

# Mining Management Exploration Activities

## Northern Territory of Australia – Mining Management Act 2001

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

### Section 1 – Project Details

<b>Project Name</b> Provide new or existing project name	Barkly
<b>Authorisation Number</b> Insert existing authorisation number, where applicable	N/A
<b>Operator Name</b> Use ASIC-ABR registered name (if a company), or name of the applicant	Transition Minerals
<b>Operator ABN and ACN numbers</b>	ACN 641 565 139
<b>Location and Access Details</b> Include brief description of the location, access details, and distance to nearest town or community	The Barkly project is located approximately 350 km northeast of Tennant Creek in the Barkly Region of the Northern Territory.
<b>Target Commodity Details</b> Include target mineral commodities (i.e. gold, copper etc.)	Polymetallic targets of group 4–11 transition metals and rare earth elements.
<b>Mining Activities</b> Summarise the mining activities (exploration) to be the subject of the proposed Authorisation or Variation.  Drilling programs over a maximum of four years are supported and encouraged and can be staged. Please refer to the guidelines for further information.	Planned exploration activities include wide-spaced air core or small diameter drilling. Largely drilling to 5–10 m depth.
<b>Proposed Schedule</b> Include start and finish dates of ground disturbing work	The work proposed in this MMP is expected to be undertaken over a one-month period at the earliest opportunity, within this 2021 dry season or 2022 dry season

## 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	Underlying Property Name or Land Holder
EL 32473	Minerals Pty Ltd	20 May 2027	Calvert Hills pastoral station
EL 32474	Minerals Pty Ltd	20 May 2027	Calvert Hills & Benmara pastoral stations
EL 32453	Minerals Pty Ltd	20 May 2027	Cresswell Downs pastoral station
EL 32456	Minerals Pty Ltd	20 May 2027	Cresswell Downs pastoral station

Please note a Land Access Agreement (LAA) is required for disturbance proposed on Pastoral Properties on Exploration Licence (EL).

## Organisational Structure

Position Title	Name
Managing Director	Toby Foster
Exploration Manager	
Project Geologist	
Geologist	
Field Geologist	

	Contact	Email	Phone number
Project management, land access, cultural	Toby Foster	t.foster@transitionminerals.com	+61 460 344 628
Environmental, logistics, health and safety			
Mining management plan			
Fieldwork			

## Section 2 – Operator Self-Assessment of the Environmental Risk

Transition Minerals has an adaptive approach to its exploration activities, and will assess environmental risks on the ground. Initial exploration activities will be general in nature, sparsely spaced, and not site specific, with flexibility to be moved to avoid any unnecessary disturbances.

This Mining Management Plan is seeking approval for drilling across two nearby target areas to provide flexibility for the on-ground team to avoid unnecessary environmental disturbance.

To minimise the impact to the environment of our exploration activities, all personnel entering the field will be trained in the identification of the threatened species that are likely to occur in the area. Local information will also be sought to advise on any unique environmental issues that may be encountered. No domesticated animals, e.g. dogs, will accompany the field team to minimise the risk of harm to other animals or the spread of disease.

### Environmental considerations

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (e.g. evidence of consultation with DEPWS and/or management plan where required).
<b>Step 1:</b> Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?	Yes.	Transition Minerals has undertaken a review of threatened flora, fauna and habitats of significance within the project area, prior to a reconnaissance site visit planned for August 2021.  Matters of national environmental significance were investigated; 15 threatened species and 15 migratory species were identified, along with 21 marine species and 9 invasive species.  Assessment was undertaken which determined that the proposed activities would <b>NOT</b> have a high likelihood of significant impact on threatened flora/fauna, their habitats, nor matters of national environmental significance.	Appendix 1.
<b>Step 2:</b> Are there any known declared weeds within the proposed work area?	No.	Advice was sought from the DEPWS on 10 June 2021.	Appendix 2.
<b>Step 3:</b> Will you be using water from bores or other sources for the operation?	No.	No water is required for the drilling operations.	Appendix 3.

Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
<p><b>Step 4:</b> Is your project likely to have a significant impact on the environment?</p>	<p>No. See Appendix 4.</p>	<p>Self-assessment using the pre-referral screening tool concluded this project would not have a significant impact on the environment.</p>
<p><b>Step 5:</b> Are there Aboriginal sacred sites in the Project area?</p>	<p>No. See Appendix 5.</p>	<p>Advice was sought from the AAPA, during June and July 2021, in relation to sacred site protection. There are no recorded or registered sacred sites, nor restricted works areas within our exploration target areas.</p>
<p><b>Step 6:</b> Are there archaeological and heritage sites in the Project area?</p>	<p>No. See Appendix 6.</p>	<p>Advice was sought from the Heritage Branch of the Department of Territory Families, Housing and Communities on 5 July 2021, in relation to protection of heritage and archaeological sites.</p> <p>There are no current archaeological or heritage sites registered within the exploration target areas.</p> <p>All areas will be inspected for stone artefact scatters, outcrops with rock art and for stone quarries prior to drilling. If any significant sites are found, activities will avoid that area and the AAPA and NT Heritage Branch will be notified.</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 have amendments made since the previous MMP submission clearly identified.

Section	Amendment
	N/A - first application

**Section 4 – Activities Proposed for this MMP only**

<b>Mining Interests (i.e. titles)</b>	<b>EL32473</b>	<b>EL32474</b>	<b>EL32453</b>	<b>EL32456</b>
Number and type of proposed exploration drill holes	~50 air core	~150 air core	~ 50 air core	~ 50 air core
Maximum depth of proposed holes (m)	~45 @ 5–10 m ~5 @ 20 m	~140 @ 5–10 m ~10 @ 20 m	~45 @ 5–10 m ~5 @ 50 m	~45 @ 5–10 m ~5 @ 50 m
Number and size of drill pads to be cleared Length: 10 m x Width: 3 m	Number: 50 Size: 10 x 3 Total: 1500 m <sup>2</sup>	Number: 150 Size: 10 x 3 Total: 4500 m <sup>2</sup>	Number: 50 Size: 10 x 3 Total: 1500 m <sup>2</sup>	Number: 50 Size: 10 x 3 Total: 1500 m <sup>2</sup>
Total area of drill pads to be cleared (ha)	0.15	0.45	0.15	0.15
Number of proposed water bores	0	0	0	0
Is drilling likely to encounter groundwater in multiple or confined aquifers?	N	N	N	N
Number of costeans	0	0	0	0
Volume to backfill costeans	N/A	N/A	N/A	N/A
Number of bulk sample pits	0	0	0	0
Volume to backfill bulk sample pits	N/A	N/A	N/A	N/A
Bulk sample pits approved under <i>Mineral Titles Act</i> ?	N/A	N/A	N/A	N/A
Line/track clearing: (length m x width 3 m)	5 km x 3 m	45 km x 3 m	20 km x 3 m	8 km x 3 m
Area of proposed line/track clearing (ha)	1.5	13.5	6	2.4

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Mining Interests (i.e. titles)	EL32473	EL32474	EL32453	EL32456
Camp area to be cleared (ha)	Either Calvert Hill Station or if a camp is needed it would be set up at 710850E 8064050N (within EL32747) which is a fence line/cleared area.	Either Calvert Hill Station or if a camp is needed it would be set up at 710850E 8064050N (within EL32747) which is a fence line/cleared area.	Either Calvert Hill Station or if a camp is needed it would be set up at 710850E 8064050N (within EL32747) which is a fence line/cleared area.	Either Calvert Hill Station or if a camp is needed it would be set up at 710850E 8064050N (within EL32747) which is a fence line/cleared area.
Camp Infrastructure (i.e. demountable, tents) Please provide a complete list with measurements as required in the security calculation	Either using facilities at Calvert Hill Station or self-contained caravan will be set up to avoid any site clearance.	Either using facilities at Calvert Hill Station or self-contained caravan will be set up to avoid any site clearance.	Either using facilities at Calvert Hill Station or self-contained caravan will be set up to avoid any site clearance.	Either using facilities at Calvert Hill Station or self-contained caravan will be set up to avoid any site clearance.
Other	N/A	N/A	N/A	N/A
Total proposed area of disturbance (ha)	1.65	13.95	6.15	2.55

Staging approach based on disturbance can be proposed and will be considered by the Department.

## Section 5 – Previous Disturbance (for existing Authorisations only)

The 'Disturbance Tracking' spreadsheet must be completed and attached to the MMP submission to complete this section. The spreadsheet is available on the departmental web page where this template is located.

N/A new authorisation.

## Section 6 – Environmental Management

By checking these shaded 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	<b>Y*</b>	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil).
6.2	<b>Y*</b>	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species).
6.3	<b>Y*</b>	Vegetation clearing, during and immediately after rainfall events, will be avoided.
6.4	<b>Y*</b>	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads.
6.5	<b>Y*</b>	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for rehabilitation purposes.
6.6	<b>Y</b>	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	<b>Y+</b>	Sumps will be lined, or tanks of appropriate size, to contain water, sediment and drilling fluids encountered during drilling.
6.8	<b>Y+</b>	Sumps, drillholes and fuel stores will be located away from environmentally significant areas and water courses.
6.9	<b>Y+</b>	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress.
6.10	<b>Y</b>	Drillholes will be securely capped immediately after drilling.
6.11	<b>Y</b>	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	<b>Y</b>	Hydrocarbon spills will be minimised using liners and drip trays under machinery, and appropriately sized spill-kits made available in the event of a spill.
6.13	<b>Y</b>	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards.
6.14	<b>Y</b>	Hydrocarbons will be stored in lined and bunded areas.
6.15	<b>Y</b>	Waste will be stored securely while on site to minimise windblown rubbish and access by feral animals.
6.16	<b>Y</b>	Waste will be removed off site and disposed of at an appropriate waste management facility.
6.17	<b>Y</b>	All environmental incidents will be reported to the Department in accordance with Section 29 of the Mining Management Act.
6.18	<b>Y</b>	Acid and Metalliferous Drainage (AMD) and Potentially Acid Forming (PAF) material derived from drilling cuts will be managed to avoid AMD and PAF related issues on site.

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6.19	Y	Radioactive/NORM drill cuttings will be managed to avoid radiation-related issues on site.
6.20	Y	Dust management will be implemented on site.

### Justification and alternative management measures:

\* 6.1–6.5 No significant clearing is anticipated.  
+ 6.7–6.9 Drilling is planned to cease above the water table and not anticipated to utilise any liquids.  
6.19 It is not anticipated, based on the expected style of mineralisation and local geology, that radioactive material will be encountered.

## Section 7 – Rehabilitation and Closure

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

A refund of security related to completed rehabilitation on site requires the submission of a rehabilitation report including photographs, an updated security calculation and updated disturbance tracking spreadsheet to the Department.

7.1	<b>Y</b>	Drillholes will be 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	<b>Y*</b>	Drillholes encountering multiple or confined aquifers will be grouted with concrete.
7.3	<b>Y</b>	Drill samples/spoil will be returned down drillholes, buried in sumps, or removed from site.
7.4	<b>Y</b>	All drillhole and access markers, including flagging tape, wooden markers and star pickets, will be removed from site.
7.5	<b>Y+</b>	Cut and fill drill pads will be re-contoured to be consistent with the surrounding terrain.
7.6	<b>Y+</b>	Drill pads and compacted areas along the contour (on sloping ground) will be ripped/scarified off and tracks will be cross-ripped (zig-zag).
7.7	<b>Y+</b>	Tracks will be rehabilitated, including pushing in all windrows, unless otherwise agreed in writing by the land holder or appropriate third party.
7.8	<b>Y+</b>	Appropriate erosion and sediment controls will be installed where erosion is evident or likely to occur.
7.10	<b>Y+</b>	Access through watercourses will be removed and banks restored.
7.11	<b>Y</b>	All previously disturbed areas will be stable, with no evidence of active soil erosion.
7.12	<b>Y+</b>	All excavations will be backfilled within 6 months of their completion.
7.13	<b>N/A</b>	All water bores will be decommissioned unless otherwise agreed in writing by the land holder or appropriate third party.
7.14	<b>Y</b>	All rubbish and infrastructure will be removed from site.
7.15	<b>Y+</b>	Topsoil will be replaced and vegetation re-established.
7.16	<b>Y</b>	Contaminated soils (e.g. hydrocarbon or hazardous chemicals) will be rehabilitated or removed from site.
7.17	<b>Y</b>	Monitoring will be undertaken following the wet season or a significant rainfall event

Justification and alternative management measures:

<p>* 7.2 Drilling is planned to cease above the water table.                  + 7.5–7.10, 7.12, 7.15 No significant clearing is anticipated.</p>
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## Section 8 – Required Attachments

8.1	<b>Y</b>	Initial Application for Authorisation or variation of Authorisation (only if details on the form have subsequently changed).
8.2	<b>N/A</b>	Nomination of Operator Form, where required.
8.3	<b>Y</b>	Security Calculation Spreadsheet.
8.4	<b>Y</b>	Evidence of Land Access Agreement if operating on an Exploration Licence (EL) on Pastoral Lease (e.g. two-way exchange of email).
8.5	<b>N/A</b>	Disturbance tracking spreadsheet (for existing Authorisations).
8.6	<b>Y</b>	Spreadsheet with coordinates of proposed drillholes or polygons of target areas.
8.7	<b>Y</b>	KML/shape files/track logs of proposed tracks, camp sites and proposed drillholes or polygons of target areas.
8.8	<b>Y</b>	Map(s) of the work area(s) showing: <ul style="list-style-type: none"> <li>1. title boundaries and title numbers;</li> <li>2. current and proposed drillholes, or polygons of target areas;</li> <li>3. current and proposed tracks;</li> <li>4. rehabilitated areas;</li> <li>5. camp sites;</li> <li>6. heritage sites or significant environmental areas; and</li> <li>7. environmental constraints.</li> </ul>
8.10	<b>N/A</b>	Radiation Management Plan (not applicable). It is not anticipated, based on the expected style of mineralisation and local geology, that radioactive material will be encountered.
8.12	<b>N/A</b>	Document(s) being appended in relation to Section 2 (if any): <ul style="list-style-type: none"> <li>- as appended</li> </ul>