

MINING MANAGEMENT PLAN

AUTHORISATION No: 0850-01

ENDEAVOUR INVESTMENTS (NT) PTY LTD

**GOLDEN CROWN PROJECT
NORTHERN TERRITORY**

UPDATED MMP for 2017/18 EXPLORATION ACTIVITIES



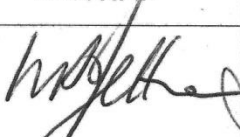
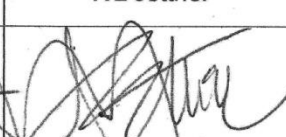
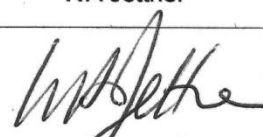
ML 29678

DISTRIBUTION:

DPIR	1 copy
Endeavour Invs.	1 copy

June 2017

Document Approval:

	Author	Reviewed by	Approved by
Date	June 2017	June 2017	June 2017
Name	WA Jettner	WL Jettner	WA Jettner
Signature			

I, William Andrew Jettner, Project Manager, declare that to the best of my knowledge the information contained in this mining management plan is true and correct and commit to undertake the works detailed in this plan in accordance with all the relevant Local, Northern Territory and Commonwealth Government legislation.

SIGNATURE:

DATE: 15/6/2017

Table of Contents

Amendments.....	4
1 Operator Details	5
1.1 Organisational Structure	5
1.2 Workforce	5
2 Identified Stakeholders and Consultation	6
3 Project Details	8
3.1 Previous Activities and Current Status	9
3.2 Proposed Activities	14
4 Current Project Site Conditions	14
5 Environmental Management System.....	15
5.1 Environmental Policy and Responsibilities	15
5.2 Statutory and Non-Statutory Requirements	15
5.3 Induction and Training	15
5.4 Identification of Environmental Aspects and Impacts	16
5.5 Environmental Audits, Inspections and Monitoring	27
5.6 Environmental Performance	27
5.6.1 Objectives and Targets	27
5.6.2 Performance Reporting	27
5.7 Emergency Procedures and Incident Reporting	29
6 Exploration Rehabilitation.....	31
6.1 Exploration Rehabilitation Register	32
6.2 Costing of Closure Activities	33
Appendices	33

Amendments

DPIR REFERENCE: MR2016/0300

Section	Amendment
3.0 Current Project Site Conditions	Added weeds and pests in the area
4.6 Identification of Environmental Aspects and Impacts	Questions answered in APPENDIX 14
4.8 Environmental Audits and Inspections	Updated as per request.
5.0 Exploration Rehabilitation	Questions answered in APPENDIX 14
General	Document submitted in latest template.

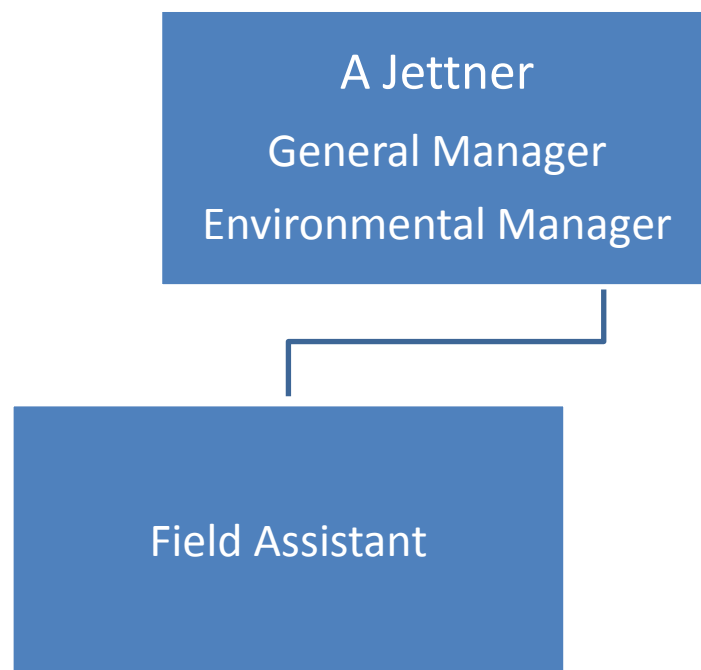
Appendices

- APPENDIX 1. APPLICATION FOR AUTHORISATION (Sect. 1.0)
- APPENDIX 2. NOMINATION OF OPERATOR (Sect. 1.0)
- APPENDIX 3. APPOINTMENT OF AGENT (Sect. 1.0)
- APPENDIX 4. LAND OWNER CORRESPONDENCE (Sect 2.0)
- APPENDIX 5. LOCATION OF PROPOSED ACTIVITIES (Sect 3.2)
- APPENDIX 6. DENR ENDANGERED FLORA & FAUNA DATABASE EXTRACT (Sect 4.0)
- APPENDIX 7. AAPA INFORMATION FROM RECORDS (Sect 4.0)
- APPENDIX 8. DTC HERITAGE & ARCHEOLOGICAL DATABASE SEARCH (Sect 4.0)
- APPENDIX 9. ENVIRONMENTAL MANAGEMENT PLAN (Sect 5.0)
- APPENDIX 10. INDUCTION MANUAL (Sect 5.3)
- APPENDIX 11. WEED MONITORING (Sect 5.5)
- APPENDIX 12. EMERGENCY PROCEDURES & INCIDENT REPORTING (Sect 5.7)
- APPENDIX 13. REHABILITATION REGISTER (Sect 6.1)
- APPENDIX 14. REPLY TO DPIR COMMENTS (MR2016/0300)
- APPENDIX 15. SECURITY CALCULATION (Sect 6.2)

1 Operator Details

Operator Name:	Endeavour Investments (NT) Pty Ltd (ACN 133 112 811)
Key Contact Person:	Andrew Jettner
Postal Address:	PO Box 96, Palmerston NT 1831
Street Address:	PO Box 96, Palmerston NT 1831
Phone:	0447 092 764
Fax:	NA
Email:	andrew@minesiteservices.com.au

1.1 Organisational Structure



1.2 Workforce

- Onsite workers for the coming year will consist of the Project Manager (as the Environmental Manager) Mr Andrew Jettner and an accompanying field assistant.

2 Identified Stakeholders and Consultation

STAKEHOLDERS	NAME	CONSULTED
Lease Owner	Resolution Investments (NT) Pty Ltd	YES
Land Owner	Inyathi Reserve Pty Ltd	YES
Land Manager	Ty Blockland	YES
Land Claimants (Native Title)	NIL	NO
Land Council Area	Northern Land Council	NO
Neighbours and Community	NIL	NO
Tenement Manager	Complete Tenement Management	YES
Government Departments	Dept. of Primary Industry and Resources	YES
	NT Environmental Protection:	NO
	Dept. of Environment and Natural Resources (DENR)	NO
	Dept. of Health (DH)	NO
	Dept. of Infrastructure, Planning and Logistics (DIPL)	NO
	Heritage Branch	YES
	AAPA	YES
	Bushfires NT	NO
	Worksafe NT	NO
Shareholders	Endeavour Investments (NT) Pty Ltd	YES

For discussion and the status of consultations see below:**Lease Owner**

The lease owner is Resolution Investments (NT) Pty Ltd..

The company has been consulted and in response has executed a nomination of operator form as an indication of their agreement to Endeavour Investments undertaking this project.

Land Owner

The affected land parcel is: NT Por. 00695 which is Perpetual Pastoral Leasehold Land (PPL 1111) Ban Ban Springs Station, owned by Inyathi Reserve Pty Ltd as trustee for the SANT Unit Trust, PMB 296 Winnellie NT 0821.

APPENDIX 4 contains a copy of the land title search and associated map for the affected land parcel, it also contains any copies of correspondence with the landowner/manager.

Pastoral Manager

The pastoral manager for Ban Ban Springs Station is Mr Ty Blokland (mob. 0428 245 261)

Land Claimants (Native Title)

Native title is deemed to have been extinguished by the Federal Court so there are no native title parties affected by the Golden Crown Project. (The original mineral titles were granted before Dec. 1996).

Land Council representing traditional owners for the country

As the land is not Aboriginal Freehold land, subject to a land claim, owned by a registered aboriginal land trust or subject to a site of significance listed with the AAPA the proponents have not conducted negotiations with the Northern Land Council.

Neighbours and Community

There are no nearby neighbours or communities so no consultations have been undertaken.

Tenement Manager

Endeavour Investments (NT) Pty Ltd employs Complete Tenement Management as its tenement manager and this organisation is fully informed of the planned activities in the area.

Government Departments

- This MMP may be considered to be notification to the Dept. of Primary Industries and Resources and communications relating to it are the consultation process, these remain ongoing throughout the life of the MMP.
- The Environmental Protection Agency has not been consulted.
- The Dept. of Environment and Natural Resources has not been consulted, although information has been sought from it utilising its INFONET portal and the results of this have been included as APPENDIX 6 of this MMP.
- The Department of Health has not been consulted.
- The Department of Infrastructure Planning and Logistics has not been consulted.
- The Aboriginal Areas Protection Authority has been consulted by requesting information from records covering the area pertaining to this MMP with reference to any registered sites of significance within the area of ML 29678 and the results of this request are included as APPENDIX 7 of this MMP.

- The Heritage Branch of the Department of Tourism and Culture has been consulted with reference to any archaeological and/or heritage sites and results of this request are included as APPENDIX 8 of this MMP.
- Endeavour Investments (NT) Pty Ltd has ascertained its level of obligation to NT Worksafe through its adherence to National Health & Safety (National Uniform Legislation) Act and will continue to meet its obligations under this act.

Shareholders

The shareholders of Endeavour Investments (NT) Pty Ltd are informed of the planned activities.

3 Project Details

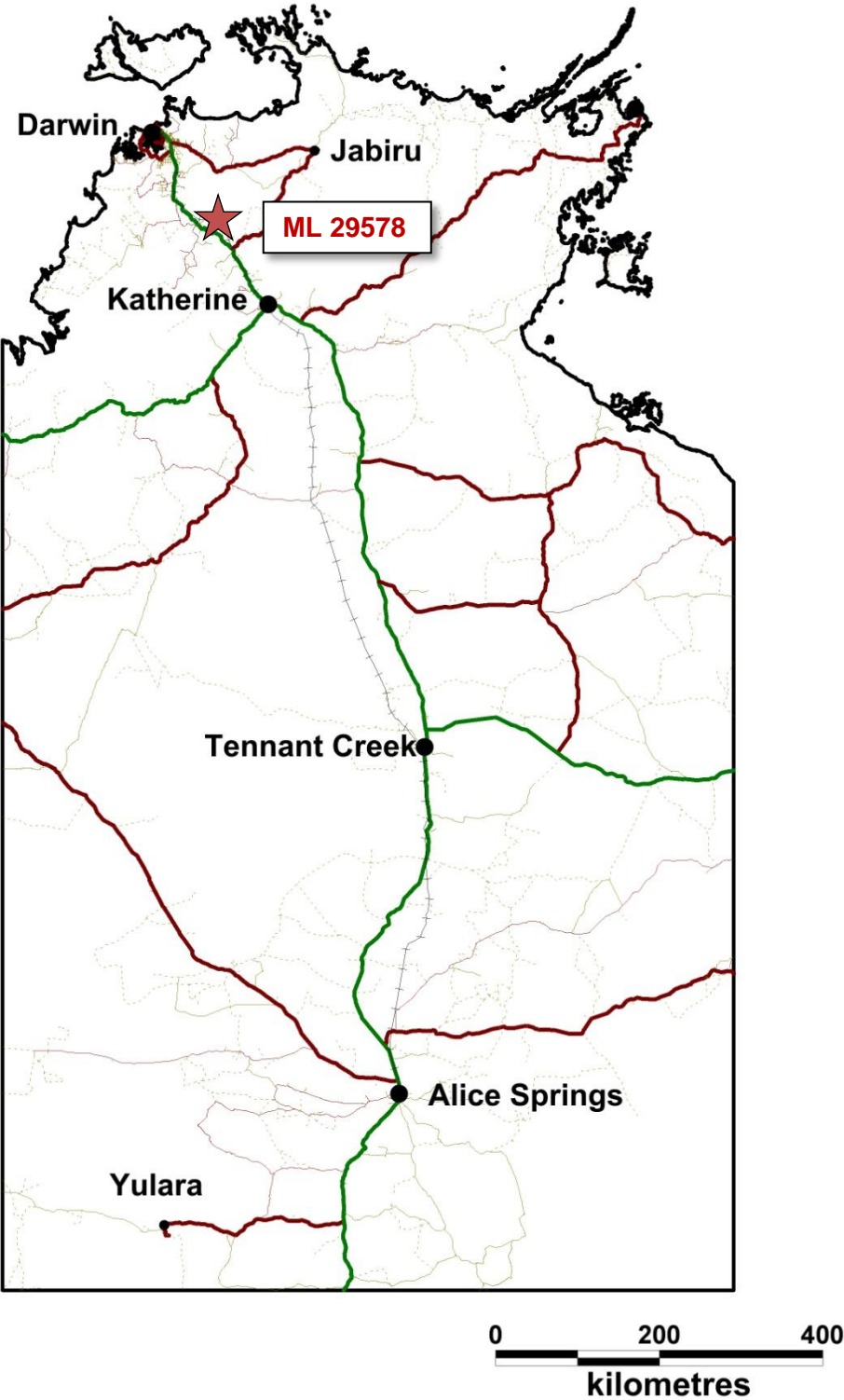
Project Name:	Golden Crown Project
Location:	Ban Ban Springs Station, Northern Territory
Site Access:	Southwards via the Stuart Highway from Darwin to the Fountain Head Road, then northwards on the Ban Ban Springs Station access road, then westwards via gravel roads to the site.
Mining Interest:	ML 29678
Title holder:	Resolution Investments (NT) Pty Ltd

A copy of the application for an authorisation is included as APPENDIX 1

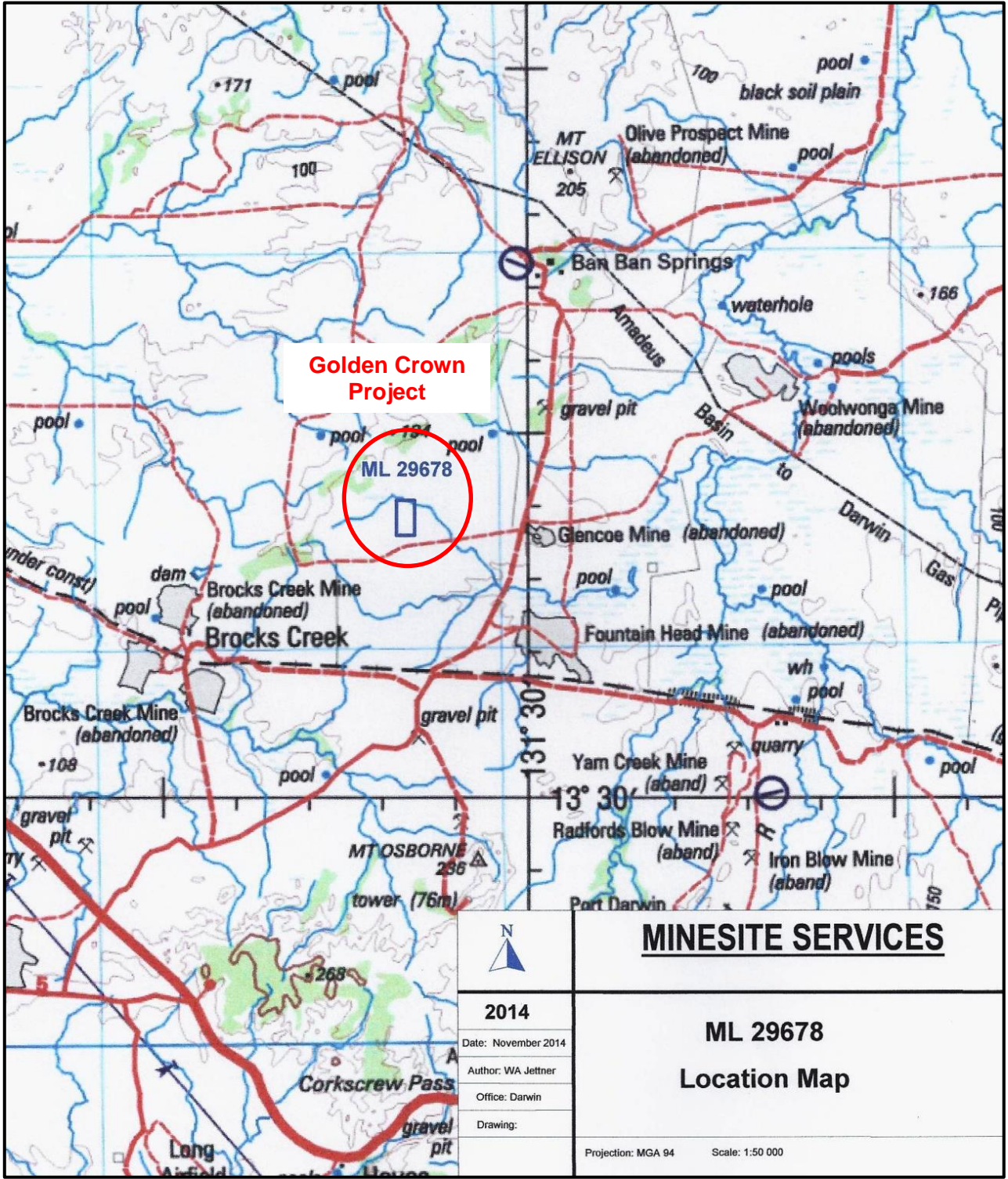
A copy of the nomination of operator form is included as APPENDIX 2

A copy of the appointment of Operator form is included as APPENDIX 3

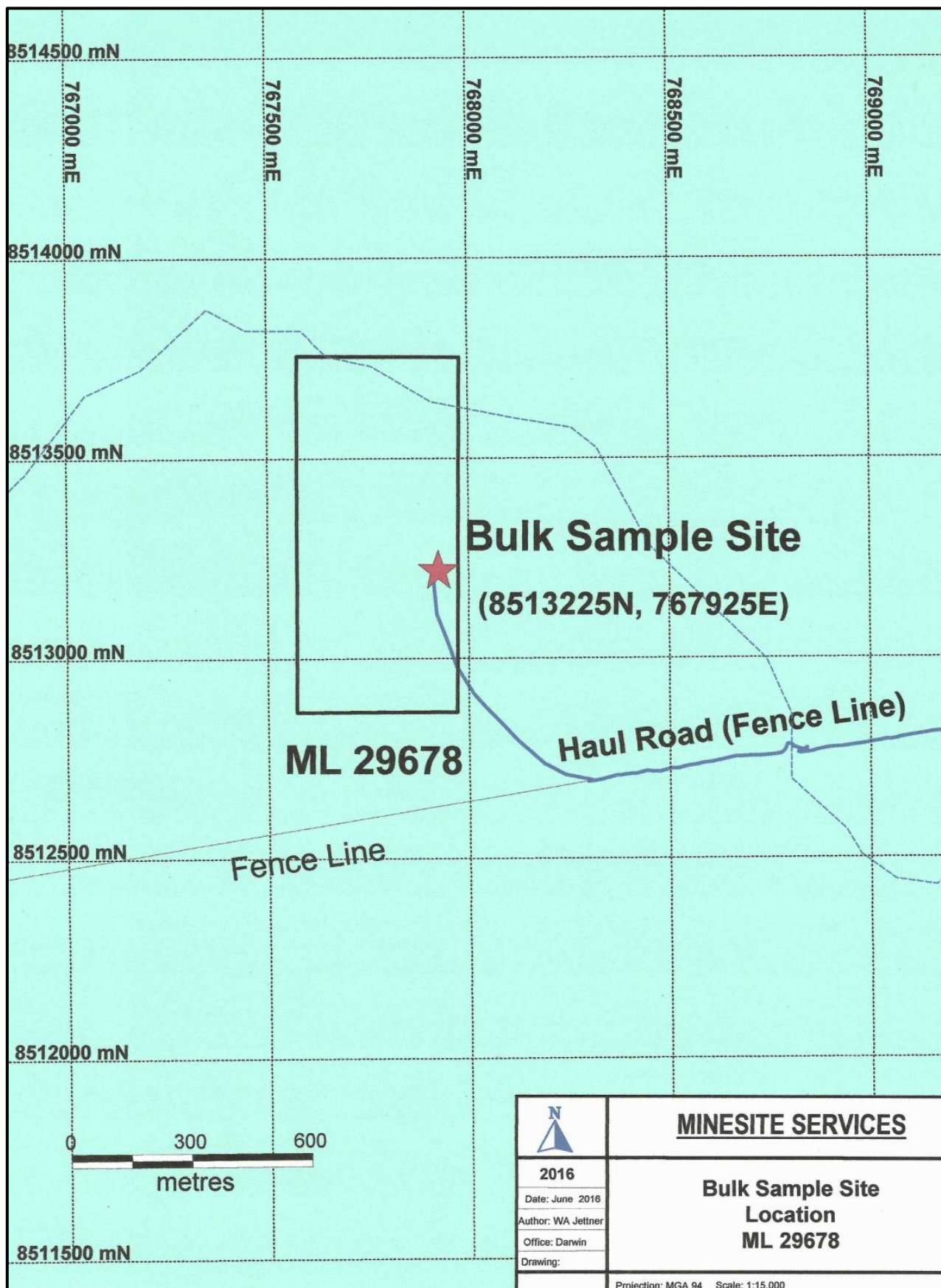
LOCATION MAP



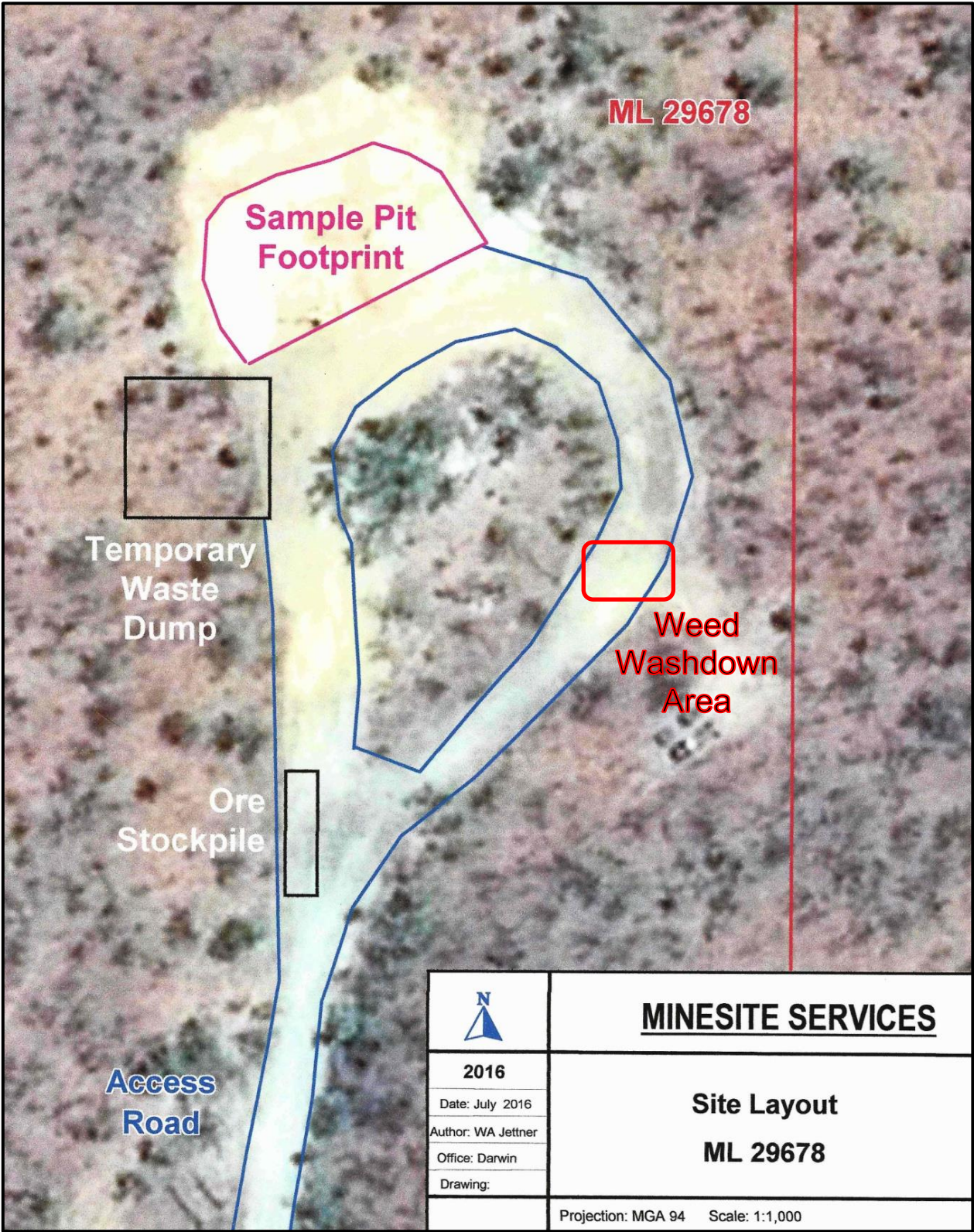
REGIONAL MAP



LOCAL MAP



SITE PLAN



3.1 Previous Activities and Current Status

Historical Mining/Exploration

Historically there has been limited exploration drilling within the area of ML 29678 as shown on the open file coredat and drillhole collar files from the DME.

There are no records or signs of gold mining activities within the lease area, there is also no maintenance of stock fencing in the area which indicates that pastoral activities in this area are of low priority/intensity.

2015 Exploration Activities

In July 2015 a small bulk sample pit of dimensions 15m wide x 25m long x 3.5m deep was excavated and 800 t of ore mined. 710t of this ore was taken to a gold gravity testing facility near Darwin and processed. There was very little gold recovered indicating that grinding was required for gravity recovery to be potentially viable. This treatment technique has been since tested and we are awaiting the results.

Cyanide leaching was also trialled with excellent recoveries indicated by lab testing with some bench scale testing being undertaken. All of this test work is being undertaken off site. The exploration program was truncated in 2015 by the actions of the DME and the lack of successful gold recovery. The site was completely rehabilitated in September 2015 and a rehabilitation report forwarded to the DME. In 2015 it was planned to construct a bulk sample pit of 20m wide x 25m long x 4m depth. Within this void it was proposed to remove a sample of the mineralised rock of 2,500t.

2016 Exploration Activities

The exploration activities undertaken 2016 were the continuation of those in 2015 utilising the same techniques and equipment as proposed in the 2015 MMP.

Due to information obtained from the 2015 work there is less ore per vertical metre available than originally predicted we expanded the size of the required pit to 25m wide x 40m long x 10m deep (compared with 20m wide x 25m long x 4m deep as was permitted in 2015 and 15m wide x 25m long x 3.5m deep as constructed). This is what is required to produce the original planned total sample site of approximately 2,500t.

To aid the operation a temporary waste dump of 25m x 25m footprint was located in an existing clearing near the pit where the waste was temporarily stored before being relocated back to the pit void. There was no topsoil removed from this site. The ore was stored on the existing roadway for ease of loading for transport offsite.

At completion of mining and void refill there is no void remaining and no need for an abandonment bund to be constructed. The final landform shape is much the same as the initial landform before operations commenced.

- The Rehabilitation Register is included in APPENDIX 13.
- The appropriate GIS files (Mapinfo Format) are included in APPENDIX 5

3.2 Proposed Activities

Proposed activities in 2017 include the ongoing monitoring of the rehabilitation status of the site. There is no further excavation planned at the Golden Crown site.

As a consequence of the successful permitting of the New Era Project (a vat leach sited adjacent to Spring Hill on ML 30259) all remaining ore stockpiled at Golden Crown will be removed from the site and transported to ML 30259.

The location of the ore stockpile (1,250t) is included in the disturbed area GIS files.

4 Current Project Site Conditions

Site Conditions	Description
Geology	The geology of the area consists of sediments of the Lower Proterozoic Mt Bonnie Formation, these are folded around a southeast trending anticline.
Hydrology	The groundwater potential of the area is generally bore quantities of less than 5.0L/s with salinities less than 500mg/L.
Flora	Inspection of the NRETA Pine Creek Bioregion Master Plan shows the immediate area of the pit to be vegetated by open woodland with a <i>E. tetrodonta</i> (Stringybark) and <i>E. miniata</i> (Darwin woolly-butt) woodland with a Sorghum grassland understorey. These are listed in APPENDIX 6. The NRM Weeds Management booklet will be distributed with the site induction.
Fauna	Inspection of the DENR fauna database shows no threatened or endangered species specific to the lease area. This is listed in APPENDIX 6. The Threatened Species Management booklet for the area will be distributed with the site induction.
Land Use	This area of the Ban Ban Springs Station pastoral lease is currently used for stock grazing purposes, but no stock have been observed in this paddock and the fences are in disrepair.
Weeds	Identified weeds in the broader area of grid cell 47 are declared weed species (National Status and NT Status, A and B class) that may be present are: Gamba Grass, Mimosa, Rubber Bush, Hyptis, Sickie Pod, Spiney-head Sida, Flannel Weed, Caltrop, Coffee Senna, Paddys Lucerne, Lantana, Lions Tail, Salvinia, Branched Porterweed, Cayenne snakeweed Of these listed species only 1- Hyptis , has been positively identified by survey as being present within ML 29678..
Pests	Identified pests in the broader area of grid cell 47 that may be present are: Cane Toad, Asian-house Geko, Red-tailed black-Cockortwo, Sulphur-crested Cockortwo, Agile

	wallaby, Black rat, Dingo/wild dog, Cat, Horse, Pig, Buffalo, Cattle. Of these species only occasional signs of cattle have been spotted (old cow pats) in the project area.
Historical, Aboriginal, & Heritage Sites	An inspection of the Register of Sacred Sites maintained by the AAPA has been made and there are no sites of significance registered near the area of proposed activity. An extract from the DLPE archaeological and heritage database has been made and there are no sites located near the area of proposed exploration. (APPENDICES 7 and 8). Data from these two sources was examined to delineate areas so that our work will not interfere with any listed archaeological or heritage sites.

5 Environmental Management System

Endeavour Investments (NT) Pty Ltd currently does not have a formal environmental management system in place and this section will be used to report progress made against the outcomes listed in Section 5.0 of this MMP.

5.1 Environmental Policy and Responsibilities

Endeavour Investments (NT) Pty Ltd aims to minimise the impact on the natural environment in which we operate by adopting suitable environmental practices. To achieve this we ensure strict compliance with local statutory laws and regulations, promote awareness of environmental issues amongst our workforce to identify the potential impact of their activities and wherever possible to conserve natural resources.

The Project Manager shall be responsible for day to day management and control of activities that may impact on the environment.

5.2 Statutory and Non-Statutory Requirements

All exploration activities will be conducted under the relevant acts and regulations which may include but is not restricted to the following:

- *Mining Management Act*
- *Mining Management Regulations*
- *Minerals Titles Act*
- *Weeds Management Act*
- *Bushfires Act*
- *Heritage Act 2011*
- *NT Aboriginal Sacred Sites Act*
- *Native Title Act*
- *Aboriginal Land Rights (Northern Territory) Act*
- *Environment Protection & Biodiversity Conservation Act*
- *Atomic Energy Act*
- *Workplace Health and Safety Act*
- *Soil Conservation and Land Utilisation Act*

- *Territory Parks and Wildlife Conservation Act*
- *Water Act*
- *Waste and Pollution Control Act*

also

- Lease conditions
- Authorisation conditions

Endeavour Investments (NT) Pty Ltd is committed to working as harmoniously as possible with all stakeholders in the area. The main groups likely to be affected by their activities in the area are the local pastoralists.

Letters explaining our intentions along with a map showing the proposed work area have been sent to the land manager. Prior to any field activities the proposed work will be discussed in person at the station to insure our activities do not interfere with their work programs. Ongoing consultations have occurred with Mr Blokland (the station manager) regarding access for monitoring purposes and further discussions will also be undertaken before removal of the ore stockpile to avoid any misunderstandings.

5.3 Induction and Training

Induction training is to be conducted for all personnel including field assistants prior to commencement of work.

As a minimum the training will cover the following:

- Introduction to the site—geography, contacts, code of conduct, landowners and emergency procedures, location of and use of fire extinguishers and other safety equipment;
- Expected behaviour and personal conduct rules;
- Access, including the use of roads and tracks and gates;
- Control measures required with regard to the management of Aboriginal and historic heritage and introduction to laws and penalties;
- Control measures required with regard to the management of flora and fauna, including the procedures and clearances required where tracks and pits are to be created. Indiscriminate clearing of vegetation is to be avoided at all times;
- Weed control;
- Sediment and erosion controls;
- Control measures required with regard to surface and ground water management. Control measures, if required, to be implemented with regard to the management and control of dust, noise, soil contamination and water pollution;
- Reporting of complaints and incidents;
- Personnel vehicles (including hire vehicles) - adequately equipped, maintained and suited to task. Daily checks are a part of the daily routine and will be demonstrated as part of the induction;
- Endeavour Investments (NT) Pty Ltd has a policy of zero alcohol and drug

tolerance for drivers and equipment operators when on the job;

- All operators must be trained and be able to demonstrate safe working practices on equipment. No person shall operate any related equipment without adequate training and supervision.
- Housekeeping, security, personal safety equipment, personal safety (including remote area awareness & procedures, first aid, fauna awareness, breakdown/lost procedures;
- Duty of care and individual responsibilities

5.4 Identification of Environmental Aspects and Impacts

Aspect	Impact(s)	Risk Rating	Preventative Control Measures (prevention)	Mitigating Control Measures (remediation)
Native vegetation disturbance	Potential for damage to vegetation	2	Over-clearing may result in disturbance and destruction of native vegetation.	Clearing will be managed by the project manager and will be limited to only those areas that are necessary for the activities to be conducted.
Soil disturbance	Potential for soil erosion	3	Inappropriate clearing may result in soil erosion	Diversion drains will be constructed where required to avoid any soil erosion.
Scientific & cultural sites	Disturbance of sites of cultural or scientific interest	2	Endeavour Investments is unaware of any specific scientific or cultural sites within the confines of the proposed work program.	Any cultural sites located will be immediately reported to the AAPA and the heritage Branch of the DTC
Fauna disturbance	Disturbance of vulnerable or endangered fauna	2	Endeavour Investments believes that the probability of disturbance of vulnerable or endangered fauna from this program is low.	Ongoing site monitoring for potentially vulnerable or endangered fauna will continue. Recognition of NTG listed species will be reported to DENR (Flora/Fauna Division)
Flora disturbance	Disturbance of vulnerable or endangered flora	2	Endeavour Investments believes that the disturbance to significant flora from these activities is low. There are no endangered species recognised according to the NTG INFONET report.	Disturbance will be minimised by careful management of all earth-works activities. Recognition of NTG INFONET species will be reported to DENR (Flora/Fauna Division)
Visual impact	Evidence of increased activity in the area.	2	Through implementing the land use techniques discussed in this document Endeavour is reducing the impact of the program on the environment and therefore having a lesser effect on the visual impact on the area.	Over time natural regeneration will remediate the visual impacts of this program to their pre disturbance state.
Fire	Ignition of a fire from hot exhausts/	2	Endeavour Investments believes fire risk from this program is low.	All vehicles on site will carry fire extinguishers and shovels.

	equipment			
Groundwater contamination	Contamination of aquifers	3	Potential for groundwater contamination is minimal, there are no excavation activities planned.	No works will affect the groundwater regime.
Surface water contamination	Contamination of natural drainage systems	3	Potential for surface water contamination by the leach solution is minimal, a monitoring plan will allow early detection of any vat leakage.	Any works will be removed/cleared at the completion of the program back to as close to its original state as possible.
Introduced weeds/Invasive species	Introduction of weeds from vehicles	3	Endeavour Investments anticipates that the risk from introduced species is low for this project due to the small area (<0.5ha) affected by activities.	Weed monitoring will be periodically ongoing to ensure any areas do not become infested. An annual weed audit will be undertaken to report on the success of this strategy.
Rubbish and waste	Contamination of site with rubbish and waste	2	All rubbish is to be stored appropriately until disposal at a licenced waste disposal facility.	All rubbish shall be disposed of at the Pine Creek waste disposal facility.
Landowner activities/interests	Disturbance of landowner activities/assets	2	As the land is pastoral land the main activities are the production of beef cattle. Endeavour Investments will liaise with the land manager to minimise any potential for land use conflict whilst they are conducting activities on site.	The project manager will be responsible for managing any unforeseen conflicts with the landowners.
Hydrocarbons	Hydrocarbon leak/spill – contamination of soil, surface and ground water	2	Spill Kits and absorbent matting will be available at all areas where there is potential to spill hydrocarbons (ie with any bulk fuel tanks). Where possible full bunding will be deployed to bulk storage tanks to contain any leaks .	Any contaminated soil will be removed, bagged and disposed at an appropriately licenced facility with contaminated areas replaced with clean topsoil. All leaks of hydrocarbons over 25L will be recorded as an environmental incident and will thus be fully investigated and reported to the Department with the rehabilitation report.
Public or third party activities	Access by unauthorized parties to the site	2	Signage will be placed at all public entrances stating no un-authorised access.	Any unauthorised access to the site will be managed by the project manager.

Noise and Air Quality	Detrimental effects to workers and nearby stock	2	Workers are protected by the use of correct PPE such as ear plugs or ear muffs.	Endeavour Investments has identified no need for a noise or dust monitoring program.
Erosion and Sediment Control	Sediment and turbidity in nearby creeks	3	Turbidity in nearby streams is caused by sediment load being carried with the stream when it is flowing. This can be influenced by wind and water-borne soils eroded from the in-situ soil profile due to clearing.	A diversion drain around the backfilled void will minimise erosion of the backfill.

LIKELIHOOD	CONSEQUENCES				
	Catastrophic 5	Major 4	Moderate 3	Minor 2	Insignificant 1
Almost certain 5	10	9	8	7	6
Likely 4	9	8	7	6	5
Possible 3	8	7	6	5	4
Unlikely 2	7	6	5	4	3
Rare 1	6	5	4	3	2

LIKELIHOOD		CONSEQUENCES	
Almost certain	Expected to occur in most circumstances	Catastrophic	Environmental disaster
Likely	Will probably occur in most circumstances	Major	Severe environmental damage
Possible	Might possibly occur at some time	Moderate	Contained environmental impact
Unlikely	Could occur at some time	Minor	Some environmental impact
Rare	May occur only in exceptional circumstances	Insignificant	Low environmental impact

Risk Score	Risk Rating	Action Required
9 - 10	Extreme	Immediate
7 - 8	High	Action plan required. Senior management attention
5 - 6	Moderate	Specific monitoring or procedures required
2 - 4	Low	Management through routine procedures

Discussion of Management Measures**Native Vegetation Disturbance****Impact**

Potential for damage to native vegetation

Management

The Golden Crown Project has an established network of existing access tracks. These will be used where possible, No new vegetation clearing is planned for the 2017/18 year.

Monitoring

Any potential native vegetation disturbance will be monitored by the project manager as part of his daily duties and will be captured in the site rehabilitation register.

Soil Disturbance**Impact**

Potential for erosion of soil due to exploration activities.

Management

The access tracks are designed to avoid, when possible, steep topography and large or significant vegetation. The tracks will be simple levelled paths clear of upright vegetation (i.e. will not be graded or have topsoil cleared/removed) and vehicle speeds will be restricted (variant on style and condition of track). Endeavour Investments believes that by utilising these techniques the program will have only minor disturbance to the soil profile from its existing tracks. Rehabilitation before the onset of the 2018 wet season will further reduce any impact.

Monitoring

Any potential soil disturbance will be monitored by the project manager as part of his daily duties and will be captured in the site environmental inspections and audits.

Scientific and Cultural Sites**Impact**

Potential loss of cultural and heritage sites.

Management

At this stage the identification of cultural and heritage sites by applications to the AAPA and the DTC Heritage Branch has shown that there are no recorded sites within the ML 29678 area. Endeavour Investments recognises and acknowledges that not all cultural and heritage sites are reported to the government and they may exist unreported.

Monitoring

To date there have been no recorded cultural and heritage sites found in the exploration area. As part of the exploration activities personnel are encouraged to report any suspected indigenous, archaeological or heritage sites to the project manager for preliminary evaluation. If the manager is satisfied he will place a moratorium on the immediate area and report it to the appropriate authorities.

Flora and Fauna Disturbance**Impact**

Clearing of access tracks for flora and presence of workers and equipment for fauna.

Management

Flora and fauna loss or disturbance is primarily due to habitat loss, this is due to excessive or over clearing in exploration activities. The strategy for flora management is to minimise vegetation clearing by using the DPIR recommended 'blade up' track clearing and bulk sample pit construction techniques. As part of exploration activities any worker identifying a suspected endangered species should report it to the project manager for further evaluation.

Monitoring

The monitoring of this is done directly within the reporting requirements of the annual MMP review process and as part of our Environmental Management System in the Rehabilitation Register.

Visual Impact**Impact**

Evidence of increased vehicle activity in the area.

Management

Evidence of increased vehicle activity will only occur if the ore stockpile is collected this dry season, the use of the existing roads means that any further clearing is not needed.

Monitoring

Any perceived long term visual impact will be noted during the periodic audits and this data captured in the rehabilitation register.

Fire**Impact**

Loss of habitat and death of small animals, also the possible loss of infrastructure and equipment and possessions onsite.

Management

The use of fire as a land management tool is the responsibility of the landowner and will not be undertaken in any circumstances by Endeavour Investments.

Monitoring

Fire management monitoring is done visually by all personnel on the site.

Ground Water Contamination**Impact**

Cross-contamination of aquifers.

Ground Water Management

In the 2017/18 year there will be no excavations undertaken, as such there are no possibilities of interfering with the ground water table.

Monitoring

Ground water presence will be monitored by the project manager as part of his daily duties.

Surface Drainage Contamination**Impact**

Contamination of natural surface drainage systems and potential for erosion.

Surface Water Management

Any requirements for discharging of water will be identified during exploration planning and the appropriate actions taken. There is currently no anticipated need for water discharge from the exploration site, As excavation has been completed and the void backfilled there is no need for any surface water management (surface runoff) plans to be developed.

Monitoring

Surface water discharge will be workplace monitored by the project manager as part of his daily duties.

Introduced Weeds / Invasive Species**Impact**

Possible competition for native flora both within the pit area and further afield (due to the presence of wild stock).

Management

Weeds identification and management will occur in accordance with this MMP which is built around the DENR weeds data collection and eradication system. Weed eradication may involve spraying of small infestations around the site. Large scale infestations are the responsibility of the landowner and not Endeavour Investments. Weed control and monitoring will be included as an ongoing regular duty of one or more designated staff members. Wash down units will be used for vehicles and any other equipment moving on or off the exploration site to prevent the spread of declared weeds.

The wash down unit will be located in the central cleared area which will enable all vehicles leaving the site to be examined and treated. Water for this unit will also be sourced from off site and stored at the unit in a 200Lt blue plastic drum. Vehicle monitoring will consist of examination of grass and seeds before leaving site if the activities are being conducted within an identified weed infestation. The wash-down area will be sprayed with weed poison on completion of the exploration program to minimise potential weeds spread from the site. All materials sourced outside the project area must be weed-free prior to being taken onsite.

Monitoring

Monitoring of weed infestations occurs by visual means with periodic inspections in accordance with this MMP.

As part of the exploration activities any worker identifying a suspected weed infestation should report it to the project manager for further evaluation.

Rubbish and Waste**Impact**

Untidy site with potential health hazards.

Management

All wastes will be collected and transported off site to the nearest approved waste disposal facility.

the site will be maintained in a clean and tidy condition at all times. All wastes will be collected, segregated and stored in properly constructed containers and removed to an approved land fill or other disposal site in accordance with local council requirements.

Monitoring

Monitoring of waste collection and disposal will be the responsibility of the project manager and will be undertaken visually.

Landowner Activities**Impact**

Interference with authorised landowner activities

Management

As the land is leasehold land owned by Inyathi Reserve Pty Ltd there are currently pastoral activities being undertaken in the general station area of the 2017 proposed activities. Active liaison with the station management will seek to avoid any potential misunderstandings or miscommunications about Endeavours activities. Endeavour Investments is aware of its role and responsibilities not to interfere with active pastoral activities.

Monitoring

The project manager will be responsible for identifying and managing any potential landowner conflicts.

Hydrocarbons and Hazardous Materials**Impact**

Possible impact on flora, contamination of underlying soils and poisoning of stock if ingested.

Management

Fuels, oils and hazardous materials will not be stored onsite.

Monitoring

Because of the short duration of the monitoring program the potential sources of pollution will be visually monitored by daily workplace observations by the project manager as part of his daily duties

Public Activities**Impact**

Disturbance of public activities. Access by unauthorized parties to the exploration site.

Management

There is no anticipated interference with public activities although the possibility of public access to the site is recognised.

Monitoring

Potential presence of members of the public will be visually monitored by daily workplace observations by the project manager as part of his daily duties

Noise and Air Quality**Impact**

Noise and dust affects workers, neighbours and nearby stock.

Management

Workers are protected by the use of correct PPE such as ear plugs, ear muffs and dust masks.

Neighbours are located +10km away and are unlikely to experience intrusive noise from drilling operations.

If any stock are in the immediate area they will remove themselves to a location where they are comfortable, the immediate area contains no fences to inhibit free movement.

Monitoring

Endeavour Investments has identified no need for a noise or dust monitoring program for the 2017 post closure monitoring program. The monitoring of any dust and noise generated will be by workplace monitoring by the project manager.

Erosion and Sediment Control**Impact**

Sediment and turbidity in nearby creeks can be influenced by inappropriately planned roads. This is a sign of soil erosion and potentially inappropriate rehabilitation techniques in areas upstream.

Management

Turbidity in nearby streams is caused by sediment load being carried with the stream when it is flowing. This can be influenced by wind and water-borne soils eroded from the in-situ soil profile due to vehicle disturbance and clearing. Primary considerations for minimising this, is the correct siting of access tracks to minimise soil disturbance. Road clearing

requirements have been done “blade-up” to minimise damage to flora and subsequent soil damage.

Monitoring

Because of the previously completed small program it is not proposed to have a water monitoring program within the nearby ephemeral streams, which will most likely not be flowing or holding water anyway.

5.5 Environmental Audits, Inspections and Monitoring

Environmental inspections will be undertaken by the Project Manager during the program. At completion of the program all disturbed sites will be rehabilitated to meet best practice standards.

Environmental audits will include the following:

- Weed Inspections and monitoring (yearly)
- Status of progressive rehabilitation (yearly)
- Monitoring of progressive rehabilitation (immediately, 6 monthly, yearly)

The results of these inspections and audits will be kept in the site operational records. For informational purposes these results are also included in APPENDICES 11 and 13.

5.6 Environmental Performance

5.6.1 Objectives and Targets

The success of the exploration program will be measured in terms of:

- Successfully testing the target with the minimum disturbance required to decide if additional work is warranted.
- The completion of the program with no accidents or incidents involving employees, contractors or material damage to the environment.
- Completion of the program with the absolute minimum of surface disturbance.
- The removal of all items brought to the site including rubbish.
- The rehabilitation of access tracks and the bulk sample pit in accordance with DPIR guidelines.
- The restoration of the sample pit site to as close to natural profile.

It is anticipated that the operations will be completed by the end of September and the rehabilitation completed within 1 month of completion of costeaning activities and before the onset of the wet season. At the completion of the rehabilitation a final site inspection will be undertaken by the environmental manager who will ensure that the work has been done to the highest possible standards.

At closeout, a final rehabilitation report will be prepared detailing the work completed, and this will be submitted to the Department of Primary Industry and Resources.

5.6.2 Performance Reporting

Performance targets relevant to this phase of exploration are the rehabilitation of the bulk sample pit and waste and ore stockpile areas and the removal of waste from the site. The environmental manager will be responsible to insure these areas are fully rehabilitated before the onset of the wet season.

Control and reporting on the rehabilitation work will be managed by establishing a Rehabilitation Register (see APPENDIX 13), in which the nature of the disturbance and the state of rehabilitation efforts will be recorded. The environmental manager will verify the completeness of rehabilitation before signing off. A periodic review will ensure that steady progress on rehabilitation is maintained and no areas are overlooked.

To provide a measurable basis for the rehabilitation works a photographic record will be started and maintained throughout the exploration program. Prior to any ground disturbing work occurring photographs of the area to be affected will be taken. The photographs will be used as base line data against which the effectiveness of the rehabilitation work will be assessed. Additional photographic evidence will be collected at the following points to monitor the progress of rehabilitation, these will also include photos at the time of costeaning, after completion of rehabilitation and at monitoring intervals of post-wet season and 12 months after completion of rehabilitation.

5.7 Emergency Procedures and Incident Reporting

Emergency Procedures

In the event of an emergency, either safety or environmental, the following general procedures are to be followed:

1. Ensure the safety of workers and anyone else present.
2. Prevent, control and stop the incident and its impact from spreading
3. Advise the Environmental Manager or Exploration Geologist and seek his assistance
4. Advise the Chief Executive of the DPIR by telephone of the incident and the steps undertaken to mitigate the impact and control the source of the incident if the incident rating is Class 2 or above.
5. Record the incident
6. Submit a written report on Form CF7-001 to the Chief Executive as soon as practical after assessing the incident
7. Undertake all instructions as issued by the mining officers.

Incident Reporting

Environmental Incidents must be reported to the NT Department of Primary Industry and Resources in accordance with Section 29 of the Mining Management Act.

The appropriate form to report an environmental incident is DPIR Form CF7-001, which is included in APPENDIX 12, DPIR Advisory Note AT8-006 is also included in APPENDIX 9 in the Environmental Management Plan.

The following guide to Incident assessment and reporting has been sourced from the DPIR advisory note AT8-006 “Environmental Incident Reporting”.

Incident Assessment

When assessing an incident and making decisions about reporting on an environmental incident or serious environmental incident an operator should have regard to the definition of “environment” in the MMA.

“Environment” is defined under Section 4 of the MMA as follows:

land, air, water, organisms and ecosystems on a mining site and includes:

- (a) *the well-being of humans;*
- (b) *structures made or modified by humans;*
- (c) *the amenity values of the site; and*
- (d) *economic, cultural and social conditions.*

Operators should conduct an appropriate assessment of the incident in order to determine the severity of the incident and whether the operator will be required to report the incident to the Chief Executive Officer of DPIR. For the purpose of classifying the severity of an incident and determining whether a report is required an operator may be **guided** by the assessment matrix in APPENDIX 8.

Operators should also have regard to the obligations set out in section 16 of the MMA, the conditions of authorisation, the permitted activities and the relevant procedures contained in the operator’s own management plan, including its associated systems.

It is not always necessary for there to have been an environmental impact for the requirement to report an incident to be triggered. The *potential* for any incident to have an impact on the environment should also be taken into account when considering whether to make a report to the Chief Executive Officer. The definition of “environment” is broad and careful consideration should be given to each aspect of the environment before a determination is made.

Incident Reporting

Incidents likely to be the subject of a section 29 incident report may include, but are not limited to, the following:

- Escape (by any means such as a spill or leak) of a fuel, chemical, product or residue in solid, liquid or gaseous form including fumes, smoke, vapours, contaminated water, or dust;
- Emissions of noise (beyond reasonable permitted levels);
- Uncontrolled or accidental fire on any land, structure or infrastructure;
- Unauthorised, uncontrolled, or both, discharge of controlled waters to surface or ground waters;
- Damage to a Sacred Site, Aboriginal Protected Area, other protected area, archaeological or heritage site;
- Unauthorised mining, whether the activity is undertaken on or off an authorised mining site;
- Unauthorised clearing of vegetation or disturbance of the ground on or off an authorised mining site; and,
- Harm to human well-being.

In accordance with Section 29 of the MMA operators are required to report an environmental incident or serious environmental incident:

- (1) *As soon as practicable after the operator for a mining site becomes aware of the occurrence of an environmental incident or serious environmental incident on the site, the operator must notify the Chief Executive Officer of the occurrence.*

Section 29 also states:

- (2) *An operator who gives notice orally must, as soon as practicable after doing so, give a written notice to the Chief Executive Officer.*

Operators should also be aware of Section 33 of the MMA, which states:

- (1) *A person commits an offence if:*
- (a) *the person releases waste or a contaminant that is from a mining site; and*
 - (b) *the release is not authorised by the mining management plan for the site.*

General emergency procedures as well as NT Worksafe incident notification and DPIR Environmental Incident notification forms and procedures are also included in APPENDIX 12.

6 Exploration Rehabilitation

2017 REHABILITATION ACTIVITIES

2017 rehabilitation activities will include the removal of the remaining ore stockpile (to another suitable processing site) and the ongoing post-closure monitoring of the Golden Crown site.

REHABILITATION ACTIVITIES UNDERTAKEN IN 2016

Disturbance	Rehabilitation Activities	Schedule (Timing)	Closure Objectives / Targets	Monitoring Techniques
Access Track	Swales on creek crossing Erosion catch drains on tracks	September 2016	Stable landsurface	Follow-up observations/photographs
Bulk Sample Pit	Pit void back-filled	September 2016	Stable landsurface	Follow-up observations/photographs

Mining officers have insisted that Endeavour Investments permit the station fence line that we have negotiated access with the station owner and we have included this at a reduced rate due to the fact that it will not be scarified due to its being a pre-existing station access road and fire break.

REHABILITATION ACTIVITIES UNDERTAKEN IN 2015

In response to an Instruction issued by a mining officer dated 27/10/2015 a Rehabilitation Report was completed and signed off by the Station Manager and then forwarded to the DME on 20/11/2015.

Disturbance	Rehabilitation Activities	Schedule (Timing)	Closure Objectives / Targets	Monitoring Techniques
Access Track	Swales on Creek crossing, Erosion catch drains on tracks	October 2015	Stable landsurface	Follow-up observations/photographs
Bulk Sample Pit	Pit void back-filled	October 2015	Stable landsurface	Follow-up observations/photographs

6.1 Exploration Rehabilitation Register

The figures in the tables below are a summary of the rehabilitation at ML 29678, the Golden Crown Project. The rehabilitation Register is included as APPENDIX 13.

Access Track Rehabilitation Status							
Tenement	Track ID	Tracks Created (km)	Tracks under Rehab (km)	Status †	Rehab Date	Planned Rehab Date	Comments
ML 29678	AT 1	2.35	0	N	-	Nov 2017	Access track along station fenceline – open until the ore is removed from the site
	AT 2	0.80	0	N	-	Nov 2017	Access track between station fenceline and bulk sample pit – open until the ore is removed from the site
† C = rehabilitation completed, N = no rehabilitation completed, PR = partial rehabilitation (specify remaining rehabilitation to be completed within the comments section).							

Bulk Sample Rehabilitation Status									
Tenement	Bulk Sample Pit	Date Excavated	Dimensions (L x W x D)	Easting (GDA 94 Zone 52)	Northing (GDA 94 Zone 52)	Status †	Pit Rehab Date	Planned Rehab Date	Comments
ML 29678	Pit 1	Sept 2015	25 x 15 x 3.5	767925	8513225	C	Oct 2015		Opened up again in 2016 to form the pit for this year
ML 29678	Pit 1	Aug 2016	40 x 25 x 10	767925	8513225	C	Aug 2016		Pit back-filled at the end of the program.
ML 29678	Dump 1	Aug 2016	25 x 25			C	Aug 2016		Waste Dump removed and placed in pit void.
† C = rehabilitation completed, N = no rehabilitation completed, PR = partial rehabilitation (specify remaining rehabilitation to be completed within the comments section).									

6.2 Costing of Closure Activities

Being commercial in confidence the costing of closure activities is included as APPENDIX 15.

Appendices

- APPENDIX 1. APPLICATION FOR AUTHORISATION (Sect. 1.0)**
- APPENDIX 2. NOMINATION OF OPERATOR (Sect. 1.0)**
- APPENDIX 3. APPOINTMENT OF AGENT (Sect. 1.0)**
- APPENDIX 4. LAND OWNER CORRESPONDENCE (Sect 2.0)**
- APPENDIX 5. LOCATION OF PROPOSED ACTIVITIES (Sect 3.2)**
- APPENDIX 6. DENR ENDANGERED FLORA & FAUNA DATABASE EXTRACT (Sect 4.0)**
- APPENDIX 7. AAPA INFORMATION FROM RECORDS (Sect 4.0)**
- APPENDIX 8. DTC HERITAGE & ARCHEOLOGICAL DATABASE SEARCH (Sect 4.0)**
- APPENDIX 9. ENVIRONMENTAL MANAGEMENT PLAN (Sect 5.0)**
- APPENDIX 10. INDUCTION MANUAL (Sect 5.3)**
- APPENDIX 11. WEED MONITORING (Sect 5.5)**
- APPENDIX 12. EMERGENCY PROCEDURES & INCIDENT REPORTING (Sect 5.7)**
- APPENDIX 13. REHABILITATION REGISTER (Sect 6.1)**
- APPENDIX 14. REPLY TO DPIR COMMENTS (MR2016/0300)**
- APPENDIX 15. SECURITY CALCULATION (Sect 6.2)**