

Mining Management Plan Exploration Activities

Northern Territory of Australia – Mining Management Act

It is recommended that the Mining Management Plan is completed in conjunction with the user guide, available on the [Northern Territory Government website](#).

Section 1 – Project Details

Project Name Provide new or existing project name	Eastern Leases Exploration
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Authorisation Number Insert existing authorisation number, where applicable	0944-01 Update to variation No. 4 dated 29/10/2020
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Operator Name Use ASIC-ABR registered name (if a company), or name of the applicant	Groote Eylandt Mining Company Proprietary Limited
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Location and Access Details Include brief description of the location, access details, and distance to nearest town or community	<p>ML31219 and ML31220 are located in the south-western part of Groote Eylandt in the Northern Territory.</p> <p>ML31219 and ML31220 lease areas are referred to as the Eastern Leases and are approved for future mining. They are located 2 km east of the existing mine at their closest point.</p> <p>The township of Angurugu, which is located approximately 6.5 km to the north-west of ML31219, is the closest permanent residential community to the project site.</p> <p>Access into the Eastern Leases from the GEMCO mining operations is via a proposed haul road corridor and has an approved Access Authority Agreement (AA31711) in place. AA31711 commences at the boundary of MLN952.</p>
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Target Commodity Details Include target commodities (i.e. gold, copper etc)	Manganese
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<p>Mining Activities Summarise the mining activities (exploration) to be the subject of the proposed Authorisation or Variation</p>	<p>Geotechnical Assessment</p> <p>The geotechnical investigation will utilise a Diamond Drill Rig employing augering, wash boring and coring techniques. Samples will be obtained from suitable layers for laboratory testing.</p> <p>Following the completion of sampling, each test pit will be backfilled with the excavated material back to ground level, ensuring the safety of personnel and fauna.</p> <p>Refer Appendix 3 showing the location of planned geotechnical bore holes, geotechnical test locations and track.</p> <p>Exploration Drilling Exploration Reverse Circulation (RC) and Diamond core drilling is planned within the Eastern Leases in 2021.</p>
<p>Proposed Schedule Include start and finish dates of ground disturbing work</p>	<p>The geotechnical assessment work is planned for completion between May and November 2021</p> <p>Exploration drilling is expected to commence mid to late July with the RC drill program to be completed by early to mid-September, and the diamond core drilling finishing in early November 2021</p>

Mining Interest and Land Ownership

List the mining interests (titles), the title holder name/s, the title expiry date and the Property name/Land holder (e.g. pastoralist or Aboriginal land trust) for each title.

Title Number	Title Holder	Expiry Date	Property Name or Land Holder
ML31219	GEMCO	3/08/2041	Aboriginal Free Hold
ML31220	GEMCO	3/08/2041	Aboriginal Free Hold
AA31711	GEMCO	3/08/2041	Aboriginal Free Hold

Delete or add rows as required

Organisational Structure

Position Title	Name
(Acting) Vice President Operations GEMCO	Ryan Kleinschmidt
Manager – Production Planning	Michael Smith
Eastern Leases Project Study Lead	Danny de Vries
Exploration Superintendent	Ken Pegg
Principal Resource Geologist	Josh Harvey
Project Study and Approvals Manager	Mike Chapman

Section 2 – Operator Self-Assessment of the Environmental Risk

The purpose of this self-assessment is to ensure Operators complete a project risk assessment of potential environmental impacts and are aware of other legislative obligations from various Agencies. As a result of this self-assessment, further information may be required in the form of a management plan to enable full assessment of the MMP. If you have any queries, please contact a Mining Officer prior to submitting the MMP. Useful resources to assist with this self-assessment are provided in the User Guide.

Environmental considerations

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DENR and/or management plan)
<p>Step 1: Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?</p>	Yes	<p>As part of the Environmental Impact Statement (EIS), an assessment of the baseline terrestrial ecology of the Eastern Leases and the access corridor was conducted, which resulted in threatened and migratory fauna species being determined as either present or with a moderate or high likelihood of occurring in the project area.</p> <p>An EPBC Act approval (EPBC 2014/7228) for the project area has also been received.</p> <p>A Significant Impact Assessment involving an assessment of the impact of clearing required for the geotechnical drill pads and access tracks was also undertaken. The potential for indirect impacts from drilling were assessed and measures to avoid and mitigate impacts were also considered.</p> <p>The assessment identified that conducting disturbance activities will not give rise to significant impacts on listed species. The assessment specifically considered measures to avoid and mitigate impacts, including the Permit to Clear process and pre-clearance survey, environmental controls to prevent the introduction of weeds or Cane Toads. No significant impacts on terrestrial flora and fauna, biological diversity and ecological integrity are predicted</p>	<p>Refer NT EPA for the final Environmental Impact Statement (EIS) and Assessment Report</p> <p>https://ntepa.nt.gov.au/environmental-assessments/register/gemco-eastern-leases</p>

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ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DENR and/or management plan)
Step 2: Are there any known declared weeds within the proposed work area?	No	The Eastern Leases is currently unaffected by weed species. No declared weeds were recorded within the project area during pre-clearance surveys or as part of the Environmental Impact Assessment process	Refer NT EPA for the final Environmental Impact Statement (EIS) and Assessment Report https://ntepa.nt.gov.au/environmental-assessments/register/gemco-eastern-leases
Step 3: Will you be using water from bores or other sources for the operation?	No	<i>No water from bores or from other sources will be used as part of the geotechnical assessment.</i>	Refer NT EPA for the final Environmental Impact Statement (EIS) and Assessment Report https://ntepa.nt.gov.au/environmental-assessments/register/gemco-eastern-leases

Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
Step 4: Is your project likely to have a significant impact on the environment?	No	The geotechnical bore hole drilling is not predicted to have a significant impact on the environment. The proposed activities are very similar in scope to other exploration programs previously undertaken by the proponent in both the Eastern Leases and other tenements on Groote Eylandt. The potential impacts are therefore well understood, and the management measures are well established.

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
<p>Step 5: Are there Aboriginal sacred sites in the Project area?</p>	<p>Yes</p>	<p>GEMCO has worked with the Anindilyakwa Land Council (ALC) to identify areas which have cultural significance to ensure that both exploration and future mining does not give rise to any impacts on sacred sites. The ALC have issued GEMCO with an Instructions Report (May 2016), which provides for the location of known culturally sensitive sites and their restricted work areas (buffer zones). Sacred sites within the project area have also been registered with the Aboriginal Areas Protection Authority (AAPA) – refer Authority Certificate C2016/145.</p> <p>Furthermore, GEMCO has a Permit to Clear process that is followed before any areas are disturbed. This includes flagging of areas proposed to be cleared and then submission of proposed clearing plans to the ALC for approval</p>
<p>Step 6: Are there archaeological and heritage sites in the Project area?</p>	<p>Yes</p>	<p>An archaeological and heritage assessment was undertaken as part of the Environmental Impact Study (EIS). See Section 16 and Appendix L of the EIS. The geotechnical assessment and exploration program will avoid these areas and will have no impact on archaeological and heritage sites.</p>

Section 3 – Amendments

As per Section 41(3) of the *Mining Management Act*, an MMP reviewed and amended under Section 41(1)(a) is to clearly identify amendments made.

Section	Amendment
1	Mining activities updated
1	Proposed schedule updated
2	Step 4 updated
4	Revised activities proposed
4	Revised length and area of track clearing
5	Updated number of geotechnical test pits rehabilitated

Delete or add rows as required

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Section 4 – Activities Proposed

Mining Interests (i.e. titles)	ML31219	ML31220	AA31711
Number and type of proposed drill holes	<ul style="list-style-type: none"> • 4 geotechnical test pits • 19 diamond tipped drill holes • 113 RC holes 	<ul style="list-style-type: none"> • 11 geotechnical test pits • 33 diamond tipped drill holes • 167 RC holes 	<ul style="list-style-type: none"> • 7 geotechnical test pits
Maximum depth of proposed holes (m)	<ul style="list-style-type: none"> • 42 metres 	<ul style="list-style-type: none"> • 42 metres 	<ul style="list-style-type: none"> • N/A
Number and size of drill pads to be cleared (Length: m x Width: m)	<ul style="list-style-type: none"> • 19: Length 20m x Width 20 m • 113: Length 18m x width 10m 	<ul style="list-style-type: none"> • 33: Length 20m x Width 20 m • 167: Length 18m x width 10m 	<ul style="list-style-type: none"> • N/A
Total area of drill pads to be cleared (ha)	<ul style="list-style-type: none"> • 2.79 ha 	<ul style="list-style-type: none"> • 4.33 ha 	<ul style="list-style-type: none"> • N/A
Is drilling likely to encounter groundwater? (Y, N, unsure)	<ul style="list-style-type: none"> • Unsure 	<ul style="list-style-type: none"> • Unsure 	<ul style="list-style-type: none"> • N/A
Number of costeans (Length: m x Width: m x Depth: m)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Number of bulk sample pits	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0
Total bulk sample (tonnes) (Length: m x Width: m x Depth: m)	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0
Bulk sample pits approved under <i>Mineral Titles Act</i> ? (Y or N)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Length of line/track clearing (km: x Width: m)	<ul style="list-style-type: none"> • 7.17 km x 3 m (equivalent ~ 2.15ha) 	<ul style="list-style-type: none"> • 10.16 km x 3 m (equivalent ~3.05ha) 	<ul style="list-style-type: none"> • 0.46 km x 3 m (equivalent ~0.14ha)
Camp area to be cleared (ha)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A

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Mining Interests (i.e. titles)	ML31219	ML31220	AA31711
Camp Infrastructure (i.e. demountable, tents)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Previous disturbance yet to be remediated on title (ha) if known	<ul style="list-style-type: none"> • 0.4 Ha 	<ul style="list-style-type: none"> • 13.1 Ha 	<ul style="list-style-type: none"> • 1.43 Ha
Other	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Total area disturbed proposed (ha)	<ul style="list-style-type: none"> • 4.94 ha 	<ul style="list-style-type: none"> • 7.37 ha 	<ul style="list-style-type: none"> • 0.14 ha

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Section 5 – Previous Disturbance (for existing Authorisations only)

Mining Interests (i.e. titles)	ML31219	ML31220	AA31711
Number/type of holes drilled	<ul style="list-style-type: none"> • 17 • 34 test pits (backhoe) 	<ul style="list-style-type: none"> • 393 • 43 test pits (backhoe) 	<ul style="list-style-type: none"> • 2 • 25 test pits (backhoe).
Maximum depth of holes drilled (m)	<ul style="list-style-type: none"> • 32.3 m 	<ul style="list-style-type: none"> • 48.5 m 	<ul style="list-style-type: none"> • 0
Number of holes remediated (i.e. plugged/capped)	<ul style="list-style-type: none"> • 17 	<ul style="list-style-type: none"> • 393 	<ul style="list-style-type: none"> • 2
Number and size of drill pads cleared (Length: 18 m x Width: 10 m)	<ul style="list-style-type: none"> • 6 	<ul style="list-style-type: none"> • 393 	<ul style="list-style-type: none"> • 2
Total area of drill pads cleared (ha)	<ul style="list-style-type: none"> • 0.13 Ha 	<ul style="list-style-type: none"> • 7.09 Ha 	<ul style="list-style-type: none"> • 0.05 Ha
Total area of drill pads remediated (ha)	<ul style="list-style-type: none"> • 0.04 Ha 	<ul style="list-style-type: none"> • 6.25 Ha 	<ul style="list-style-type: none"> • 0
Was groundwater encountered? (Y or N)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Yes 	<ul style="list-style-type: none"> • 0
Length of line/track cleared (Length: km x Width: m)	<ul style="list-style-type: none"> • N/A km 	<ul style="list-style-type: none"> • 25.9 km x 3m 	<ul style="list-style-type: none"> • 4.7km x 3 m
Length of line/track remediated (Length: km x Width: m)	<ul style="list-style-type: none"> • 0.8 km x 3m 	<ul style="list-style-type: none"> • 26.0 km x 3m 	<ul style="list-style-type: none"> • 4.8 km x 3m
Number of costeans excavated (L: m x W: m x D: m)	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0
Number of costeans remediated	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Total bulk sample pits excavated (Length: x Width: x Depth: m)	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 0
Total bulk sample pits remediated	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • 0
Camp area/s cleared (ha)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • 0
Camp area/s remediated (ha)	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • 0
Total area disturbed (ha)	<ul style="list-style-type: none"> • 0.37 Ha 	<ul style="list-style-type: none"> • 14.9 Ha 	<ul style="list-style-type: none"> • 1.49 ha

Mining Interests (i.e. titles)	ML31219	ML31220	AA31711
Total area remediated (ha)	• 0.04 Ha	• 12.95 Ha	• 0

Section 6 – Environmental Management

By checking these boxes, you are agreeing to implement the following minimum environmental management standards on the project area. Where boxes have been left unchecked, justification is required.

6.1	<input checked="" type="checkbox"/>	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	<input checked="" type="checkbox"/>	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	<input checked="" type="checkbox"/>	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	<input checked="" type="checkbox"/>	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	<input checked="" type="checkbox"/>	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for remediation purposes
6.6	<input checked="" type="checkbox"/>	All employees and contractors will be trained and inducted in relation to the management of environmental risks in the work area, including weeds, waterways, threatened species, soil erosion, sacred sites and heritage areas
6.7	<input type="checkbox"/>	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	<input type="checkbox"/>	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	<input checked="" type="checkbox"/>	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	<input checked="" type="checkbox"/>	Drill holes will be plugged and mounded with soil immediately after drilling
6.11	<input checked="" type="checkbox"/>	Vehicle hygiene measures will be employed to prevent the introduction and spread of invasive species and pathogens when mobilising vehicles and equipment from one location to another
6.12	<input checked="" type="checkbox"/>	Hydrocarbon spills will be minimised using liners and drip trays under machinery, and appropriately sized spill-kits available in the event of a spill
6.13	<input checked="" type="checkbox"/>	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards
6.14	<input checked="" type="checkbox"/>	Hydrocarbons will be stored in lined and bunded areas
6.15	<input checked="" type="checkbox"/>	Waste will be stored securely while on-site to minimise windblown rubbish and access by feral animals

6.16	<input checked="" type="checkbox"/>	Waste will be removed off-site and disposed of at an appropriate waste management facility
6.17	<input checked="" type="checkbox"/>	All environmental incidents will be reported to the Department in accordance with Section 29 of the <i>Mining Management Act</i> .

Justification and alternative management measures:

6.7 – Sumps are not required 6.8 - Sumps are not required

Section 7 – Remediation and Closure

By checking these boxes, you are agreeing to implement the following minimum remediation standards on the project area. Where boxes have been left unchecked, justification is required.

7.1	<input checked="" type="checkbox"/>	Drill holes plugged below ground level at a minimum depth of 0.4 metres and soil mounded to prevent subsidence, within 6 months of completion of drilling
7.2	<input checked="" type="checkbox"/>	Drill samples/spoil to be spread across the drill pad, or removed from site at completion of drill season
7.3	<input checked="" type="checkbox"/>	All drill hole and access markers including flagging tape, wooden markers and star pickets will be removed from site
7.4	<input type="checkbox"/>	Re-contouring of cut and fill drill pads will be consistent with the surrounding terrain
7.5	<input type="checkbox"/>	Ripping/scarifying of drill pads, and compacted areas along the contour (on sloping ground) and cross-ripping (zig-zag) along tracks
7.6	<input type="checkbox"/>	Tracks will be remediated, including pushing in all windrows
7.7	<input checked="" type="checkbox"/>	Appropriate erosion and sediment controls will be installed where erosion is evident or likely to occur
7.8	<input type="checkbox"/>	All tracks will be remediated unless otherwise agreed in writing by the land holder or appropriate third party
7.9	<input type="checkbox"/>	Access through watercourses will be removed and banks restored
7.10	<input type="checkbox"/>	No erosion is occurring in disturbed areas, on tracks and in remediated areas
7.11	<input checked="" type="checkbox"/>	All excavations backfilled within 6 months of completion of drilling
7.12	<input type="checkbox"/>	All water bores decommissioned unless otherwise agreed in writing by the land holder or appropriate third party. The bore must comply with the Minimum Construction Requirements for Water Bores in Australia and may require permits or licenses under the <i>Water Act</i>
7.13	<input checked="" type="checkbox"/>	All rubbish and infrastructure will be removed from site
7.14	<input type="checkbox"/>	Replacement of topsoil and vegetation
7.15	<input checked="" type="checkbox"/>	Contaminated soils (e.g. hydrocarbon or hazardous chemicals) will be remediated or removed from site
7.16	<input checked="" type="checkbox"/>	Monitoring will be undertaken following the wet season or a significant rainfall event

Justification and alternative management measures:

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7.4 – Cut and fill pads are not required
 7.5 – All drill pads are on flat ground
 7.6 – Tracks have been installed in anticipation of haul road construction as part of the project i.e. remediation will occur at the completion of the project.
 7.8 – As per response for item 7.6
 7.9 – No temporary access measures are envisaged.
 7.10 - Tracks are routinely inspected by GEMCO exploration personnel for scouring and erosion. The blade up method enables quick recovery of vegetation cover within 2-6 months following clearing activities. Terrain is considered relatively flat and it is not anticipated that the tracks will receive large volumes of traffic
 7.12 – No water bores will be installed
 7.14 – No topsoil will be removed

Section 8 – Required Attachments



8.1	X	Security Calculation Spreadsheet	Appendix 1
8.2	N/A	Nomination of Operator Form	N/A
8.3	N/A	Spreadsheet with coordinates of proposed drill holes or polygons of target areas	N/A
8.4	X	Google Earth KML/shape files/track logs of proposed tracks and camp sites	N/A for camp sites Refer Appendix 2 for proposed track
8.5	X	A map of the work area(s) showing:	
		1. title boundaries and title numbers	Appendix 4
		2. current and proposed drill holes, or polygons of target areas	Appendix 3
		3. current and proposed tracks	Refer Appendix 2
		4. remediated areas	N/A
		5. camp sites	N/A
		6. sacred/heritage sites	Registered with the Aboriginal Areas Protection Authority (AAPA) – refer Authority Certificate C2016/145.
		7. environmental constraints	As per <u>Draft EIS</u>
8.6		Remediation Register (for existing Authorisations)	Available on request
8.7		Photographs of remediation work	Available on request
8.8	N/A	Radiation Management Plan (if applicable)	N/A

Note:

8.6 – No remediation register as no topsoil has been removed to date and is considered to be remediated post drilling and after 2 wet seasons.
 8.7 – As per 8.6 commentary

Section 9 – Declaration

The Mining Management Plan must be endorsed by a senior representative of the company who has the appropriate level of authority to do so.

	Author	Reviewed by	Approved by
Date	17/02/2021	16/02/2021	25/02/2021
Name	Danny de Vries	Ken Pegg	Michael Smith
Signature		<i>Kenneth Pegg</i>	

I Michael Smith (*name of approving person*) Manager Production Planning - GEMCO (*position title*) declare that I have the authority to make the commitments contained in this mining management plan on behalf of the company. To the best of my knowledge the information contained in this plan is true and correct and commit to undertake the works in accordance with the agreed minimum standards and all relevant Northern Territory and Commonwealth Government legislation.

SIGNATURE: 

DATE: 25/02/2021