12 Socio-Economic Environment

12.1 Introduction

This Economic and Social Impact Assessment (ESIA) has been prepared in accordance with Section 4.7 ‘Socio-economic Impacts’ of the Terms of Reference (TOR) and the Northern Territory Environmental Protection Authority (NT EPA) ‘Guidelines for the Preparation of an Economic and Social Impact Assessment’. Socio-economic impacts were previously assessed in the McArthur River Mine (MRM) Phase 3 Development Project (Phase 3) Environmental Impact Statement (EIS). In accordance with the TOR, this assessment addresses the socio-economic impacts and any benefits associated with the proposed Overburden Management Project (the Project), and considers the following key risks as identified in the TOR:

- benefits to the community may be less than previously expected as a result of the increases in costs to McArthur River Mining Pty. Ltd. (McArthur River Mining) associated with changes to management requirements of the problematic material; and
- potential negative social and economic impacts to the Roper-Gulf region and the Northern Territory (NT) associated with environmental degradation into the long term.

The ESIA objectives include:

- identifying and analysing any intended and unintended social consequences, both negative and positive of the proposed Project, as well as any social change processes which will be invoked by it; and
- detailing the proposed mitigation, management and monitoring measures to be adopted in order to optimise such consequences.

The ESIA adheres to industry best practice as described by the Minerals Council of Australia (MCA) and the guidelines for the Preparation of an ESIA provided by the NT EPA. The ESIA explores concerns beyond just the potential risks and impacts to ensure community needs and aspirations are captured.

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1 Any economic statements, estimates and projections included in the EIS or upon which the conclusions contained within the EIS are based with respect to anticipated future performance may not prove to be correct. No representation or warranty is given as to the completeness or accuracy of any forward-looking statements contained in the EIS or the accuracy of any underlying assumptions. Nothing contained herein shall constitute any representation or warranty as to future performance of MRM, any financial instrument, credit, currency rate or other market or economic measure. Information about past performance given in the EIS is given for illustrative purposes only and should not be relied upon as, and is not, an indication of future performance. To the extent such information includes estimates and forecasts of financial performance (including, without limitation, estimates of potential payroll tax, royalty payments and corporate tax) prepared by or reviewed or discussed with the management of MRM or obtained from public sources, those estimates and forecasts have been reasonably prepared on bases reflecting the best currently available estimates and judgments of such management of MRM (or, with respect to estimates and forecasts obtained from public sources, represent reasonable estimates).
This ESIA identifies and assesses the economic impacts of the Project, including:

- the existing economic environment in Borroloola and the Gulf area;
- the economic significance of the Project;
- job creation and training including Indigenous employment;
- impacts to local businesses;
- housing for local and FIFO mine employees and the impact on the local property values;
- revenue impacts to the NT Government and Commonwealth Government;
- the impact to all levels of government; and
- a comparison of Project data and data from Phase 3.

The Australian Bureau of Statistics (ABS) has produced socio-economic statistical data from the 2011 Census for the Roper Gulf Statistical Local Area (SLA) and its associated subdivisions. This has been incorporated into this study to identify and describe the existing environment.

The ABS (2011a) census changed its hierarchy to classify geographic areas. The new geographic standard areas used for the 2011 census were broken down into Statistical Area (SA) levels 1 to 5, incorporating State and Territory boundaries and then Australia as a whole. Each higher numbered SA encompasses several smaller SAs.

The Project is located adjacent to the Carpentaria Highway in the NT, approximately 65 kilometres (km) by road southwest of Borroloola Township, 105 km southwest of King Ash Bay and 205 km northwest of Robinson River (Figure 12-1).

This chapter has been structured as follows:

- description of existing socio-economic environment;
- outline of the impact assessment methodology adopted;
- discussion of potential Project impacts;
- description of the risk identification and evaluation findings;
- details of proposed management and monitoring programs to be adopted; and
- presentation of the Economic and Social Impact Management Plan (ESIMP).
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12.2 Existing Social Environment

The Project is located in the Roper Gulf Regional Council (RGRC) which is defined by the ABS as the Roper Gulf Statistical Local Area (SLA) and is used in this assessment as a boundary for describing the baseline social values of the region.

The RGRC comprises 14 key towns, two of which are significant to the Project (Borroloola and Robinson River) and 26 outstations located at varying distances from Borroloola (RGRC, 2016). An outstation (or homeland) provides the opportunity for Indigenous people in the NT to live on their traditional land, maintaining their cultural heritage (NT Government, 2011). Residents of these outstations travel to Borroloola to access services and have therefore been captured as being a part of Borroloola. Other communities which were considered relevant in the study area include King Ash Bay.

12.2.1 Local Study Area

12.2.1.1 Gulf Statistical Local Area

The local study area, defined as the Gulf Statistical Local Area includes those communities located in close proximity to the Project where the majority of direct potential social impacts will be experienced. This area encompasses the towns of Borroloola, King Ash Bay and Robinson River (Figure 12-2).

12.2.1.2 Borroloola

Borroloola is located approximately 972 km southeast of Darwin, 655 km southeast of Katherine and 940 km northwest of Mount Isa in Queensland. Borroloola can be accessed via the Carpentaria Highway (single sealed, all-weather road) which is seven hours drive from Katherine, via air charter (Borroloola airstrip is 1.5 km out of town) or via a barge, 40 km from Borroloola (only accessible in suitable weather conditions). Access is also possible via the east from the Queensland border on the Savanna Way Highway; however this route is not sealed.

Borroloola is an important service centre for the local community, surrounding agricultural properties and tourists. With a population of 926 (ABS, 2011b), the township of Borroloola has four camps, which include the Garawa Camp One, Garawa Camp Two, Yanyuwa Camp and Mara Camp (RGRC, 2015). There are an additional 26 camps/outstations, up to 260 km from Borroloola that rely on services provided from the township. The abovementioned camps accommodate the four main Indigenous language groups, Yanyuwa, Garawa, Mara and Gurdanji, whose country comprises of the Roper Gulf SLA.

Borroloola has been designated as a ‘Major Remote Town’ by the NT Government (Department of Housing and Community Services, 2015) through the Working Futures Strategy. Consequently, Borroloola has been targeted by the NT Government to become a properly planned and designated town, with the NT Government committed to improving services and infrastructure.

12.2.1.3 King Ash Bay

The King Ash Bay fishing centre, located approximately 52 km northeast of Borroloola on the McArthur River, is a popular tourist destination. In the off-season, it is a small centre, consisting of a caravan park, camping grounds and a shop, with a few permanent residents maintaining it year-round. In the high-season, it has a population of up to 1,000 residents, complemented by a significant number of tourists.
12.2.1.4 Robinson River

Robinson River is a small Aboriginal community comprising of 258 people, located approximately 150 km east of Borroloola. Formally known as the Robinson River cattle station, the land was handed back to the custodians in 1992 (Phase 3 EIS, 2013).

12.2.2 Regional Study Area

The NT is geographically divided into 16 councils including the Roper Gulf Regional Council (RGRC) (identified by the ABS as Roper Gulf Statistical Local Area (Roper Gulf SLA)). The Roper Gulf SLA covers an area of approximately 185,000 square kilometres and has a population of 6,121 (ABS, 2011c). The RGRC provides a range of local government services to the Gulf SLA including Borroloola. These services include road maintenance and repair, traffic management, rubbish collection, upkeep of parks, gardens and weed maintenance, community safety through Night Patrol, companion animal welfare and control, assets and fleet management, sport and recreation and governance support (RGRC, 2014).

The regional study area is presented in Figure 12-3.
12.2.3 Population Density and Distribution

The 2011 ABS census identified 6,121 people whose place of usual residence is the Roper Gulf SLA (ABS, 2011c). The census indicated that the population is evenly divided between male (50.1%) and female (49.9%) with an average age of 24 years. Aboriginal people make up 68.3% of the population. Of that, 4,044 people reside within the Gulf SLA where 50.2% (2,031) were male and 49.8% (2,013) were female. Aboriginal and Torres Strait Islander people made up 84.5% of the Gulf SLA population.

Table 12-1 provides the breakdown of Australian born members of the population, Indigenous members of the population and languages spoken at home with respect to the Gulf SLA, Roper Gulf SLA, NT and Australia.

Table 12-1 Population Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Gulf SLA</th>
<th>Roper Gulf SLA</th>
<th>NT</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>Total</td>
<td>%</td>
</tr>
<tr>
<td>People</td>
<td>4,044</td>
<td>100</td>
<td>6,121</td>
<td>100</td>
</tr>
<tr>
<td>Australian Born</td>
<td>3,897</td>
<td>96.4</td>
<td>5,856</td>
<td>95.7</td>
</tr>
<tr>
<td>English only spoken at home</td>
<td>1,290</td>
<td>31.9</td>
<td>1,815</td>
<td>29.6</td>
</tr>
<tr>
<td>Kriol spoken at home</td>
<td>1,717</td>
<td>42.5</td>
<td>2,991</td>
<td>48.9</td>
</tr>
<tr>
<td>Nunggubuyu spoken at home</td>
<td>231</td>
<td>5.7</td>
<td>231</td>
<td>3.8</td>
</tr>
<tr>
<td>Anindilyakwa spoken at home</td>
<td>73</td>
<td>1.8</td>
<td>74</td>
<td>1.2</td>
</tr>
<tr>
<td>Garawa spoken at home</td>
<td>55</td>
<td>1.4</td>
<td>56</td>
<td>0.9</td>
</tr>
<tr>
<td>Yanyuwa spoken at home</td>
<td>67</td>
<td>1.7</td>
<td>67</td>
<td>1.1</td>
</tr>
</tbody>
</table>

(Source: ABS, 2011c; ABS, 2011d; ABS, 2011e; ABS, 2011f)
12.2.4 Demographic and Social Characteristics

12.2.4.1 Age

In 2011, the average age of the population in the Gulf SLA was 24 years old, with children (aged 0-14 years) making up 32.3% of the population (ABS, 2011d). In contrast, the average age of the Australian general population was 37 years old, due to the significantly higher proportion aged over 40 years.

The average age of Australia’s Indigenous population is 21 years old (ABS, 2011f). A population comparison of age groups between Australia wide and the Gulf SLA is provided in Figure 12-4, with data sourced from the 2011 census (ABS, 2011d; and ABS, 2011f).

![Figure 12-4 Population Age Comparison of Australia and the Gulf SLA](source: ABS, 2011d and ABS, 2011f)

According to the United Nations 2015 Human Development Index, the Australian (general population) life expectancy is the second highest in the world with a non-Indigenous Australian born in 2014 expected to live an average of 82.4 years (United Nations Development Programme, 2015). However, the NT had the lowest life expectancy in Australia (ABS, 2016e), being 75.7 years for males and 78.5 years for females.

In 2011, the Council of Australian Governments (COAG) Reform Council estimated that by 2031 Aboriginal and Torres Strait Islander life expectancy needs to increase by 20.6 years for males (from 67.2 to 87.8 years) and 15.9 years for females (from 72.9 years to 88.8 years) for there to be equality in life expectancy across the population. (COAG, 2016).
12.2.4.2 Health Care

It has been identified that Indigenous Australians access to effective, comprehensive primary and preventative health care is essential to improving their health and life expectancy, and reducing excess mortality caused by chronic disease (COAG, 2016). In the NT, the COAG commitments to Indigenous health are implemented through the National Integrated Strategy for Closing the Gap in Indigenous Disadvantage (COAG, 2016). The most recent life expectancy figures calculated as part of the COAG strategy indicate that between the years 2010-12, Indigenous life expectancy was estimated to be 69.1 years for males and 73.7 years for females; a gap of 4.6 years between them (COAG, 2016). It is recognised the health of Aboriginal and Torres Strait Islander people is improving, however the current rate of increase is not sufficient to meet the life expectancy target by 2031 (COAG, 2016).

Across the NT, primary health care services are provided in a variety of settings including private General Practices, Aboriginal Medical Services/Community Health Services, Workplace Health Services and hospital outpatient clinics.

The Borroloola Health Clinic provides basic public health services (Northern Territory Government Department of Health, 2015) including:

- accident & emergency response/medical evacuation 24/7;
- primary health care;
- antenatal care;
- healthy school aged kids program;
- healthy under five kids program;
- childhood and adult immunisation;
- women’s and men’s health screens;
- preventable chronic conditions program; and
- infectious disease prevention and control.

12.2.4.3 Education

There are three schools within the Gulf SLA region including Borroloola, Kiana and Robinson River. Borroloola is the only school in the area that offers both primary and secondary schooling. In Borroloola it has been identified that 36% of the population attend an educational institution, with 24.8% attending a primary school, 9.5% attending a secondary school and 1.6% attending a tertiary or technical institution (ABS, 2011d).

Attendance rates and achieved levels of education in the Roper Gulf SLA have historically been lower in comparison with Australian averages. The Australian Government had committed to spending $19.1 million during 2008 to 2009 on key educational initiatives to reduce the gap between the school attendance rate of Indigenous and non-Indigenous children in the NT (DEEWR, 2014). However, the COAG Reform Council found no improvement in the attendance rates of Aboriginal and Torres Strait Islander school students during 2008 to 2012 (Australian Government, 2015). The COAG Council agreed to increase the level of transparency around school attendance, agreeing to report on the data more frequently. Attendance is a key indicator of achievement rates and if it can be understood and targeted then achievement rates can improve (Australian Government, 2015).
In May 2014, a report written by Bruce Wilson was submitted to the NT Government titled ‘A Share in the Future: Review of Indigenous Education in the Northern Territory’ which recommended a major overhaul of Indigenous education in the Territory (Northern Territory Government, 2015). The review recommended a number of changes to the structure, resourcing and curriculum of remote schools which will directly impact upon the Borroloola School. Borroloola School has been identified as a “Priority 1” school meaning it is regarded as being in an area of greatest disadvantage. Initiatives relevant to the school include:

- determining resource and support allocations for different categories of schools based on factors of disadvantage and need;
- maintaining the ‘Families as First Teachers’ program and strengthen parent engagement;
- giving priority to ensuring all Indigenous children gain English literacy; and
- cessation of senior schooling (years 10-12) in Priority 1 schools (Wilson, 2014).

The Indigenous Education Strategy 2015-2024 was developed in response to the recommendations outlined by Wilson’s report 2014 (Northern Territory Government, 2015). This strategy has been designed in three stages including:

- implementation from 2015-2017;
- evaluation from 2018-2020; and
- implementation support which will oversee the continual implementation of the strategy.

Additionally, in 2015 the Department of Education in the NT received $32.5 million from federal funding for various upgrade works for education purposes which resulted in the following:

- Borroloola School, two classrooms and refurbishments (completed July 2015, $1.2 million); and
- Borroloola Trade Training Centre (completed February 2016, $1.88 million) (Northern Territory Government, 2015).

### 12.2.5 Native Title Holder/Custodian Groups

A comprehensive cultural heritage assessment was undertaken as part of the Project, which aimed to identify native title holders, custodian groups, culturally significant places or heritage listed places. Further details are provided in Chapter 11 – Cultural Heritage.

### 12.2.6 Major Industries, Sources of Income, and Employment

As of September 2016, the NT has continued to record the lowest unemployment rate in Australia of 3.4% (Northern Territory Government, 2016) while still maintaining the highest participation rate (74.3%) of all the States or Territories. The largest employer in the NT is Government Administration with the smallest employer being the cafe and restaurant industry.

The largest industry employer within the Gulf SLA is local government and administration, employing 23.8% of the workforce (Table 12-2). The other major employers are also detailed in Table 12-2. Similar employment statistics apply to the Roper Gulf SLA.
### Table 12-2  Industry Employers in the RGRC SLA

<table>
<thead>
<tr>
<th>Industry of Employment</th>
<th>Gulf SLA (% of workforce)</th>
<th>Roper Gulf SLA (% of workforce)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civic, professional and Other Interest Group Services</td>
<td>14.6</td>
<td>10.5</td>
</tr>
<tr>
<td>School Education</td>
<td>8.3</td>
<td>8.0</td>
</tr>
<tr>
<td>Local Government Administration</td>
<td>23.8</td>
<td>24.8</td>
</tr>
<tr>
<td>Sheep, Beef Cattle and Grain Farming</td>
<td>6.4</td>
<td>9.2</td>
</tr>
<tr>
<td>Supermarket and Grocery</td>
<td>4.2</td>
<td>4.4</td>
</tr>
</tbody>
</table>

(ABS, 2011c and ABS, 2011d)

The most common occupation in the Gulf SLA is Labouring with these roles held by 30.1% of the population; followed by Professionals with 16.0% and Community and Personal Service Workers with 15.1% (Table 12-3). In the Roper Gulf region, there are a high percentage of labourers however, there are a greater percentage of people working in Community and Personal Service compared to Professionals (ABS, 2011c). The NT as a whole however, has a higher percentage of workers in the Professionals category than Labourers, with a similar statistic for Australia as a whole (ABS, 2011e and ABS, 2011f).

### Table 12-3  Comparison of Employment by Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>The Gulf SLA (%)</th>
<th>Roper Gulf SLA (%)</th>
<th>NT (%)</th>
<th>Australia (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labourers</td>
<td>30.1</td>
<td>27.2</td>
<td>9.6</td>
<td>9.4</td>
</tr>
<tr>
<td>Professionals</td>
<td>16.0</td>
<td>15.6</td>
<td>19.9</td>
<td>21.3</td>
</tr>
<tr>
<td>Community and Personal Service Workers</td>
<td>15.1</td>
<td>17.0</td>
<td>13.4</td>
<td>9.7</td>
</tr>
<tr>
<td>Technicians and Trades Workers</td>
<td>7.4</td>
<td>6.7</td>
<td>15.1</td>
<td>14.2</td>
</tr>
<tr>
<td>Managers</td>
<td>8.5</td>
<td>11.8</td>
<td>12.0</td>
<td>12.9</td>
</tr>
<tr>
<td>Machinery Operators and Drivers</td>
<td>4.9</td>
<td>5.1</td>
<td>6.1</td>
<td>6.6</td>
</tr>
<tr>
<td>Clerical and Administrative Workers</td>
<td>6.1</td>
<td>6.4</td>
<td>14.7</td>
<td>14.7</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>3.4</td>
<td>3.4</td>
<td>6.8</td>
<td>9.4</td>
</tr>
</tbody>
</table>

The ABS Census data (2011d) identified there were 1,410 people in the labour force in the Gulf SLA. Of these, 44.7% were employed full time, 24.8% were employed part-time and 20.1% were unemployed (ABS, 2011d). The unemployment rate within the Gulf SLA and larger Roper Gulf SLA is considerably high in comparison to the NT and Australian rates of 5.3% and 5.6% respectively. Refer to Table 12-4 below.

### Table 12-4 Employment Statistics

<table>
<thead>
<tr>
<th></th>
<th>The Gulf SLA (% of Total Population)</th>
<th>Roper Gulf SLA (% of Total Population)</th>
<th>NT (% of Total Population)</th>
<th>Australia (% of Total Population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total full time workers</td>
<td>44.7</td>
<td>47</td>
<td>66.9</td>
<td>59.7</td>
</tr>
<tr>
<td>Total part time workers</td>
<td>24.8</td>
<td>25.3</td>
<td>20.1</td>
<td>28.7</td>
</tr>
<tr>
<td>Employed but away from work</td>
<td>10.5</td>
<td>8.9</td>
<td>7.7</td>
<td>5.9</td>
</tr>
<tr>
<td>Unemployed</td>
<td>20.1</td>
<td>18.8</td>
<td>5.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Total full time workers</td>
<td>44.7</td>
<td>47</td>
<td>66.9</td>
<td>59.7</td>
</tr>
</tbody>
</table>


The median personal income for people over the age of 15 in Borroloola was $386 per week according to the 2011 Census data. On average a family income was $938 per week (ABS, 2011b). In comparison, the average personal weekly income in the NT is $745, and $577 in Australia. The average family income for the week in the NT is $1,759 and $1,481 in Australia (ABS, 2011e).

The workforce at MRM consists of employees residing locally, within the Territory and inter-state. There are 207 employees (54%) from Darwin or elsewhere in the Territory and 177 employees (46%) from inter-state. Of the Territory based employees, 23 live locally in Borroloola which is approximately 6% of the total workforce.

### 12.2.7 Community Infrastructure and Services

Borroloola is a significant service centre for the region. Pastoral homesteads, motels and camp grounds and the MRM site accommodation facilities represent other principal population centres. There are approximately 26 outstations surrounding Borroloola.

#### 12.2.7.1 Roads

The NT road network is managed and maintained by the NT Department of Infrastructure, Planning and Logistics. The Carpentaria Highway forms the main road access to Borroloola. It is an NT controlled road and connects Borroloola with destinations to the east and west.
12.2.7.2 Air Services

The NT road network is not always accessible year-round due to extreme rainfall (LGANT, 2016). For most isolated communities and island communities’ basic services such as public transport, the delivery of fresh food, medical supplies and urgent supplies is reliant on the use of air transport (LGANT, 2016).

There are 72 regional aerodromes within the NT which are maintained by the NT Government (LGANT, 2016). This includes an aerodrome with refuelling facilities at Borroloola, managed by the NT Government located approximately 1.5 km south of Borroloola (LGANT, 2016).

McArthur River Mining has contributed to the improved level of air services to Borroloola and the wider Gulf Region by establishing an airport runway at the MRM. A total of $8 million was provided by the mine to upgrade the MRM airport runway in 2008. These works resulted in the airstrip becoming more accessible to a wider range of aircraft, including military aircraft and charter jets.

12.2.7.3 Utilities

The Power and Water Corporation manages the water supply, sewerage and electricity supply to the study area. Water is supplied through community bores, with an average of 65 pounds per square inch (psi) provided in Borroloola (gravity fed). The sewerage infrastructure in Borroloola was upgraded in 2013. This was one of the NT’s biggest sewerage infrastructure upgrades and included the removal of septic tanks, which were susceptible to overflow during extended wet seasons.

12.2.7.4 Telecommunications

In Borroloola, most residents use landlines or mobile phones. Although services were upgraded in 2006, there are ongoing problems with phone coverage as telecommunications and mobile coverage are unreliable. The Department of Infrastructure, Planning and Logistics is working to expand mobile phone services and broadband into communities with an anticipated completion date of 2019 (Department of Infrastructure, Planning and Logistics 2016). There is no mobile coverage in King Ash Bay or Robinson River.

12.2.7.5 Housing Availability and Affordability

Many remote communities (including Borroloola) rely on social housing due to a lack of:

- private housing, with construction costs in remote communities often being prohibitive; and
- available freehold land.

In Borroloola 95.2% of dwellings are occupied private dwellings, with 4.8% being unoccupied. Of the 95.2% of private occupied dwellings, 8.1% are owned outright, 2.0% are owned with a mortgage and 72.7% are rented (ABS, 2011b).

The NT and Australian governments reached an agreement in 2013 for the provision of Essential Services that are critical to supporting Aboriginal people in the NT over the next 10 years (Department of Housing and Community Services, 2014). Under this “National Partnership Agreement on Stronger Futures” in the NT, a secured commitment of $3.56 billion has been established from the Australian Government. This will allow outstations or homelands to have access to funding arrangements to improve their municipal and essential services as well as housing maintenance services (Department of Housing and Community Development, 2014).
In 2015 a National Partnership Agreement on Homelessness (NPAH) commenced. Under the 2015-17 NPAH, the Commonwealth Government has agreed to provide $230 million over two years matched by states and territories, and funding frontline homelessness services. This NPAH gives priority to services which focus on women and children experiencing domestic and family violence, and homeless youth (Department of Social Services- Australian Government, 2016).

Additionally, the NT Government has proposed to construct 22 new community houses in Borroloola and release an additional 35 residential lots for future development (Department of Infrastructure, Planning and Logistics, 2016).

12.2.7.6 Places Appreciated or Used for Cultural, Recreational, or Aesthetic Reasons

Borroloola, King Ash Bay and Robinson River provide a unique lifestyle that is founded on a close connection with the natural environment. Accessibility to traditional homelands is a key reason for residing in the area.

Recreational and cultural events play a role in the social fabric of Borroloola, King Ash Bay and Robinson River. There is importance placed on encouraging the participation of youth in cultural events such as National Aborigines and Islanders Day Observance Committee (NAIDOC) Week and Boonu Boonu Festivals.

Extensive archaeological and ethnographic studies have been carried out previously which identified several sites of cultural significance that have either a direct link to dreamtime stories or are important to the history and culture of the local Aboriginal people. Mt Stubbs (Barramundi Dreaming) is one such site located within the Project area, although there are a number of others. Refer to Chapter 11 – Cultural Heritage for further details.

Borroloola Swimming Pool Complex

The Borroloola swimming pool complex was officially opened in 2009, which was a McArthur River Mining funded initiative. The complex includes a 25 metre (m) swimming pool, wading pool and change room facilities.

Events

The annual Rodeo and Easter Barra Classic are the two main events held throughout the year. The Rodeo is held at the Borroloola show grounds and attracts up to 1,000 people. The Easter Barra Classic is a fishing competition held at King Ash Bay and attracts competitors from across Australia. McArthur River Mining attends and sponsors both of these events on an annual basis.

Sports

Soccer and softball are the main sports played in the Roper Gulf SLA.

12.3 Existing Economic Environment

12.3.1 Economic Study Area

To provide a true representation of the current economic environment for the Project area, the economic study area varies slightly in scale compared to what was assessed as part of the social impact assessment.
The local and regional study areas are presented in Figure 12-5 where the boundaries are defined as Borroloola and the Gulf SLA respectively. The NT and Australia are also considered a part of the economic study area as they also benefit from the Project.

12.3.2 Income

As detailed in Appendix Z – Economic Impact Assessment Report, the median weekly income in Borroloola is $100 more than the median income for the Gulf SLA (Table 12-5). The median weekly income of the NT is $745, which is $168 more than the median weekly income for Australia.

Table 12-5 Median Weekly Incomes

<table>
<thead>
<tr>
<th>People aged 15 years and over</th>
<th>Borroloola</th>
<th>Gulf SLA</th>
<th>NT</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>$386</td>
<td>$286</td>
<td>$745</td>
<td>$577</td>
</tr>
<tr>
<td>Family</td>
<td>$938</td>
<td>$746</td>
<td>$1,759</td>
<td>$1,481</td>
</tr>
<tr>
<td>Household</td>
<td>$1,160</td>
<td>$1,226</td>
<td>$1,674</td>
<td>$1,234</td>
</tr>
</tbody>
</table>

The projected NT gross state product growth is outlined in Table 12-6. Years 2016 to 2017 experience a very moderate growth rate (1.5%) whilst rates for 2017 to 2018 increase substantially (5%). This increase is attributable to the expected exports from the Ichthys LNG Project commencing in 2017 (Northern Territory Government, 2016).

Table 12-6 Northern Territory Gross State Product Forecast Growth

<table>
<thead>
<tr>
<th></th>
<th>2014-15 %</th>
<th>2015-16e %</th>
<th>2016-17f %</th>
<th>2017-18f %</th>
<th>2018-19f %</th>
<th>2019-20f %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross State Product¹</td>
<td>10.5</td>
<td>2.1</td>
<td>1.5</td>
<td>5.0</td>
<td>4.1</td>
<td>3.8</td>
</tr>
<tr>
<td>Population²</td>
<td>0.1</td>
<td>0.6</td>
<td>1.0</td>
<td>1.0</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Employment³</td>
<td>0.6</td>
<td>1.5</td>
<td>0.3</td>
<td>0.7</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Consumer Price Index³</td>
<td>1.4</td>
<td>0.3</td>
<td>0.7</td>
<td>1.6</td>
<td>2.1</td>
<td>2.6</td>
</tr>
</tbody>
</table>

e: estimate; f: forecast
1 Year ended June, year-on-year percentage change, inflation adjusted.
2 As at December, annual percentage change
3 Year ended June, year-on-year percentage change
(Source: NT Government, 2016)

According to the NT Budget Forecast Report, the Territory is expected to sustain strong growth going into 2017 with the NT Government’s $1.7 billion infrastructure spend (Northern Territory Government, 2016).
This page has been intentionally left blank for consistency between printed and electronic versions of this document.
12.3.3 Exports

The Project comprises a continuation of previously assessed activities approved under Phase 3 and not an expansion. Therefore there will be no material change and hence no change in the current export and import contributions. Currently MRM has capacity to produce up to 800 kilotonnes per annum (ktpa) of zinc-lead concentrates. Over the lifetime of the Project it is expected to produce approximately 20 million tonnes of concentrate for export.

12.3.4 Major Developments in the Northern Territory

The NT’s economy is highly dependent on mining and mining construction, setting it apart from other states and territories in the country. Since 2012, the construction of the Ichthys LNG project in Darwin has created significant investment, strong employment growth and increasing GSP growth (National Australia Bank, 2016). However, the NT has long been prone to impacts associated with the variable capital levels and prevailing commodity prices (National Australia Bank, 2016).

The NT Department of Primary Industry and Resources (DPIR) website lists the NT’s authorised producing mines (and the region in which they are located) as summarised in Table 12-7. The website can be accessed at:


Table 12-7 List of Operating Mines in Northern Territory

<table>
<thead>
<tr>
<th>Authorised Site Name</th>
<th>Authorised Operator</th>
<th>Location</th>
<th>Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bootu Creek Manganese Mine</td>
<td>OM Holdings</td>
<td>110 km north of Tennant Creek</td>
<td>Manganese</td>
</tr>
<tr>
<td>Spinifex Bore Garnet Project</td>
<td>Australian Abrasive Minerals Pty Ltd</td>
<td>Northeast of Alice Springs</td>
<td>Garnet</td>
</tr>
<tr>
<td>Alcan Gove Mine</td>
<td>Alcan Gove Pty Limited</td>
<td>Gove Peninsula</td>
<td>Bauxite/alumina open pit</td>
</tr>
<tr>
<td>Cosmo Project</td>
<td>NT Mining Operations Pty Ltd</td>
<td>160 km south of Darwin</td>
<td>Gold – open pit/underground</td>
</tr>
<tr>
<td>GEMCO Mine</td>
<td>Groote Eylandt Mining Company Pty Ltd</td>
<td>Groote Eylandt</td>
<td>Manganese – open pit</td>
</tr>
<tr>
<td>McArthur River Mine</td>
<td>McArthur River Mining Pty Ltd</td>
<td>65 km by road southwest of Borroloola</td>
<td>Zinc-lead concentrate, Zinc concentrate – open pit</td>
</tr>
<tr>
<td>Ranger Mine</td>
<td>Energy Resources of Australia Ltd</td>
<td>260 km east of Darwin</td>
<td>Uranium oxide – open pit</td>
</tr>
<tr>
<td>Red Hill Alluvials Project</td>
<td>Page, Dale Nevette</td>
<td>8 km south of Grove Hill</td>
<td>Gold</td>
</tr>
</tbody>
</table>
12.4 Impact Assessment Methodology

As mentioned previously, this socio-economic assessment is based on the NT EPA’s ‘Guidelines for the Preparation of an Economic and Social Impact Assessment’ (the guidelines). The following section details the methodology adopted for both the social and economics assessments.

12.4.1 Social Assessment

A combination of desktop and field-based research was undertaken in order to conduct this social assessment. Quantitative data was accessed using the ABS census data (2011) and other relevant publications. Qualitative data was sourced from the MRM Stakeholder Engagement program (refer Appendix Y – Stakeholder Consultation Report).

McArthur River Mining has been undertaking continuous consultation with stakeholders and community members throughout the duration of the Project. This has included consultation with almost 400 people through 63 separate consultations. During this period:

- a total of 397 individuals were consulted, with more than a quarter of these consulted more than once throughout the process;
- 205 residents of the Gulf Region were consulted as part of the stakeholder consultation;
- 178 individuals were residents of Borroloola;
- private meetings were held where appropriate to allow for privacy. If not required, the meetings were held within a public domain;
- a total of 53 people attended site tours of the mine to allow key stakeholders (including custodians and their families and government officials) the opportunity to view the site first-hand; and
- focus group-style sessions were held.

For the purposes of this EIS, a widespread community consultation program was completed in accordance with International Association for Public Participation (IAP2) standards. IAP2 is an international member association which seeks to promote and improve the practice of public participation or community engagement. Consultation efforts that contributed towards the social assessment included:

- meetings to inform and advise interested members of the community about the Project;
- consultation with individuals, communities of interest and other stakeholders to verify social impacts and discuss potential opportunities; and
- consultation with government agencies.

During the consultation period, most individuals expressed either support of the operations or indifference; however there were a small number of individuals who expressed strong opposition towards the operation of the mine.
In summary, extensive consultation with the community found:

- the vast majority of stakeholders are supportive of mining continuing along with the benefits that flow in terms of employment and economic growth;
- most stakeholders expressed a good understanding about the relative advantages of the 140 m option from an environmental perspective;
- the removal of the originally proposed South and East OEFs was welcomed by all stakeholders;
- there was a positive response to the work completed on closure planning;
- both community members and other stakeholders were extremely pleased that the Tailings Storage Facility would be removed and rehabilitated; and
- similarly, the decision to leave operational waste in the open cut during the final six years of operations was welcomed by stakeholders.

A list of all persons and agencies that were consulted during the EIS has been provided in Appendix Y – Stakeholder Consultation Report.

The risks and impacts identified via community consultation are outlined in Section 12.6.1 Risk Identification.

12.4.2 Economic Assessment

An economic impact assessment was conducted by Aurecon Pty Ltd to provide a quantitative analysis of the Project’s economic impacts. This assessment utilised data sourced from the ABS and McArthur River Mining (refer to Appendix Z – Economic Impact Assessment Report) to undertake input-output (I-O) analysis and identify the indirect flow-on implications in terms of total output, household income, value added (Gross Domestic Product/Gross State Product) and employment to the NT and Australian economies. The assessment is supported by an ESIMP. The ESIMP (refer Section 12.8) is an action plan drawing from the ESIA.

12.5 Project Benefits

12.5.1 Positive Contributions of the Project

The Project will provide several positive socio-economic outcomes for surrounding communities as well as the NT and Australian economies. Table 12-8 provides a summary of the Project’s socio-economic benefits.

Table 12-8 Positive Socio-economic Outcomes of the Project

<table>
<thead>
<tr>
<th>Positive Impacts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased frequency and scope of environmental monitoring</td>
<td>Water quality monitoring and air quality monitoring programs have been reviewed as a result of the Project. Consequently, additional monitoring will be conducted to understand the full impact of the ongoing Project (water quality, air quality and geochemistry). This includes participatory monitoring programs involving local community members and custodians (see details within this table below).</td>
</tr>
<tr>
<td>Positive Impacts</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| **Youth employment opportunities – local** | Consultation identified MRM’s contribution to the economy and jobs as important to the community. McArthur River Mining has supported a number of initiatives which aim to support school based training, create pathways to employment and encourage young people to consider local job opportunities. These include programs supported by the MRM Community Benefits Trust (CBT) such as the Department of Education and Training’s Strong Start, Bright Future program and local careers expos, as well as the mine’s Indigenous Trainee Program.  
  
The Project has specifically identified job opportunities for local people within each of the four stages spanning a number of decades. This longevity of planning enables the development of specific apprenticeship & traineeship opportunities for local candidates. |
| **Increased job stability** | Jobs security at the mine whilst operations continue for an extended period will also be increased. This is significant for NT employment rates given 54% of MRM personnel live in the Territory.  
  
Additionally, long-term monitoring at the site (Adaptive Management Stage) will create additional employment and service contract opportunities for the local community. This is a significant benefit for the Gulf SLA and Roper Gulf SLA as employment opportunities have been historically limited with subsequent high rates of unemployment. |
| **Extension of the MRM CBT** | The MRM CBT was established in 2007 for the life of mining which at the time, was estimated at 2028. Under the first stage of the Project, the life of mine will be extended to 2037. The MRM CBT will remain active in the community for this extended life of mine.  
  
Under the terms of the Agreement with the NT Government for the CBT’s establishment, McArthur River Mining currently contributes $1.25 million annually for investment by the CBT and an estimated $200,000 annually to support the engagement of Project Officers to manage the grants program and CBT administration.  
  
McArthur River Mining’s contribution to the CBT is reviewed every 8 years taking into consideration a range of factors including operational context and mine performance and community needs. |
| **Opportunities for local and regional business to engage with MRM** | McArthur River Mining’s local procurement program will continue to underpin operations throughout the proposed Project’s life. Communication with local business to increase the level of awareness about McArthur River Mining expectations and requirements for supplier accreditation will be achieved.  
  
McArthur River Mining will explore opportunities to work with both Indigenous and non-Indigenous business and industry groups to support local businesses wishing to meet requirements to supply and provide services to the mine.  
  
McArthur River Mining will report on the success and development of local procurement programs though the MRM Community Reference Group and other community based communication. |
<table>
<thead>
<tr>
<th>Positive Impacts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased opportunities for custodians/Indigenous leaders to be involved in the rehabilitation process</td>
<td>McArthur River Mining will provide the community with detailed information about ongoing environmental monitoring / management programs. This may include the engagement of a Gurdanji Ranger Group in environmental management / caring for country around the mine in conjunction with MRM personnel. McArthur River Mining has established formal environmental education programs in conjunction with Borroloola School to engage students in establishment / management of rehabilitation work or other environmental initiatives. This has included several planting programs and open days with several consultants in the field.</td>
</tr>
</tbody>
</table>
| Increased involvement by custodians in cultural heritage management activities | McArthur River Mining will continue to:  
  
  - engage Gurdanji people to be actively involved in environmental management and caring for country around the mine in conjunction with MRM environmental personnel;  
  - continue to utilise Gurdanji people for clearing purposes; and  
  - continue to move forward on the Gurdanji Ranger Group initiatives. |
| Continued partnership with Borroloola School to encourage education outcomes and pathways to employment | McArthur River Mining has participated in a long-term partnership with the Borroloola School since operations commenced. In recent years, this has been supported by CBT grants for specific projects and extended to a participatory environmental monitoring program.  
  The School has received a water quality monitor donated by McArthur River Mining enabling senior students to work jointly with the mine’s environmental scientists in monitoring water quality in the McArthur River. The school is also working together with McArthur River Mining to provide career pathways for students in horticulture, using the school nursery project, and fabrication through the Trade Training Centre (Northern Territory Department of Education, 2015). |
| Taxes and Royalties                                                             | Government revenues generated from the Project, including NT payroll taxes and resource royalties and Commonwealth Government corporate taxes, provide significant financial contributions which can be potentially used for other essential public services (health, transport etc.). These tax and royalty contributions are outlined in Section 12.5.2.3. |
12.5.1.1 Financial Contributions from the MRM Community Benefits Trust

There are two avenues through which McArthur River Mining invests in the community:

- sponsorships and donations (which includes in-kind support); and
- direct monetary contributions under the MRM CBT.

The MRM CBT was established in July 2007 under an agreement between McArthur River Mining and the NT Government. Its purpose is to deliver social and economic benefits to the Borroloola regional community (MRM CBT Annual report 2012). The MRM CBT was established for the life of mining and therefore will continue to operate with the extended life of mine made possible by the Project.

A 20 year community development plan drafted in 2008 in consultation with the community has guided immediate and long term funding priorities in the areas of: enterprise and job creation, environment, education, social and community development, health, culture and art.

The MRM CBT has actively worked to help achieve the community’s long-term goal to create a vibrant, healthy, thriving region. $12.3 million has been invested into the gulf regional community in support of 76 programs or projects. The total value of these programs and projects is estimated at around $40 million which underlines the role played by the CBT as a catalyst for investment in the community.

The major focus areas of investment have been in education, community development, and enterprise and job creation. A presentation of the total financial contributions of all major focus areas from the CBT is presented in Figure 12-6. A list of all projects/programs which have been funded by the CBT since its inception are outlined on the MRM Community Trust Website.

Figure 12-6  Community Benefits Trust Financial Contributions

As mentioned previously, there are 76 programs/projects which have been supported by the MRM CBT since its inception in 2007. Table 12-9 outlines an example of some of the significant projects for each of the major focus areas.
<table>
<thead>
<tr>
<th>Partner</th>
<th>Event</th>
<th>Contribution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Education and Training</td>
<td>Strong Start Bright Future</td>
<td>$1,012,000</td>
<td>Three year funding to support pathways toward education and training for all students through to employment including a frequent attender program, incentives for students and vocational education and training opportunities.</td>
</tr>
<tr>
<td>Mabunji</td>
<td>Mabunji crèche</td>
<td>$1,062,951</td>
<td>New grant providing major funding for the construction of a new crèche with increased capacity and improved facilities.</td>
</tr>
<tr>
<td>Mabunji and Waralungku Arts Centre</td>
<td>Gulf Country Musecology</td>
<td>$194,310</td>
<td>Following on from the success of the Song Peoples Sessions in 2011 and 2012 the project further extended to continue working with the four language groups as both singers and producers to record the traditional songs of their communities.</td>
</tr>
<tr>
<td>Mabunji</td>
<td>Sea Ranger Vessel</td>
<td>$214,380</td>
<td>Purchase of a custom built vessel for the Sea Ranger unit to support their economic development and tourism activities.</td>
</tr>
<tr>
<td>James Cook University</td>
<td>Community Conservation</td>
<td>$316,000</td>
<td>Initiate a long term study on dugong and coastal dolphin in Yanyuwa sea country to enable monitoring of habitat health in the marine environment.</td>
</tr>
<tr>
<td>Nangala Project</td>
<td>John Moriarty Football</td>
<td>$330,000</td>
<td>Soccer Program with a focus on a positive impact for Indigenous children in the Region through engaging in sport and healthy lifestyle. This program was established for 12 months prior to the CBT providing financial support.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Focus Area and Year</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 2011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Development 2015-2016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Culture and Arts 2012-2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise and Job Creation 2015-2016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment 2012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health 2013-2014</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12.5.1.2 Opportunities for Long-term Monitoring and Management

The consultation program revealed a significant number of Gurdanji families expressing an interest in being involved in the closure and monitoring phase of the mine. The Project team has taken this into consideration and is investigating the implementation of a number of initiatives including the following:

- Commencing discussions with Gurdanji families about the establishment of a Gurdanji Ranger Unit. The unit would be established within the next few years and work towards self-sustainability over the life of the mine. It would provide employment for local people as well as fulfil a desire among Gurdanji families to be more involved in caring for their country. Gurdanji ranger involvement in environmental monitoring would also provide even greater transparency for the local community.
- Providing custodians with partial access to certain areas of the mine site at closure.
- A CBT grant of over $65,000 has already been invested with the Gurdanji custodians to support a study exploring the feasibility of building a sustainable, commercial enterprise based around the Gurdanji peoples’ commitment to protect, preserve and nurture their country.

12.5.1.3 Emergency Service and Medical Services

The Project has historically provided medical and emergency services to the surrounding community which would otherwise be limited or non-existent. McArthur River Mining has an emergency rescue team on site to provide emergency first aid assistance, and this service extends to community members as required. The MRM firefighting facilities are also available to the community in the case of an emergency.

12.5.2 Economic Development

The Project is expected to positively impact on local, regional, Territory and national economies.

12.5.2.1 Contribution to Economic Development for Australia and the Northern Territory

The contribution to business development is a determining factor in assessing the level of economic impact that the Project will have upon the local, regional and Territory economies. McArthur River Mining has developed a local procurement policy to encourage the use of local businesses which are technically capable and commercially competitive. Currently McArthur River Mining has a process for tenders in place; however the use of the NT Industry Capability Network (ICN) is being investigated as a project gateway to ensure all local businesses have an opportunity to quote.

All potential suppliers to MRM need to be accredited and demonstrate that they:

- enforce high standards of occupational health and safety for their employees and contractors;
- have regard to environmental considerations when manufacturing, packing or transporting their goods;
- respect human rights;
- are appropriately insured; and
- are providing products and services that are fit for purpose (MRM, 2011).
Input-output modelling has been performed for each of the four stages of the Project (refer below). The model inputs for each stage use the projected average annual direct capital and operational expenditure for the Project which are based on the August 2016 prices for the NT and Australia. The results were then multiplied by the number of years for each stage to determine the total economic impact in terms of output, value added, household income and employment. The full economic modelling results are provided in Appendix Z – Economic Impact Assessment Report. The Project is divided into the following four economic stages, which outline where major economic changes occur (as opposed to Chapter 3 – Project Description, which outlines the stages based on the varied phases of the Project):

- Stage 1: Operations (2018-2037 inclusive);
- Stage 2: Tailings Storage Facility Reprocessing (2038-2047);
- Stage 3: Decommissioning and Rehabilitation (2048-2072); and
- Stage 4: On-going Monitoring and Maintenance (2073-3017).

### 12.5.2.1.1 Stage 1 Operations

Stage 1 of the Project extends over a 20 year period starting in 2018. This stage includes the new operational activities associated with the mining of ore and emplacement of overburden. Table 12-10 details the total capital expenditure (Capex) and operational expenditure (Opex) over the duration of the Project. The total Opex of $7.647 billion contributes $262 million towards the Gulf SLA, $3.403 billion for other NT areas and $3.982 billion for the rest of Australia via expenditure on goods and services.

The average annual labour force during Stage 1 is estimated at 845, with 746 individuals undertaking operational work. Of the 845 employees, 35 are expected to be sourced from the Gulf SLA, 391 from other parts of the NT and 320 from the rest of Australia. The remaining 99 employees will be undertaking Capex work, comprising of 50 from the NT and 49 from the rest of Australia.

#### Table 12-10 Total Capex and Opex for Stage 1

<table>
<thead>
<tr>
<th>Total Capex</th>
<th>Total Opex</th>
</tr>
</thead>
<tbody>
<tr>
<td>$760 million</td>
<td>$7.647 billion</td>
</tr>
</tbody>
</table>

Table 12-11 outlines the annual economic impact of Stage 1. The output of the economic model indicates direct mine expenditure on the NT will result in the following outcomes over the 20 year period:

- an increase in total output across all industries by $6.132 billion ($306.627 million per annum);
- an increased value added (i.e. Gross State Product) of $3.614 billion ($180.70 million per annum);
- an increase in household income by $1.288 billion ($64.423 million per annum); and
- creation of direct employment opportunities, with 1,337 full-time equivalent (FTE) positions per annum.

Australia wide (inclusive of the above NT impacts), Stage 1 of the operations will contribute to:

- an increase in total output across all industries by $13.310 billion ($665.493 million per annum);
- an increase in Gross Domestic Product by $7.844 billion ($392.185 million per annum);
- an increase in household income by $2.343 billion ($117.146 million per annum); and
- support the creation of 2,374, FTEs per annum.
Table 12-11 Annual Economic Impact of Stage 1

<table>
<thead>
<tr>
<th></th>
<th>Value added ($m)</th>
<th>Income ($m)</th>
<th>Employment (FTE persons)</th>
<th>Output ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total NT</td>
<td>180.700</td>
<td>64.423</td>
<td>1,337</td>
<td>306.627</td>
</tr>
<tr>
<td>Rest of Australia</td>
<td>211.485</td>
<td>52.723</td>
<td>1,037</td>
<td>358.866</td>
</tr>
<tr>
<td>Total Australia</td>
<td>392.185</td>
<td>117.146</td>
<td>2,374</td>
<td>665.493</td>
</tr>
</tbody>
</table>

(Source: Aurecon 2017)

12.5.2.1.2 Stage 2 Tailings Storage Facility Reprocessing

Stage 2 of the Project commences following the cessation of mining activities and overburden emplacement in 2038. This stage extends over a 10 year (approximate) period when tailings material from the TSF is being reprocessed and rehandled back into the open cut final void. It primarily includes Opex work with limited Capex as identified in Table 12-12. The $1.319 billion of Opex costs during this stage will provide $47 million to the Gulf SLA, $480 million to other NT areas and $792 million to the rest of Australia.

The average number of FTE positions during Stage 2 is estimated to be 184 employees, 22 of which are expected to be sourced from the Gulf SLA, 89 from other areas of the NT and 73 from the rest of Australia. There will be no labour required for Capex works in Stage 2.

Table 12-12 Total Capex and Opex for Stage 2

<table>
<thead>
<tr>
<th>Total Capex</th>
<th>Total Opex</th>
</tr>
</thead>
<tbody>
<tr>
<td>$6 million</td>
<td>$1.319 billion</td>
</tr>
</tbody>
</table>

Table 12-13 provides an outline of the annual economic impact for Stage 2. The output of the economic model indicates direct mine expenditure on the NT will result in the following outcomes through Stage 2 over the 10 year period:

- an increase in total output across all industries of $840.570 million ($84.057 million per annum);
- an increase in Gross State Product of $495.360 million ($49.536 million per annum);
- an increase in household income by $145.200 million ($14.520 million per annum); and
- creation of direct employment opportunities, with 208 FTEs created per annum.

Australia wide (and inclusive of the above NT impacts), Stage 2 of the operations will contribute to:

- an increase in total output across all industries of $2.931 billion ($293.172 million per annum);
- an increase in Gross Domestic Product of $1.727 billion ($172.770 million per annum);
- an increase in household income of $249.520 million ($24.952 million per annum); and
- supporting the creation of 345 FTEs nationally per annum.
Table 12-13  Annual Economic Impact of Stage 2

<table>
<thead>
<tr>
<th></th>
<th>Value added ($m)</th>
<th>Income ($m)</th>
<th>Employment (FTE persons)</th>
<th>Output ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total NT</td>
<td>49.536</td>
<td>14.520</td>
<td>208</td>
<td>84.057</td>
</tr>
<tr>
<td>Rest of Australia</td>
<td>123.234</td>
<td>10.432</td>
<td>137</td>
<td>209.114</td>
</tr>
<tr>
<td>Total Australia</td>
<td>172.770</td>
<td>24.952</td>
<td>345</td>
<td>293.172</td>
</tr>
</tbody>
</table>

(Source: Aurecon 2017)

12.5.2.1.3  Stage 3 Decommissioning and Rehabilitation

Stage 3 of the Project is planned to commence in 2048 and extends over a 24 year decommissioning and rehabilitation period. This includes required works to achieve final landforms including decommissioning of all on-site infrastructure. Specifically, this comprises:

- the completion of the open cut final void and active filling with water to create the mine pit lake, on-going monitoring of water quality and creation of a rehabilitated flow through system once water quality objectives are achieved;
- rehabilitation of the NOEF including associated water management dams, stockpiles and borrow areas; and
- removal of TSF batter walls, reprofiling and revegetation.

Chapter 4 – Closure, Decommissioning and Rehabilitation provides further details.

Table 12-14 details the total Opex for the Stage 3. Since the mine is subject to rehabilitation, decommissioning and leasing there will be no Capex. The $168 million Opex related costs will provide $28 million to the Gulf SLA, $79 million to other areas of the NT and $61 million for the rest of Australia. The operational workforce at MRM is estimated at 17 employees during this stage, of which 11 are expected to be sourced from the Gulf SLA, five from other areas within the NT and one from the rest of Australia.

Table 12-14  Total Capex and Opex for Stage 3

<table>
<thead>
<tr>
<th>Total Capex</th>
<th>Total Opex</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
<td>$168 million</td>
</tr>
</tbody>
</table>

Table 12-15 outlines the annual economic impact of Stage 3. The output of the economic model indicates direct mine expenditure on the NT will result in the following outcomes throughout the Stage 3 period:

- an increase in total output across all industries of $170.175 million ($6.807 million per annum);
- an increase in Gross State Product of $100.275 million ($4.011 million per annum);
- an increase in household income of $40.600 million ($1.624 million per annum); and
- creation of direct employment opportunities, with 30 FTEs created per annum.
Australia wide (and inclusive of the above NT impacts), Stage 3 of the operations will contribute to:

- an increase in total output across all industries of $265.150 million ($10.606 million per annum);
- an increase in Gross Domestic Product of $159.25 million ($6.250 million per annum);
- an increased household income of $44.150 million ($1.766 million per annum); and
- supporting the creation of 32 FTEs nationally per annum.

### Table 12-15  Annual Economic Impact of Stage 3

<table>
<thead>
<tr>
<th></th>
<th>Value added ($m)</th>
<th>Income ($m)</th>
<th>Employment (FTE persons)</th>
<th>Output ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total NT</td>
<td>4.011</td>
<td>1.624</td>
<td>30</td>
<td>6.807</td>
</tr>
<tr>
<td>Rest of Australia</td>
<td>2.239</td>
<td>0.142</td>
<td>2</td>
<td>3.799</td>
</tr>
<tr>
<td>Total Australia</td>
<td>6.250</td>
<td>1.766</td>
<td>32</td>
<td>10.606</td>
</tr>
</tbody>
</table>

(Source: Aurecon 2017)

12.5.2.1.4  Combined Stages

**Table 12-16** outlines the aggregated economic impact of the Project for Stages 1 to 3. Stage 4 was not considered as it extends over a 945 year period, which from an economic perspective can significantly inflate the other economic impacts and provide an unrealistic forecast. The aggregated impact of the Project for Stages 1 to 4 is presented in Appendix Z – Economic Impact Assessment Report. Despite the removal of Stage 4 from this table, it is still evident that over the duration of this Project there will be significant positive impacts to the NT and Australia, particularly during Stage 1 and Stage 2.

### Table 12-16  Aggregate impact of the Project for Stages 1 to 3

<table>
<thead>
<tr>
<th></th>
<th>Value Added ($b)</th>
<th>Income ($b)</th>
<th>Employment (FTE persons per annum)</th>
<th>Output ($b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT</td>
<td>4.210</td>
<td>1.474</td>
<td>553</td>
<td>7.143</td>
</tr>
<tr>
<td>Australia</td>
<td>9.727</td>
<td>2.638</td>
<td>941</td>
<td>16.326</td>
</tr>
</tbody>
</table>

NT includes Borroloola/Gulf employment data
NT + Rest of Australia = Total Australia
(Source: Aurecon 2017)

12.5.2.2  Contribution to Economic Development in Borroloola and the Gulf SLA (SA2)

The Project’s economic contribution at a local level is directly linked to the:

- creation of local employment and the associated wages; and
- purchase of goods and services sourced from local businesses by the mine site and its employees.
12.5.2.2.1 Local Employment and Indigenous Employment

Stage 1 and 2 of the Project (from 2018 to 2048) will involve significant construction and operational activities employing hundreds of people. Whilst there will be a need to source skilled construction workers from elsewhere in the NT or interstate for Stage 1, McArthur River Mining will be aiming to meet its target (as defined in the terms of the CBT) of sourcing 20% of its required workforce from the indigenous community.

Stage 3 ( Decommissioning and Rehabilitation) will extend for an approximate 20-25 year period (2048-2072). As all construction related activities should have been completed by this time, the required workforce will have significantly decreased (estimated to be less than 20 equivalent positions). In addition, there will not be the same demand for skilled construction workers. During this period McArthur River Mining has planned for approximately 11 positions to be held by local indigenous residents.

12.5.2.2.2 Local Income and Expenditure

Local income and expenditure is directly linked to the local labour force employed over the stages of the Project. It is expected that a major proportion of local employee annual incomes (approximately 60% of local weekly mine income) will be spent on purchasing local goods and services, and hence directly supporting local business (Aurecon, 2017). A summary of incomes paid by McArthur River Mining and employee expenditure in Borroloola during the Project’s life is presented in Table 12-17 for each of the four stages. The reduction in income over time is attributable to the reduction in employee numbers and requirements for skilled labour.

Table 12-17 Income and Expenditure from Mine Employment in Borroloola/Gulf SLA

<table>
<thead>
<tr>
<th>Stage</th>
<th>Borroloola/Gulf SLA income from mine employment (million dollars)</th>
<th>Borroloola/Gulf SLA expenditure from mine employment (million dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1: Operations 2018-2037</td>
<td>50.0</td>
<td>22.8</td>
</tr>
<tr>
<td>Stage 2: TSF Reprocessing 2038-2047</td>
<td>24.0</td>
<td>14.4</td>
</tr>
<tr>
<td>Stage 3: Decommissioning and Rehabilitation 2048-2072</td>
<td>16.5</td>
<td>9.9</td>
</tr>
<tr>
<td>Stage 4: Ongoing Monitoring 2073 to 3017</td>
<td>171.0</td>
<td>130.0</td>
</tr>
<tr>
<td>Total</td>
<td>261.5</td>
<td>177.1</td>
</tr>
</tbody>
</table>

(Source: Aurecon 2017)

12.5.2.2.3 Local FIFO Accommodation

All existing FIFO employees will be accommodated at the purpose-built accommodation village on site. Any accommodation that becomes surplus to requirements after the completion of Stage 1 operations will be subsequently decommissioned.
12.5.2.2.4 Impacts on Housing, Infrastructure and Services

As discussed above, 68 local employment positions will be sourced from within Borroloola, Robinson River and surrounding stations for the Project. Based on the current pool of available residents who are unemployed within the local community, there is no need for McArthur River Mining to attract new residents to Borroloola/Gulf SLA (SA2). Therefore, there will be no requirement for additional public housing associated with the Project and no material impact on local housing demand and/or prices are expected as a result of the Project.

McArthur River Mining is committed to supporting local businesses by creating strong links between its mine site operations and the Gulf Region to supporting infrastructure development within the region.

The main vehicle for providing this support is through the MRM CBT which has already contributed to the various community services and infrastructure including:

- school bus;
- vessel and vehicles for the Sea Rangers;
- staff housing for Malandari Partnership;
- Borroloola Community Pool maintenance and operational expenses;
- Mabunji Creche development;
- lighting towers for use by the Borroloola School, sporting clubs and cultural events; and
- establishment of a cultural Knowledge Centre and Keeping Place.

At the conclusion of the mine’s operating life, all related operational equipment will be sold and removed from the site with the exception of identified roads, the airstrip and bridges. The remaining structures on site and at the loading facility at Bing Bong will be utilised by McArthur River Pastoral Station.

12.5.2.2.5 Recruitment policy

McArthur River Mining has multiple entry-points for locals and other NT residents with a specific focus on creating opportunities for training and development for local indigenous people. Primarily, McArthur River Mining offers and will continue to offer an annual trainee intake. This is targeted toward attracting and creating pathways for indigenous persons with limited or no mining experience to join the organisation and participate in a learning environment across a number of different role types, such as mining operations, processing operations, maintenance, administration and environment. Traineeships will be managed in partnership with external registered training organisations and will articulate into ongoing, permanent employment at the operation on completion of the traineeship. Where applicable, traineeships also articulate into further learning, including apprenticeships. McArthur River Mining personnel undertake, and will continue to undertake Cultural Awareness training to ensure the receiving environment is suitable for the positive development and engagement of indigenous persons.

All other recruitment activity will focus as a priority on sourcing indigenous persons from the NT.

12.5.2.3 Government Impacts

12.5.2.3.1 Northern Territory Payroll Tax

In the NT, companies who pay $1.5 million or more a year in wages are required to pay a government payroll tax. As of 1 July 2015, the payroll tax rate is 5.5% of total taxable wages. Table 12-18 details McArthur River Mining’s payroll tax liability for each of the Project’s stages. It is understood the rates may be subject to change in the future, however the estimated amounts below are forecasts for the Project based on available information.
Over the duration of Stages 1 to 3, the NT government is projected to receive a total of $102.9 million in payroll tax (89% of this during Stage 1), and Stage 4 is expected to generate a projected $14.5 million in payroll tax to the NT.

### Table 12-18 Annual Payroll Taxes to the Northern Territory Government

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number of Employees</th>
<th>Total payroll taxes to the NT Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1 Operations (2018 to 2037)</td>
<td>845</td>
<td>$4.572 million per annum</td>
</tr>
<tr>
<td>Stage 2 TSF Reprocessing (2038 to 2047)</td>
<td>184</td>
<td>$972,000 per annum</td>
</tr>
<tr>
<td>Stage 3 Decommissioning and Rehabilitation (2048 to 2072)</td>
<td>17</td>
<td>$69,000 per annum</td>
</tr>
</tbody>
</table>

#### 12.5.2.3.2 Northern Territory Royalties

Estimated royalties payable to the NT Government’s revenue base for Stages 1 and 2 (30 years) of the Project equate to $435.4 million. The extent of royalties will be directly related to production levels which are in turn subject to international demand.

#### 12.5.2.3.3 Commonwealth Government Corporate Tax

Stage 1 and 2 (30 years) of the Project is estimated to provide $1.038 billion in corporate tax revenue to the Commonwealth Government. This estimate is based on 2015 modelling and is subject to change based on fluctuations in future production levels and/or official tax rates.

#### 12.5.2.4 Economic Comparison of Phase 3 and the Project

**Table 12-19** outlines a comparison of mine production and operations data for the Project Stage 1 Operations and Stage 2 TSF Reprocessing with Phase 3. The input-output data for the Project and Phase 3 have not been compared for the following reasons:

- the extended duration of each project differs; and
- Phase 3 capital expenditure and construction workforce is impossible to compare to the Project Stage 1 as the capital expenditure was fully expended over the 2 year period which is before the start of Stage 1 of the Project.

**Table 12-19** Comparison of Phase 3 and the Project

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore reserves remaining from 2018</td>
<td>90 Mt</td>
<td>92 Mt (additional 2 Mt)</td>
</tr>
<tr>
<td>Mine life</td>
<td>Until 2036</td>
<td>2037 (additional 1 year) with TSF reprocessing from 2038-2047</td>
</tr>
<tr>
<td>Mining rate capacity</td>
<td>Up to 5.5 Mtpa of ROM ore</td>
<td>No change</td>
</tr>
<tr>
<td>Product/year</td>
<td>Up to 800 ktpa of concentrates</td>
<td>No change</td>
</tr>
<tr>
<td>Production duration</td>
<td>2018 to 2036</td>
<td>2018 to 2047</td>
</tr>
</tbody>
</table>
### Operational expenditure

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational expenditure</td>
<td>$5.467 billion (years 2018-2036)</td>
<td>$8.966 billion (years 2018-2047)</td>
</tr>
</tbody>
</table>

### Operational workforce during production operations to 2037

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>550 permanent workers and contractors</td>
<td>1,029 permanent workers and contractors</td>
<td></td>
</tr>
</tbody>
</table>

### Indigenous workforce and training during production operations to 2037

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target of 20% (actual result was 15.1% as at February 2017)</td>
<td>Target of 20%</td>
<td></td>
</tr>
</tbody>
</table>

### Overseas recruitment during production operations to 2037

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No overseas recruitment</td>
<td>No change to overseas recruitment position</td>
<td></td>
</tr>
</tbody>
</table>

### Mining method

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open cut mine using conventional drilling, blasting, loading and haulage methods</td>
<td>No change</td>
<td></td>
</tr>
</tbody>
</table>

### Open cut dimensions

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length – 1,750 m</td>
<td>Length – 1,950 m (additional 200 m)</td>
<td></td>
</tr>
<tr>
<td>Width – 1,500 m</td>
<td>Width – 1,550 m</td>
<td></td>
</tr>
<tr>
<td>Depth - 420 m</td>
<td>Depth - 420 m</td>
<td></td>
</tr>
<tr>
<td>Overall footprint – 210 hectares (within the existing approved bunded area)</td>
<td>Overall footprint – 265 hectares within the existing approved bunded area; (additional 55 ha)</td>
<td></td>
</tr>
</tbody>
</table>

### Tailings

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tailings discharged to tailings storage facility (cells 1, 2, 3 and 4)</td>
<td>Tailings discharged to tailings storage facility (combined cells 1 and 2 only). The tailings will be then reprocessed to extract additional minerals and the by-product will be transported back into open cut.</td>
<td></td>
</tr>
</tbody>
</table>

### Overburden Material

<table>
<thead>
<tr>
<th>Item</th>
<th>Phase 3</th>
<th>Project (Stages 1 and 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stored on surface in existing and new OEFs (SOEF, EOEF) –480 Mt</td>
<td>Stored on surface in existing expanded NOEF, with some temporary storage and in-pit placement</td>
<td></td>
</tr>
</tbody>
</table>

The key component differences include:

- the Project Stage 1 and Stage 2 have a proposed operational expenditure of $8.966 billion. This is $3.499 billion greater than mine operating activities for Phase 3;
- the average labour force for Stage 1 and 2 of the Project is 1,029 permanent workers and/or contractors for mine operating activities; whereas Phase 3 was 550. This represents an increase of 479 workers; and
- if operational expenditure and employment benefits for Stage 3 of the Project were compared in the above table this would add to the benefits of the Project over Phase 3.

### 12.6 Potential Project Risks

This section details the risks identified as part of the community consultation program, provides an evaluation (or assessment) of those risks and proposes mitigation and management measures in order to limit those risks to acceptable levels. Note that the TOR specifically requires production of an ESIMP to address any risks identified, and this ESIMP is provided separately in Section 12.8.
12.6.1 Risk Identification

A number of potential Project risks have been identified through the community consultation and economic assessment phases of the Project and are presented below.

Communication

Community members were concerned that:

- communicating with the wrong people may result in McArthur River Mining not receiving the correct information or hearing the true concerns of stakeholders;
- holding an excessive number of meetings may lead to consultation fatigue, resulting in less participation from stakeholders; and
- delays in the conduct of consultation meetings due to other important community issues or matters such as sorry business.

Cultural Heritage

The Project proposes the NOEF be built to a height of 140 m. There were two main concerns expressed in regard to the altered shape and height of the NOEF:

- the risk associated with the imposed height limit to ensure the NOEF did not exceed the height of 80 m so it would not be higher than the adjacent site of cultural significance (Barramundi Dreaming). McArthur River Mining have received written consent from custodians to build the NOEF to the height of 140 m; and
- the requirement to remove and relocate a small archaeological scatter described as MRM4 in order to preserve it. As the NOEF is proposed to extend over the site, McArthur River Mining has reached an agreement with the relevant custodians to relocate MRM4.

Economy and Jobs

The risk of the Project not proceeding has several economic impacts which have flow on affects to the community as well as government. These include a loss of:

- $1.038 billion in corporate tax payed to the Commonwealth;
- $435.4 million in royalties payed to the NT;
- $4.137 million in payroll taxes to the NT Government;
- significant income from mine site employment opportunities;
- loss of financial support through the MRM CBT; and
- loss of benefits to the MAWA barging operations.

Stakeholders acknowledge the economic benefits of the Project to the community and greater region, however it was strongly expressed that there is a need for sustainable development and the need to balance the economy and the environment for example:

- the risk of economic benefits being favoured at the cost of the environment;
- the unforeseen nature of the EIS, which may present risks of reducing or temporarily ceasing perceived community benefit funds as outlined in Phase 3; and
- concerns associated with any slowdown in mining, including:
  - reductions in employment;
  - the risk of local job losses; and
  - reductions in supporting local businesses as a means to reduce costs.
Overburden Management

For the proposed increase in height of the NOEF, there are perceived risks that:

- the slopes may become unstable causing significant environmental harm including exposure of Potentially Acid Forming (PAF) rock; and
- potential for seepage of contaminants from the NOEF.

Air Quality

Sulphur dioxide can be hazardous to human health and safety. In the past sulphur dioxide has been released to the atmosphere from the NOEF. Inhalation of sulphur dioxide can cause coughing, wheezing, shortness of breath or a tight feeling around the chest.

Release to the atmosphere of dust containing elevated levels of lead poses several potential health risks to employees on the mine site and community members. Inhalation of lead can result in headaches, nausea, anaemia, decrease in fertility, digestive problems and several other issues (refer to Chapter 14 – Health and Safety and Chapter 13 – Air Quality for more information).

Water Quality

Perceived potential water quality risks include:

- the perception that the majority of overburden material is acid forming, potentially posing an impact to the water ways as runoff from the NOEF;
- surface water quality could become contaminated as a result of runoff or unscheduled discharge from the mine site during high rainfall events; and
- groundwater quality having the potential to become polluted from seepage of contaminants.

Aesthetics

Identified risks to aesthetic values include:

- mine site contaminated water has the potential to negatively affect the flora and fauna downstream, which could have flow on effects into the adjacent river beds/vegetation creating an unappealing appearance;
- excessive rainfall or water discharge from the mine site could potentially cause excessive erosion along the diversion channel; and
- the expansion of the NOEF to a height of 140 m will be visible when driving along the Carpentaria Highway.

Figure 12-7 provides a representation of the change in visual amenity due the expanded NOEF. The figure presents a snap shot of what would be observed when driving along the Carpentaria Highway.

The tailings dam will be constructed to a height of 35 m over the duration of mining, but the tailings will be re-located back into the open cut final void after being processed as part of the site closure program. Figure 12-8 provides a representation of the change in visual amenity as a result of the TSF, when observed from the Carpentaria Highway.

Bush Tucker

Areas around the mine site are a good source of bush tucker for a number of families and concerns were expressed about being able to access bush tucker. Community members fear that bush tucker adjacent to the mine site may contain traces of lead and if so, health risks which may result if consumed.
Fish

Fish within the McArthur River have the potential to be exposed to lead from dust entering the waterways. The Independent Monitor Report of 2014 identified levels of lead in nine of the ten small non-eating fish sampled at an isolated area within the mine site. Community members fear the risk of flow on effects to human health and safety.

Cattle

Concerns were raised by government agencies, and interest groups about the potential for cattle to enter the mine site and become contaminated with lead through the consumption of polluted water or food sources. The concern was raised that cattle would then pose a risk to human health if consumed. Contaminated cattle were also considered to pose an economic risk if the contaminated animal needed to be quarantined or if it subsequently died from poisoning, and thus providing no economic gain for the landholder.

Closure Planning For the Open Cut

There is the risk of water quality in the mine pit lake being polluted and interacting with the McArthur River channel during periods of high rainfall, which could result in the spread of contaminants. Additionally, fish such as the sawfish could get stuck in the mine pit lake during high flow, risking population declines in the species.
Figure 12-7  Comparison of NOEF 2016 (Top) and NOEF Final Landform (Bottom)
Figure 12-8  Comparison of 2016 Landforms (Top) and Final Landforms (Bottom)
12.6.2 Risk Management and Mitigation Measures

The following section provides detail on how each of the community related risks detailed in Table 12-20 will be managed and mitigated by McArthur River Mining.

The community risk categories can be summarised as follows:

- communication and consultation related;
- economics related including receipt of benefits and employment opportunities;
- cultural heritage related; and
- aesthetics related value.

12.6.2.1 Communication and consultation management

During the EIS consultation program, communication with the local community, government agencies and other stakeholders has been a two-way process and undertaken with a high degree of openness. This was to ensure all stakeholders had a clear understanding of the proposed Project and McArthur River Mining subsequently clearly understood all stakeholder raised concerns. The consultation program was designed to allow the community to provide input into decision making which would benefit both McArthur River Mining and the community. McArthur River Mining also took the initiative to address other matters of importance which were not directly related to the proposed Project scope of work to support the potential concerns expressed by stakeholders.

As a result of the consultation program there was significant positive feedback from stakeholders. Specific examples include:

“"I want to thank you for coming and sitting down and talking to us. If we can keep this going and let all the community know about what is going on it will be great."”

Community member

“"The meeting that was held in Tamarind Park a few months ago was one of the best meetings ever held in town. All of the feedback I have got from that has been good and you guys should be congratulated for that."”

Roper Gulf Local Authority member

To reduce the risk of consultation fatigue, McArthur River Mining organised various forms of consultation to allow stakeholders to be involved to whatever extent they wished. Targeted private meetings were held, which focused to a greater extent on the particular issues of concern to the attending stakeholders.

It was determined that delays to consultation meetings would not have a significant impact on the outcomes as the process was carried out over nearly two years. McArthur River Mining maintained its involvement in community issues and avoided consultation when community events, such as the Borroloola Rodeo and King Ash Bay fishing competition, were being attended by community members.

Refer to Appendix Y – Stakeholder Consultation Report for further details.
12.6.2.2 Economics

Economy and Jobs Management

McArthur River Mining maintains a high degree of environmental protection through all aspects of the Project. This is clearly outlined in Chapter 15 – Environmental Management Plan, where all Project monitoring and management plans are presented. Additionally, through the CBT, McArthur River Mining supports the Li-Anthawirriyarra Sea Ranger Unit and Yanyuwa Sea Country. This provides support for the Rangers in their environmental management activities of an Indigenous Protected Area of the Gulf of Carpentaria and around the Sir Edward Pellew Islands. The funding also supports long-term studies on dugongs and coastal dolphins by James Cook University in collaboration with the Sea Rangers.

McArthur River Mining also engages with custodians to facilitate their active involvement in ongoing environmental management and caring for country in the vicinity around the Project area, in conjunction with MRM environmental personnel.

The community benefits outlined in Phase 3 will not be reduced as a result of the EIS. McArthur River Mining will continue to support the CBT under terms and conditions defined by the CBT Agreement, Constitution and Deed for the life of mining.

In October 2015, Glencore reduced its global production of zinc in response to market forces, which resulted in a reduction of employment. Since then, market conditions have improved with zinc commodity prices rising. An increase in production is expected to have flow on effects for the creation of local jobs and increased Indigenous workforce participation. McArthur River Mining will also continue to support local and regional businesses (e.g. Cairns Industries which supplies concrete batching and excavators to several projects). MRM policy includes the preferred contracting of local suppliers where possible.

12.6.2.3 Cultural Heritage Issues

12.6.2.3.1 NOEF Height and Footprint

As part of reducing the NOEF footprint, and reducing the number of water management dams required, McArthur River Mining has an agreement with custodians to raise the height of the NOEF to 140 m. In doing this, McArthur River Mining has proposed to design batters incorporating a trilinear configuration to maintain geotechnical stability and limit erosion. The performance expectations of this design also support a reduced visual amenity impact, less potential seepage and reduced volumes of water to manage.

The design philosophy of the NOEF incorporates a strategy to reduce the long-term risk of environmental harm throughout the design, construction and operational phases. This includes implementation of a rigorous design program and implementation of a comprehensive risk-based operational development program. Examples of proposed management measures include:

- installation of cover material – this aims to reduce moisture infiltration into the NOEF during rain events, and hence the risk of oxygen ingress and water seepage;
- implementation of an NOEF construction methodology that focuses on the strategic placement of potentially reactive material in the central “core” of the NOEF, with less reactive to benign material placed and compacted around this central core;
- management of toe seepage – where practicable this will be directed to the toe of the NOEF batters, with seepage collected in dams at the base of the NOEF; and
• management of basal seepage – which includes the interception and management of residual seepage which percolates through the NOEF profile and bypasses the toe seepage management structures.

Refer to Chapter 3 – Project Description and Justification for further details.

12.6.2.3.2 Management of Cultural heritage site MRM4

Gurdanji custodians and their families indicated to McArthur River Mining during the consultation process that MRM4 was not in their view a designated sacred site or site of significance and instead a site for the construction of sharp tools. As a result, custodians agreed the site should be moved to a site east of the current location at the base of Barramundi Dreaming. McArthur River Mining will also be seeking permission from the Heritage branch within the Department of Tourism and Culture to relocate this site.

12.6.2.4 Aesthetics Management

To manage the impacts to flora and fauna downstream of the mine site, McArthur River Mining will implement multiple water management measures. These will be designed based on the results of extensive surface and groundwater modelling and will include minimising the amount of surface runoff impacted by mining through diverting clean water around the mining operations. In addition, internal water management infrastructures will be adequately protected to avoid contamination during flood events, and an upgraded water management system will be put in place including the construction of additional water storages (refer to Chapter 8 – Water Resources for further details). During the dry season McArthur River Mining currently undertakes extensive rehabilitation along the diversion channel to limit erosion and stabilise the banks. This program will be continued as part of the Project.

The expansion of the NOEF to a height of 140 m will be visible when driving down the Carpentaria Highway. In addition, the TSF will be constructed to a height of 35 m over the duration of mining, but will be decommissioned and rehabilitated with tailings to be rehandled after processing back into the final void. Figure 12-7 and Figure 12-8 provide a representation of the change in environment due to the expanded NOEF and TSF. The figure presents a snap shot of what would be seen in 2016 when driving along the Carpentaria Highway compared to the end of the Project.

12.6.3 Risk Evaluation

An evaluation (or assessment) of the risks identified in Section 12.6.1 above has been undertaken in accordance with Glencore’s Corporate Risk Framework, including an assessment of the likelihood of the risk occurring and its resultant consequence. The process also included an assessment of the:

• inherent (or Pre-Project EIS) risk, based on existing mitigation measures, and
• residual (or Post-Project EIS) risk, based on proposed additional mitigation measures.

Refer to Chapter 7 – Project Risk Assessment for further details of Glencore’s Corporate Risk Framework.

The risks identified as part of the Stakeholder Consultation Program (Section 12.6.1 above) can be categorised as follows:

• Environment related, including:
  o requirement for more stringent water discharge requirements;
  o reduced NOEF stability;
  o seepage from the NOEF into surroundings;
o sulphur dioxide impacts from spontaneous combustion;
- characteristics of the material;
- groundwater and surface water impacts; and
- mine pit lake quality at closure.

- Health and Safety related, including:
  - lead impacts on bush tucker;
  - health of fish;
  - Human health in relation to the ingestion of contaminated fish; and
  - health of cattle.
- Community related, including:
  - ineffective communication and consultation;
  - employment;
  - economics benefits;
  - aesthetics; and
  - destruction of sacred sites.

Table 12-20 below provides a summary of the Community related risks. Environment and Health and Safety related risks have been addressed in the respective chapters and summarised in Chapter 7 – Project Risk Assessment.
### Table 12-20  Residual Risk Assessment

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Potential impact</th>
<th>Existing Mitigation</th>
<th>Inherent Risk</th>
<th>Proposed Mitigation</th>
<th>Residual Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating with the wrong people</td>
<td>McArthur River Mining not receiving the correct information which leads to addressing issues which are not of high concern to the stakeholders who are impacted the most.</td>
<td>A comprehensive database of effected stakeholders and their relationship with the Project which treats all Indigenous language groups and non-Indigenous residents of the region equally. Long-term relationships with effected Project stakeholders over approximately 20 years. Ongoing communication with stakeholders and community members throughout the Project’s duration. Worked directly with community members as concerns arise. A MRM Community Reference Group which has met quarterly since 2007 has during 2016, become an open meeting for all community members to attend.</td>
<td>6-L</td>
<td>An extensive consultation program was implemented as part of the EIS, with a total of 397 individuals participating. Meetings were established in various forms, at various locations and at times that were convenient to the participants. McArthur River Mining will continue to conduct ongoing meetings with community members and other stakeholders throughout the Project’s life and consultation will continue to address issues which are of importance to stakeholders, and not just the Project.</td>
<td>2-L</td>
</tr>
<tr>
<td>Hazard</td>
<td>Potential impact</td>
<td>Existing Mitigation</td>
<td>Inherent Risk</td>
<td>Proposed Mitigation</td>
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<tr>
<td>Excessive consultation</td>
<td>Excessive meetings may lead to consultation fatigue, and a reduced willingness for stakeholders to actively participate in the process</td>
<td>Not applicable – Project specific</td>
<td>NA</td>
<td>McArthur River Mining improved its EIS communication process after Phase 3, with community reference group meetings being open to all community members rather than invitation based. Community members have subsequently provided positive feedback towards this revised consultation process for the Project. McArthur River Mining also held various forms of sessions where participation was optional, depending on the particular issue. Targeted private meetings were also held, which focused to a greater extent on the particular issues of concern to the attending stakeholders.</td>
<td>2-L</td>
</tr>
<tr>
<td>Hazard</td>
<td>Potential impact</td>
<td>Existing Mitigation</td>
<td>Inherent Risk</td>
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</tr>
<tr>
<td>Delays in consultation due to Sorry business and other important</td>
<td>Leading to lack of participants attending consultation</td>
<td>Not applicable – Project</td>
<td>NA</td>
<td>Extensive involvement with community members keeps McArthur River Mining informed on Sorry business and other important local issues. Consultations were only held on days which were suitable for the stakeholders. Consultation was conducted over a 2 year period. This allowed plenty of time for due respect to be shown to Sorry business and other issues. Multiple options for contact were made available to community members to provide maximum flexibility. This included some people being engaged on several occasions.</td>
<td>3-L</td>
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<tr>
<td>local issues</td>
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<td>specific</td>
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<tr>
<td>Hazard</td>
<td>Potential impact</td>
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<tr>
<td>Economic gains at the expense of the environment</td>
<td>Potential environmental degradation</td>
<td>McArthur River Mining adheres to its sustainable development goals and aims to balance social, environmental and economic considerations with the objective of continuously improving their operations.</td>
<td>7-M</td>
<td>McArthur River Mining will continue to comply with its sustainable development goals and aim to improve operations. Environmental Management Plans exist for all aspects of the Project which outline clearly how McArthur River Mining reduces, mitigates and effectively manages its environmental impacts. McArthur River Mining supports community projects which aim at preserving the environment through funding and providing expert advice to help community members were required. Specific Project Closure Objectives have been developed which have been incorporated into the MRM Project Design philosophy, operational and closure procedures (refer to Chapter 4 – Decommissioning, Rehabilitation and Closure for further details). A Project Risk Assessment has been conducted which assesses the H&amp;S, Community, Compliance and Environmental risks associated with identified Project hazards (refer to Chapter 7 – Project Risk Assessment). Multi-criteria analysis of all Project alternatives was conducted to assess the environmental, community related, construction and financial impacts of all considered alternatives (refer to Chapter 5 – Project Alternatives).</td>
<td>4-L</td>
</tr>
<tr>
<td>Hazard</td>
<td>Potential impact</td>
<td>Existing Mitigation</td>
<td>Inherent Risk</td>
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<tr>
<td>Reduction in economic benefits to the community</td>
<td>Unforeseen environmental concerns resulted in McArthur River Mining being required to produce an EIS, which may result in temporarily stopping perceived community benefit funds</td>
<td>The MRM CBT receives $1.25 million a year, which is used for community based projects</td>
<td>2-L</td>
<td>The community benefits outlined in Phase 3 will not be reduced as a result of the EIS. McArthur River Mining is committed to continuing to support the MRM CBT for the life of mining under a formal agreement with the NT Government. Annual contributions are currently fixed at $1.25 million annually and indexed to CPI. These contributions are subject to review every 8 years.</td>
<td>2-L</td>
</tr>
<tr>
<td>Employment cutbacks as a result of the EIS cost</td>
<td>Local employment and local business supply reduced as a means to save costs after the unforeseen requirement for environmental assessment</td>
<td>McArthur River Mining is committed to providing local jobs and utilising local businesses to source material and services for the mine.</td>
<td>14-M</td>
<td>McArthur River Mining will continue to source local employment with a target of 20% of all employees to be Indigenous. McArthur River Mining prefers to use local supplies where possible</td>
<td>6-L</td>
</tr>
<tr>
<td>Hazard</td>
<td>Potential impact</td>
<td>Existing Mitigation</td>
<td>Inherent Risk</td>
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<tr>
<td>Reduced aesthetics</td>
<td>Mine site contaminated water has the potential to negatively affect the flora and fauna downstream, which could have flow on effects into the adjacent river beds/vegetation creating an unappealing appearance. Additionally, excessive rainfall or water discharge from the mine site could cause excessive erosion along the diversion channel.</td>
<td>MRM has several storage dams and evaporation areas for contaminated water. A waste discharge licence has also been granted to the mine which regulates the water quality that can be let into the environment. Regular water quality monitoring in accordance with licence requirements During the dry season McArthur River Mining undertakes extensive rehabilitation along the diversion channel to limit erosion and stabilise the banks.</td>
<td>9-M</td>
<td>As part of the Project, McArthur River Mining has conducted extensive unsaturated flow (seepage) modelling, groundwater and surface water modelling as well as aquatic and terrestrial ecology investigations to assess potential impacts and develop appropriate mitigation measures. Selected management measures include engineering design to improve contaminant source control, increasing current dam capacities, construction of additional water management dams as well as increasing the water treatment plant capacity. Refer to Chapter 8 – Water Resources for further details.</td>
<td>4-L</td>
</tr>
<tr>
<td>Reduced aesthetics</td>
<td>The increased height in the NOEF and its visibility from the Carpentaria Highway will have visual impacts on the area.</td>
<td>Not applicable – proposed as part of Project</td>
<td>NA</td>
<td>NOEF design includes construction of trilinear batter slopes which are consistent with the profiles of a number of adjacent landforms. The NOEF will be progressively rehabilitated including placement of a growth medium and revegetated with appropriate species.</td>
<td>6-L</td>
</tr>
<tr>
<td>Hazard</td>
<td>Potential impact</td>
<td>Existing Mitigation</td>
<td>Inherent Risk</td>
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<tr>
<td>Destruction of sacred site values</td>
<td>The imposed height limit to ensure the NOEF did not exceed the height of 80 m so it would not be higher than the adjacent sacred Site (Barramundi Dreaming). The variation in the Project proposes the NOEF be built to a height of 140 m.</td>
<td>Not applicable – Proposed as part of this Project</td>
<td>NA</td>
<td>McArthur River Mining has an agreement with the Custodians on the height (140 m) of the NOEF.</td>
<td>5-L</td>
</tr>
<tr>
<td>Destruction of sacred site values</td>
<td>A small archaeological scatter known as MRM4 will need to be removed and relocated to preserve the scatters as the NOEF is proposed to extend out over the site. McArthur River Mining seeks approval from custodians to move the site so the NOEF can be extended over the area.</td>
<td>Not applicable – Proposed as part of this Project</td>
<td>NA</td>
<td>Custodians and their families notified McArthur River Mining during consultation that MRM4 was not in their view a designated sacred site or site of significance and instead a place of making sharp tools. As a result, Custodians agreed that the site should be moved to a site east of the current location at the base of Barramundi Dreaming.</td>
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<tr>
<td>Hazard</td>
<td>Potential impact</td>
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<tr>
<td>Economic</td>
<td>The risk of the Project not proceeding has several economic impacts which have flow on effects to the community as well as the government. These include:</td>
<td>NA (no approval process underway)</td>
<td>16-M</td>
<td>Development of the Project EIS which adequately addresses the potential community and environmental impacts associated with the Project. Development and roll-out of effective and timely consultation process with regulatory agencies (including DPIR and NT EPA). To cover such issues as:</td>
<td>5-L</td>
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<td>• loss of $1.038 billion in corporate tax paid to the Commonwealth;</td>
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<td>• closure planning and objectives;</td>
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<td>• loss of $435.4 million in royalties paid to the NT;</td>
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<td>• key technical aspects of the Project; and</td>
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<td>• loss of $117.4 million in payroll taxes to the NT Government;</td>
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<td>• EIS schedule.</td>
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<td>• loss of $261.5 million in income from mine and employment; and</td>
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<td>• loss of $177.1 million in local expenditure from local mine workers.</td>
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</tbody>
</table>
12.6.4 Risk Monitoring

Details of ongoing monitoring are discussed within the ESIMP (Section 12.8).

12.7 Summary/Conclusions

Project socio-economic hazards and associated risks identified are considered typical for this industry.

Section 12.6 details the Project risks identified through the community consultation program and economic assessment and modelling. In addition, it evaluates these risks and details proposed mitigation measures.

All identified Project socio-economic risks report a low residual risk score and are considered tolerable, taking into account the proposed mitigation measures to be adopted.

There are also a number of key Project benefits (refer to Section 12.5) that are expected to be realised including:

- significant contributions to government revenue via payment of taxes and royalties;
- continuation of the MRM CBT and the direct contribution to community investment that it creates per year;
- generation of local employment;
- implementation of Indigenous employment; and
- preference for the use of local goods and service providers where possible.
12.8 Economic and Social Impact Management Plan

The TOR requires production of an ESIMP to address any socio-economic risks identified. This plan consolidates the outcomes presented in the above sections of this chapter to meet this TOR requirement.

The ESIMP provides a systematic framework for managing the impacts (positive and negative) identified through the ESIA. It establishes the roles and responsibilities of the stakeholders including McArthur River Mining, NT government and various interested community groups for the life of the Project.

MRM has been in operation since 1995 and over this time have developed stakeholder engagement strategies and mechanisms to deliver strategic outcomes, based on community needs and requirements.

A detailed social and economic baseline study was undertaken to describe the existing social and economic conditions within the Project area and the broader region as identified in Sections 12.2 and 12.3. This ESIMP builds on the socio-economic assessment by presenting the social and economic impact mitigation and management measures.

12.8.1 Stakeholder Engagement Strategies

An extensive and thorough Stakeholder Consultation Program implemented for the Project EIS identified significant support for the Project and the employment and training opportunities it generates.

Key initiatives supported by community feedback include:

- **MRM CBT continuation**: The CBT is established for the life of mining operations and invests in the socio-economic development and liveability of the region. Its Board includes one representative of each local Aboriginal language group and an elected representative of community organisations.

- **Annual consultation for the MRM CBT**: Community visits will continue to be conducted by the MRM-appointed Project Officers on behalf of the CBT Board each year to ensure the CBT is investing in programs targeting the needs and interests of the community. These include meetings with local community organisations and the Borroloola School.

McArthur River Mining also has in place a Stakeholder Engagement Plan, which documents how obligations under the Glencore Standards and MRM procedures are implemented. The Stakeholder Engagement Plan will be updated regularly to support the delivery of effective stakeholder consultation and to ensure that actions that are planned are implemented and monitored.

12.8.2 ESIMP Management Commitments

**Social**

- McArthur River Mining will maintain the same level of openness with all stakeholders throughout the duration of the Project as seen during the EIS consultation phase;
- McArthur River Mining will continue to enact a zero tolerance drug and alcohol policy at the Project’s work site during work hours;
• extension of the life of the CBT will enable an increased potential for youth services and facilities to be implemented in the local area;
• McArthur River Mining will continue to accommodate FIFO staff at the accommodation village on site;
• on-site emergency services are available on site and therefore McArthur River Mining’s use of public emergency services will be limited;
• McArthur River Mining has reached an agreement with custodians on the relocation of MRM4 to the base of Barramundi Dreaming and the height of the NOEF (140 m), with Indigenous staff to undertake the works; and
• McArthur River Mining will continue to support education opportunities for local residents and youth.

**Economic**

• McArthur River Mining will continue to invest in the CBT annually as per its agreement with the NT Government;
• projects which have been given funding under the CBT will continue to receive the funding for the specified duration in their plan;
• the target for Indigenous employment at MRM is set at 20% of the workforce, and McArthur River Mining will continue to train and employ Indigenous community members. The current Indigenous employment rate on site is 15.1%; and
• a local procurement program sourcing competitive goods and services from regional and local businesses will continue throughout the proposed Project.

Additional commitments made as part of the ESIMP are outlined under corrective actions within Table 12-21.

### 12.8.3 Outcome and Assessment Criteria

Table 12-21 outlines identified Project objectives and targets, and McArthur River Mining’s proposed management approach. This will be utilised to identify where mitigation and management measures are not achieving the outcomes and benefits as set out in the EIS.
<table>
<thead>
<tr>
<th>Target/Impact</th>
<th>Monitoring, Mitigation and Management</th>
<th>Performance Indicators</th>
<th>Reporting</th>
<th>Corrective Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> Manage environmental or social incidents and complaints</td>
<td>To undertake initial response as soon as possible and within 24 hours of notification of incident occurring or receipt of a complaint. Investigations into complaints will be completed within seven days and corrective actions implemented by the nominated due date.</td>
<td>The relevant site leader or contractor for the incident or complaint will monitor compliance against the targets of the concern.</td>
<td>Number of incidents reported or complaints received. Number of incidents or complaints resolved within specific timeframe.</td>
<td>Incidents and complaints will be reported to the General Manager. Incident and complaint trends will be reported annually in the Mining Management Plan. Where incidents continue to occur or complaints continue to be received after corrective actions have been taken to manage the issue, the following corrective actions will be taken: • additional training of the workforce with respect to the procedures to be followed for environmental incidents or complaints; • investigation as to why the incident/complaint was not addressed within the specified time frame; and • an incident/complaint follow-up will be undertaken according to the results of the investigation.</td>
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<tr>
<td>Target/Impact</td>
<td>Monitoring, Mitigation and Management</td>
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<tr>
<td>To understand and protect cultural heritage values.</td>
<td>McArthur River Mining aims to limit any harm to cultural heritage values at MRM operations. Therefore no authorised disturbance of sacred sites will occur. All Aboriginal Areas Protection Authority (AAPA) certificate conditions will be complied with. Where required, new AAPA certificates will be sought, or current certificates amended. Custodians to undertake cultural heritage clearances before disturbances are undertaken. Review feedback from the custodians.</td>
<td>No impact on sacred sites</td>
<td>Cultural heritage issues will be reported in the annual environmental performance report. Any new cultural heritage sites found on site will be reported immediately to the Department of Tourism and Culture.</td>
<td>In the event that McArthur River Mining fails to comply with the stated management measures, an investigation will be undertaken to identify the cause of the incident or the failure to comply and appropriate action taken to overcome the problem.</td>
</tr>
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</table>

**Objective:** To have minimal impact on the region’s cultural heritage values
## Objective
To maximise the beneficial social and/or community effects from the operations

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<th>Reporting</th>
<th>Corrective Actions</th>
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<tr>
<td>Receive no social or community impact related complaints.</td>
<td>McArthur River Mining has established a Community Reference Group (CRG), providing an overarching management tool to enable McArthur River Mining to monitor Project impacts on the community and facilitate the provision of Project information and receipt of feedback. Support community health initiatives through the CBT, sponsorships and donations, including drug/alcohol education programs and substance abuse support services.</td>
<td>Positive contributions to the community such as sponsorship, employment, or delivery of local services. Comprehensive database maintained on complaints, employee health and social issues. Recurring issues analysed and addressed.</td>
<td>Community issues will be reported in the annual environmental performance report.</td>
<td>In the event of a failure to comply with the management measures, investigations will be undertaken into the cause of the incident or failure and appropriate actions will be taken to address the issue.</td>
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<tr>
<td>Target/Impact</td>
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<tr>
<td>Zero reportable injuries and MRM related illnesses</td>
<td>MRM’s existing HSEC Management System will be modified to incorporate the requirements of the Project. McArthur River Mining is committed to continual improvement to the health and safety of its employees, contractors and the general public through regular internal and external (AS/NZS 4801:2001 certification body) auditing of MRM’s health and safety systems.</td>
<td>Number of incident reports. Severity of incidents. Percentage compliance with procedures. Percentage compliance with corrective action procedures.</td>
<td>The OHS representative reports to the Executive Management team on a weekly basis on any health and safety issues that need to be addressed. The results of all health and safety audits will be reported to the General Manager. MRM’s existing electronic incident reporting process will be used to report all incidents.</td>
<td>McArthur River Mining will investigate, respond to and take appropriate corrective and/or preventive actions following a health and safety incident.</td>
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</table>

**Objective:** Project operations do not adversely affect the health of the general public, MRM employees and contractors
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<th>Monitoring, Mitigation and Management</th>
<th>Performance Indicators</th>
<th>Reporting</th>
<th>Corrective Actions</th>
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<tbody>
<tr>
<td><strong>Objective:</strong> To provide employment opportunities for community members on the mine site and continue to provide benefits to the community throughout the life of the Project</td>
<td>McArthur River Mining will maintain their established community partnerships allowing flexible workplace arrangements in support of greater engagement of Indigenous personnel. Continue engagement with the community to increase awareness regarding Project employment opportunities. Raise awareness about the target through internal engagement with staff by the MRM Human Resources Department.</td>
<td>Achievement of nominated percentage of MRM employees who are local Indigenous people. Positive outcomes from community engagement.</td>
<td>McArthur River Mining will advertise relevant employment opportunities on the company website. Indigenous employment will be reported within the monthly memorandums published on the MRM website.</td>
<td>Where there is a failure in the community engagement process or in training program outcomes, McArthur River Mining will review the processes involved and adapt new methods where/if necessary.</td>
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<tr>
<td>Target/Impact</td>
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<td>Performance Indicators</td>
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<tr>
<td>To provide the community with opportunities for work and education through the mine</td>
<td>Continue exploring opportunities to encourage private developers to enter the community and develop private accommodation options. Some housing has already been established through consultation with the Local Authority. Provide alcohol management education. Facilitate new employees who would prefer to move to Darwin to be a part of the FIFO roster. Review feedback from the local community.</td>
<td>Progressive outcomes for private dwelling establishment. Reduced incidents of violence. Establishment of a bus in/out.</td>
<td>Where opportunities have been supported based on access to the CBT, this will be reported as outcomes of the CBT. All other employment opportunities will be reported on the MRM website within memorandums.</td>
<td>McArthur River Mining will continue to pursue exploring opportunities to resolve difficulties for local Indigenous employees and their accommodation options in Borroloola. McArthur River Mining will investigate incorporating more substantial drug and alcohol management on-site as part of induction/training to encourage behaviour that can be replicated when back in the community.</td>
</tr>
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</table>


### Economic Environment

**Objective:** To have positive impacts on local, state/territory and national economies

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<tr>
<th>Target/Impact</th>
<th>Monitoring, Mitigation and Management</th>
<th>Performance Indicators</th>
<th>Reporting</th>
<th>Corrective Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic benefits to Borroloola and the Gulf SLA</td>
<td>Direct increase in demand for labour, and local goods and services in Borroloola/Gulf SLA.</td>
<td>Number of new employees hired for the mine and the number of new local contracts signed (or expansion of existing contracts) for goods and services.</td>
<td>Reported on MRM website and within memorandums</td>
<td>Where there is no increase in economic benefits to Borroloola/Gulf SLA, McArthur River Mining will review the causes and report them. Where possible, appropriate adjustments will be made.</td>
</tr>
<tr>
<td>Economic benefits to Darwin</td>
<td>Increase in the demand for goods and services from medium and large sized businesses (particularly in Darwin) to supply the Project.</td>
<td>Number of new businesses within Darwin or the expansion of existing businesses to accommodate the Project.</td>
<td>N/A</td>
<td>Where there is no increase in economic benefits to Darwin, McArthur River Mining will review the causes and report them. Where possible, appropriate adjustments will be made.</td>
</tr>
<tr>
<td>Target/Impact</td>
<td>Monitoring, Mitigation and Management</td>
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<td>Reporting</td>
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</tr>
<tr>
<td>Economic benefits to the NT</td>
<td>NT Government revenue will be supplemented by royalty payments and payroll taxes.</td>
<td>Increased royalties per annum from Stages 1 and 2 of the Project ($435.4 million).</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
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<td>Increased payroll taxes due to increased workforce. The forecasted annual payroll taxes to the NT are:</td>
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<td>• Stage 1: $4.572 million per annum</td>
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<td>• Stage 2: $972,000 per annum</td>
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<td>• Stage 3: $69,000 per annum</td>
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<td>• Stage 4: $15,300 per annum</td>
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<tr>
<td>Economic benefits to Australia</td>
<td>Increase Australia’s commodity exports, delivering a positive impact on the national trade balance. The Project will also provide corporate taxes to the Commonwealth government.</td>
<td>The Project is estimated to provide $1.038 billion in corporate taxes to the Commonwealth government over Stages 1 and 2 (30 years).</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Target/Impact</td>
<td>Monitoring, Mitigation and Management</td>
<td>Performance Indicators</td>
<td>Reporting</td>
<td>Corrective Actions</td>
</tr>
<tr>
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</tr>
<tr>
<td><strong>Objective:</strong> To contribute to the NT Government’s Mineral Royalty Scheme</td>
<td>To pay royalties in accordance with the NT royalty regime</td>
<td>The royalties paid to the NT are calculated on a profit based royalty regime, which is factored around the net value of the MRM’s actual production, the market prices and the mining costs.</td>
<td>The Project is estimated to contribute $435.4 million to the NT Government during Stages 1 and 2 over 30 years.</td>
<td>N/A</td>
</tr>
<tr>
<td>Extractive Resource Consequence – the estimated resource available to be mined is approximately 92 million tonnes. As the resource depletes, the royalties and employment opportunities are reduced until they are no longer applicable/available.</td>
<td>McArthur River Mining has established this EIS, which provides a clear indication of the economic contributions to the local, territory and national economies from the project.</td>
<td>Reduced employment and royalties once the Project comes to an end.</td>
<td>N/A</td>
<td>The EIS defines the duration of the Project and the economic benefits generated. This could change if additional economic resources are discovered, or regulations in the NT are reformed.</td>
</tr>
</tbody>
</table>
12.8.4 Monitoring, Reporting and Review

12.8.4.1 Monitoring

Community Reference Group (CRG)

McArthur River Mining has an established Community Reference Group (CRG), providing an overarching management tool to enable McArthur River Mining to monitor impacts of the Project on the community and facilitate the provision of Project information and receipt of feedback.

McArthur River Mining has been hosting a CRG, which it will continue to host into the future. The CRG provides the opportunity for local residents, businesses and representatives from other organisations to be informed of relevant Project developments. CRG meetings are held quarterly as a minimum in Borroloola, and are normally attended by MRM’s General Manager; Senior Community Relations Advisor; Environmental Project Manager, Manager for Environment Safety and People; as well as a representative from the Human Resources department.

The continuation of the CRG meetings will aim to:

- report on the progress of activities and commitments;
- respond to community enquiries and complaints;
- resolve disputes with stakeholders;
- develop action plans with stakeholder involvement for ongoing social and community support;
- monitor through stakeholder feedback the effectiveness of their community engagement processes; and
- adjust mitigation strategies to achieve optimal outcomes for all parties.

Community Relations

MRM has an established community relations team based on site who manages the annual Stakeholder Engagement Program which includes:

- participating on a range of local boards and committees;
- providing information through the internet, Memorandum magazine, direct contact, briefings, shows and displays;
- maintaining partnerships with the local school council and business community;
- facilitating access to site and arranging special tours;
- building relationships with government and the media;
- supporting the MRM CBT;
- surveys to keep informed on what is important to the community and stakeholders; and
- consultation on specific development programs and initiatives.

Local Boards and Committees

McArthur River Mining maintains its involvement with local community and business groups through representation on a number of boards and committees, including:

- Regional Representative for Alcohol Management Committees;
- Roper Gulf Regional Council Local Authority (includes the Pool Committee);
- North Australian Mine Rescue Competition;
- Gulf Rivers Land Care Group; and
This enables McArthur River Mining to have insight into the concerns expressed by non-community stakeholders.

**Supplier Forums**

McArthur River Mining contracts several local suppliers from Borroloola and the greater Gulf (SLA). To maintain productive business relationships with these suppliers and to enable suppliers to express concerns or seek additional contract opportunities, McArthur River Mining hosts an annual supplier forum.

**Other Monitoring**

McArthur River Mining has implemented several monitoring programs to limit the potential impacts to the surrounding environment. These programs meet the standardised monitoring, reporting and reviewing requirements. McArthur River Mining conducts several monitoring programs which are annually reviewed and updated where deemed necessary. Selected programs which address the concerns expressed by the community include:

- the air quality monitoring network;
- fish monitoring;
- cattle management;
- surface water monitoring;
- fluvial sediment;
- mosquito monitoring;
- rehabilitation monitoring;
- erosion and sediment control monitoring;
- groundwater monitoring; and
- marine monitoring.

**Chapter 15 – Environmental Management Plan** provides further details on monitoring undertaken by McArthur River Mining.

McArthur River Mining values its relationship with the local community and the Gulf region as well as stakeholders across the NT. Where necessary McArthur River Mining communicates and receives feedback to incorporate changes to the monitoring programs and incorporates Indigenous and custodians input into ongoing management. This allows McArthur River Mining to incorporate cultural input into management techniques and continuously improve the implementation of environmental management planning at the mine site.

**12.8.4.2 Reporting and Review**

The objectives of this ESIMP will be reviewed annually. Inputs from community consultation as well as other stakeholder engagement activities will be incorporated where appropriate to improve the ESIMP. Relevant stakeholders and community members will be informed on the outcomes of the ESIMP through quarterly reports and during weekly visits to Borroloola. The objective of the reports will be to outline that McArthur River Mining:

- demonstrates compliance with commitments made;
- maintains records of identified impacts and how they were managed/resolved;
- provides details of the monitoring programs, including timing of monitoring, frequency and results;
- provides a snapshot of performance indicators and any Project changes;
- identifies any new impacts arising as a result of varying conditions and provides mitigation measures if needed; and
• communicates the outcomes of stakeholder consultations and feedback.

12.8.5 Stakeholder Communications Strategy

A key approach to managing the economic and social impacts (both positive and negative) of the Project is through ongoing engagement with the local community and government departments. Ongoing engagement with the community will centre on developing strategies and approaches to maximise benefits and provide sustainable community outcomes.

McArthur River Mining will continue to maintain productive relationships with the local community of the Gulf region as well as stakeholders across the NT. The consultation program carried out as part of the Project EIS was well received by all stakeholders and McArthur River Mining was encouraged to continue its community engagement program under a similar format throughout the Project’s life. There are several ways in which McArthur River Mining communicates with stakeholders, including both formal and informal approaches. McArthur River Mining has also established a mobile phone application which is available for both iPhone and android smartphones. The application provides regular updates on mine site activities and developments, an emergency call button, important safety information and links to relevant websites.

12.8.5.1 NOEF Design

Custodian feedback was sought on a number of alternative NOEF design options. These were largely associated with NOEF geometry and context within the landscape and its association with areas of cultural sensitivity. Key NOEF design parameters discussed with the Custodians included:

• height;
• footprint, including the eastern boundary, northwestern boundary and the area around the MRM4 cultural heritage site; and
• placement of associated infrastructure.

Other aspects of the NOEF discussed in consultation with the Custodians included vegetation screening along the western side of the NOEF and the timing of rehabilitation.

12.8.5.1.1 Height

The height of the NOEF has been proposed to be increased from the previously approved 80 m to 140 m. Extensive discussions were held with the custodians in relation to this increase. The height increase to 140 m has been agreed to by custodians and has been formally documented.

12.8.5.1.2 Footprint

Alterations to the NOEF footprint have been proposed as part of the redesign process. These alterations have been communicated to and discussed with the custodians. Their feedback has been incorporated into the final design and the proposed footprint has been agreed to. Further information on the key aspects of the footprint that has been discussed with custodians is provided in the sections below.

12.8.5.1.2.1 Eastern Boundary

Agreement of limitations to the eastern extent of the NOEF was achieved following several joint field trips with MRM management and custodians. Physical boundary markers (coloured wooden stakes) were installed on the site in consultation with the custodians to delineate the eastern boundary of the NOEF (refer to location B in Figure 12-9). The red line refers to no additional infrastructure being positioned on the eastern side of the demarcated area as a portion of this had already been cleared with the blue line being the most eastern extent of any overburden material storage.
12.8.5.1.2.2 *Northwest Boundary*

Custodians explicitly stated that no disturbance or placement of infrastructure was to occur north of the WPROD adjacent to the Carpentaria Highway (refer to location A marked with red line on Figure 12-9). This was agreed to by McArthur River Mining and no infrastructure is proposed for this area.

12.8.5.1.2.3 *MRM4 Relocation*

Cultural heritage site MRM4 is located on the eastern side of the NOEF and is required to be relocated as part of the NOEF redesign. The proposed relocation of MRM4 has been agreed to by custodians. This agreement, between the custodians and McArthur River Mining has been formally documented.

During these trips, the revised location of the MRM4 stone chips was identified and agreed. Methods for relocation were also discussed (refer to the “Star” on Figure 12-9 below for the proposed relocation area).

![Figure 12-9  NOEF Layout with Custodian Considerations](image-url)
12.8.6 Implementation

The ESIMP aims to support ongoing management of relevant issues identified during the Project’s assessment process. All of the above-mentioned management and mitigation measures will be incorporated into the Project with annual two-way feedback via stakeholder consultation. This will include stakeholder input into the review and (where required) modification of management and mitigation. Quarterly reports will outline the progress and areas where improvement opportunities have been identified. McArthur River Mining acknowledges that Project impacts over time could potentially change and will therefore regularly reassess the ESIMP and all subsequent monitoring plans to maintain Project risks at a tolerable level.