



VDM
CONSULTING
EcOz

Australian Ilmenite Resources

Social and Cultural Aspects Report

2012



Australian Ilmenite Resources Pty Ltd

SILL80 Project, Mining Lease Application 27422

DW090024

November 2011

CONSULTING SCIENTISTS AND ENGINEERS

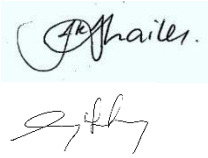
Offices:

Western Australia
Queensland
Northern Territory

New South Wales
Victoria
Hanoi, Vietnam



Document Control Record

Prepared by:	Justine Shailes and Casey Hawkey
Position:	Environmental Scientists
Signed:	
Date:	8 November 2011

Approved by:	Jeff Richardson
Position:	Senior Scientist
Signed:	
Date:	13 January 2012

REVISION STATUS

Revision No.	Description of Revision	Date	Approved
0	First Issue	10/05/2011	Casey Hawkey
1	Review	04/11/2011	Justine Shailes
2	Review	10/11/2011	Justine Shailes
3	Review	13/01/2012	Jeff Richardson

Recipients are responsible for eliminating all superseded documents in their possession.

VDM Consulting (NT) Pty Ltd
trading as EcoZ Environmental Services
ACN: 143 989 039

Winlow House, 3rd Floor
75 Woods Street
DARWIN NT 0800
PO Box 381, Darwin NT 0800

Telephone: +61 8 8981 1100
Facsimile: +61 8 8981 1102
Email: ecoZ@ecoZ.com.au
Internet: www.ecoZ.com.au



RELIANCE, USES and LIMITATIONS

This report is copyright and is to be used only for its intended purpose by the intended recipient, and is not to be copied or used in any other way. The report may be relied upon for its intended purpose within the limits of the following disclaimer.

This study, report and analyses have been based on the information available to VDM Consulting at the time of preparation. VDM Consulting accepts responsibility for the report and its conclusions to the extent that the information was sufficient and accurate at the time of preparation. VDM Consulting does not take responsibility for errors and omissions due to incorrect information or information not available to VDM Consulting at the time of preparation of the study, report or analyses.

Executive Summary

This Social and Cultural Aspects Report takes into account likely social impacts on stakeholders and the wider community as a result of the development of the Australian Ilmenite Resources SILL80 Project, in the Roper River region of the Northern Territory.

A community consultation workshop was held on the 5th of September 2011, which was attended by pastoral landholders, EcOz Environmental Services, AIR representatives, Northern Land Council members and about 40 members of the broader Roper Valley Community.

It is likely that increased opportunities for training and employment for the local community will help to offset the disturbance to the local landscape (referred to as 'country' by TO's) caused by mining and AIR has commenced negotiations to employ three local community members at the mine site.

Monitoring of potential impacts of the development on social and cultural aspects will be carried out through continued consultation with stakeholders and members of the local community, including pastoralists and TO's.

Key aspects of monitoring will include:

- Consultation feedback;
- Internal and external auditing;
- Feedback received ad hoc, both positive and negative; and
- Assessment of the level and type of support and services provided to local communities.

An effort will also be made to work collaboratively with other mine operators in the region to determine whether social impacts are being felt at a regional level and whether a strategy should be developed collectively over a wider area.

Results and findings from monitoring will be fed back into the annual update of the Mining Management Plans, to facilitate continual improvement and adaptive management.

Contents

1	Introduction	6
1.1	Background and Scope	6
1.2	Project and Surrounding Environment.....	6
2	Methodology	8
2.1	General Approach and Timeframes	8
2.2	Stakeholder Workshop	10
2.3	Ongoing Consultation	10
2.4	Determining Impact Significance	11
3	Values Linked to Environment.....	16
3.1	Values linked to water.....	16
3.2	Other Existing Values	17
3.3	Archaeological Survey	18
3.4	AAPA Certificate	18
4	Impact Assessment	20
4.1	Identified Impacts.....	20
4.2	Cumulative Impacts	20
4.3	Outcomes from Workshop	21
5	Mitigation, Management and Monitoring	24
5.1	Mitigation and Management	24
5.2	Monitoring	25
6	Summary and Commitments	26
6.1	Summary.....	26
6.2	Commitments.....	26
7	Definitions and Acronyms.....	29
8	References	31

Tables

Table 1. Details of Steps Involved in Consultation	9
Table 2. Risk Assessment.	11
Table 3. Preliminary Social and Cultural Impacts Risk Assessment	12

Figures

Figure 1-1. Location of SILL80 Project	6
Figure 2-1. Process for Conducting Social Impact Assessment and Management	8
Figure 3-1. Initial AAPA Determined Restricted Works Areas.....	19
Figure 4-1. Proposed access route to MLA27422	22

Appendices

Appendix D1 – Story Book

Acknowledgements

We would like to thank the Northern Land Council for advice and support during development of this Social and Cultural Aspects Report, particularly with the consultation meetings.

We also wish to extend thanks to the Roper Valley and Ngukurr communities and the managers of Numul Numul station for participating in the consultation and providing valuable input concerning the SILL80 project.

1 Introduction

1.1 Background and Scope

Australian Ilmenite Resources Pty Ltd (AIR) proposes to develop its SILL80 Ilmenite Project, within Mining Lease Application (MLA)27422, located in the Roper River Region of the Northern Territory.

The Public Environmental Report (PER) is a formal assessment under the *NT Environmental Assessment Act 1982* at the request of the Northern Territory Minister for Natural Resources, Environment and Heritage (the Minister). The Social and Cultural Aspects Report is one of many complimentary reports required to support the PER for the SILL80 Ilmenite Project.

The Roper River Region has several large new mining proposals and other developments that are likely to be a significant shift in land use from the traditional tourism and pastoral activities. Although sparsely populated, there are likely to be impacts, both positive and negative, to people living in communities across the region from the establishment of these proposals.

The aim of this document is to develop and implement a process for estimating, before development, any social consequences potentially resulting from this proposal and to identify methods for management and mitigation.

1.2 Project and Surrounding Environment

AIR's SILL80 Ilmenite Project, within MLA27422 (Figure 1-1), is located within the Roper Gulf Shire, Perpetual Pastoral Lease 1161, Land Parcel NT Portion 4970 Chatterhoochee (Numul Numul). The Indigenous Land Corporation (ILC) acquired Numul Numul Station in 2000, granting it to the Traditional Owners (Namul-Namul Aboriginal Corporation). The area was sub-leased in 2001 to the O'Brien family, who continue to manage the property as a cattle station. The area is under Native Title Claim Chatterhoochee, lodged with the Federal Court in 2001 by the Traditional Owners (TO's) represented by the Northern Land Council (NLC).

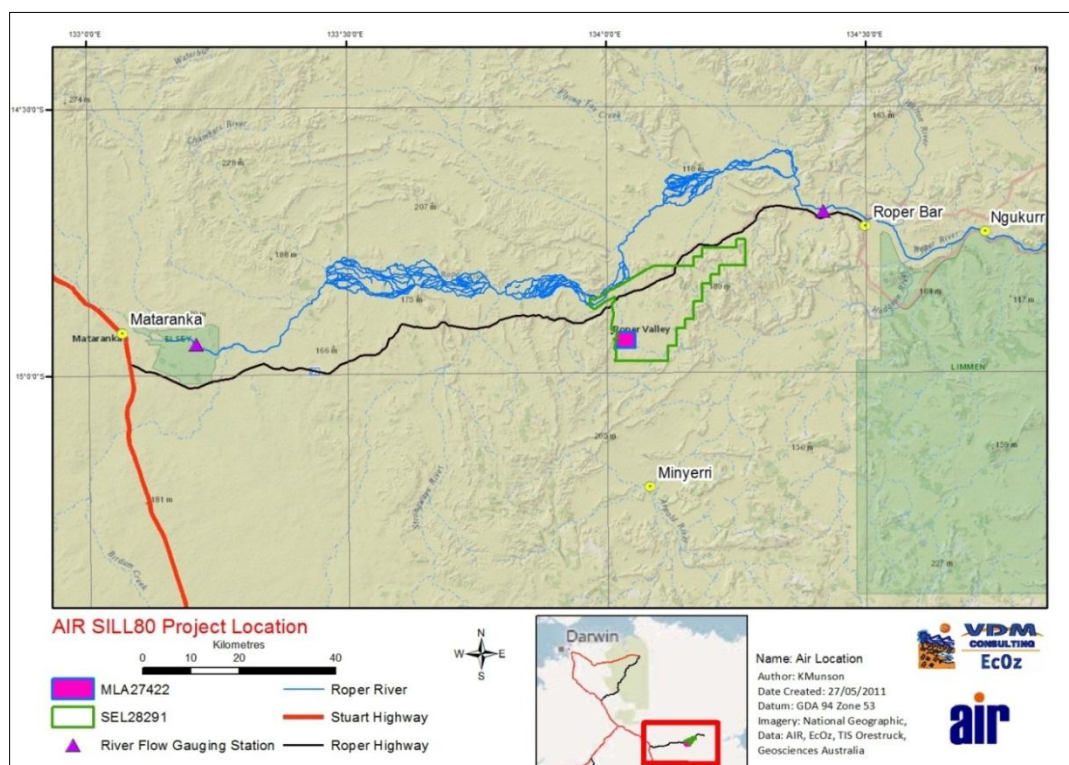


Figure 1-1. Location of SILL80 Project

The Roper River Region is sparsely populated. Only 3 500 people live in the catchment, of which 70% are Indigenous. The largest population centres are Ngukurr (1589), Mataranka (~600) and Minyerri (340) (Northern Territory Government Website 2007). People of the Jawoyn, Mangarayi, Ngalakan, Ngandi, Nunggubuyu, Mara, Alawa and Yangman language groups live in the region (AIATSIS 2000). English is not the first language for the majority of the Indigenous population and Kriol is commonly spoken.

Consultation was undertaken with community members from Minyerri and Roper Valley, who are the Indigenous communities most likely to be affected by the development. For ease of interpretation within this document, these groups are collectively referred to as the broader Roper Valley Community.

2 Methodology

This Social and Cultural Aspects Report identifies potential social impacts on stakeholders and the wider community caused by the establishment of the SILL80 Ilmenite Project, including potential cumulative impacts. For the purposes of this report, cumulative impacts associated with the SILL80 Ilmenite Project are defined as the successive, incremental and combined impacts of an activity on society, the economy and the environment, either directly or indirectly by the projects' activities (either positive or negative) over the duration of the project and beyond.

2.1 General Approach and Timeframes

The process of identifying social and cultural impacts for the SILL80 Ilmenite Project followed a basic process consisting of identifying potential impacts in the context of the project scope, determining affected groups and conducting consultation, followed by evaluation of success and review, as illustrated in Figure 2-1. Although a step-by-step process is outlined, it is essentially an iterative process which allows for adaptive change over time, as knowledge increases and management strategies evolve.

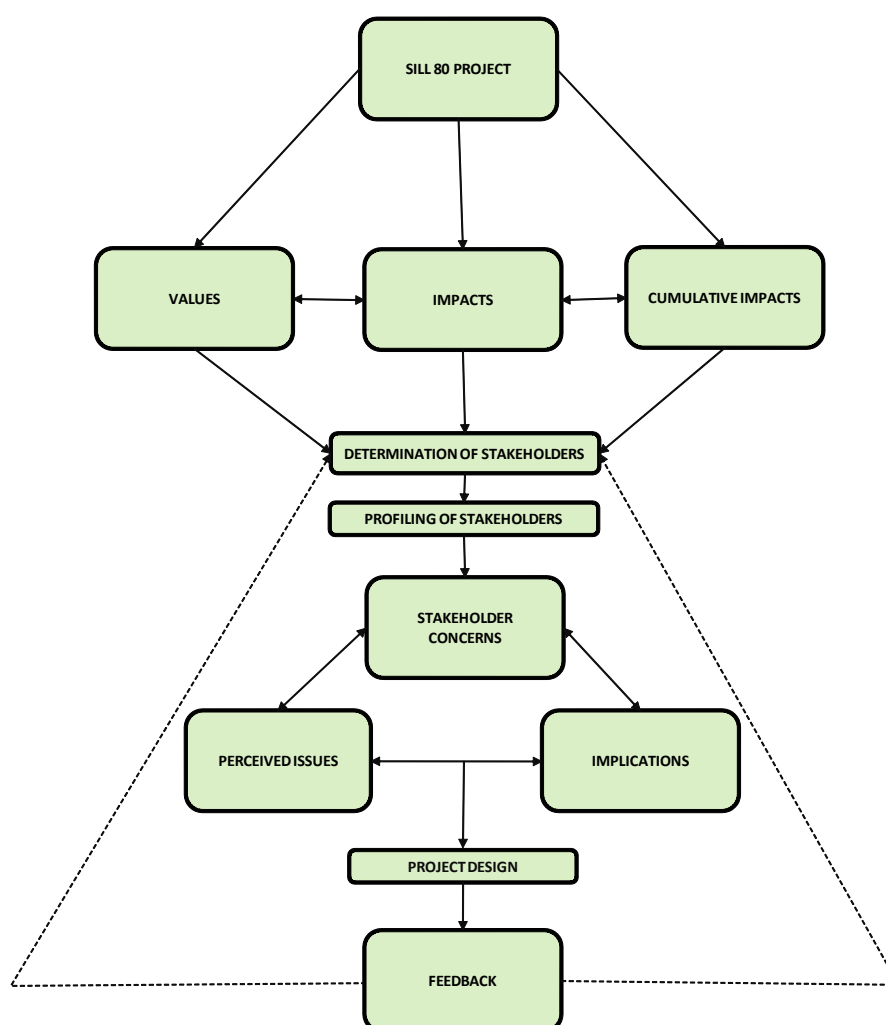


Figure 2-1. Process for Conducting Social Impact Assessment and Management

EcOz Environmental Services (EcOz) were employed to undertake the community consultation for the SILL80 Ilmenite Project.

Some of the key stakeholders for the region include TO's who hold unique values associated with the affected area, and who also commonly have English as a second language. Special consideration was given to enhancing the two way communication with this stakeholder group. The NLC Major Projects Branch facilitated some of the communications and assisted with organising the workshop for consultation with the TO's within the project area.

Local stakeholders were identified primarily through a desktop study to find land and lease holders within the vicinity, followed by direct liaison with stakeholders to establish what other groups were likely to have an interest in the proposal. The key steps and their time-frames are detailed in Table 1.

Table 1. Details of Steps Involved in Consultation

Phase	Key steps and those involved	Time Frames
1. Scope	a) Identification of the values and general potential (including cumulative) impacts of the overall project including environment, social and economic impacts.	May – July 2011
	b) An initial identification and profile of the key stakeholders , including their likely values and perceptions of how the SILL80 Ilmenite Project may impact on their values. Key stakeholders were identified as groups of people with similar concerns/interest. This process was assisted by the NLC. c) Identification of the potential project impacts and the implications for each stakeholder group. This step was largely undertaken by the project managers and consultants, in consultation with key organisations (e.g. NLC).	May – July 2011
2. Consult	d) Provided the NLC with the scope of works for consultation. e) One on One Liaison or informal contact with key stakeholders to initiate communication on the scope of the project, the potential impacts and identify some of their initial concerns and/or needs for more information. This stage of consultation was aided by NLC in communicating a “story book” (Appendix D1) of ideas for the project (developed by EcOz).	May – July 2011
	f) Stakeholder group workshop engaging with stakeholders to complete more focused communication regarding the project impacts and potential concerns. This process was assisted by the NLC.	August 2011
3. Evaluate and Respond	g) Refinement of the key stakeholder list and their profiles , based on feedback from liaison with stakeholders. h) Refinement of the communication of the project and its potential impacts, based on feedback from the community consultation. i) Refinement of the project design , based on feedback from the community consultation. Communication of the modifications with additional consultation (through stakeholder workshops or one-on-one liaison). j) Identification of ongoing communication needs and processes between the project manager and stakeholders and how this is best managed, monitored and refined over time.	August – September 2011

2.2 Stakeholder Workshop

A workshop was held on the 5th of September 2011. The workshop was designed to enable discussion on potential impacts and mitigation strategies. In preparation for the workshop, a 'story book' was developed (see Appendix D1), detailing the proposal and including a visual description of what was involved in the proposal, potential risks and impacts, details on rehabilitation scenarios and contact details. Prior to the workshop, advice on the proposed date/location and a copy of the story book were forwarded to stakeholders via mail and/or email and followed up by a phone call for attendance confirmation. The NLC Regional Officers assisted in conveying messages to remote aboriginal communities.

The workshop ran for two hours and approximately 50 people attended, including EcOz Consultants, AIR representatives, Northern Land Council members and about 40 members of the broader Roper Valley Community. The 'story book' formed the basis of discussion, with the proposal broken up into distinct sections i.e. construction, transportation, processing, and rehabilitation, and then further discussion held on specific impacts (i.e. dust, noise, access etc.) and how each of these might impact (positive and negative) on regional values and the various stakeholders. At the end of each section, discussion was encouraged to address any additional concerns people had, knowledge of other potential impacts, preferences, management options and alternatives.

The scoping and consultation process acknowledged that some stakeholders do not or cannot communicate their needs effectively in a workshop or public meeting context. Special arrangements were made to ensure all stakeholders had suitable opportunities to contribute to the process through additional avenues of communication, primarily through liaison with the NLC and one-on-one contact.

By gauging people's understanding of the proposal and contribution to the workshop, an assessment was made of the effectiveness of the consultation. Where it was found that information had not been disseminated clearly (through stakeholders showing a lack of understanding, confusion or frustration) additional resources such as posters, additional contact and clarification of details were made available to the community members.

2.3 Ongoing Consultation

AIR are committed to establishing a meaningful and productive relationship with local landholders and the broader community. Early stakeholder engagement will be followed by *ad hoc* liaison as required and on an annual basis. The main method of communication will be via telephone due to the remote location of the mine, but there will also be provision for communication via email, post and face-to-face should it be required.

Stakeholder engagement will be guided by a series of key principles. This will include, but not be limited to:

- Building long term relationships which can develop and adapt over the life of the project;
- Determination of realistic timeframes while ensuring that all stakeholder enquiries and views are responded to in a timely manner;
- Developing an understanding of who is involved and how each group may be affected by decisions;
- Working closely with all interested parties to seek mutually beneficial outcomes;
- Ensuring transparency internally and externally regarding plans, decisions and changes;
- Incorporating, where possible, the knowledge, skills and experience of stakeholders; and
- Being flexible in how information is sourced and provided and being adaptable to change.

Government agencies, key stakeholders and the public will also have the opportunity to comment on the Social Cultural Aspects Report to be contained within the publicly available PER. Any stakeholder engagement strategy will be updated on an annual basis to reflect stakeholder input, changes in the project scope and any progress made in meeting stipulated targets.

2.4 Determining Impact Significance

A qualitative risk assessment was undertaken by EcOz to assess the significance of potential social and cultural impacts of the project. This involved consideration of the likelihood and consequence of a particular impact occurring. The likelihood of a given impact was assessed according to the following criteria:

- R - The social/cultural impact rarely occurs;
- U - The social/cultural impact is unlikely to occur;
- P - The social/cultural impact will possibly occur;
- L - The social/cultural impact is likely to occur; and
- AC - The social/cultural impact is almost certain to occur.

The consequences of a given impact were assessed according to the following criteria:

- Low (L) - No impact on social or cultural value either locally or regionally;
- Minor (Mi) - Only very localised impact on minor social or cultural value;
- Moderate (Mo) – Moderate impact of a social or cultural value or minor impact on multiple social or cultural values;
- Major (Ma) – Significant impact of important social or cultural value; or moderate impact on multiple social or cultural values
- Catastrophic (C) – Catastrophic impact (destruction) of significant social or cultural values at a local scale and/or regional scale.

The resulting risk level was calculated, using both the likelihood and consequence scores, within a risk matrix depicted in Table 2. Moderate Risk levels and above were prioritised for active risk management and mitigation.

Table 2. Risk Assessment.

		Likelihood				
		Rare (R)	Unlikely (U)	Possible (P)	Likely (L)	Almost Certain (AC)
Consequences	Low (L)	Low	Low	Low	Low	Low
	Minor (Mi)	Low	Low	Low	Moderate	Moderate
	Moderate (Mo)	Low	Moderate	Moderate	High	High
	Major (Ma)	Moderate	Moderate	High	High	Extreme
	Catastrophic (C)	Moderate	High	High	Extreme	Extreme

Table 3. Preliminary Social and Cultural Impacts Risk Assessment

Aspect	Potential Impact	Inherent Risk			Management Measures	Residual Risk		
		Cons*	L/hood*	Risk Ranking		Cons	L/hood	Resid Risk*
Heritage	Disturbance and/or loss of known archaeological and/or historical sites. Loss of identity with the area, impact on historical records and recording.	Mo	P	High	Regular inspections to assess effectiveness of archaeological/historical site management	Mo	R	Low
					Non-compliance and incident reporting			
					Immediate assessment of archaeological or historic discoveries during works			
					Regular audits			
	Known heritage sites within the mining lease can be impacted on directly or indirectly by both the mining operation and employees/contractors	Ma	P	High	Site Induction	Mo	U	Low
					Regular inspection of work areas conducted to assess effectiveness of protection measures			
					Immediate assessment of archaeological / cultural sites found during activity			
					Non-compliance and incident reporting			
	Damage of cultural site not identified in the Archaeological Report	Ma	P	High	Regular inspections to assess effectiveness of archaeological/historical site management	Mo	U	Low
					Non-compliance and incident reporting			
					Site Induction			
					Stop work if potential archaeological or historic sites discovered			
					No disturbance to known features			

Aspect	Potential Impact	Inherent Risk			Management Measures	Residual Risk		
		Cons*	L/hood*	Risk Ranking		Cons	L/hood	Resid Risk*
Access	Potential damage to existing fences and gates during construction of access roads	Mo	P	Mod	Maintenance of landowner property access at all times	L	P	Low
					Minimise disruption to landowners and third parties where possible			
	Aboriginal sites of significance within and near the mining lease, possible that this land may be required for cultural / traditional purposes but reduced accessibility during mining	Ma	P	High	Regular communication with TO's to ensure access is not an issue	Mo	U	Low
					Minimise disruption to TO's where possible			
					Clear communication and prior warning of any works likely to limit access			
	Access to the site is likely to be via non bitumen roads and therefore damage, particularly during the wet season, is likely. Higher risk of accidents.	Ma	P	High	Site induction	Mo	P	Mod
					Speed limit of <40 km/hr on all access roads			
					Grading and maintenance work carried out regularly, particularly following the wet season			
Social and Visual Amenities	Changes to surface drainage, standing water in pits and water retaining infrastructure may all lead to provision of breeding grounds for biting insects leading to increase in associated disease risk.	Mo	P	Mod	Site induction	Mo	U	Low
					Biting Insect Management Plan			
					Ensure all equipment (e.g. Tyres) are disposed of from site to reduce incidence to standing water in / on infrastructure			
	Changes to land appearance reducing attachment to the land. Impacts on tourism/recreational values if the mine is perceived as a negative factor/influence.	Mo	U	Mod	Rehabilitation Management Plan	Mi	U	Low

Aspect	Potential Impact	Inherent Risk			Management Measures	Residual Risk		
		Cons*	L/hood*	Risk Ranking		Cons	L/hood	Resid Risk*
Water	Roper River - Changes to flow and potential increase of cease to flow events and timing	Ma	P	High	Monitor flow data	Mo	U	Low
	Reduction in availability of water for other purposes (stock watering, cultural, recreation)				Water Management Plan			
Noise	Increase in noise and vibration caused by trucks on access roads and highways impacting on communities/wildlife/tourism	Mo	P	Mod	Noise mufflers and regular servicing of vehicles	Mi	U	Low
					Industry best practice equipment utilised wherever possible			
Dust	Impacts to the health and wellbeing of workers onsite	Mo	P	Mod	Increase use of water trucks, seal roads if required	Mi	U	Low
	Potential impacts on tourism / amenity values							
	Potential impacts on community and landholders							

Aspect	Potential Impact	Inherent Risk			Management Measures	Residual Risk		
		Cons*	L/hood*	Risk Ranking		Cons	L/hood	Resid Risk*
Cumulative	Increased risk of traffic accidents	Ma	P	High	Education, training and road rules	Mo	P	Mod
					Consultation and collaboration with other miners in the region			
	Impacts on social amenity due to large number of trucks frequenting highway				Mining Management Plan			
	Roper River - Increased cease to flow events	Ma	P	High	Monitor flow data	Mo	P	Mod
					Collaborative Management			
	Roper River - Reduction in availability of water for other purposes (stock watering, cultural, recreation)				Water Management Plan			
					Cease pumping when flow is too low			
	Impacts on social amenity and tourism	Mo	P	Mod	Consultation and review of commitments	Mi	U	Low

* Cons: Consequence

L/hood: Likelihood

Resid Risk: Residual Risk

3 Values Linked to Environment

3.1 Values linked to water

In such a remote region, which experiences extreme wet season weather coupled with a sparse population, industrial and economic options can be limited. Mining, conservation, and indigenous tourism based industries are the main areas of activity within the Region.

With a 67% indigenous population within the Mataranka Basin (Stoeckl et al. 2007), traditional practices and connections to land and water are high.

3.1.1 Roper River

Much of the riparian vegetation along the fringes of the Roper River and tributaries derive flow from the regional aquifers and are potential groundwater dependent ecosystems, obtaining their moisture from groundwater during the dry season. Riparian lands occupy only a small proportion of the landscape but they frequently have a much higher species richness and abundance of animal life than adjacent habitats (Knapton 2009).

Extraction of water from the Roper River has the potential to impact on the values of the river, both ecologically and socially. Reduction in available water can impact on the tourism values, cultural and pastoral uses and values, and the habitat available to fauna.

3.1.2 Mataranka Thermal Pools

The Mataranka Pools are significant for occurring in the transition zone between the tropical and savannah regions of the NT, providing a permanent flow throughout the year in an otherwise arid landscape. The area is popular for recreation, tourism and conservation, as well as having pastoral and traditional uses (Harrison et al. 2009). The Mataranka Pools are located almost 100 km from AIR and the proposal is therefore unlikely to pose a direct threat.

3.1.3 Elsey National Park

The perennial nature of the spring-fed Roper River, the floristic diversity and restricted range of the riparian vegetation and the representation of “tufa” formations have been identified as important natural resources within Elsey National Park (Knapton 2009). The park is upstream of this proposal and is therefore unlikely to experience any direct impact from the mine.

3.1.4 Red Lily Lagoon / 57 Mile Waterhole

The Red Lily Lagoon is an area of riparian vegetation associated with wetlands along a 20 km braided section of the Roper River immediately downstream of the major groundwater discharge zone from the Cambrian Limestone aquifer (Knapton 2009). This lagoon is upstream of the extraction point so is unlikely to be impacted by the proposal.

3.1.5 Flying Fox Creek

The head waters of the Flying Fox Creek are sourced from groundwater via springs and discharge from the Dook Creek aquifer along the creeks upstream of the Central Arnhem Highway (Knapton 2009). Flying Fox Creek is close to the potential AIR extraction point and therefore has the potential to be impacted by this proposal. Impacts may include stock access issues, increased ‘cease to flow’ incidences and availability of water for stock, tourism, recreation and cultural purposes.

3.1.6 Mainoru River

The head waters of the Mainoru River and downstream of Top Spring are sourced from groundwater via springs and discharge from the Dook Creek aquifer along the river upstream of the Central Arnhem Highway (Knapton 2009). Mainoru River feeds into Wilton River and is therefore unlikely to be impacted by the SILL80 Project.

3.1.7 Wilton River

Major perennial discharges within the Wilton River catchment occur along the Wilton River and at discrete springs including Lindsay Spring, White Rock Spring, Weemol Spring and Mt Catt Spring (Knapton 2009). Wilton River is downstream of the SILL80 Project and also downstream of Roper Bar. There is potential for impacts to this area from the project including impacts to tourism, recreation, water availability and cultural purposes.

3.1.8 Billabongs

Freshwater billabongs (e.g. Nulawan) occur along the Roper River and are identified as being under threat from feral animals (Ens 2009). The SILL80 Project may impact on billabongs if the extraction of water from the Roper River causes increased 'cease to flow' events.

3.2 Other Existing Values

3.2.1 Tourism

Tourism, whilst not major in this region, is becoming more significant with people visiting national parks, the Roper River and parts of Arnhem Land. Continued growth of tourism is possible in the future, particularly with increasing opportunities for ecotourism and indigenous tourism ventures run by indigenous communities.

Well known features frequented by tourists in the region include:

- Mataranka thermal pools;
- Fishing near Mataranka and on the Roper River;
- Elsey Station, made famous by Jeannie Gunn's book "We of the Never Never"; and
- Art and craft at the Aboriginal community of Manyallaluk.

3.2.2 Indigenous Sites of Significance

Some sites of significance exist close to the proposed works area, and further study will be initiated to determine any other sites that have potential to be impacted by the proposed mine. An Aboriginal Areas Protection Authority certificate has already been received but an updated certificate will be sought to encompass additional areas that have since been included in the proposal.

3.2.3 Pastoralism

Local rivers support the pastoral industry which is the largest land use in the region, as well as a number of indigenous communities. Pastoralism is the dominant land use in terms of area and although not considered to be intensively managed, the land is still important as pastoral land and impacts to the river or surrounding landscape could have a negative impact on this industry.

3.2.4 Water Supply

Residential communities and the ecological value of the area rely heavily on the quality, quantity and timing of water in the Roper River. Changes to the flow regime and/or quality of water from the Roper River caused by the extraction for AIR has the potential to impact on these communities.

3.3 Archaeological Survey

An archaeological survey was conducted of the site in September 2011. The survey was carried out over one and a half days by Christine Crassweller accompanied by representatives from EcOz and the Roper Valley Community (refer to PER Appendix E Archaeology Survey Report).

No archaeological or historic sites or objects were identified during the survey. A stone cairn was observed on the summit of an isolated hill but as the hill was located within the restricted area of a sacred site, it was not possible to examine the cairn closely.

The absence of any archaeological material is consistent with previous findings of other surveys in the region and is most likely related to the environmental conditions and processes that occur in the area. There were no rock outcrops present containing a suitable raw material that could have been used in the manufacture of stone artefacts. The undulating plains consisted of either black cracking soils or red silty soils. These two surfaces result in a very low archaeological visibility as any stone artefacts that had been discarded in the past would have been covered by the silts in the wet season floods or soil during the expanding and contracting of the clays in the wet and dry seasons. The surface has also been churned up by cattle, as the area has been used as holding paddocks.

Consequently, while surface visibility was extremely poor at the time of the survey, it was assessed that there was only a low potential for the presence of any unidentified significant archaeological material within the subject land.

No further action was deemed to be required for compliance with the provisions of the *Northern Territory Conservation Act 1991*.

3.4 AAPA Certificate

Application was made to the Aboriginal Areas Protection Authority to determine any Aboriginal Sacred Sites that might exist within the AIR tenements. Restricted Works Areas (RWA) exist within the AIR proposal area and within these areas, no work shall take place and no damage shall occur. Since the original application, some aspects of the project have developed, such as the location of the proposed access road. An application to amend the certificate to include new developments has been lodged. The initial map of restricted works areas is shown below in Figure 3-1. Note that the proposed pipeline route has since been relocated to prevent passage through restricted works areas.

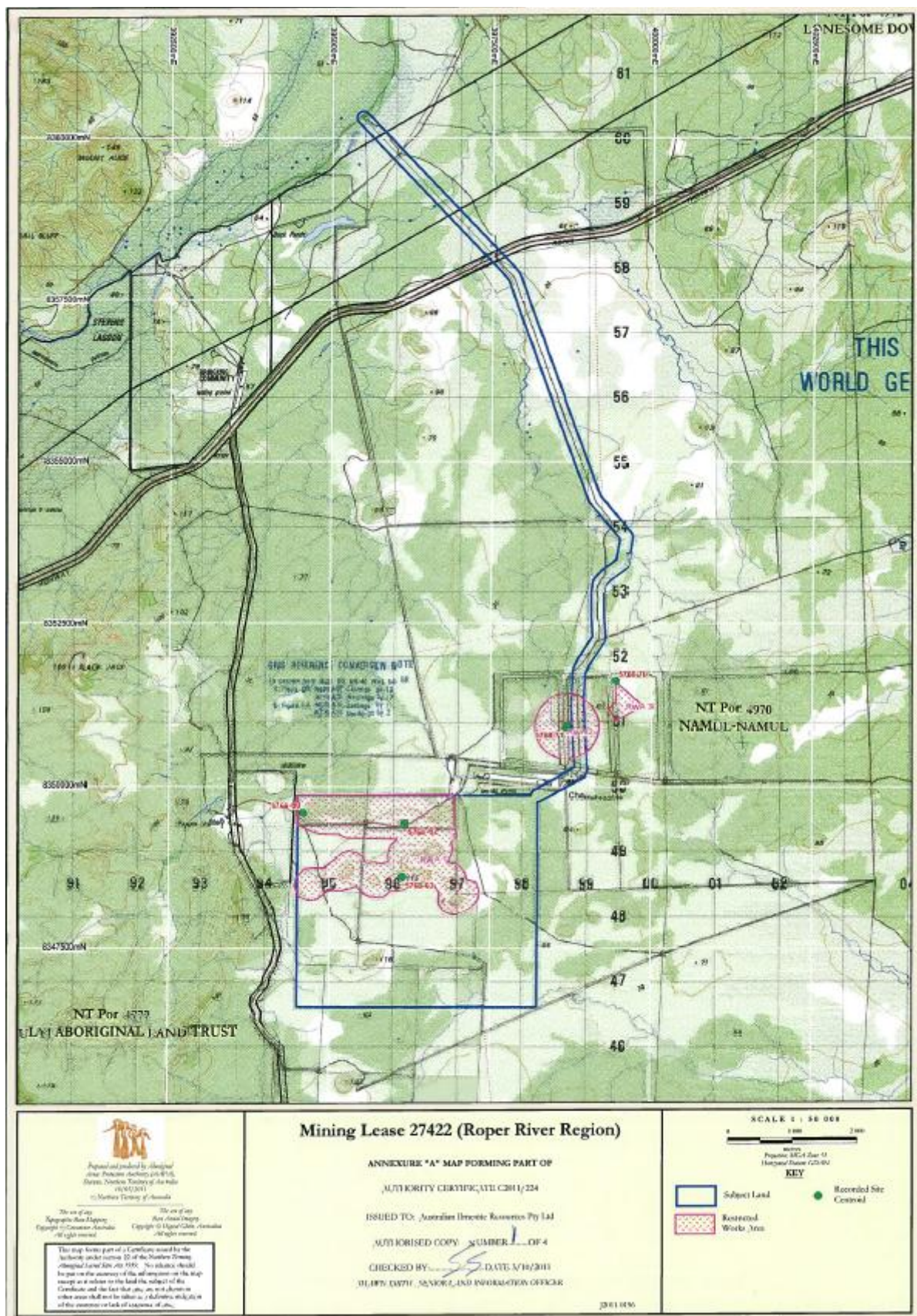


Figure 3-1. Initial AAPA Determined Restricted Works Areas

4 Impact Assessment

4.1 Identified Impacts

AIR recognises the importance of identifying responsibility for the reduction of impacts and developing methods for effective engagement with interested and/or potentially impacted parties.

Impacts likely to result either directly or indirectly from the SILL80 Project include, but are not limited to:

- Increased sedimentation and erosion;
- Changes to access, including reduction in accessibility to traditional or farming lands;
- Clearing of native vegetation impacting visual amenity of the area;
- Fragmentation of fauna habitat;
- Increase in feral animals which may come into the disturbance area;
- Water extraction from Roper River leading to changes in flow regime and timing as well as impacting on tourism, recreation and indigenous cultural activity/beliefs;
- Increases in noise, air pollution (dust) and vibration;
- Increased vehicular movement on site and nearby roads can lead to an increase risk of accidents, increased issues with erosion and general road condition, and visual amenity and road kill; and
- Impacts on indigenous sites of significance within and in close proximity of the mining lease. There is some risk of increased awareness leading to increased visitation and potential vandalism, and impacts from mining such as dust and direct impacts (destruction).

Impacts are possible from all phases of mining, from exploration to mine construction and operation. It is also essential to determine early in the planning process what the end use of the land will be, whether it is returned to former use, i.e. pasture or improved pasture, or reverted to land used for traditional purposes, agreed to by all relevant stakeholders.

Uncertainty surrounding the closure plan has potential to impact significantly on stakeholders and confusion over the end land use could directly impact on the environment through inappropriate planning and management.

AIR has been in consultation with stakeholders from early in the planning stage to determine an acceptable closure plan and will work towards this as mining progresses. Options have been presented to the community to date, such as leaving infrastructure behind to assist in future endeavours (e.g. storage sheds and roads).

4.2 Cumulative Impacts

The Roper Gulf Region has several mining operations either currently in operation or going through the planning stages. Cumulative impacts can occur from the compounding activities of a single operation or multiple mining operations, as well through the interaction of mining impacts with other past, current and future activities not related to mining (Franks et al. 2009). Assessing and managing cumulative impacts will require strong coordination between all stakeholders within the catchment.

Acquah (1999) states that the cumulative social impacts of mining tend to:

- Manifest themselves in alterations to the traditional social practice and core cultural identity of the community;

- Occur later in the project cycle than direct and indirect social impacts; and
- Be more irreversible than direct and indirect social impacts.

Some cumulative impacts that may occur within the Roper River Region include:

Transportation

The SILL80 Ilmenite Project will transport product by road (Roper and Stuart Highways) to the Darwin Port. Up to 20 trucks will travel to and from the site per day when production capacity is reached. This could impact on the level of road safety in the region, impacting both tourists and residents of the NT, and well as reducing the overall condition of the road, increasing incidents of road kill, and creating visual impacts, vibration and noise.

Roper River

AIR proposes to extract water for processing operations from the Roper River. Other communities and pastoralists also extract from the river. Currently 'cease to flow' events occur for an average of 18 days per year. This will potentially be impacted on by increased water extraction from the Roper River, impacting on users and visual and social amenity.

Concentration of proposals within the Roper River Region

This can affect the region as a whole, in particular tourism, recreation and cultural values, but can also be a positive influence, bringing training and employment opportunities to the region.

4.3 Outcomes from Workshop

A workshop was held on the 5th of September 2011. Information booklets ('story books') were distributed and four key issues were discussed.

Cumulative impacts of water extraction from the Roper River and increases in traffic were considered the most significant potential social and cultural impacts for this region.

In identifying potential social and cultural impacts, particular consideration was given to:

- The life of the project and potential accumulation of impacts over time;
- Changes in access to land for commercial, traditional or recreational purposes;
- Environmental impacts that may cause permanent or temporary loss of culturally important natural resources, such as significant flora and fauna (e.g. medicinal plants);
- Any cultural importance placed on the Roper River, or by people that may be affected by the extraction of water from the river;
- Impacts on the communities of Minyerri and Roper Valley such as access and visual amenity; and
- Increases in traffic in the region associated with transport impacting on quality and safety of roads and tourism.

4.3.1 Site Access and Traffic

Issues were raised concerning access to the mine lease (MLA27422) through the existing Hodgson River Road and existing Numul Numul Station tracks. The volume of traffic and its proximity to Roper Valley and a nearby sacred spring were highlighted as concerns.

Discussion centred on:

- Traffic volume on Hodgson River Road;

- Road degradation resulting in reduced access to Roper Valley and Minyerri;
- Current tracks through Numul Numul Station exist in an exclusion area – no road development through this area would be allowed;
- Drainage issues and dust on roads;
- Dust management near living areas; and
- The need to widen the Hodgson River Road would affect a sacred spring near Roper Valley.

Potential management tools identified included:

- Warning signs;
- Speed limits of less than 40km per hour near living areas; and
- Continued grading and dust suppression activities.

Alternative access to MLA27422

During the discussion, it was proposed that a new track could be developed south of MLA27422 to prevent the use of existing Numul Numul station tracks passing through identified exclusion zones, although this would not mitigate the issues concerning the Hodgson River Road. This option was discussed further following the meeting and a new access road route was identified through aerial surveys and then ground truthed with TO's from Roper Valley (Figure 4-1). This option has been selected as the best outcome for the broader Roper Valley Community, Numul Numul Station and AIR.

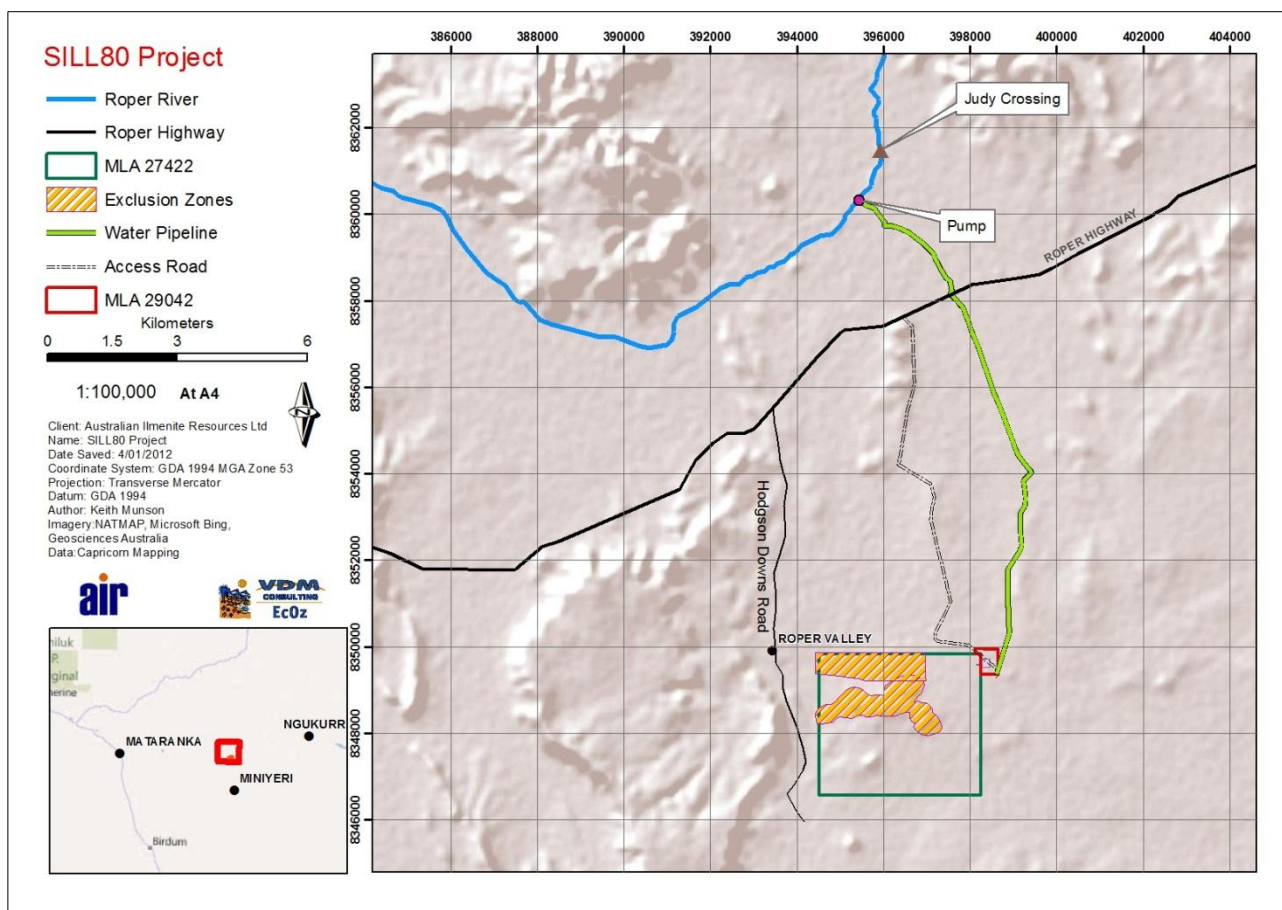


Figure 4-1. Proposed access route to MLA27422

4.3.2 Infrastructure

Options were discussed regarding AIR returning the site to its original state or retention of some infrastructure such as sheds and roads.

Stakeholders indicated that the shed may be of use, although it would need to be moved to Roper Valley.

Stakeholders highlighted the difficulty in planning so far in advance (in excess of 20 years) or being able to visualise future requirements. Further discussion would be essential to confirm requirements, and stakeholders indicated that this should occur closer to closure date.

4.3.3 Rehabilitation

Stakeholders were provided with details of planned rehabilitation including the plan to mine and progressively rehabilitate over the course of mining, involving an area of approximately 30 hectares at a time.

Stakeholders detailed some recommended processes for rehabilitation with native bush recruited from seed stock in the top soil, complimented with some improved pasture species such as Sabi Grass. This was further adapted post meeting and it was determined that land would be rehabilitated to a healthy perennial grass rangeland with a diverse mix of plants, both native and introduced (i.e. non-declared species) (refer to PER Appendix K Rehabilitation Management Plan).

Other stakeholder groups agreed to this rehabilitation approach.

4.3.4 Water Extraction

The concept of water extraction for mining purposes was discussed, however as details were yet to be finalised it was agreed that further meetings would be necessary at a later date.

4.3.5 Other

Members of the broader Roper Valley Community informed AIR that an existing rubbish dump requires work to be upgraded or may require relocation, as it is currently subjected to seasonal inundation. This will be reviewed as mining plans progress.

4.3.6 On-going Consultation

Further consultation will be required prior to the commencement of mining operations. Another meeting will be scheduled for mid-2012.

5 Mitigation, Management and Monitoring

5.1 Mitigation and Management

5.1.1 Inductions

AIR will follow a strict protocol of contractor induction covering the following topics as a minimum:

- General health and safety;
- Environmental management and awareness;
- Management and awareness of cultural assets within the lease and surrounding area; and
- Waste management.

5.1.2 General

Mitigation and management of impacts will be facilitated through:

- Ensuring there is no disturbance to known archaeological, historical or cultural features, this may be through limiting access (fencing) and / or educational programs and campaigns to raise awareness, including but not limited to signage;
- Regular inspections will be conducted to assess effectiveness of archaeological/historical site management;
- Immediate assessment of any new archaeological, historic or cultural discoveries during works;
- Immediate cessation of works if historical or cultural material found or suspected;
- Regular internal and external audits;
- Non-compliance and incident reporting;
- Site Induction including 'cease work' protocols and access limitations;
- Regular inspection of work areas conducted to assess effectiveness of protection measures;
- Maintenance of landowner property access at all times, where fences are breached temporary stock proof gates will be provided;
- Minimise disruption to landowners and third parties where possible;
- Regular communication with TO's to ensure access is not an issue;
- Consultation meetings held as required;
- Grading and maintenance work carried out regularly to access tracks particularly following the wet season;
- Speed limit of <40 km per hour on all access roads;
- Ensure all equipment (e.g. tyres) are disposed of from site to reduce incidence to standing water in / on infrastructure, in accordance with the Biting Insect Management Plan;
- Promoting training to allow stakeholders/community members to undertake specific management tasks such as surveying or rehabilitation; and
- Engaging stakeholders/community members as contractors to undertake specific tasks.

5.1.3 Management Plans

Management of potential social and / or cultural impact will be firmly entrenched into management plans developed for the SILL80 Project, to ensure that strategies are in place to address impacts before they occur, but also capable of recognising new potential impacts so that the AIR is able to respond in an adaptive way to changes in operational circumstances. Social impacts may become more apparent at different stages of the operation and accordingly, processes to address impacts must be in place prior to, and following, the project approval process and operations phase.

5.1.4 Training and Employment

Increased opportunities for training and employment will help to offset, to some degree, the disturbance to country caused by mining and therefore AIR has commenced negotiations to employ three local community members at the mine site.

5.2 Monitoring

Regular monitoring and review of potential and realised issues is essential in determining success and the need for adaptive management. Monitoring will be carried out through continued consultation with stakeholders and members of the local community, including pastoralists and TO's.

Key aspects of monitoring will be:

- Consultation feedback;
- Internal and external auditing;
- Feedback received ad hoc, both positive and negative; and
- Assessment of level and type of support and services provided to local communities.

An effort will also be made to work collaboratively with other mine operators in the region, to determine whether social impacts are being felt at a regional level and whether a strategy should be developed collectively over a wider area.

Results and findings from monitoring will be fed back into management plans and strategies to allow for continual improvements and adaptive management.

The following monitoring is likely to be carried out as part of the AIR proposal (refer to the Environmental Management Plan PER Appendix L for more information on commitments):

- Monitoring river levels over time to gauge the impact and compare to historic data;
- Metering of overall extraction from the river;
- Regular monitoring of cultural/historical sites to determine any impacts;
- Noise monitoring;
- Routine dust monitoring; and
- Monitoring of rehabilitated land to ensure end function is reached.

6 Summary and Commitments

6.1 Summary

The SILL80 Ilmenite Project, within MLA27422, is located in the Roper River region of the Northern Territory. The process of identifying social and cultural impacts for the SILL80 Project follows the basic process consisting of identifying scope and impact, identifying potentially affected stakeholders and conducting consultation, followed by review of success.

A workshop was held on 5th of September 2011 to facilitate discussion of potential impacts and mitigation strategies, question and answer sessions and presentation of a 'story book' (see Appendix D1) to key stakeholders. The workshop ran for two hours and approximately 50 people attended.

Extraction of water from the Roper River has the potential to impact on the values of the river, both ecologically and socially. Reduction in available water can impact on the tourism values, cultural and pastoral uses and values, and the habitat available to fauna. Areas of significance associated with the Roper River have the potential to be impacted by this proposal.

Pre-existing conditions, the process of community engagement and capacity-building, design of the development process and mine, the role of governments; and the other processes of social change either already under way, or which may develop during the life of the mine, all have potential to impact on the social and cultural significance of this region.

Some cumulative impacts that were identified for the SILL80 Ilmenite Project and surrounding region include:

- Transportation – safety of the road which is used by tourists and residents of the NT, reduction in overall condition of the road, increase incidents of road kill, as well as visual impacts, vibration and noise.
- Roper River – AIR propose to extract processing water from the Roper River. Communities and pastoralists also extract from the river. Currently 'cease to flow' events occur for an average of 18 days per year, these are likely to increase as extraction rates increase, impacting on users and visual and social amenity.
- Concentration of proposals within the Roper River Region – this can affect the region as a whole, in particular tourism, recreation and cultural values, but can also be a positive influence, bringing training and employment opportunities to the region.

6.2 Commitments

Mitigation and management of impacts will be facilitated by AIR through:

- Engaging in ongoing consultation with interested parties as the project develops and evolves through to the mining phase;
- Ensuring that all permanent and temporary (contract) staff undergo induction, which will include information on social and cultural impacts and management, 'cease work' protocols and access limitations;
- Continuously review processes to incorporate any changes in circumstances, along with regular internal and external auditing;
- Consultation with stakeholders from early in the planning stage to determine an acceptable closure plan and will work toward this as mining progresses.

- Ensuring that strict road rules apply, including reduced speed limits (max 40 km/hr on all access roads) particularly in areas subject to high community or tourist use;
- Ensuring there is no disturbance to known archaeological, historical or cultural features;
- Regular inspections of archaeological/historical site management;
- Maintain a current Aboriginal Areas Protection Authority Certificate to protect areas of cultural importance from disturbance by the SILL80 Project.
- Immediate assessment of any new archaeological, historic or cultural discoveries during works;
- Immediate cessation of works if historical or cultural material is found or suspected;
- Regular internal and external audits;
- Non-compliance and incident reporting;
- Regular inspection of work areas to assess effectiveness of protection measures;
- Maintenance of landowner property access at all times, and where fences are breached temporary stock proof gates will be provided;
- Endeavours to minimise disruption to landowners and third parties where possible;
- Regular communication with TO's to ensure access is not an issue;
- Consultation meetings as required;
- Grading and maintenance work on access tracks particularly following the wet season;
- Implementation of the Biting Insect Management Plan;
- Ensuring all equipment (e.g. tyres) are disposed of from site to reduce incidence to standing water in / on infrastructure;
- Promoting training to allow stakeholders/community members to undertake specific management tasks such as surveying or rehabilitation;
- Engaging stakeholders/community members as contractors to undertake specific tasks; and
- Management of potential social and / or cultural impact will be firmly entrenched into management plans developed for the SILL80 Project to ensure that strategies are in place to address impacts before they occur, but also capable of recognising new potential impacts so that the AIR is able to respond in an adaptive way to changes in operational circumstances.

Increased opportunities for training and employment will help to offset, to some degree, the disturbance to country caused by mining and therefore AIR has commenced negotiations to employ three local community members at the mine site.

Key aspects of monitoring will be:

- Consultation feedback;
- Feedback received ad hoc, both positive and negative; and
- Assessment of level and type of support and services provided to local communities.

Moves will also be made to work collaboratively with other mine operators in the region to determine whether social impacts are being felt at a regional level and whether a strategy should be developed collectively over a wider area.

Results and findings from monitoring will be fed back into management plans and strategies to allow for continual improvements and adaptive management.

Other monitoring proposed by AIR includes:

- Monitoring river levels over time to gauge the impact and compare to historic data;
- Metering of overall extraction from the river;
- Regular monitoring of cultural/historical sites to determine any impacts;
- Routine dust monitoring; and
- Monitoring of rehabilitated land to ensure end function is being achieved.

AIRs principle aim is to ensure that they develop and implement a process for estimating, before development, any social consequences potentially resulting from this proposal and to identify methods for management and mitigation.

7 Definitions and Acronyms

Acronyms

AIR	Australian Ilmenite Resources
ILC	Indigenous Land Corporation
NLC	Northern Land Council
PER	Public Environmental Report
RWA	Restricted Works Area
SCAR	Social Cultural Aspects Report
TO	Traditional Owner

Definitions

Archaeological Material	Assemblage of artefacts / material / cultural remains of a particular past human society
Capacity Building	Understanding the obstacles that inhibit groups of people from realising their developmental goals while enhancing the abilities that will allow them to achieve measurable and sustainable results. Encouraging participation and responsibility for the outcome and sustainability of developments. Engaging stakeholders who are directly affected by the situation allows for more effective decision-making, it also makes development work more transparent.
Cumulative Impact	Cumulative impacts associated with the SILL80 Ilmenite Project are defined as the successive, incremental and combined impacts of an activity on society, the economy and the environment either directly or indirectly by the projects' activities (either positive or negative) over the duration of the project and beyond
Custodian / Traditional Owner	The term traditional owners is often used when describing Aboriginal peoples' connection to the land, but also in the native title process. The roots of the term traditional owner seem to lay in the Aboriginal Land Rights (Northern Territory) Act 1976, which established ways for Aboriginal people to claim land in the territory on the basis that they were the "traditional Aboriginal owners" of the land [29]. According to the Act the definition of 'traditional Aboriginal owners' is "...a local descent group of Aboriginals who: (a) have common spiritual affiliations to a site on the land, being affiliations that place the group under a primary spiritual responsibility for that site and for the land; and (b) are entitled by Aboriginal tradition to forage as of right over that land."

Stakeholder

A party that has an interest in an enterprise or project. This can include the primary stakeholders in a typical corporation such as investors, employees, customers and suppliers. However, stakeholders can also be widened to include the community, government and trade associations.

8 References

- Acquah, P 1999, *SIA and the Social Impacts of Mining in Ghana*. University of Bath. 12/05/99. Interview Notes.
- AIATSIS, 2000, Australian Institute of Aboriginal and Torres Strait Islander Studies, *Australian Indigenous Language Map*, Canberra.
- Ens, EJ 2009, *Freshwater billabong monitoring and protection from feral animals*. Report to the Yugul Mangi Land and Sea Management Corporation, Ngukurr, Northern Territory.
- Franks, D, Fidler, C, Brereton, D, Vanclay, F & Clark, P 2009, *Leading Practice Strategies for Addressing the Social Impacts of Resource Developments*. Centre for Social Responsibility in Mining, Sustainable Minerals Institute, the University of Queensland. Briefing paper for the Department of Employment, Economic Development and Innovation, Queensland Government.
- Harrison, L, McGuire, L, Ward, S, Fisher, A, Pavey, C, Fegan, M & Lynch, B 2009, *An inventory of sites of international and national significance for biodiversity values in the Northern Territory*, Department of Natural Resources, Environment, The Arts and Sport, Darwin, Northern Territory.
- Knapton, A 2009, *Gulf Water Study – An Integrated Surface-Groundwater Model of the Roper River Catchment, Northern Territory*, Department of Natural Resources, Environment, The Arts and Sport, Technical Report No15/2009D.
- Northern Territory Government 2007, *Bushtel Community Search*, viewed 25 July 2011 <<http://www.bushtel.nt.gov.au>>.
- Stoeckl, NE, Brown, VL, Stanley, OG, Jackson, S & Straton, A 2007, *Social and economic values associated with Australia's Tropical Rivers*, Economic Society of Australia.

Appendix D1 – Story Book

* Information presented on 5th September 2011 – some of this information is now out-dated

Australian Ilmenite Resources

SILL80 Project (Numul Numul Station)

Purpose

- This booklet is provided to detail the AIR SILL80 project.
- The booklet outlines the planned development of the Ilmenite mine
- Group meetings will be arranged to discuss the issues from this booklet further

Ilmenite

Ilmenite (FeTiO_3), is a mineral, most commonly used to produce titanium dioxide (TiO_2), which is an important base pigment in paint, paper, and plastics. Australian Ilmenite Resources plans to export ilmenite to China.

This mine would operate for about 20 years.



Mining

Ilmenite minerals occur near the surface.

Excavations will be down to 3 meters.

Pits will be 500 meters long and 50-100 meters wide.

After each pit has been mined – unused material will be placed back into the pit and planted out with either grasses or bush vegetation.



Processing

Excavated material will be refined to an Ilmenite concentrate onsite.

The refinement process requires water to be mixed with the excavated material.

This mixture is then run through a series of spirals called "Wash Trommels".

Ilmenite concentrate will then be put into 2 tonne bags before being trucked to Port Darwin.



Processing Plant

The processing plant will consist of;

- Processing shed (50m x 35m)
- 3 spiral wash trommels
- Water recycling unit
- Site office
- 3,000,000 litre water storage in a sealed rubber bladder
- 75,000 volt diesel generator
- Diesel fuel tank and pump





Transport

Ilmenite will be trucked from the mine to Darwin, everyday except during the wet season.

Trucks will use the Stuart Highway, Roper Highway and the Hodgson River Road.

At full production;

- 26 x 107 tonne road trains going out and into the mine site

= 2.6 road trains (with up to 3 trailers each) every 1 hour.

26 trucks per day



Map of Truck Route



Water

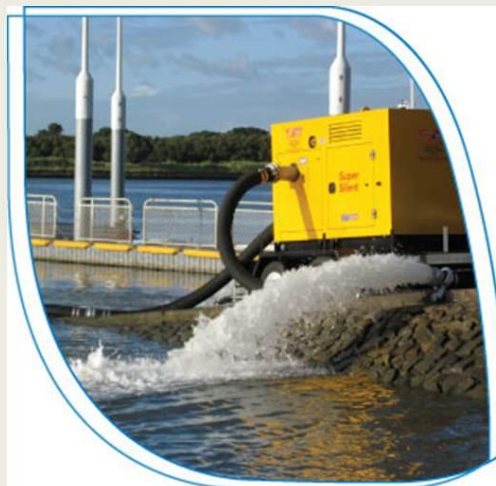
Water for the mine will come from the Roper River.

600,000 litres of water ($\frac{1}{4}$ of an Olympic swimming pool) will be taken everyday.

Water use will be limited to make sure the Roper River always has water flowing.

Water will be pumped from the river to the mine.

The mine will have a recycle system so that 60% of water can be used again.



Rehabilitation

After an area has been mined – it will be backfilled with remaining material.

These areas will then be planted with species to revegetate. This can either be;

- A mixture of species to return the area to bush or/
- Pasture grasses to increase the productivity of the land as a pastoral property (i.e. sabi grass)



Employment

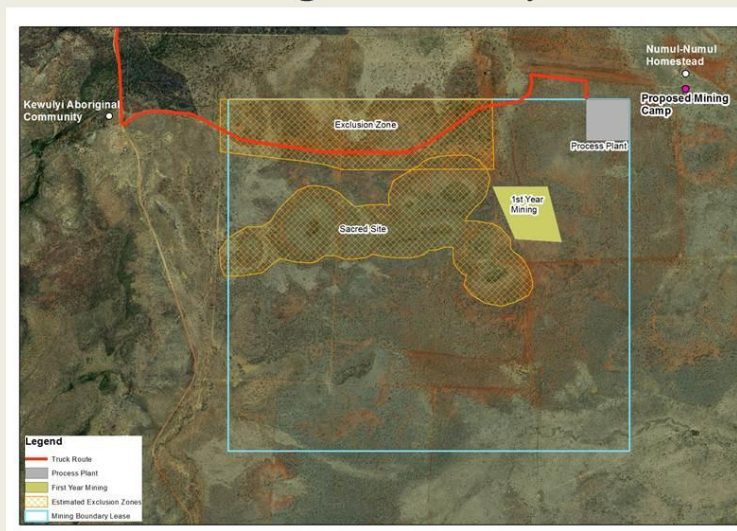
The mine will employ between 5 and 10 full time staff.

2 staff will be from Roper Valley.

Up to 30 more jobs will be made to truck the Ilmenite to Darwin.



Mining Lease Layout



Mining Camp

To be located off Mining Lease (near the Numul Numul Homestead).

The camp will accommodate 10 people.

Camp will comprise;

- Relocatable Donga buildings with en-suite
- Communal mess area
- Camp Kitchen
- Workshop area
- Car park for 15 vehicles



Animals

Surveys have been performed to see what animals are present at the mine site.

Measures will be made to minimise the impact on native animals.



Mine Closure

After mining has finished – the area will be rehabilitated.

Buildings and tracks built for the mine can be left in place – or removed.



Things to Discuss

- Transport
- Noise and Dust
- Rehabilitation (returning country back to the way it was or improved pasture for cattle).
- Water – (Roper River flows)
- Site Access – sacred sites
- Jobs
- Mine closure – things (roads, shed etc) to leave in place

Notes:

Contacts

- Australian Ilmenite Resources, PO Box 947, Darwin, NT 0801 – (08) 89 41 32 13
- EcOz Environmental Services, PO Box 381, Darwin, NT 0801 – (08) 89 81 11 00
- Northern Land Council, PO Box 396, Katherine, NT 0851 – (08) 89 72 27 99