MOUNT ISA MINES LTD

NOTICE OF INTENT FOR

MCARTHUR RIVER MINING EXPANSION PROJECT

07 JANUARY 2003

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1 INTRODUCTION

This Notice of Intent (NOI) documents the intention of Mount Isa Mines Limited (ISA), a subsidiary of M.I.M. Holdings Limited, to apply for the environmental approvals for the expansion of the existing McArthur River zinc/lead/silver mining and processing operation and development of a zinc refinery and associated infrastructure. The McArthur River Mine is located in the Northern Territory and is accessed by sealed road from Daly Waters to the west and from the Barkly Highway 350km to the south. The proposal is to produce zinc metal at the Minesite using local ore won from an open pit mining operation to allow full resource utilisation. Zinc will be processed by utilising current techniques and installing the Albion Process to convert concentrate to zinc cathode metal. Current information and testing indicates that the orebody can support a large-scale project. It is envisaged that the project will be developed in stages with the current underground mine being phased out and a new open pit phased in to a total annual capacity of 4.8 Mt of ore mined and 456 Kt of zinc metal produced.

The project environmental management will be significantly assisted by the current operational knowledge of the existing environment. In the case of some key aspects of the project, such as power generation, options will be developed and determined through the feasibility study. Environmental focus for the project will explore the mitigation of the potential environmental aspects associated with the following operational requirements:

- Open pit mining;
- Waste rock dump;
- McArthur River diversion;
- Additional water supply primarily from the Glyde and McArthur Rivers';
- Tailing storage facility extension;
- Processing plant and refinery;
- Power station at the minesite (gas or coal fired);
- Building a temporary construction camp and extension to the existing accommodation facility; and
- Development of a limestone quarry.

2 BACKGROUND

2.1 Project Owners

The current McArthur River Mining Project is operated as an unincorporated joint venture governed by the McArthur River Joint Venture Agreement dated April 1994 between Mount Isa Mines Ltd (75%) and ANT Minerals Pty Ltd (25%). Participants in the expanded McArthur River Mining project and zinc refinery will at least include ISA.

Contact Details

MIM Holdings Limited

Level 3 West Tower

410 Ann Street

Brisbane, Qld. Australia, 4001

Telephone: 07 3833 8220

Fax: 07 38338215

E-mail: peter.thompson@mim.com.au

Contact: Mr Peter Thompson, General Manager Zinc Development

The primary contact for the environmental assessment process is Greg Morris who is based in the Brisbane Office of MIM.

Telephone: 07 3833 8377

Fax: 07 3833 8215

E-mail: greg.morris@mim.com.au

Contact: Mr Greg Morris, Group Environmental Adviser

McArthur River Mining Pty. Ltd.

34a Bishop Street

Stuart Park, NT. Australia, 0820

Telephone: 08 8975 8166

Fax: 08 8975 8170

E-mail: brian.hearne@mim.com.au

Contact: Mr Brian Hearne, General Manager McArthur River Mining

2.2 Location

The McArthur River Mine is located 45 kilometres south west of the township of Borroloola in the Gulf Region of the Northern Territory, approximately midway between Darwin and Mount Isa (Figure1).

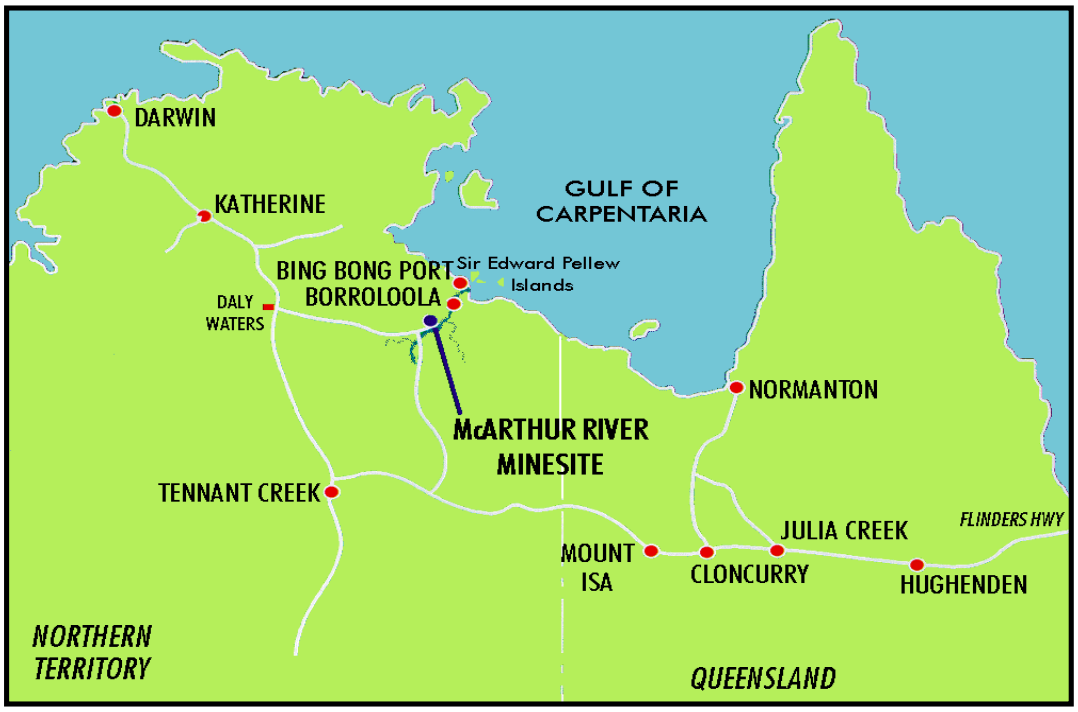

Figure 1: Location of the McArthur River Mine

2.3 Tenements

The operation spans seven individual mineral leases (Table 1). The mine site is contained within five contiguous leases (N1121, N1122, N1123, N1124 & N1125), located on McArthur River Station Pastoral Lease. Also on McArthur River station Pastoral Lease is the minor mineral lease N582. The Bing Bong facility is situated on Mineral Lease N1126, located on the Bing Bong Pastoral Lease. Adjacent to the Bing Bong Mineral Lease is the Bing Bong Dredge Spoil emplacement, located on the Non-Pastoral Land Use Approval NP022. The bulk of the mine's infrastructure is located on Barney Hill, on the western end of MLN1122. The general locations of the mineral leases are depicted in Figure 2. The layout of the McArthur River Mine Site Leases are shown in Figure 3. There are no tenement applications for this NOI.

Table 1: McArthur River Mineral Leases

LEASE TYPE	NAME	LEASE No.	OWNERSHIP	EXPIRY DATE
Mining	HYC	MLN1121	Joint Venture	5/1/2018
Mining	GLYDE	MLN1122	ISA	5/1/2018
Mining	BUFFALO	MLN1123	ISA	5/1/2018
Mining	EMU	MLN1124	ISA	5/1/2018
Mining	EMU EAST	MLN1125	Joint Venture	5/1/2018
Mining	BING BONG PORT	MLN1126	Joint Venture	5/1/2018
Mining	Batten	MLN582	ISA	31/12/2019
Pastoral*	Dredge Spoil	NP022	ISA	31/12/2002

*Non-Pastoral Land Use Approval NP022 – extension currently being sought

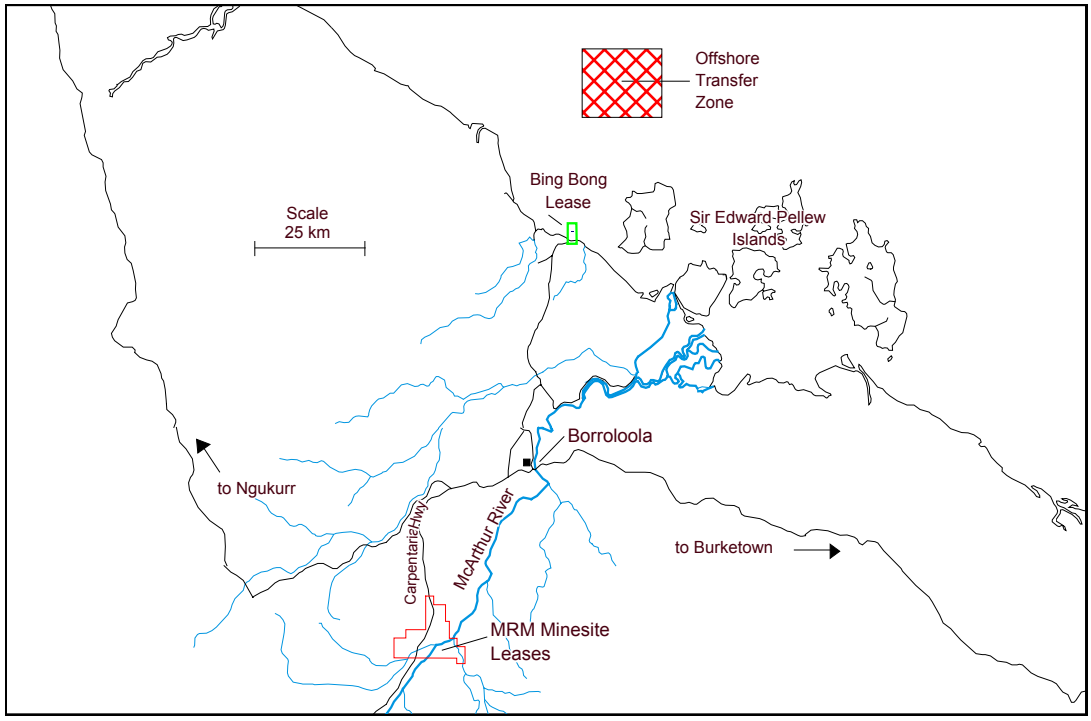

Figure 2: Location of McArthur River Mine and Bing Bong Port

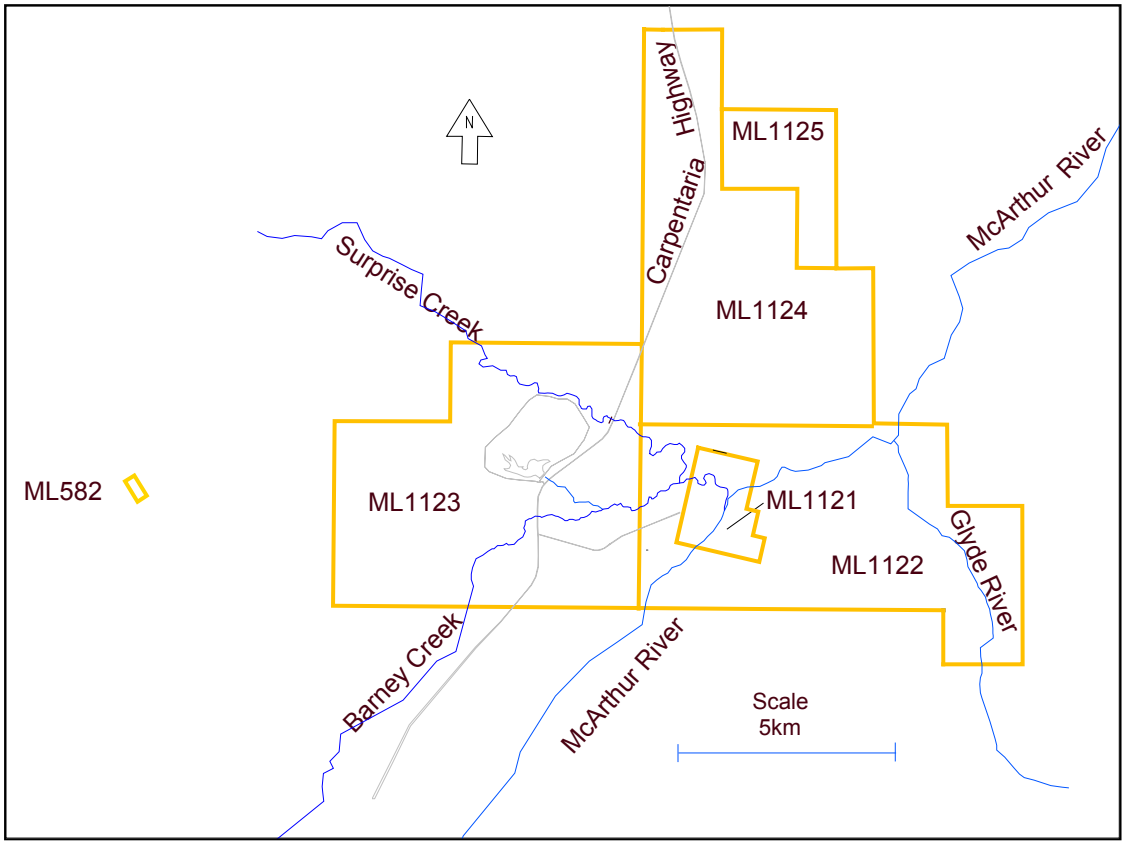

Figure 3: Layout of McArthur River Mine Mineral Leases

2.4 MRM Project History

McArthur River Mine is a major underground operation, which is mining one of the largest known sedimentary stratiform zinc-lead-silver deposits. The orebodies making up the deposit, named Here's Your Chance (HYC), were discovered by Mount Isa Mines Limited geologists in 1955, but development did not commence until 1995. This gap in time between the deposit's discovery and development resulted from the unusual structure and extensive faulting of the orebodies and the extremely fine-grained nature of the ore, which combined to make commercial exploitation of the resource unfeasible for many years. A number of technological advancements in mining, ore treatment and concentrate transport, were necessary before the project could proceed on an economic basis. Trial work failed to develop an economically viable technique of ore beneficiation in the 1960's and 1970's.

A small decline and pilot plant were constructed on site in 1975, with the consequent preparation of a feasibility study and environmental report in 1979. That study was based on a high-tonnage, open-pit operation. In addition to poor recovery rates, no market existed at that time for the low-grade lead and zinc concentrates produced by the

pilot plant. Subsequent metallurgical developments in fine grinding technology and the emergence of a market for high-grade bulk concentrate for use by smelters using the Imperial Smelting Process (ISP) technique.

Construction of the current project commenced in 1994, with the first shipment of concentrate loaded in mid-1995. McArthur River Mining produces around 360,000 tonnes of bulk lead concentrate (containing payable zinc, lead and silver) for overseas and domestic markets.

The total workforce is currently 330 permanent personnel. Most production employees work a 7 days on/ 7 days off roster, with most support & management staff working a 5/2,4/3 roster.

An overview of the current McArthur River minesite area is shown in Figure 4.

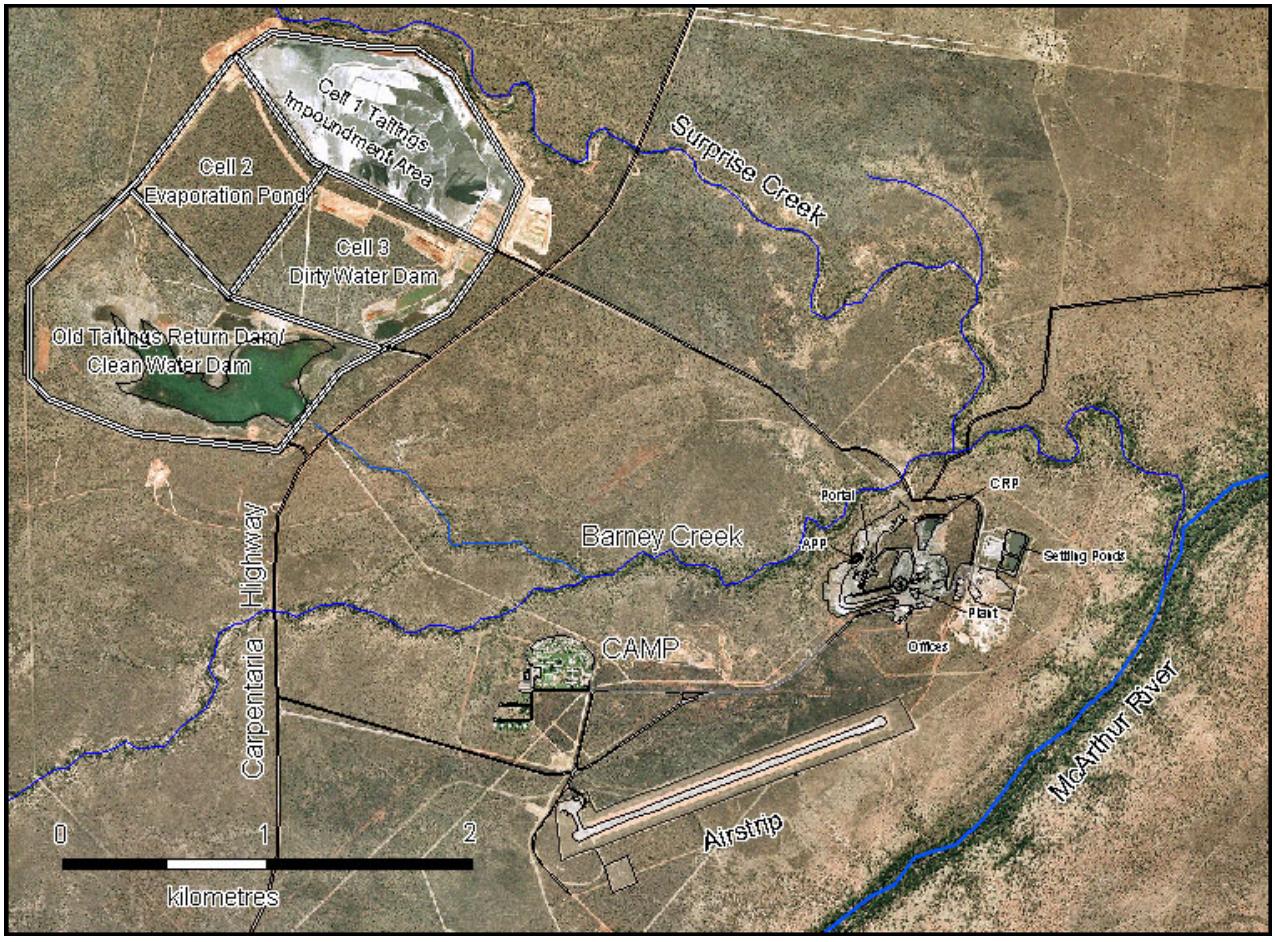

Figure 4: McArthur River Minesite Overview of Existing Operations

3 EXISTING ENVIRONMENT

An approved environmental monitoring program has been conducted annually since the mining operation commenced at McArthur River Mining. The Environmental Impact Assessment was completed in 1993 and identified potential areas of impact. Subsequent monitoring and evaluation of the mining activities potential impact has been developed from the environmental risks identified in the EIS. McArthur River Mining currently monitors surface water (McArthur River, Surprise Creek, and Barney Creek), groundwater, artificial surface waters, sea water, potable water, marine sediment, stream sediment, dust, soil, noise, rehabilitation (vegetation and soil profile), marine flora and fauna, waste management aspects, meteorological and greenhouse gas emissions.

3.1 Geology

The McArthur Basin comprises Carpentarian and Adelaidean rocks extending from the Alligator river in the Northern Territory to the Queensland border including the greater part of Arnhem Land and the Gulf of Carpentaria drainage region.

The sediment hosted stratiform HYC deposit has similarities with ore-bodies at Mount Isa and Hilton in Queensland. It is about 1.5km long and 1.0km wide with an average thickness of 55m.

The sediment hosted stratiform HYC deposit occurs near the base of the HYC pyritic shale member, within the Middle Proterozoic McArthur Group. The member comprises a sequence of inter-bedded pyritic bituminous dolomitic siltstones, sedimentary breccias and volcanic tuffs.

The HYC deposit has been folded and eroded along its western margin, which is covered with 30m of soil. This western margin contains the Hinge ore zone, which is sub-vertical with a strike length of 1.0km and vertical height of 200m. The northern margins inter-finger with sedimentary breccias and the southern margin grades into thinned nodular barren pyritic siltstone. On the eastern margin the ore-body thickens and is folded to form the Fold Zone, which has a strike length of over 600m. The southeastern corner is down faulted 110m by the northeastern trending Woyzbun Fault.

3.2 Climate

The climate of the McArthur River region is tropical monsoonal, with a pronounced wet season between December and March and generally dry conditions for the remainder of the year, although a build-up to the wet season with some rain often occurs during November.

Mean annual rainfall for the mine site is 715mm with the area around the port at Bing Bong receiving a mean annual total of 1040mm. Mean annual evaporation varies from 3,000mm at the mine site to around 2,300mm at the coast. Average daily minimum and maximum temperatures for McArthur River are 12°C to 29°C in June whilst in December they range from 25°C to 38°C.

Winds during the dry season blow predominantly from the southeast to south in the morning and change to blow from the east to northeast in the afternoon. During the wet season, there is no predominant wind direction in the morning, whilst in the afternoon, winds predominate from the north to east. McArthur River has more calm observations than those in coastal locations (Draft Environmental Impact Statement 1992) (DEIS1992).

Extreme events include cyclones, floods, droughts and fire. Cyclones are an annual threat to coastal areas in the Gulf region. The McArthur River Minesite is outside the cyclone risk area but is affected by the tropical low pressure systems that can result in flooding. Flooding is an annual risk at McArthur River. Gross departures from the normal annual cycle are possible. Regionally there is a high risk of dry season fires. Minesite surrounds are control burnt approximately every two to three years to reduce this risk.

3.3 Physiography and Hydrology

The mine site is situated adjacent to the McArthur River, in the middle reaches of the river's catchment, between the confluences of the Kilgour and Glyde Rivers. The catchment area of the river above the mine site is approximately 10,000km^2. The 100 year average recurrence interval (ARI) flood level at the mine site is 39.5 metres. All major infrastructure on the site is located above this level. With the exception of some spring fed tributaries, most of the flow of the McArthur River comes from wet season rains. The river ceases to flow in some dry seasons, and most stretches, particularly in the vicinity of the mine area, can dry to a series of large isolated pools. During the wet season the river can become extremely turbid when in flood. Flow data for the McArthur River in terms of ARI is 7,250 (m^3/s) for 1 in 100 year event (RL 40 m), whilst 1,000 (m^3/s) for 1 in 2 year event (DEIS, 1992).

The main creek systems which bound the tailings and mine site, are Barney and Surprise Creeks. Barney Creek has a catchment area of 600km^2 at the mine site. The creeks are dry throughout most of the year. This is particularly the case for Surprise Creek, which has a catchment size of only 85km^2, and normally flows for only a few days each wet season.

Water quality in the McArthur River has been unaffected by the mining activity. Upstream and downstream water quality is similar and contains background levels of lead and zinc due to mineralisation containing these metals upstream of the minesite. Water quality monitoring and visual appraisal of the ephemeral creeks on the minesite show that they are not being significantly impacted by heavy metals. Surprise Creek is showing increased levels of sulphates related to tailings seepage into groundwater but no significant biological impacts on this creek system have been identified to date.

McArthur River mine site has two main aquifers in the immediate vicinity, the alluvial aquifer and the lower fault aquifer. The alluvial aquifer is readily linked to the McArthur River and contains good quality fresh water. The faults in the dolomite and shales contain groundwater that is linked to the alluvial aquifer in part. Dewatering of the current underground mining operation and borefields has had no observable impact on the hydrology or ecology of the McArthur River. Emu borefield is located in the Emu fault zone.

The dominant relief is low escarpments, plateaux and ridges, with limestone or dolomite rocks of Palaeozoic age or older in the western part of the McArthur River catchment upstream of the project site, and sandstone and conglomerate rocks in the eastern sub-catchments, including the Kilgour and Glyde Rivers.

Mining development has had minimal impact on the physical aspects of the region. Barney Hill, where the mine portal, processing and infrastructure are located has been built into an elevated hardstand area from the underground mine decline material. This area drains into special purpose collection ponds to retain catchment water. The tailings storage facility is located adjacent to the Carpentaria Highway. This structure stands approximately 10 metres high over 83 hectares. Current disturbance for McArthur River Mining Leases totals 455 hectares, which represents 3.5% of mining lease area.

3.4 Land Use

Land use is predominantly cattle grazing on large pastoral properties and the occasional mining activity. Encompassing all mining leases is McArthur River Station, which is 100% owned by Colinta Holdings, an MIM Holdings subsidiary. Other regional pastoral enterprises are owned by private persons, companies, and Aboriginal groups.

McArthur River Station stocks approximately 10,000 head of cattle over 8,000 square kilometres, utilising approximately one third of the area for grazing. Cattle have been excluded from the Barney Hill mining and processing areas.

McArthur River Mine is located in one of the more sparsely populated areas of Northern Australia. Populations of townships fluctuate with people leaving outstations in the wet season.

Borroloola Township has a total population of approximately 600 with the majority of the workforce employed in either fishing, retailing or government sectors. The rural workforce is mainly employed in the pastoral industry and in mining.

Local employment and training opportunities, together with transportation and provision of services, are currently the most important economic links between MRM and the community. MRM has had a positive input into the local community development to date in terms of health development, general and specialised eduction, financial, and employment. MRM has also entered into a business arrangement with the local aboriginal corporation (MAWA). The impact on pastoral properties is considered negligible with the exception of the flow-on effects from the provision of additional services for the area.

3.5 Terrestrial Flora

The botany of the project area is characterised as being complex, with a high number of community types, with relatively low numbers of constituent species. In the mine site area, 16 plant communities have been recognised ranging from tall closed grasslands to tall closed forest.

Being located at the edge of a coastal plain, the vegetation communities at Bing Bong are substantially different to those around the mine site. The coastal plain consists largely of poorly drained clay soils dominated by open woodland communities. Along the coast, cheniers composed of sand and shell deposits cast up by cyclones are interspersed with salt-flats.

The surveys undertaken as part of the DEIS (1992) revealed no plants of rare or endangered status. There has been no additional significant species found to date. Two species were identified as regionally uncommon in the Gulf.

Species richness and diversity values of vegetation are not regionally great. 280 species were recorded prior to 1992, 73 of which were recorded at the port site or transport corridor.

Weeds are common on the mining leases including Noogoora Burr, Devil's Claw, Bellyache Bush, and Parkinsonia particularly in those areas disturbed by grazing.

3.6 Terrestrial Fauna

Insect fauna has been described in the DEIS (1992) as rich (over 5,000 species) and diverse reflecting the wide range of habitats available. The survey areas were considered unlikely to include restricted species.

Frog fauna did not include any species that were not widely distributed.

18 reptile species have been recorded around the minesite area during the March 1992 survey, with a total of 57 species known to occur in similar habitats as those present on the mine site. The freshwater crocodile and Storr's Monitor were determined to be of minor significance due to the potential nesting sites and regionally limited distribution respectively.

278 bird species have been recorded in the region. Within the minesite, the Riverine and Woodland habitats contain the greatest species richness. A few species were more restricted in occurrence. The Golden-headed Cisticola and the Chestnut-breasted Finch were observed only in grassland. The Purple-Crowned Fairy-Wren was recorded in only one location in Riverine (specifically paperbark) Forest habitat along the McArthur River and was the only bird species of interest recorded on the mine site. This bird is currently listed as vulnerable (EPBC Act) in 2002 and has been sited on the mine lease area. The Gouldian Finch is currently listed as endangered (EPBC Act) in 2002 but has never been seen on the mining leases.

32 mammal species are known to potentially occur on the mine site area. 9 species were recorded during the 1992 survey. No mammals of significance have been identified.

Based on previous studies no endangered or vulnerable species were reported to occur within the area affected by the proposed development. Recently (October 2002) the NT Government has reissued a list of NT threatened species which includes several species that are known to be present in the proposed development area. These include the endangered Carpentarian Grasswren and the vulnerable Red Goshawk whilst two small mammals, the Carpentarian Dibbler and the Carpentarian Rock-Rat, may be present in the Glyde River area although they have not been recorded there.

Identified feral animals particularly of note are pigs, feral cats, donkeys, horses, buffalo and cane toads.

3.7 Aquatic Biology

During the DEIS (1992), the aquatic ecology of the McArthur River system was described. The McArthur River has an apparent low species richness of freshwater

fishes when compared to other systems in the Gulf drainage division. The low species richness is possibly due to the non-perennial nature of the system and the low diversity of habitats available. There are four broad aquatic habitats in the region: the McArthur River and its tributaries, permanent spring-fed refuge pools (particularly the Glyde headwaters), off river Billabongs (such as Caranbirini Waterhole), and ephemeral streams. All of the fish species recorded to date have widespread distributions. Studies on the Glyde River have been limited and have focussed on the Merlin mining development (located upstream). Downstream, in the McArthur River, fish are exploited for commercial and recreational purposes.

3.8 Aboriginal & Heritage Sites

No identified sacred areas have been impacted during the life of the current operation. There is no planned impact with the expanded operations on identified sacred sites. Some sites are close to the open pit operation and will be protected during the future of the operation. Appropriate studies of the Glyde River and McArthur River inundation zones and review of the minesite are necessary as a component of the approvals sought under the NT legislation. Traditional owners and representative bodies will be consulted as a component of this program.

3.9 Cultural Heritage

The project is on lands traditionally used by the Gudanji, Binbinga, and Yanyula people.

Although areas of land are identified as belonging to particular language and family groups, other groups may have important traditional interests in that land.

Borroloola and its immediate surrounds have residents from a number of Aboriginal groups and include the Garawa, Mara, and Alawa people. Not all of these groups are traditional owners of lands likely to be directly affected through mine development.

A number of Aboriginal site investigation studies have been undertaken and agreements made with the traditional owners for the current mining lease approvals.

4 DESCRIPTION OF PROPOSAL

4.1 Mining Methodology

4.1.1 Current Mining method

Current ore recovery at McArthur River is by way of a number of mining methods. Mining to date has focused on the No 2 ore-body, which is near the bottom of the mineralised package. The No 2 ore-body has principally been mined by room and pillar mining, at depths ranging from 60 metres below the surface on the western side to over 400m deep on the eastern side of the deposit. The underground mine will increasingly exploit the No 4 ore-body and the No 3 upper ore-bodies as the No 2 ore-body is depleted. The No 4 ore-body is approximately 20m above the No 2 ore-body. Current plans aim to mine these ore-bodies by open stoping methods. Ore is blasted into the No 2 ore-body level and then loaded into diesel powered trucks and hauled to the underground crushing and conveying system. The ore is then transported to the surface mill stockpile on a conveyor in an access tunnel at a gradient of 1:5.4. The current mining and milling rate is 1.5Mtpa. Further tunnel access development is now underway to mine parts of the Woyzbun ore block by the open stoping method.

4.1.2 Proposed Mining Method

ISA is currently investigating the feasibility of developing the HYC ore deposit by the open pit mining method. Previously ISA completed open pit investigations in a feasibility study in 1979. This study was to market a concentrate product and the result was seen to be not feasible at that time. The current study has the advantage of significant technology advances and the current strategy is to make zinc metal on site rather than to sell bulk concentrate. Recent scoping study work by ISA indicates this is significantly more viable than the current operation.

The scoping study demonstrates that having the ability to produce zinc cathode metal on site via the Albion Process significantly changes the economics of the McArthur River orebody. The scoping study of the open pit development shows that the likely mining reserve would be approximately 160Mt compared to the current underground reserves of 40Mt.

The open pit development option comprises a conventional staged open pit development of the HYC deposit. The open pit mining rate would be around 4.8Mtpa of ore which is expected to significantly enhance the economic outcomes compared with the current operation. This may commence while the current underground operations are still in progress to ensure continuity of ore supply to the mill. The operation would commence

with the construction of a diversion of the McArthur River and construction of a bund wall to protect the future pit workings from inundation during localised wet season flooding. Mining would be by a fleet of conventional rope shovels, hydraulic excavators and large haul trucks. The mining rate would peak at around 60Mtpa and the project life would be around 35 years. The overlying alluvial cover material will be progressively mined as needed and placed on areas designated for rehabilitation such as the waste rock storage facility. The ultimate pit is likely to be approximately 420m deep, 1600m long by1400m wide, with an area of around 200 Ha. A possible pit outline is indicated in Figure 5. The pit will be developed progressively in a set of stages. One possible scenario is shown in Figure 6.

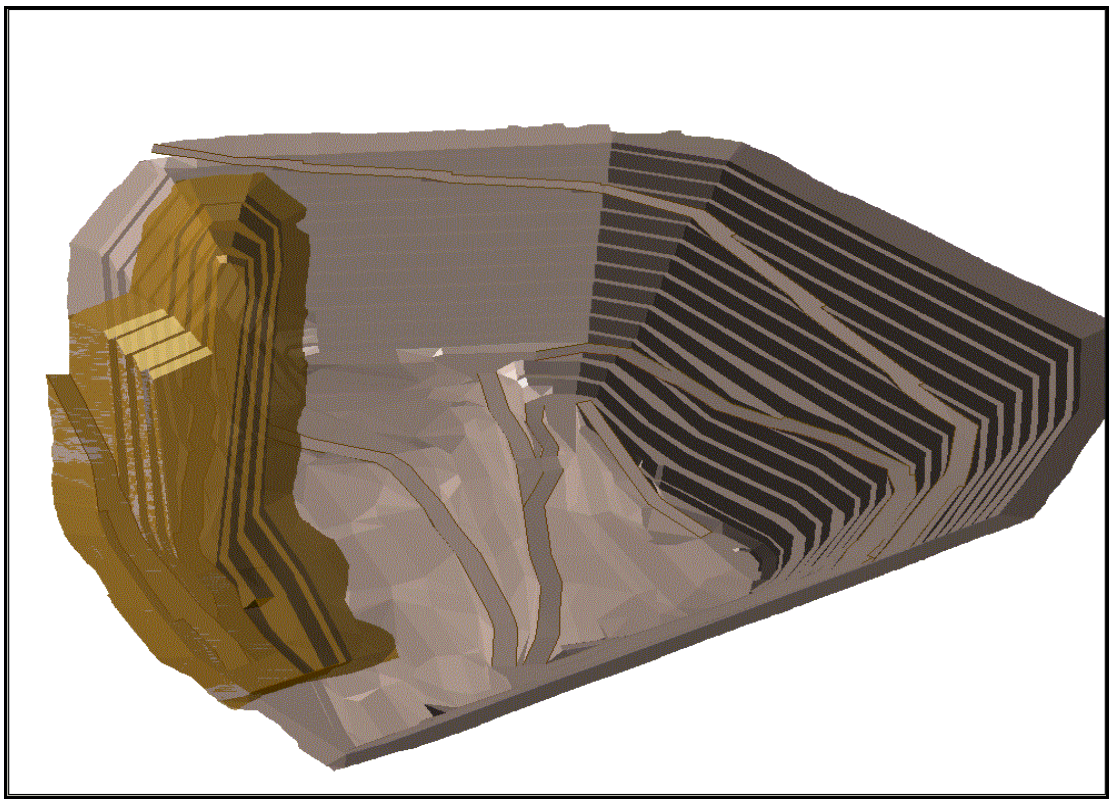

Figure 5: 3D-view Looking North, Showing Possible Starter Pit and Final Pit Shapes.

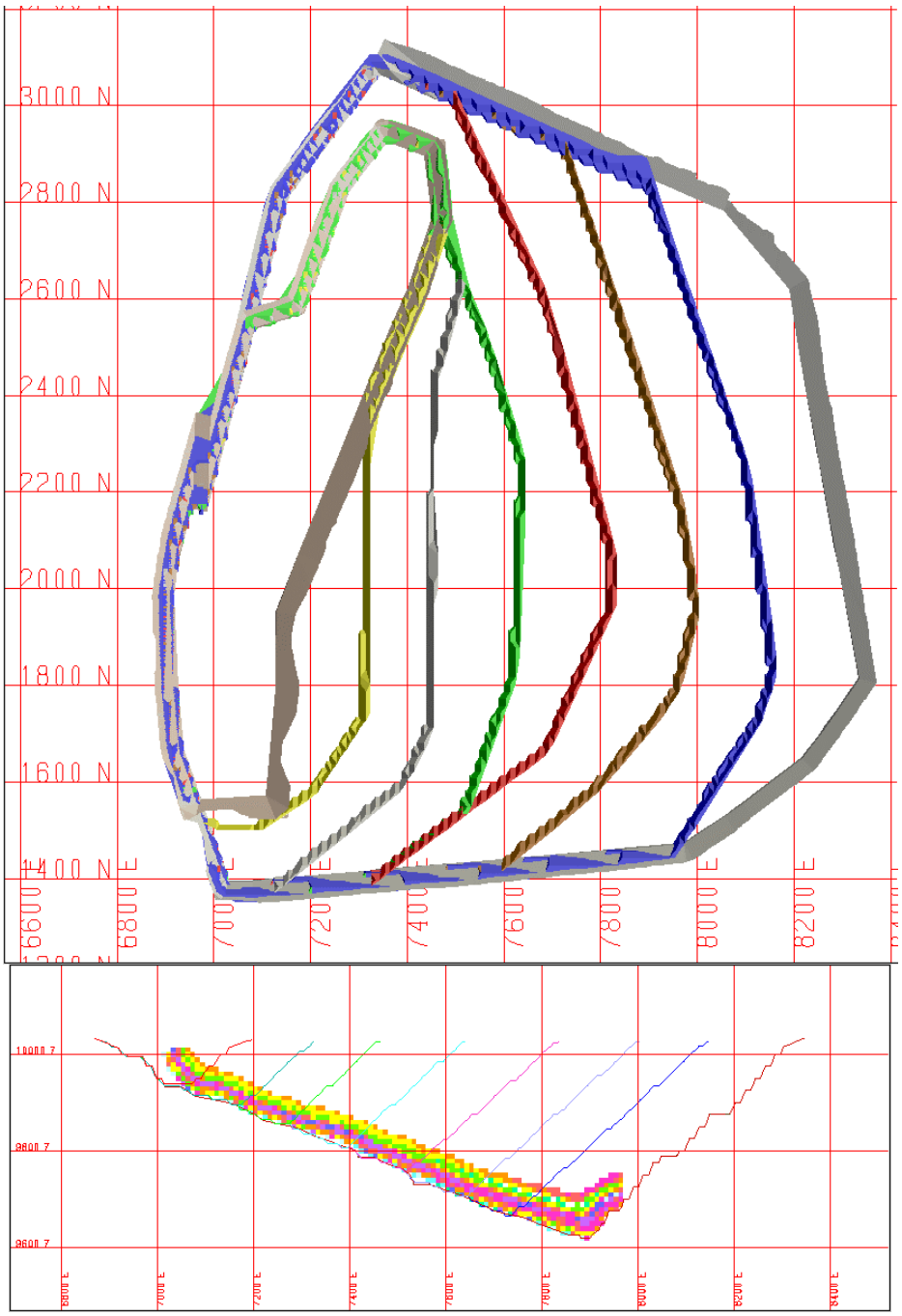

Figure 6: Plan and Cross Section of One Possible Staged Pit Development Scenario

4.2 Process Description

4.2.1 Crushing and Comminution

Run of mine ore will be crushed and ground to 80% passing 45 microns prior to flotation. As currently envisaged the crushing and grinding circuit will be rated at 5.0 Mtpa with run

of mine ore delivered to the plant at a rate of 4.8 Mtpa and an average zinc head grade of 10.7% w/w.

Run of mine ore will feed a gyratory crusher with crushed ore conveyed to a crushed ore stockpile ahead of comminution. Crushed ore will be conveyed from the stockpile to a SAG mill operating in series with two closed circuit ball mills. Discharge from the ball mill circuit will then be pumped to the concentrator and stored ahead of flotation.

4.2.2 Ore Flotation

Ground ore will be conditioned with flotation reagents prior to being pumped to a bank of pre-flotation cells where a carbonaceous concentrate will be removed and transferred to tailings. After pre-flotation, the slurry will be pumped to a bank of rougher flotation cells, where approximately 92% of the zinc and 85% of the lead bearing minerals will be recovered to a rougher concentrate. The remaining ore slurry will be pumped to a tailings thickener, where the slurry will be thickened and transferred to a tailings storage facility. All waste streams from the process plant will report to this thickener for blending with concentrator tailings prior to disposal to the tailings storage facility.

Rougher concentrate will be transferred to a bank of fine grinding mills, which will grind the concentrate to a size in the range 80% passing 9 - 18 microns. Finely ground concentrate will then be pumped to a bank of cleaner flotation cells, where approximately 90% of the zinc and 70% of the lead bearing minerals will be recovered to a final flotation concentrate, grading 30% w/w zinc. The tailings from the cleaning stage will be pumped to the tailings thickener. Final flotation concentrate will be thickened and transferred to storage tanks ahead of the oxidative leach stage.

4.2.3 Oxidative Leaching

Ground cleaner concentrate will be pumped to the head of the concentrate leach circuit. The leach will operate under atmospheric pressure with all tanks covered to minimise evaporative losses. Concentrate slurry and spent electrolyte from the electrowinning cellhouse will be pumped into the first leach tank, along with makeup water. Slurry will then cascade through each tank in series by gravity. Oxygen will be added to each leach tank from a cryogenic oxygen plant.

The leaching stage will operate at an average temperature of 70^{O}C. Zinc recovery across the leaching circuit will be 98% w/w or greater. Approximately 12% of the iron in the cleaner concentrate will report to the leach solution, and this will be removed in an iron precipitation stage. Other minor impurities that report to the leach solution will be

removed in a zinc dust precipitation stage. The residue from the leach stage will consist of predominantly silica gangue and lead sulphate.

4.2.4 Iron Precipitation

The discharge slurry from the oxidative leaching stage will contain low levels of sulphuric acid and iron sulphate. The slurry will gravitate from the leach into a series of iron precipitation tanks. The iron precipitation stage will also operate under atmospheric pressure. Limestone slurry will be added to each of the iron precipitation tanks to control the pH to 3.5. The temperature in each iron precipitation tank will be maintained at 70^{o}C.

The precipitate formed in the iron removal circuit will consist predominantly of goethite and gypsum, and this precipitate will be mixed with the leach residue solids. Slurry overflowing the final iron precipitation tank will gravitate to a thickener. Thickener underflow will be pumped to a bank of pressure filters for filtration, with filtrate recycled to the thickener. The thickener overflow will be pumped through sand filters and fed to the zinc dust purification stage. Filter cake solids, containing less than 1% zinc, will be re-slurried and pumped to the tailings storage facility for disposal.

4.2.5 Zinc Dust Purification

The zinc dust precipitation circuit will remove trace metals from the neutralised solution prior to electrowinning. The purification stage will be operated at 90^{o}C, with zinc dust and other reagents such as copper sulphide and metal trioxides added to the solution to remove trace metals. The discharge from the purification circuit will be filtered to recover the zinc dust precipitate. This precipitate will then be transferred to the concentrator tailings storage facility for disposal. Filtrate from the purification stage will be transferred to the electrowinning cellhouse.

4.2.6 Electrowinning

A conventional zinc electrowinning cellhouse will be used to recover zinc from the purified solution. Purified solution will be mixed with spent electrolyte from the cellhouse to provide a rich electrolyte stream for feed to the electrowinning cells. Zinc metal will be plated from rich electrolyte in the cell, in the form of a 30 - 40 kg cathode sheets, which will be removed from the cellhouse for re-melting and casting. Spent electrolyte will overflow from each cell and gravitate to a spent electrolyte storage tank. A portion of the spent electrolyte will be recycled to the head of the tankhouse for blending with purified solution, with the remainder transferred to the leaching stage.

4.2.7 Cathode Re-melting and Casting

Cathode sheets produced in the zinc cellhouse will be conveyed to a vertical shaft furnace and re-melted. The molten zinc will then be cast into ingots for transport and sale off site. The ingots will meet the specification for Special High-Grade Zinc. Approximately 456,000 tonnes of cast zinc will be produced per annum. Zinc dust will also be generated as part of the casting process for recycle to the purification stage.

4.3 Tailings Management

All waste streams from the process plant will report to the tailings thickener for blending with concentrator tailings prior to discharge to the tailings storage facility. Thickened tailings will be deposited in the existing tailings storage facility which will be expanded to the west. Test work of the tailings material will be undertaken to determine the acid generating potential and leachate characteristics.

The current tailings water management design and operational strategy will be utilised on the expanded facility as per existing approvals.

The tailings rehabilitation strategy will be based on the current approach of establishing a capillary layer, 800mm nominal cover with inert material and shedding water from the surface. This approach will be tested and confirmed during rehabilitation trials on the progressively rehabilitated tailings storage facility. The rehabilitated tails will be left in a safe and stable condition.

4.4 Power Generation

Gas fired power generation already exists on site (current generating capacity 22Mw) and a range of options are being considered to increase this capacity to approximately 350Mw.

Options being considered include:

- Additional gas fired power station equipment on site at McArthur River supplied by pipeline gas from alternative locations including PNG and Central Australia.
- A Coal fired power station on site at McArthur River supplied by coal shipped to the Gulf of Carpentaria and transported to the site.

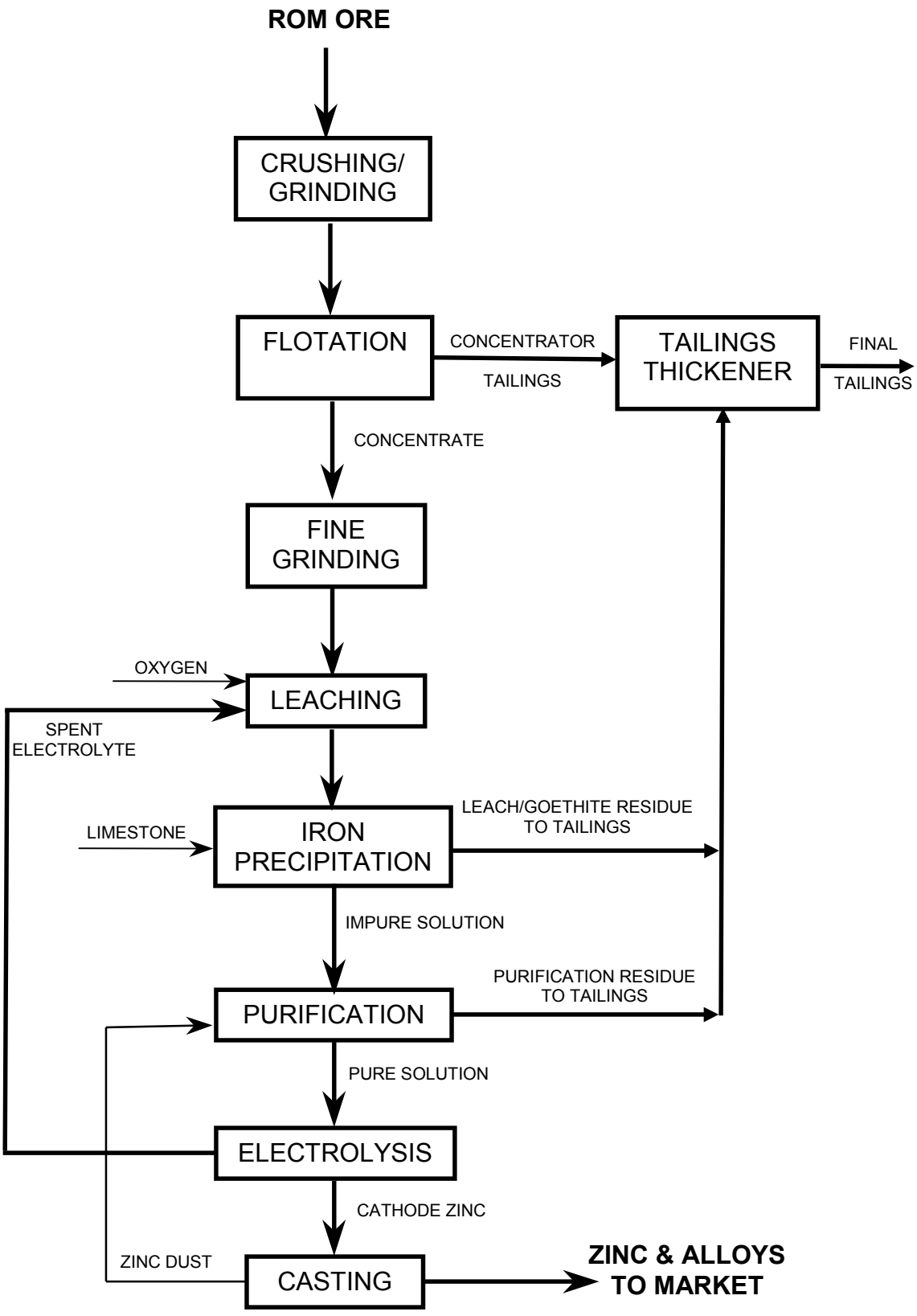

Figure 7: MRM Simplified Process Flowsheet

4.5 Waste Material

The waste rock generated from the open pit mining will be placed in a purpose built waste rock dump. Preliminary estimates of the open pit waste generated are around 800Mt. The waste rock will be characterised as to its acid generating potential and selectively managed so as to minimise potential acid generation. A perimeter drain will be constructed to capture surface runoff, which will be collected in a pond and utilised in the operation as appropriate. The waste rock dump will be progressively rehabilitated. Wherever possible suitable waste rock from the pit will be utilised for construction purposes on site. Where practical waste rock will be backfilled into the open pit.

Industrial wastes generated on site will be managed in accordance with current practice, which includes:

- maximising recycling opportunities where cost effective (eg steel, waste oil and batteries)
- contaminated waste is deposited in the tailings storage facility
- clean waste is buried in a designated landfill
- putrescible waste is buried in a clay lined pit above the RL40 flood level
- a package sewage treatment plant with primary treatment and effluent irrigation

4.6 Transport

The transport of the finished product will be by truck to Bing Bong along the existing sealed highway. The product tonnages are not significantly different to those that are currently being transported - 456kt proposed compared to 360kt actual in 2001/02. The real difference is the product itself which is a relatively inert metal that will be transported in stacked 1 tonne bundles compared with the current concentrate transported loose in covered trailers.

The metal will be unloaded at the port and transported by barge to anchorages in the gulf where it will be transferred to awaiting cargo vessels, using ship's gear in the initial years of the project.

4.7 Site Layout

The proposed site and plant layouts are shown in Figures 8 and 9. Building wherever possible onto the existing infrastructure the principles applied to the expansion layout are to:

- Minimise disturbance to land
- Design to topographic contours (to minimise cut and fill requirements)
- Utilise and expand on the existing infrastructure
- Design around local issues (eg cultural considerations)
- Design above known and calculated flood levels
- Control potential contaminants

4.8 Water Management

The climate of McArthur River region is tropical monsoonal, with a pronounced wet season between December and March and generally drier conditions for the remainder of the year. The water management system must accommodate both cases and give consideration for severe shortages and surpluses of water over the life of the mine.

Aspects of the McArthur River Expansion Project that will have an impact on water management include:

- Expansion of Process Plant and construction of a new refinery
- Expansion of Tailings Storage Facility
- Raw Water Collection and Storage
- Establishment of a weir on the Glyde River
- Diversion of McArthur River
- Diversion of Barney Creek
- Open Pit and Protective Bund Wall
- Waste Rock Disposal

The water management system will be designed and operated around these structures and apply the following principles:

- Minimise water consumption
- Maximise water recycling

- Establish a preferential hierarchy of uses based on water quality
- Control discharges from operational areas of the lease
- Minimise the disturbance of land

An indicative water management flowsheet is shown in Figure 10 which illustrates the main water sources and uses.

4.9 Infrastructure and Human Resources

The new project is expected to utilise all infrastructure currently being used by the existing operation but in many cases will require it to be improved or expanded. Examples of these improvements are the airstrip and village facilities, which would have to be expanded to cater for the extra personnel and the McArthur River to Bing Bong Highway, which would need upgrading to ensure all weather access to the port.

The operational workforce will increase from its current level of 330 to approximately 600 in the initial years of the operation with further step changes up to > 700 in future years as the mining strip ratio increases.

It is expected that during the three-year construction phase the site based construction workforce will peak at around 1000. There will be a range of other off-site jobs created within the NT and other areas of Australia as a direct result of the project.

4.10 Rehabilitation and Decommissioning

On final decommissioning all plant and infrastructure will be made safe or dismantled and removed unless stakeholders suggest otherwise.

End use objectives will be established through a consultative process involving ISA, government and relevant community stakeholders.

Progressive rehabilitation will be undertaken wherever practicable. Whilst opportunities for placement of waste rock in the open pit will be maximised, the open pit will remain as a void and will fill with water over time.

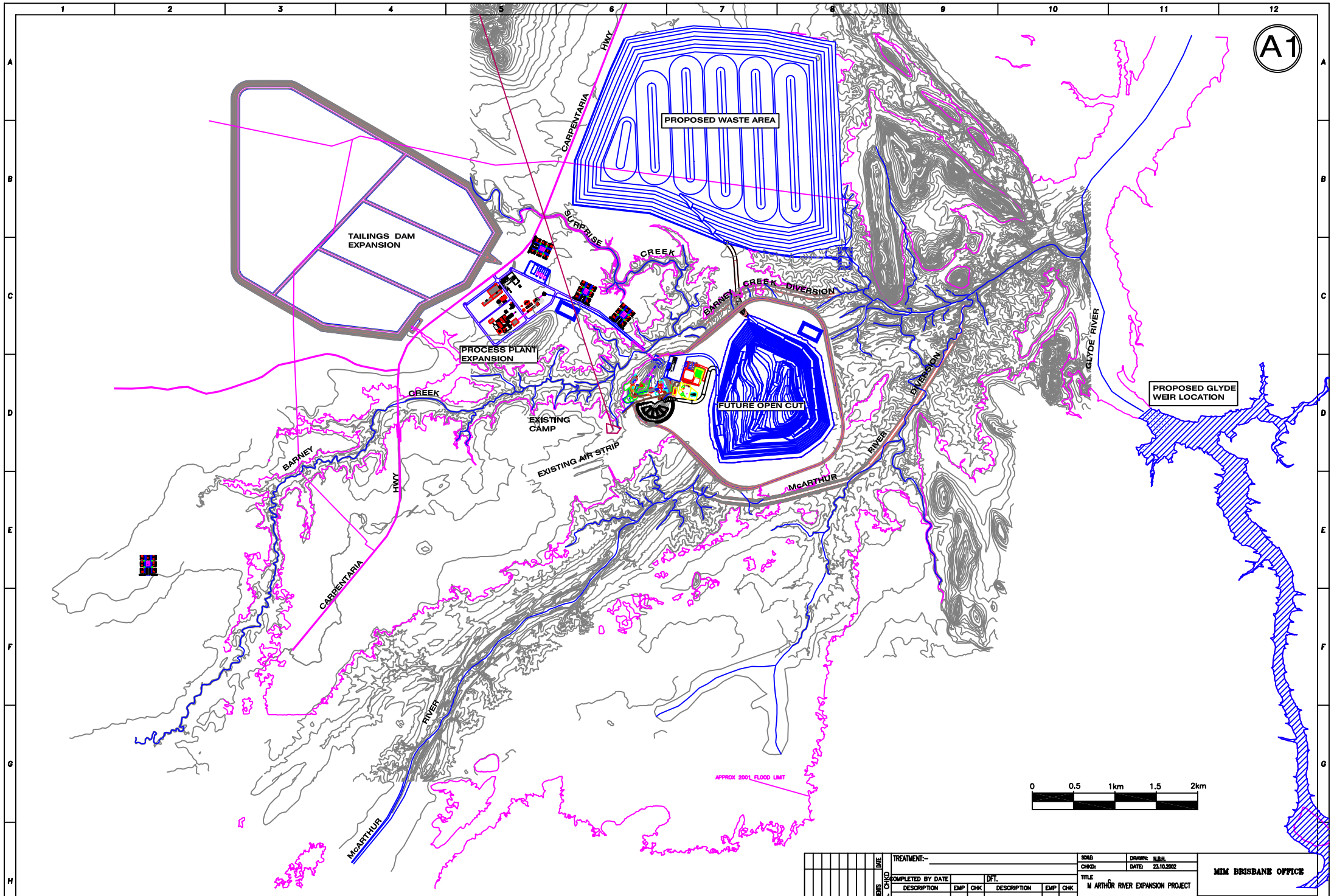

Figure 8: McArthur River Expansion Project - General Arrangement McArthur River Mine Site

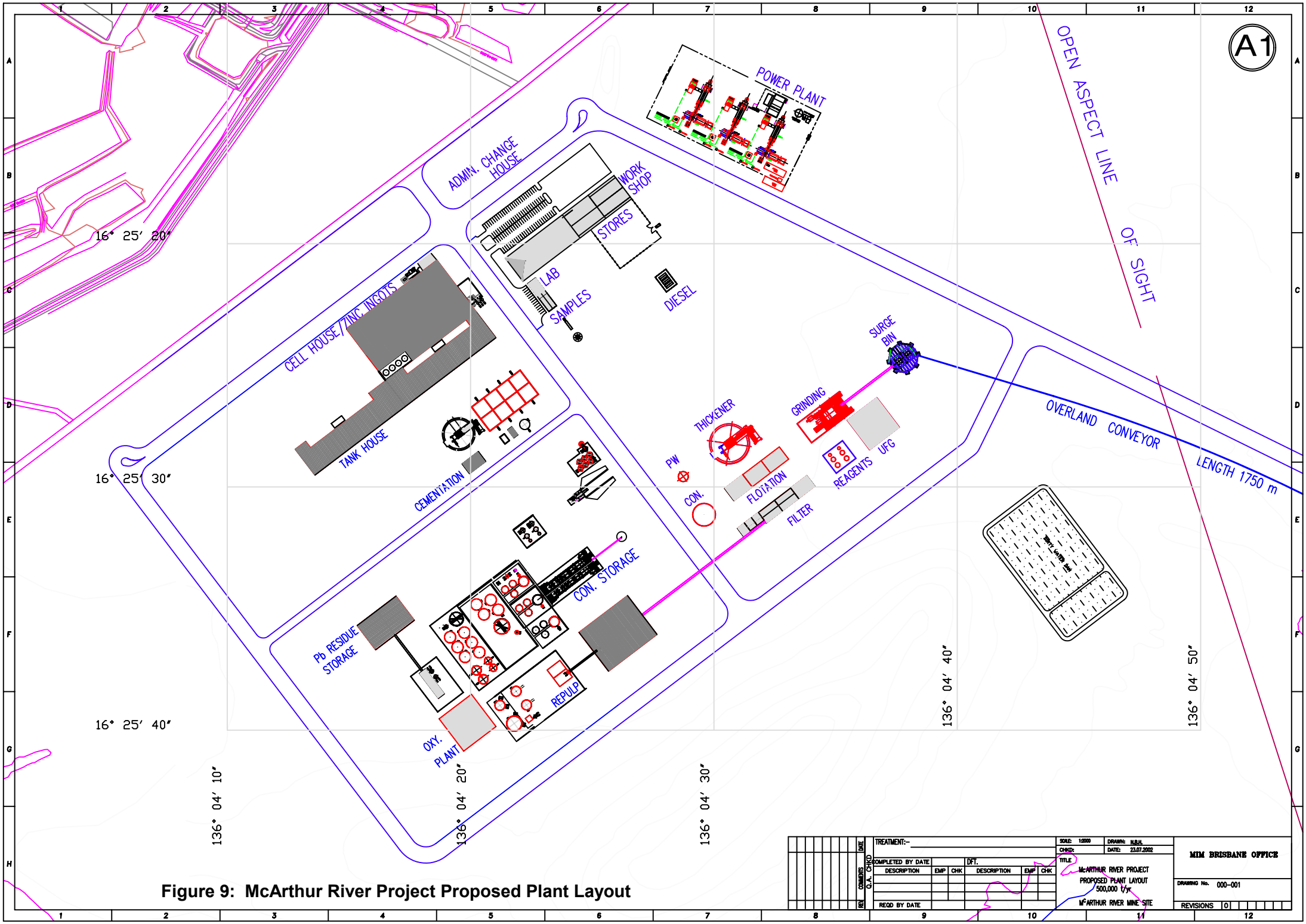

Figure 9: McArthur River Project Proposed Plant Layout

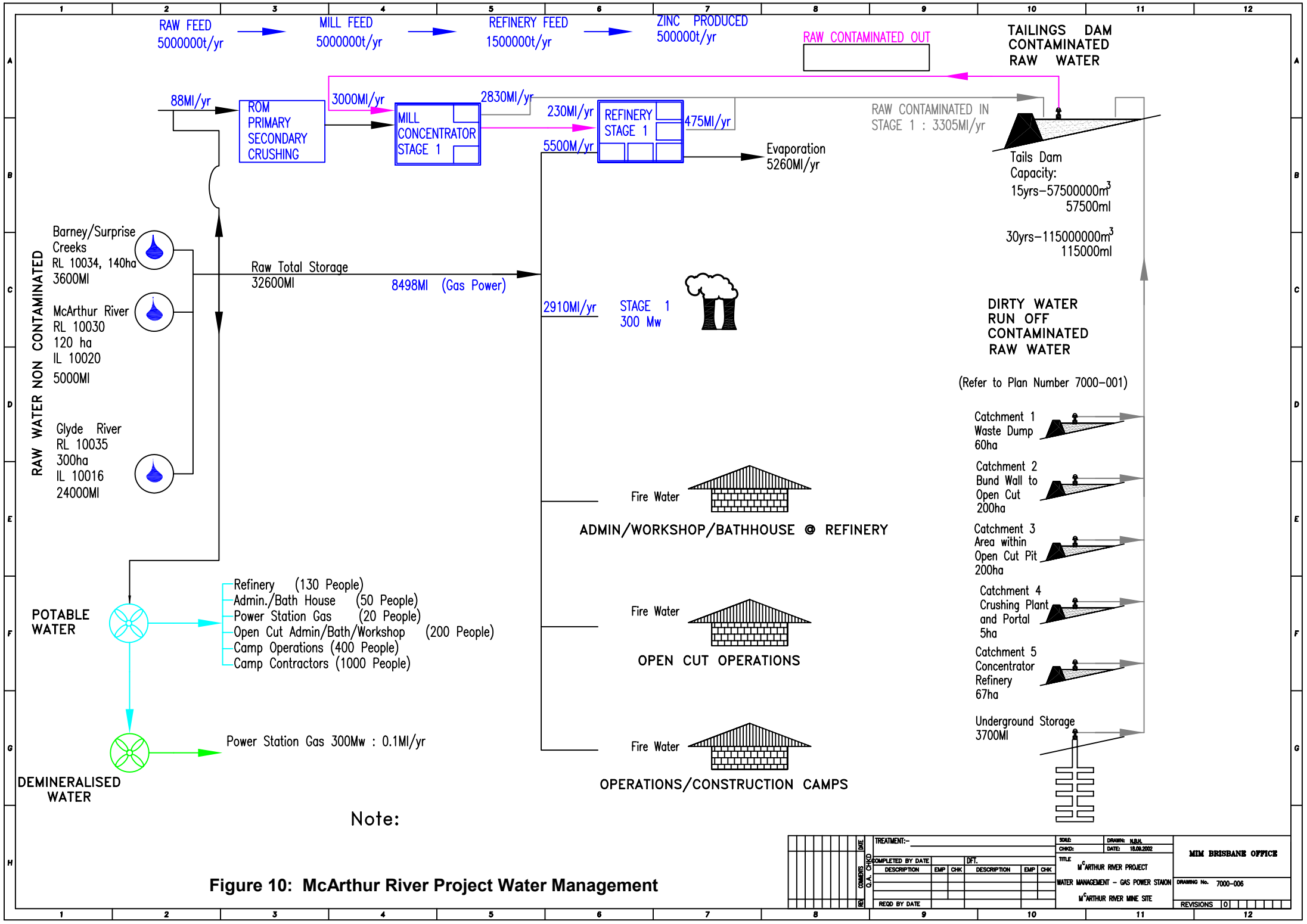

Figure 10: McArthur River Project Water Management

Table 2: Summary Comparison of Existing Operation with Proposed Development

Item	Current (MRM Mine Management Plan 2001/02)	Proposed
1. Resource	23.2 million tonnes proved and probable (subsequently upgraded to 40Mt total) 100Mt measured indicated and inferred	Likely mining reserve of 160Mt total
2. Mine Life	25 years	35 years
3. Mining method	Underground	Open pit
4. Mining Rate	1.32Mtpa (mill throughput)	4.8Mtpa
5. Tailings	Tailings discharged to TSF Footprint 210 ha	Extension to existing TSF Footprint 740 ha
6. Waste rock	No waste rock brought to the surface – used as backfill in completed mining panels	Estimated 800Mt waste rock dump established
7. Processing	Flotation process producing concentrate (46% Zn con grade)	Fine Grind – Atmospheric leach – Electrowin producing Zn metal
8. Power	134 gigawatt hours (22Mw) supplied by gas fired turbines with natural gas delivered to site via a pipeline form Daly Waters	350 Mw required gas or coal supply options being assessed
9. Product	344,602 dry metric tonnes of concentrate produced	Zinc metal 456kt
10. Transport	Concentrate trucked to Bing Bong transferred to the Aburri then offshore loading onto ships	Metal trucked to Bing Bong and barged offshore for further shipment
11. Groundwater	Mine dewatering is pumped to the surface and used in the process. Borefields water supply	Borefields supply to continue Pit dewater to be collected and used in process
12. Surface water	Dirty water collected and utilised in the process. Emergency discharge licence in place	Existing plus Diversion of McArthur River and Barney/Surprise Creeks Glyde River weir established
13. Air Emissions	Power Station Fugitive Emissions	Power Station Fugitive Emissions Processing Plant
14. Workforce	343	Construction peak 1000 Operating 600 in initial years,up to 700 at peak

5 IDENTIFICATION OF POSSIBLE SIGNIFICANT ENVIRONMENTAL ISSUES

The main environmental issues that require further investigation are discussed below. A large amount of information has been collated for the current environmental mining lease approvals and progressively during the current mining operation. A gap analysis has been undertaken which has identified key areas for further work.

5.1 Acid Rock Drainage

5.1.1 Identified Environmental Issues

Waste rock and tailings are potentially acid forming. Acid consuming materials such as dolomite will also be mined and this provides scope for controlling ARD. A laboratory testing program will be conducted and based on test results, strategies developed to negate the potential environmental impact from the long term storage of waste rock and tailings.

5.1.2 Objective

To characterise waste rock and tailings and develop management strategies to limit the potential for acid drainage.

5.1.3 Planned Scope

- ⇒ Characterise waste rock and tailings
- ⇒ Waste rock dump and tailings storage facility modelling and design
- ⇒ Determine implications for surface water (Section 5.2) and groundwater (Section 5.6) management.

5.2 Surface Water Quality

5.2.1 Identified Environmental Issues

Downstream water could potentially be impacted from the following sources.

- ⇒ Pit dewatering
- ⇒ Acid rock drainage
- ⇒ Contaminated stormwater
- ⇒ Process water

The project may require controlled discharges. If not appropriately managed, these discharges could impact downstream water quality. A detailed site water balance, incorporating operational water requirements and the need to manage extreme climatic events will be developed. A water management strategy will be used to assess potential impacts and mitigation strategies.

Areas containing material with the potential for increased contaminant loads will be internally drained and water management strategies employed to minimise the potential for offsite impact.

5.2.2 Objective

To minimise the potential for impact on downstream water quality.

5.2.3 Planned Scope

Utilise existing information and complement with further baseline studies on the receiving waters:

- ⇒ Characterise existing water quality
- ⇒ Determine likelihood and level of potential impact from known contamination sources
- ⇒ Determine quality of pit dewater
- ⇒ Develop a site water balance
- ⇒ Assess impact on downstream water quality

5.3 Surface Water Management

5.3.1 Identified Environmental Issues

The local hydrological regime will be modified through the development of the open pit mine, associated operations, watercourse diversions and water supply structures.

5.3.2 Objective

To minimise the potential for adverse impact on the hydrological regime.

5.3.3 Planned Scope

Utilise existing information and complement with further baseline studies and modelling of the characteristics of the McArthur and Glyde River systems to:

- ⇒ Characterise current hydrological regime
- ⇒ Assess the impact of alterations to existing conditions
- ⇒ Determine operational parameters to maximise water resource utilisation
- ⇒ Develop appropriate water management strategies to minimise the potential for adverse impact

5.4 Terrestrial Flora and Fauna

5.4.1 Identified Environmental Issues

Flora and fauna of the McArthur River Minesite and surrounds have been extensively studied. Additional disturbance in the open pit mine, waste rock dump, processing plant hardstand, camp, tailings storage facility and power station site will be required. Littoral flora and fauna for the open pit, diversion, Glyde and McArthur River inundation areas will require some additional investigation.

5.4.2 Objective

To determine the potential impact to terrestrial flora and fauna.

5.4.3 Planned Scope

Following collation and review of existing information, additional studies will be undertaken to:

- ⇒ Survey flora and fauna of potentially impacted areas
- ⇒ Identify species of significance
- ⇒ Prepare vegetation and habitat maps
- ⇒ Compile a terrestrial flora and fauna management plan

5.5 Aquatic Flora and Fauna

5.5.1 Identified Environmental Issues

Areas of the diversions and weir inundation zones will be impacted by project development. The section of the McArthur River impacted by the open pit and associated inundation areas has been previously studied with no rare or endangered species identified. The potential impact of the placement of the weirs on the upstream and downstream aquatic environment and habitat connectivity will be investigated.

5.5.2 Objective

To assess the potential for impact on aquatic flora and fauna.

5.5.3 Planned Scope

- ⇒ Collate existing information
- ⇒ Conduct aquatic flora and fauna studies on the Glyde and McArthur Rivers
- ⇒ Determine conservation significance of species identified
- ⇒ Develop an appropriate control strategy based on aquatic flora and fauna 'significance'

5.6 Groundwater

5.6.1 Identified Environmental Issues

Groundwater will be extracted from the open pit and utilised for operational purposes. The current underground mining operation removes approximately 3ML per day of groundwater. The hydrologeological regime will be altered by the development of the open pit, river diversion, and artificial water holding structures. Groundwater quality may be impacted from tailings and waste rock disposal.

5.6.2 Objective

To minimise potential impact of the project on the groundwater resources of the area.

5.6.3 Planned Scope

- ⇒ Review current groundwater data and model for potential impacts
- ⇒ Develop management strategies taking into consideration the potential for impact stemming from site specific features including; the waste rock dump, open pit mine, tailings storage facility, and inundation areas.

5.7 Air Quality

5.7.1 Identified Environmental Issues

Dust has been extensively studied for the current operation. There are no residents within close proximity to the site and accordingly environmental impacts of dust will be of primary importance.

Additional air emissions will result from the Albion zinc refining process and either on site gas or coal power generation.

5.7.2 Objective

Quantify potential air emissions and integrate appropriate management strategies into the design and operational phases of the expansion.

5.7.3 Planned Scope

A review of existing data pertaining to dust emissions will enable;

- ⇒ An assessment of the impact on dust to the environment
- ⇒ Control strategies to be identified and integrated where identified environmental values may be degraded

Air emissions from point sources will be;

- ⇒ Characterised
- ⇒ Assessed against background levels

⇒ Evaluated for their potential to result in significant environmental impact

⇒ Addressed through application of ameliorative measures

5.8 Noise and Vibration

5.8.1 Identified Environmental Issues

Noise impacts will result from additional processing infrastructure, mobile equipment. Blasting will result in additional instantaneous noise and vibration. The closest residence is approximately 20 km away.

5.8.2 Objective

To predict and where appropriate ameliorate against the impact of noise and vibration on sensitive receptors.

5.8.3 Planned Scope

An evaluation of noise and vibration will be undertaken using modelling of the predicted impact. Guideline levels will be established and appropriate control strategies identified, and integrated into project planning and operation.

5.9 Preliminary Risk Analysis

5.9.1 Identified Environmental Issues

Environmental issues requiring control strategies must be integrated into planning to reduce risk appropriately. Understanding environmental risk allows the operation to determine priority issues and assign the appropriate level of control.

5.9.2 Objective

To understand the environmental risk profile.

5.9.3 Planned Scope

⇒ Collate expertise to evaluate potential site environmental risks

⇒ Undertake an environmental issue risk assessment

⇒ Determine appropriate control strategies for mitigating identified risks

5.10 Visual Amenity

5.10.1 Identified Environmental Issues

The development of the project will impact upon the existing visual environment in particular the visual landscapes along the Carpentaria Highway. Whilst this is not considered a significant issue due to the isolated nature of the project, a qualitative

assessment will be undertaken of the visual impact and appropriate measures to minimise any impact will be incorporated into project design, operation and closure.

5.10.2 Objective

To characterise the existing visual environment

5.10.3 Planned Scope

- ⇒ Analysis of viewing aspects
- ⇒ Undertake a qualitative analysis of the visual impacts
- ⇒ Determine appropriate mitigation measures

5.11 Socio-economic Impacts

5.11.1 Identified Environmental Issues

McArthur River Mining will remain a fly-in, fly-out operation. There will be some socio-economic impact on the local community resulting from the extension of the existing mining operation. This will be reflected in increased employment and business opportunities for Borroloola township residents. We expect an increased level of opportunity for local people and business to benefit from the expanded operation and this will evaluated.

5.11.2 Objective

To assess the additional socio-economic impacts on the community and develop management strategies to achieve the best outcomes for all stakeholders.

5.11.3 Planned Scope

- ⇒ Review existing socio-economic impact
- ⇒ Describe project workforce and changes
- ⇒ Review current impacts and assess additional influence
- ⇒ Develop appropriate management strategies
- ⇒ Establish a plan to maximise the benefit of the development to the local community

5.12 Archaeology and Cultural Heritage

5.12.1 Identified Environmental Issues

Current operational areas within the McArthur River mine leases have been extensively reviewed in terms of archaeological and cultural significance. A review of existing information and studies into new areas of proposed disturbance will be required.

5.12.2 Objective

To determine sites of significance in the project area and develop appropriate management strategies

5.12.3 Planned Scope

- ⇒ Review current sites of significance
- ⇒ Undertake additional archaeological and anthropological surveys where required
- ⇒ Determine the likelihood and level of impact on significant sites
- ⇒ Develop appropriate management strategies for significant sites

5.13 Rehabilitation and Decommissioning

5.13.1 Identified Environmental Issues

Progressive rehabilitation and decommissioning planning commences in the project-planning phase to ensure the best outcomes are achieved. Utilising information from current site rehabilitation practices and additional trials rehabilitation and life of mine options will be developed.

5.13.2 Objective

Identify appropriate post-mining land use strategies and integrate into project planning and design.

5.13.3 Planned Scope

- ⇒ Prepare a soils map
- ⇒ Assess rehabilitation suitability of topsoil (profile in Section 5.1)
- ⇒ Develop soil management guidelines
- ⇒ Determine post-mining land use and rehabilitation options
- ⇒ Determine preliminary post mining land use criteria
- ⇒ Design rehabilitation trials
- ⇒ Develop a life of mine decommissioning plan

6 SCHEDULE

6.1 Assessment Process

The environmental impact assessment process is determined from the legislative requirements in the NT Environmental Assessment Act (1992) and the Environmental Protection and Biodiversity Conservation Act (2000). This Notice of Intent is submitted for determination under the Northern Territory legislation and a separate referral will be made to the Commonwealth for determination under their legislation.

6.2 Timeline

For planning purposes MRM anticipate that an EIS is likely to be required by the Northern Territory. The proposed schedule is to submit the draft EIS in July 2003. In order to achieve this, baseline studies commenced in September 2002. Once submitted, environmental approvals are projected to be completed in December 2003, when the project will commence expansion. The expansion will be undertaken over a three year phasing in period of open pit prestrip and infrastructure development.

7 REFERENCES

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