotiated currently with the Kalkadoon People to allow mining in the Project area.

2.10 NOISE

Background noise data for the Logistics Project area was obtained from two sources:

1. A 24 hr background noise monitoring survey at 4 locations (N1 to N4), from Dugald River Project Ambient Noise Report (SKM 1998); and
2. A 5-day monitoring event in November 2003 at the Mount Roseby Homestead (N5), conducted by AARC.

Details of the monitoring locations are shown in Table 5.

Background noise levels for the Logistics Project area and the nearest sensitive receiver to the Project (Mount Roseby Homestead) are shown in Table 6.

Noise modelling of the Logistics Project showed that activities on the proposed Project would not affect noise levels at the Mount Roseby Homestead. Further noise modelling will be conducted for the extended Project area.

TABLE 5: Background Noise Monitoring Locations

Logger Number	Description	Monitoring Period	Latitude and Longitude Coordinates (AMG)
N1	Mt Roseby Homestead 6.5km from Dugald Base Camp	8.30am Saturday 24/10/98 to 8.30am Sunday 25/10/98	20° 18' 24" S 140° 13' 47" E
N2	2km East from Dugald Base Camp	9.30am Sunday 25/10/98 to 9.30am Monday 26/10/98	20° 14' 55" S 140° 10' 34" E



Logger Number	Description	Monitoring Period	Latitude and Longitude Coordinates (AMG)
N3	3.5km North from Dugald Base Camp	10.15am Monday 26/10/98 to 10.15am Tuesday 27/10/98	20° 13' 20" S 140° 09' 06" E
N4	1km West from Dugald Base Camp	11.30am Tuesday 27/10/98 to 11.30am Wednesday 28/10/98	20° 15' 31" S 140° 09' 07" E
N5	Mt Roseby Homestead	5.30pm Saturday 19/11/03 to 3.45pm Sunday 24/11/03	20° 18' 24" S 140° 13' 47" E

TABLE 6: Background Noise Levels

Monitoring Site	Times	L ₉₀	L ₁₀	L ₁	L _{max}	L _{eq}	L _{eq 24 hr}
N1	Day	32.0	43.1	-	59.2	55	53
	Evening	34.8	46.4	-	66.3	56	
	Night	35.7	41.5	-	49.7	40	
N2	Day	36.4	45.9	-	59.2	45	47
	Evening	41.0	50.8	-	61.8	53	
	Night	30.2	34.2	-	42.4	38	
N3	Day	37.8	46.6	-	61.8	46	44
	Evening	35.7	43.1	-	59.3	44	
	Night	31.8	38.7	-	48.3	38	
N4	Day	33.2	43.9	-	63.1	42	44
	Evening	39.9	49.7	-	59.0	49	
	Night	31.9	39.8	-	60.9	39	
N5	Day	34.5	46.1	54.1	64.2	47	44
	Evening	33.7	39.1	46.3	54.5	41	
	Night	33.5	38.1	41.5	50.4	39	

2.11 AIR QUALITY

Background air quality data for the Logistics Project area was obtained from dust deposition monitoring for the nearby Dugald River Project. Monitoring was performed over a three year period with reports prepared annually – these were titled the *Dugald River Monitoring Report 1998-1999*, the *Dugald River Monitoring Report 1999-2000*, and the *Dugald River Monitoring Report 2000-2001*.

The reports detail the monitoring of dust deposition within bottles at four locations around the site – DG1, DG2, DG3, and DG4.

Background dust levels in the vicinity of the Logistics Project area are shown in Table 7.

Further dust modelling will be conducted for the extended Project area.

TABLE 7: Background Dust Levels

Dust Gauge ID	Average g/m ² /month	Minimum g/m ² /month	Maximum g/m ² /month	Number of Samples
DG1	2.77	1.5	6.7	27
DG2	3.01	1.3	8.6	27
DG3	2.65	1.0	6.3	27
DG4	4.32	0.4	14.7	27

2.12 ENVIRONMENTALLY SENSITIVE LOCATIONS

The Project will not impact on any environmentally sensitive areas directly or indirectly. The land affected by the Project is not likely to become part of a protected area estate or subject to any treaty. In making this statement, consideration has been given to national parks, conservation parks, fish habitat areas, wilderness areas, aquatic reserves, national estates, world heritage listings and sites covered by international treaties or agreements e.g. Ramsar, Japan Australian Migratory Bird Agreement (JAMBA) and China/Australia Migratory Bird Agreement (CAMBA), areas of cultural significance and scientific reserves.

There is a nominated Queensland Heritage Register Place area which overlaps part of the proposed MLA area in the north-western corner.

The Commonwealth's EPBC Act 1999 has been addressed and there are no National Environmentally Significant matters pertinent to the Logistics Project.

3. PROPOSED PROJECT ACTIVITIES

3.1 EXPLORATION

The Project will involve ongoing exploration activities on and surrounding the proposed Mining Lease Application (MLA).

3.2 MINING METHODS

3.2.1 Vegetation Removal and Topsoil Stripping

Prior to the development of any open cut pit, waste rock dump or infrastructure, vegetation and topsoil shall be removed from the footprint area and stockpiled. Large vegetation will be pushed first and windrowed along side the area where topsoil will be stockpiled. Smaller vegetation and grasses will be removed with the topsoil and stockpiled in windrows no higher than 2 m. Where necessary stockpiles will be ripped to encourage water infiltration and seeded to prevent erosion. Topsoil will be respread on surfaces to be rehabilitated as soon as possible to benefit from the viability of the topsoil seed bank.

3.2.2 Pits

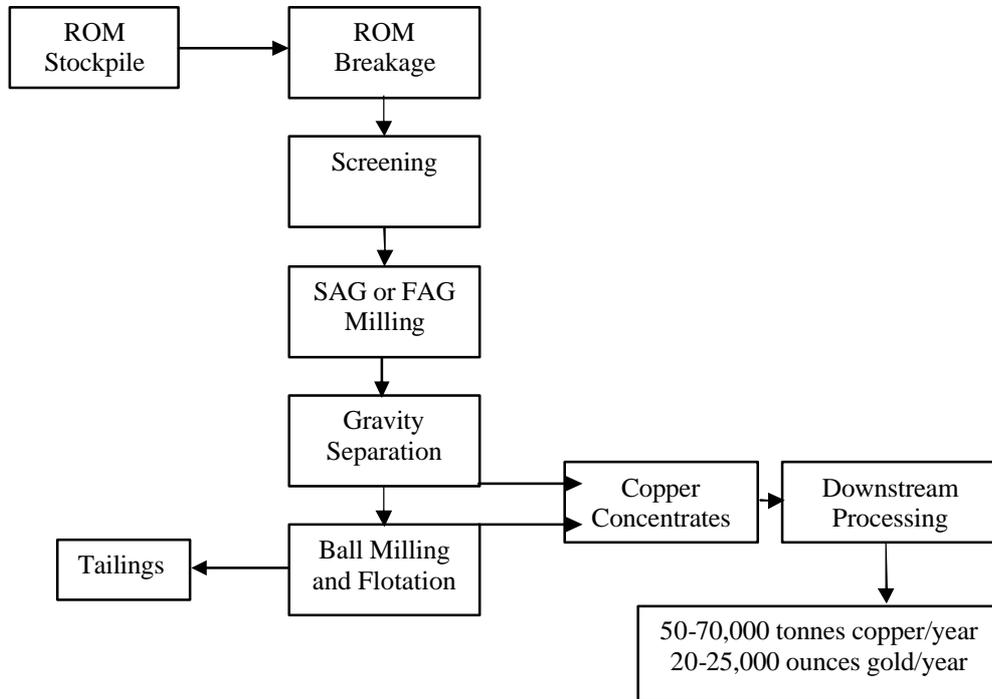
The Project is expected to have a minimum of an eight year mine life and result in the processing of approximately 7 - 10 Mt/year of run of mine (ROM) ore producing 50 -70 tonnes/year of copper and 20,000-25,000 ounces/year of gold.

The deposits will be mined through a series of seven oxide open cut pits (Blackard, Legend, Great Southern, Longamundi, Ken Brown, Scanlan and Caroline) and five open cut sulphide pits (Little Eva, Lady Clayre A, Lady Clayre F, Bedford North and Bedford South), using conventional diesel powered earth-moving equipment. Resource estimates are 60.64 Mt for oxides and 42.52 Mt for sulphides, with the total resource expected to be 103 Mt.

The oxide open cut pits will be up to 200 m deep, 700 m wide and up to 2 km long. It is not envisaged that blasting prior to excavation will be required, but allowance has been made for the use of explosives. Excavation will involve conventional open cut methods using diesel-powered excavators and trucks. The use of mobile conveyors to haul ore to the processing plant will be investigated. The average waste:ore strip ratio is anticipated to be approximately 3.5:1.

The sulphide open cut pits will be up to 175m deep. Blasting prior to excavation will be required. Excavation will involve conventional open cut methods using diesel-powered

excavators and trucks. The use of mobile conveyors to haul ore to the processing plant will be investigated. The average waste:ore strip ratio is anticipated to be approximately 3.5 :1.



3.2.3 Waste Rock Dump Design

Waste rock will be deposited in surface waste rock dumps next to the open cut pits. Waste rock may also be used for the construction of the Tailings Storage Facility (TSF).

Waste rock characterisation has been carried out for the Blackard, Legend, Great Southern and Logimundi deposits and no Potentially Acid Forming (PAF) waste rock was found.

Waste rock characterisation will be conducted on the other oxide pits and sulphide pits to determine any PAF waste rock. Strategies to encapsulate any PAF waste rock will be developed as part of the EIS.

3.3 PROCESSING

The processing stream will produce two copper products, coarse native copper concentrate and fine copper concentrate. The process will include rock breakage (toothed rolls crusher or ore-sizer), screening and gravity separation to recover coarse native copper, followed by ball milling, flotation and dewatering to produce copper concentrate. This process will allow a production rate of approximately 50,000-70,000 tonnes (t) of copper concentrate and 20,000-25,000 ounces of gold per year. The ore treatment route is shown in Figure 3.



Options for further downstream processing of the copper concentrate will be investigated during final feasibility studies for the Project. Processing of the copper concentrate through a copper anode casting furnace to produce copper anode would be one such value adding processing option that may be investigated. Another option is to process the copper concentrate by acid leaching to produce a leachate that can then be electro-winned to produce copper cathode. The Terms of Reference will address all potential environmental impacts from all processing options for the Project, although the EIS will only investigate and report on the processing options that have been deemed appropriate through the final feasibility studies. The downstream processing options are shown in Figure 4.

The final products will be transported off site as copper concentrate and/or copper cathode by road train to Cloncurry and then by Queensland Rail or road to Townsville for smelting or export.

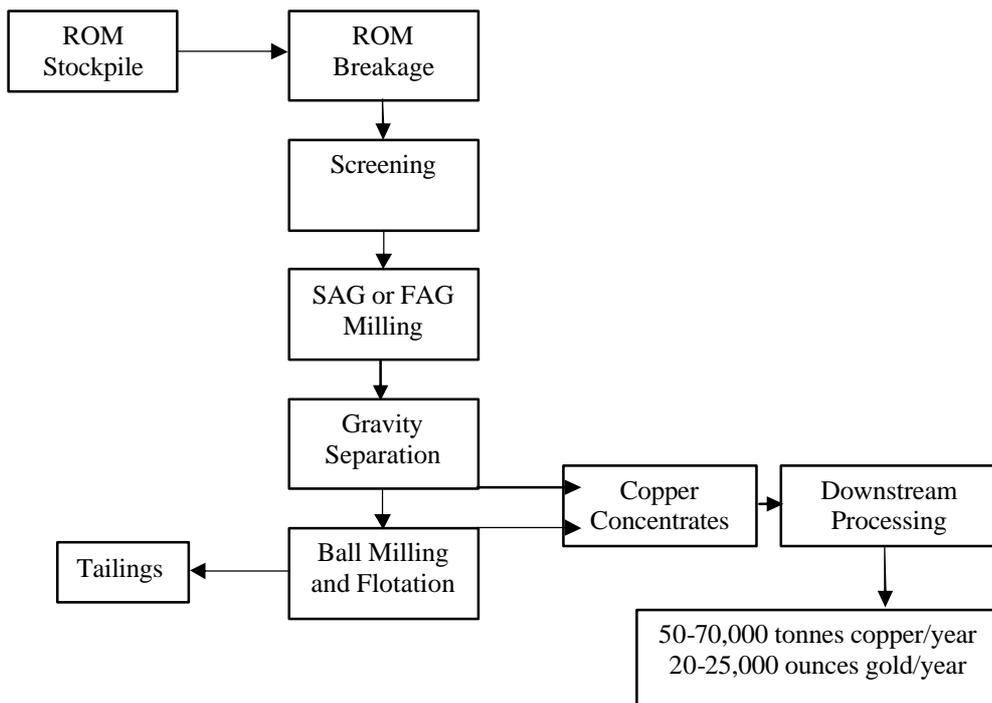


FIGURE 3: Ore Treatment Route

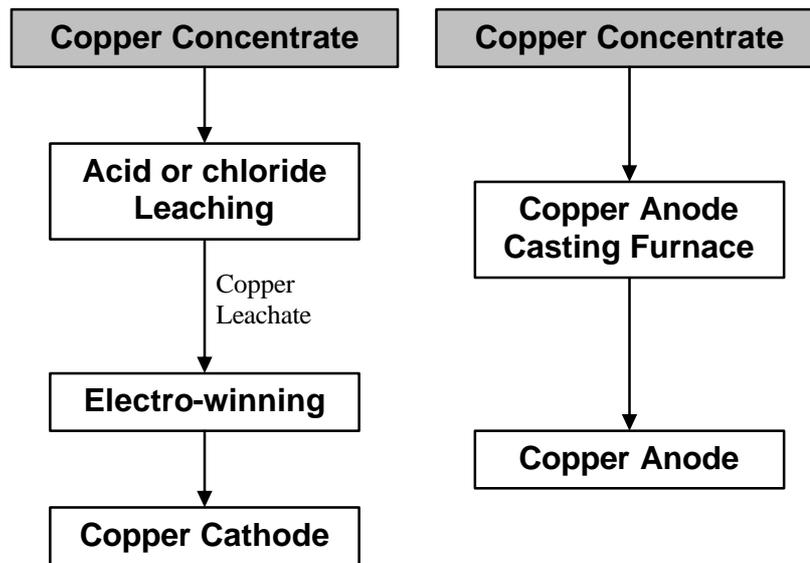


FIGURE 4: Downstream Processing Options

3.4 TAILINGS STORAGE FACILITY

The preferred option for the Tailings Storage Facility (TSF) is as an impoundment type facility to the north west of the Little Eva deposit (Figure 2). It is estimated that this facility will cover approximately 500 ha.

As a secondary option, tailings may be disposed of in a valley fill type facility.

A further option for tailings disposal would be to return the tailings to a mined out open cut pit, if this does not sterilise an underlying resource. If this option is feasible, only a small initial TSF would need to be constructed to contain tailings, whilst the first open cut pit is mined out.

3.5 WATER SUPPLY

The main water supply will be from the Lake Julius pipeline running across the northern end of the property (to Ernest Henry Mine). Water will also be captured from rainfall which collects in the open cut pits or from surface water diversions. Return water from the TSF will be re-used in the processing facility. It may also be necessary to obtain water from groundwater bores to make up any shortfalls in process water.



A preliminary estimation of water usage for the Project from sources such as Lake Julius is 8,000-12,000 megalitres per year.

3.6 POWER SUPPLY

One option for power supply is via the transmission line that runs between the Mica Creek power station and Ernest Henry Mine, approximately 40 km south of the Project, extending along the Lake Julius water pipeline. A further option is to use diesel fuelled generators, located on-site.

3.7 DRAINAGE DIVERSIONS

There are several ephemeral creek lines that traverse the Project site. Proposed infrastructure on site such as waste rock dumps and open cut pits may intercept these seasonal flow regimes in some locations, and therefore drainage diversions may be required. These drainage diversions will be designed and constructed with consideration for current guidelines and in consultation with the Department of Natural Resources and Mines (DNRM).

3.8 PROJECT ACCESS AND TRANSPORT

The proposed Project access road will run west from the Burke Development Road just to the south of Koolamarra. It is proposed that an existing track be upgraded and straightened. The Project access road is likely to be a private road, maintained by Universal. Consultation with the Cloncurry Shire Council will be conducted for access to and use of the Burke Developmental Road.

Copper concentrate and/or refined copper product will be transported from the Project to Cloncurry by triple road trains. It is envisaged that approximately 4000 t of concentrate per week will be transported to Cloncurry equating to approximately 64 triple road train trips per week.

Other items to be transported to the Project on a regular basis will include fuel, explosives, lime, reagents, grinding balls, spares and general consumables. This may result in approximately 20 extra transport movements per week on the Project access road.

Rail facilities may be utilised for the transport of product from Cloncurry to Townsville. These facilities were upgraded in 1998 and it is not expected that further upgrading will be necessary.

3.9 WORKFORCE AND ACCOMMODATION

The total number of direct employees estimated to be employed on the Project will be approximately 100 – 150. The number of indirect jobs generated by the Project will be in the order of 250 – 400.

Most of the workforce would be accommodated at the site. This would be in a purpose-built camp that will be owned and operated by Universal and/or a contractor. The camp at the Project will accommodate approximately 150 personnel at any one time. Some personnel may travel from the nearby towns of Cloncurry, Kajibbi or Quamby.

The general location of the accommodation and office village is approximately 1km to the east of the Bedford deposit (see Figure 2), but this is conceptual plan only. The accommodation camp and administration offices are likely to be serviced by septic tank sewage systems.

3.10 SOCIO-ECONOMICS

Capital expenditure for the Project is currently estimated to be approximately \$50 - 80 million (+/- 30%) with gross revenue of \$175 - 250 million per annum. The Project will have a positive impact on the economy of the local region and the State through payment of rates, purchase of infrastructure, plant and consumables, use of service industries and payment of royalties and taxes.

Universal will endeavour to participate in the advancement of the Kalkadoon People and others through the employment and training of local personnel.

3.11 LAND ACCESS

Universal holds Exploration Permits Minerals (EPMs) over the area to which the Project relates (Figure 2). These EPMs are included in Table 8 below.

TABLE 8: EPMs Over the Project Area

EPM Number	EPM Name
EPM 8506	Mt Roseby
EPM 9056	Pinnacle
EPM 10266	Highway
EPM 10833	Cameron River
EPM 11004	Ogorilla

3.12 TENEMENT DETAILS

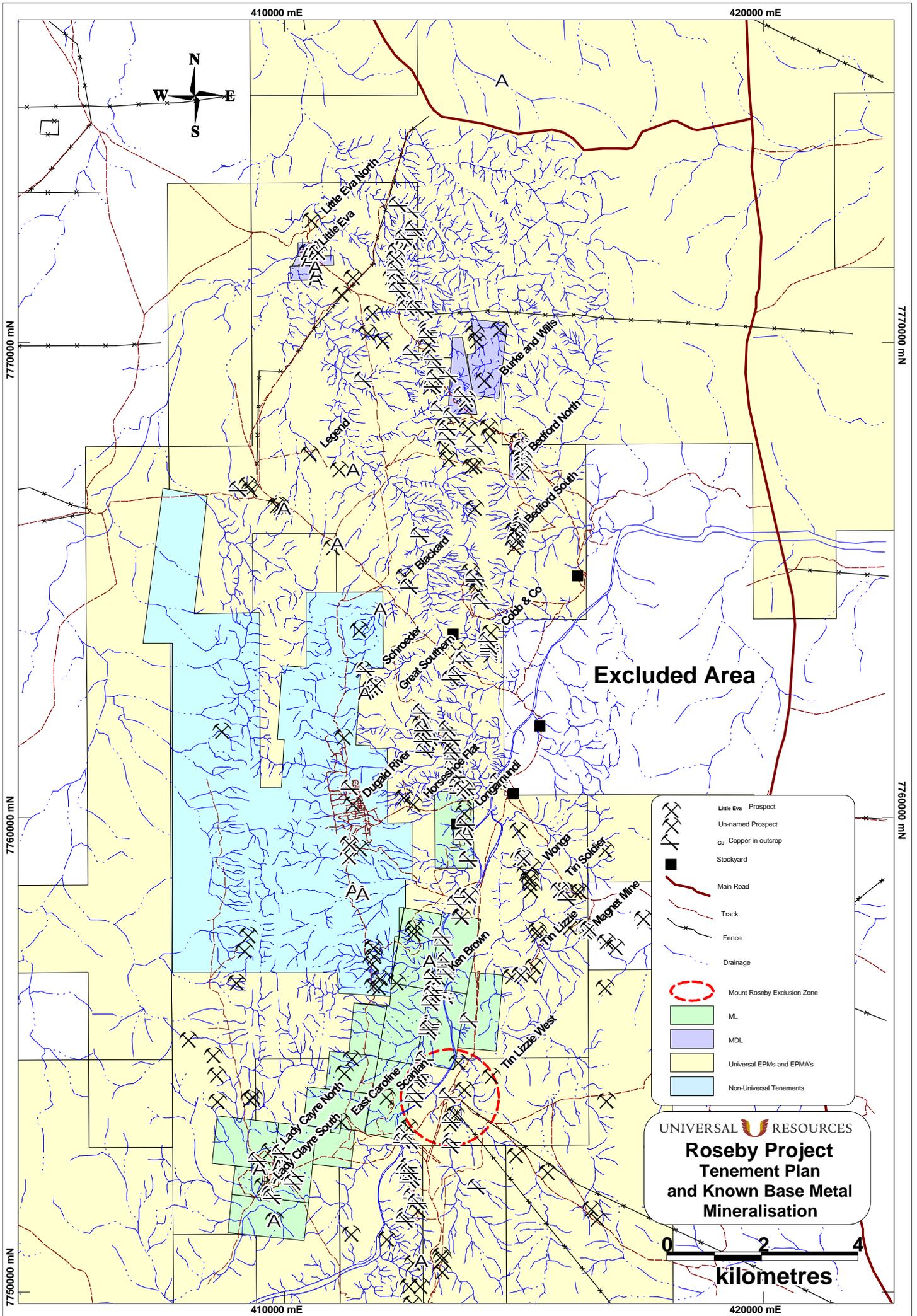
The proposed MLA for the Project is shown in Figure 2. Surrounding land tenures for the Project site are shown in Figure 5. It can be seen from this Figure that within the Project area, existing Mining Leases (MLs) and Mineral Development Leases (MDLs) occur (Table 9). To the west of the Project are MLs held by Pasminco Australia Limited, which are referred to as the Dugald River Project. There have been extensive exploration activities conducted over and surrounding the Project area, most recently by the Logistics/Universal joint venture and previously by Pasminco Australia Limited.

A Mineral Freehold tenement (MF 13961) referred to as Longamundi occurs within the proposed MLA boundary and is owned by Universal.

Universal holds current Mining Leases over the deposits Longamundi, Ken Brown, Scanlan, Caroline and Lady Clayre. These Mining Leases are described in Table 9 below. It is proposed to apply for a further Mining Lease(s) which encompasses the wider Project area.

TABLE 9: MLs and MDLs Over the Project Area

Tenement Number	Tenement Name
ML 2600	Dugald River 58
ML 2647	Lady Clayre/Rodex 1
ML 2648	Lady Clayre/Rodex 2
ML 2649	Lady Clayre/Rodex 3
ML 2650	Lady Clayre/Rodex 4
ML 2651	Lady Clayre/Rodex 5
ML 2652	Rodex 6
ML 2653	Rodex 7
ML 2654	Rodex 8
ML 2655	Rodex 9
ML 2581	Scanlan 1
ML 2582	Scanlan 2
ML 2583	Scanlan 3
ML 2584	Scanlan 4
ML 2585	Scanlan 5
ML 7497	Longamundi
ML 90048	Longamundi 2
ML 90052	Scanlan 7
ML 90053	Scanlan 8
ML 90054	Scanlan 9
ML 90055	Caroline revised
ML 90056	Rodex 10
MDL 12	Little Eva
MDL 80	Roseby
MDL 81	Bedford
MDL 82	Green Hills
MDL 83	LE Revised; Ins No 1 & 2
MDL 84	LE Insurance No 3



Excluded Area

	Little Eva Prospect
	Un-named Prospect
	Cu Copper in outcrop
	Stockyard
	Main Road
	Track
	Fence
	Drainage
	Mount Roseby Exclusion Zone
	ML
	MDL
	Universal EPMS and EPMA's
	Non-Universal Tenements

UNIVERSAL RESOURCES
Roseby Project
Tenement Plan
and Known Base Metal
Mineralisation



410000 mE

420000 mE

7770000 mN

7770000 mN

7760000 mN

7760000 mN

7750000 mN

410000 mE

420000 mE

3.13 REHABILITATION STRATEGY

Land disturbance on the Project will be a temporary impact only, during the construction and operational phases of the Project. All land disturbances on the Project will be rehabilitated either progressively, where possible, or on decommissioning to reduce and eliminate any potential environmental impacts.

It is proposed to return the majority of the Project area back to its pre-mining land capability of Class VII and a land use of low intensity grazing (native pastures). An exception to the post-mine land capability of Class VII is in regard to the final voids which will be utilised as water storages for pastoral activities on decommissioning, given that the water quality in these voids is acceptable for stock drinking water. The land capability of these voids will be Class VIII.

Topsoil will be stripped and stockpiled from disturbed areas for re-use in the rehabilitation program to provide a seed bank and growth media for revegetation activities.

Ongoing revegetation and erosion monitoring of rehabilitation works will be conducted on an annual basis to ensure that rehabilitated areas are progressing towards the completion criteria for rehabilitated landforms and the land use of low intensity grazing.

3.13.1 Waste Rock Dumps

There will be at least 8 waste rock dumps constructed on the Project which will have a height of approximately 40 m. The surrounding Knapdale Range and Mt Rose Bee rise to 120 m and 105 m respectively above the plains of the Project area. Therefore, the waste rock dumps will be much lower than these dominant natural features. The rehabilitation strategy for the waste rock dumps will include reducing the slope of the faces of the dumps from the angle of repose to approximately 33% or 18 degrees. This strategy will help prevent erosion of the slopes of the waste rock dump, promote the establishment of vegetation and assist with the blending of the waste rock dump with the surrounding topography. The waste rock dumps will also be topsoiled (were available) and seeded with a variety of local plant species to establish native vegetation.

3.13.2 Final Voids

There will be twelve final voids. These will be used for water storage for pastoral activities if water quality permits, otherwise they will be bunded and/or fenced.

These water storages will provide a valuable source of water to the pastoralist which will far out way the loss of the grazing land which they occupy. The area to be covered by final



voids may be reduced if backfilling of these voids with waste rock or tailings proves feasible. Should the water quality of these final voids not be suitable for stock drinking water then the voids will be bunded as per the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* and fenced to prevent stock or native fauna access.

Consultation with the landholders will be conducted regarding retention of final voids as water storages for use as stock drinking water and the retention of access roads and tracks.

3.13.3 Tailings Storage Facility

The TSF will occupy approximately 500 ha of land. On decommissioning, the surface of the TSF will be capped and/or topsoiled depending on the results of investigations into decommissioning of this facility. The surface and slopes of the facility will be seeded with a variety of local plant species to establish native vegetation.

3.14 ENVIRONMENTALLY RELEVANT ACTIVITIES

Table 10 lists activities proposed for the Project that would otherwise be Environmentally Relevant Activities (ERAs).

TABLE 10: ERAs Associated with the Project

ITEM (ERA Schedule No.)	Estimated Level/Usage	Trigger Criteria	Level	License Fee
ERA 7(b) Chemical Storage	Storage of process reagents	>1,000 m ³	1	\$1,740
ERA 11(b) Crude Oil or Petroleum Product Storing	Storage of diesel for earthmoving equipment and potential power station	=500,000 litres	1	\$1,740
ERA 15(a) Sewage Treatment Operation	100-150	>100 persons <1500 persons	1	\$1,500
ERA 17 Electricity and fuel burning	Earthmoving equipment and potential power station	>500 kg/hour	1	\$3,000



ERA 18 Power Station (b)	10MW or more	>10MW	1	\$14,940
ERA 41(b) Metal Works	Potential downstream processing, producing copper anode/cathode	>100 t <10,000 t	1	\$3,140
ERA 42 (a) Mineral Processing	50,000-70,000 tpa copper concentrate 20-25,000 ounces per year gold	> 1,000 t <100,000 t	1	\$3,140
ERA 75(a)(i) Waste Disposal	<2,000 t domestic waste disposal	>50 t < 2,000 t per year	1	\$500
ERA 75(b)(iv) Regulated Waste Disposal Facility	Waste rock and tailings disposal	=200,000 t per year	1	\$10,000
ERA 84(b) Regulated Waste Storage	Waste oil and tyre storage	-	1	\$2,000

4. COMMUNITY CONSULTATION

4.1 INTERESTED PERSONS

The following definition of interested persons has been taken from the QEPA *Guideline 12 – The EIS Process for Non-standard Mining Projects*.

“Interested persons are defined as persons nominated by the proponent that have an interest in the Project. Interested persons may include a local community progress association, a local/state/national environmental action group, and affected land users other than land holders, any person who might have a substantial interest in the project or its impact.”

Interested persons in the Project in the Cloncurry region have been identified by using local community directories, speaking with the Cloncurry Shire Council and the Cloncurry branch of DNRM. These interested persons may include, but not be limited to the following groups as stated in Table 11 below.

4.2 **AFFECTED PERSONS**

A definition of an affected person is provided in QEPA Guideline 12 – The EIS Process for Non-standard Mining Projects and is shown below:

A person is an “affected person” for a project (s38) if the person is:

(1) any of the following under the Native Title Act 1993 (Commonwealth) for the operational land or for an area that includes any of the land:

- (a) a registered native title body corporate;
- (b) a registered native title claimant;
- (c) a representative Aboriginal/Torres Strait Islander body; or

(2) a relevant local government for the operational land; or

(3) a person mentioned below for the operational land or any land joining it:

- (a) a registered proprietor - for freehold land;
- (b) a person recorded in the register as the registered holder of the interest - for land that is held from the State for an estate or interest less than fee simple and for which the interest is recorded in a register mentioned in the Land Act 1994 (Land Act), section 276;
- (c) a holder of, or an applicant for, the tenement - for land subject to a mining claim, mineral development licence or mining lease;
- (d) a holder of the authority; or a lessee under the lease; or a licensee under the licence - for land subject to an authority to prospect or a lease or licence under the Petroleum Act 1923;
- (e) a trustee of the land - for land under the Land Act or the Nature Conservation Act 1992 (NCA) for which there are trustees;
- (f) a grantee of the land - for Aboriginal land under the Aboriginal Land Act 1991 (ALA) that is taken to be a reserve because of section 87(2) or 87(4)(b) of that Act;
- (g) a trustee for the land - for DOGIT land under the ALA or the Torres Strait Islander Land Act 1991;



(h) a relevant local government - for land held under a lease under the Local Government (Aboriginal Lands) Act 1978, section 6;

(i) a grantee of the land - for Torres Strait Islander land under the Torres Strait Islander Land Act 1991 that is taken to be a reserve because of section 84(2) or 84(4)(b) of that Act;

(j) a trustee of the land - for land under a lease from the State under the Aborigines and Torres Strait Islanders (Land Holding) Act 1985 that has been excised from land granted in trust for Aboriginal or Torres Strait Islander purposes under the Land Act;

(k) the State - for land that is any of the following:

– unallocated State land;

– a reserve under the Land Act for which there is no trustee;

– a national park, national park (Aboriginal land), national park (scientific), national park (Torres Strait Islander land), national park (recovery) or forest reserve under the NCA;

– a conservation park under the NCA for which there are no trustees;

– a State forest or timber reserve under the Forestry Act 1959;

– a State-controlled road under the Transport Infrastructure Act 1994;

– a fish habitat area under the Fisheries Act 1994.

– another person prescribed under a regulation to the EP Act.

4.3 CONSULTATION PROCESS

Affected and interested persons will be included in the community consultation program for the Project and will be provided with a copy of the TOR Notice and EIS for public comment. The community consultation program will include meetings with affected and interested persons as required. All correspondence with interested and affected persons will be recorded in the Consultation Report as a part of the EIS.

The draft TOR will be released for public comment, and to interested and affected persons, and advisory bodies for at least 30 business days. Anyone can make comments on the draft TOR to the QEPA. At the end of the comment period, copies of all comments received by the QEPA will be given to the proponent. Universal will then prepare the following:



- ◆ A written summary of the comments;
- ◆ A response to the comments; and
- ◆ Proposed amendments to the TOR as a result of the comments received.

The above information must be provided by Universal to the QEPA within 20 business days of receiving copies of the documents. However, a longer period of time can be agreed between Universal and the QEPA. The QEPA will then prepare and publish the final TOR based on the responses from Universal within 20 business days.

Universal will then undertake the necessary assessments, research and consultations to prepare the EIS, in accordance with the TOR. The EIS will support an application for Project approvals, in particular an Environmental Authority (EA).

Universal will submit the completed EIS to the QEPA. The QEPA will then assess the EIS and decide whether or not it adequately addresses the published TOR. If it does, Universal must then publish an EIS Notice and give a copy of the EIS Notice to each affected and interested person. The submission period for public comment will be set by the QEPA and must be at least 20 business days. Copies of the EIS will be made available to all interested and affected persons and Advisory Bodies. The QEPA will accept all properly-made submissions received during the submission period. The QEPA will provide Universal with a copy of all the submissions received on the EIS. Universal must then prepare a response to the submissions and make any necessary amendments to the submitted EIS.

The QEPA will prepare and give an EIS Assessment Report to Universal. This Assessment Report will consider the final TOR, the submitted EIS, all properly made submissions, Universal responses to submissions and the standard criteria in preparing the EIS Assessment Report. The Assessment Report will, among other things, recommend any relevant conditions that will be necessary for the Project to proceed.

5. BIBLIOGRAPHY

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