Mining Management Plan

Barkly Project

(EL32544, 32545, 32546, 32547, 32548, 32549, 32550, 32551, 32731, 32732, 32733, 32734, 32922)

27 April 2023 / Exploration Activities

Teck

Mining Management Plan
Exploration Activities

Section 1 - Project Details

Project Name	Barkly Project

Authorization Number	1129-01

Operator Name	Teck Australia Pty Ltd
Operator ABN and ACN numbers	ABN: 35 091 271 911 ACN: 091 271 911

Location and Access Details	The Barkly tenements are located about 300 km east of Tennant Creek and approximately 40 km west of the NT-QLD border, on the eastern portion of the Barkly Tablelands, Northern Territory, Australia (Fig. 1). Access to the project area is via the Barkly Highway, followed by a network of mostly unsealed station tracks.

Target Commodity Details	Zinc, Lead, Silver

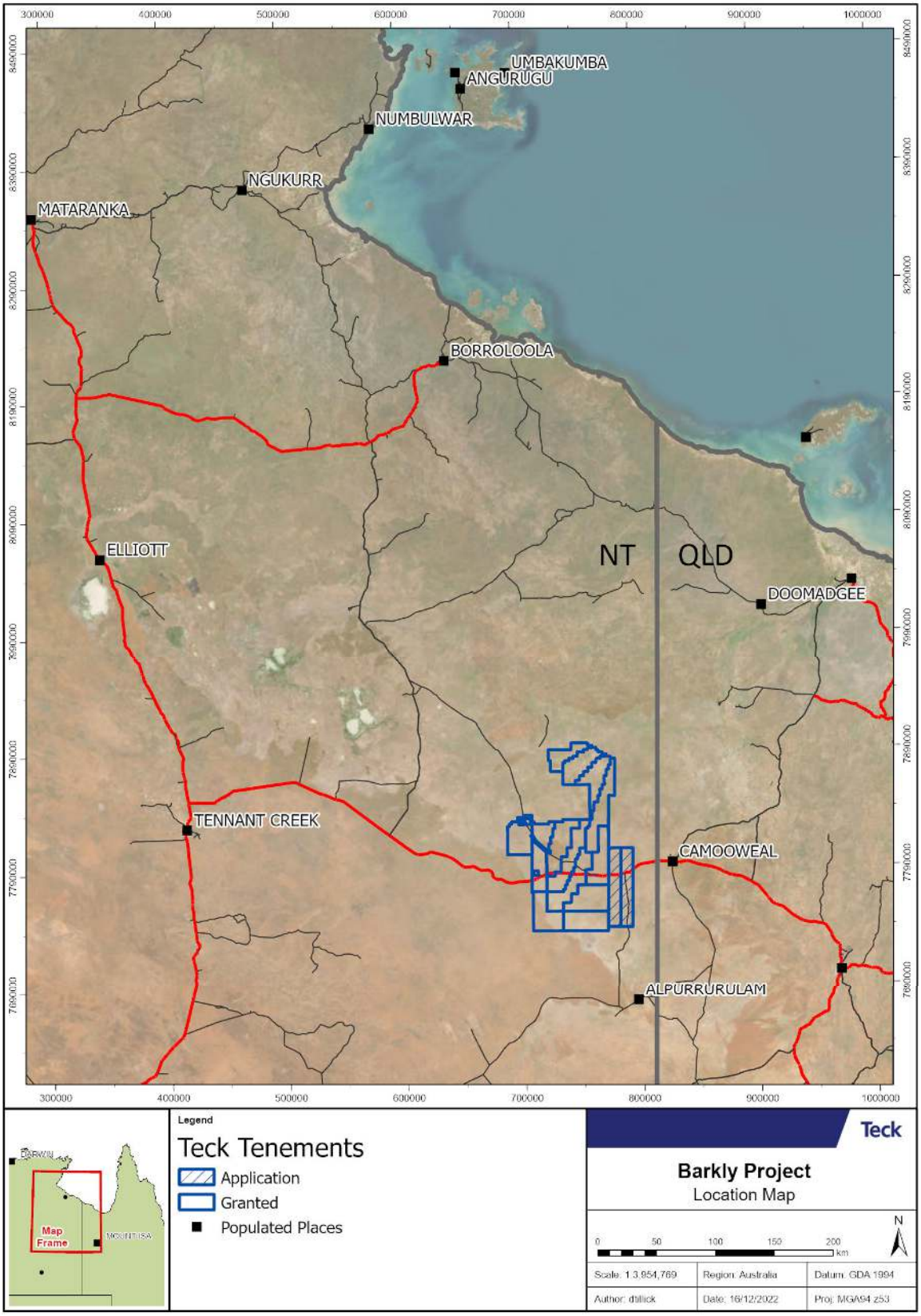


Figure 1. Location of the Barkly Project.

Exploration Activities	A deep diamond drilling program comprising 3-4 holes, with additional contingency for up to a total of 14 holes. Clearing of a single drill pad at each collar location, a temporary camp site, a drill laydown area, and short sections of track (<1km) to reach sites from existing access tracks. Provision has been included for the drilling of two water bores if required.

Proposed Schedule	The drilling program is scheduled to commence on 23rd June and run through to mid-late October. Earthworks are scheduled several days in advance of the program commencing.

1.1 Mining Interest and Land Ownership

The Barkly Project currently comprises 13 granted exploration licenses and 2 license applications. The following table summarizes the locations of the licenses and Figure 1 shows the locations of the licenses. All licenses are 100% owned and operated by Teck Australia Pty Ltd.

Title Number	Title Holder	Expiry Date	Underlying Property Name or Land Holder
EL32544	Teck Australia	28/6/2027	NAPCo, AACo
EL32545	Teck Australia	28/6/2027	NAPCo
EL32546	Teck Australia	28/6/2027	NAPCo
EL32547	Teck Australia	28/6/2027	NAPCo, AACo
EL32548	Teck Australia	28/6/2027	NAPCo
EL32549	Teck Australia	28/6/2027	NAPCo
EL32550	Teck Australia	28/6/2027	NAPCo, AACo
EL32551	Teck Australia	28/6/2027	NAPCo, AACo
EL32731	Teck Australia	22/12/2027	NAPCo, AACo
EL32732	Teck Australia	22/12/2027	AACo
EL32733	Teck Australia	22/12/2027	AACo, NAPCo
EL32734	Teck Australia	22/12/2027	NAPCo, AACo
EL32922	Teck Australia	03/05/2028	NAPCo
EL33400	Teck Australia (applicant)	N/A	AACo, Paraway Pastoral Company
EL33401	Teck Australia (applicant)	N/A	AACo, Paraway Pastoral Company

1.2 Organizational Structure and Responsibility

Position Title	Name
Exploration Manager/Radiation Safety Officer	**Andrea Reed**
Senior Geologist (Project Leader)	**David Tillick**
Project Geologist(s)	
Environmental Manager (HSE Lead)	**Jemayne Abduramanoski**
Communities Manager	**Jennifer Shewan**
Compliance Geologist	

2. OPERATOR SELF-ASSESSMENT OF THE ENVIRONMENTAL RISK

2.1 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).
Step 1: Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?	YES	Three threatened fauna sites have been recorded within the overall project area (Fig. 5). These sites record the identification of: 1) Plains Death Adder along the James River, 2) Grey Falcon on Soudan Station, and 3) Hawksbill sea turtle in the northern part of the project. The last site is believed to be erroneous data (either fauna ID or location). Teck will avoid all areas of significant vegetation during the drilling as they could correspond to important nesting sites for the Grey Falcon (and other nesting birds). No clearing of significant vegetation is required for the proposed drilling. Although no drill holes are proposed within 20km radius of the recorded Plains Death Adder site, drilling may occur adjacent to the James River on EL32732. Care will be taken to select a drill site in an existing open area outside the catchment system. Project induction will include photographs of the Grey Falcon and Plains Death Adder to help familiarise staff and contractors with their appearance. Any possible sightings will be recorded, and the program paused until Teck has consulted with DEPWS.	**Appendix I** (within this document)

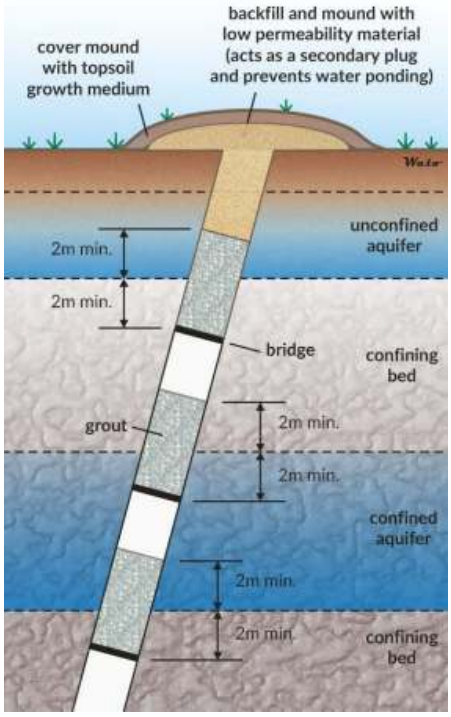
ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (e.g., evidence of consultation with DEPWS and/or management plan where required).
Step 2: Are there any known declared weeds within the proposed work area?	YES	Recorded weed sites within the overall project area are concentrated within and around major drainage systems (Fig. 5), including: 1) James River, 2) Rankin River (passing through Soudan), 3) Lorne Creek Waterholes, and 4) an upper tributary of Shakespeare Creek in the vicinity of the Barkly Highway. Reported weeds include (in order of decreasing abundance): Parkinsonia (common), Prickly Acacia, Prickly Pear, Athel Pine (rare), Noogoora Burr (rare). Currently proposed drill sites all occur outside of recorded weed locations and the major drainage systems listed above. Teck will utilise the existing station track network to reach the proposed drill sites to ensure that no weed materials are moved around the project area. Prior to arriving at the project area, all vehicles and equipment will be washed down in Mt Isa (or equivalent urban area) with high-pressure water to ensure that no foreign weeds or seeds are introduced to the project area. Weed and seed inspections are recorded either digitally (for Teck personnel), or on paper declarations (for contractors). Raised blade clearing will be employed, only where necessary, during the construction of drill pads and temporary access tracks connecting the drill pads to nearby station tracks. Photographs of weed species will be included in the project induction to help familiarise staff and contractors with their appearance. Any identified weeds will be recorded and information sent to DEPWS.	**Appendix I** (also within this document): DEPWS map of declared weeds, threatened flora/fauna

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).
Step 3: Will you be using water from bores or other sources for the operation?	YES	The project area incorporates many existing water bores used by the pastoral stations to water stock (Fig. 4). Teck has identified that at least one reasonably productive bore (at least 2-5L/s) is located within 5-10km of each of the proposed holes. Discussions about sourcing water from existing pastoral bores or man-made dams are ongoing with the two key landholders, AACo and NAPCo. It is anticipated that if water requirements exceed that allowable, or the amount that landholders are willing to supply, Teck will apply for DPAW permits and, if successful, will drill one or two water bores strategically located to minimise water transport distances/impacts. Water usage will be monitored and a water quality monitoring program will be conducted by Teck staff.	**Appendix I** (also within this document): Map of existing water bores and flow rates

2.2 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 drilling program is considered relatively low impact and unlikely to have a significant impact on the environment because of: a) the nature of the land, which comprises flat and open grasslands used for cattle grazing, b) the wide-spaced nature of the proposed drill holes, which are positioned at least 10km from one another and span an area of approximately 10,000km^2, c) the existing network of station tracks that can be utilised to reach all proposed drill holes. <u>Flora & Fauna</u> Systematic biodiversity surveys have not been undertaken in the project area. However, much of the area affected by the planned drilling activities has been previously disturbed by pastoral activities. Although the risks of significant environmental impacts are low, activities and access routes have been planned to avoid large trees and their surrounds, as well as areas of denser vegetation visible in satellite imagery. Proposed new access tracks connecting existing tracks to the proposed drill/camp/laydown sites will be adjusted, if required, following detailed site reconnaissance. This will include realigning access tracks to avoid trees with a DBH>50cm.

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
		Creeks, drainage depressions and associated riparian and wetland areas will be avoided by at least a 25m buffer zone to ensure that they are not impacted by site earthworks and drill activities. Future site works (including drilling), if warranted, will be preceded by a desktop flora and fauna analysis completed by a suitably qualified professional. <u>Aquifer Management & Rehabilitation</u> Given the likelihood that exploration drilling will encounter groundwater, Teck will require the drilling contractor to provide and use biodegradable drill consumables (to avoid seepage into groundwater systems), collar casing (to improve effectiveness of capping), and plugs and cement for isolating aquifers. 1) If a single unconfined aquifer is intersected during drilling, the driller will record the upper bound of the aquifer as accurately as possible. When the hole is completed, the PVC collar (or pressure-cemented HWT collar) will be cut below ground level to a minimum depth of at least 0.4m and a non-degradable plug or casing cap installed. Soil will be backfilled over the plug/cap and mounded to ensure settlement does not leave a depression at surface. 2) If a confined aquifer is intersected during drilling, the driller will record the upper and lower bounds of the aquifer as accurately as possible. When the hole is completed, the driller will place a bridge at least 2m below the confining bed interface and cement grout the hole to at least 2m above the interface (≥4m cement). The upper part of the hole will then be plugged and backfilled as for option (1) above. 3) If multiple aquifers are intersected during drilling, the driller will record the upper and lower bounds of each aquifer as accurately as possible. When the hole is completed, the bridge/grout procedure in (2) above will be applied to both the upper and lower confining bed interfaces of each aquifer in order to restrict waters to their aquifer of origin and thus restore the natural geological configuration as closely as possible. The upper part of the drill hole will then be plugged and backfilled as for option (1) above. The following diagram depicts the rehabilitation of multiple aquifers:

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
		
Step 5: Are there Aboriginal sacred sites in the Project area?	YES	Teck applied for an abstract of records from the AAPA and reviewed the following authority certificates which were available for inspection covering the Barkly tenement package: C2020/086, C2019/075, C2017/028, C2016/158, C2015/136, C2012/167, C2012/165, C2011/172, C2010/325, C2010/309, C2009/150, C2007/127, C2003/075, C1997/156, C1992/019, C1991/083. All proposed work activities avoid recorded Aboriginal sacred sites by at least 2km and will adhere to all relevant work conditions from within the above AAPA certificates. In addition, an AAPA Authority Certificate has been obtained for the drilling program (Authority Certificate Ref: RA2022/50 Doc. 202208282) and none of the planned holes or associated works will impact any identified heritage sites. Teck has an internal chance find procedure that is communicated to all personnel on site during site-specific inductions prior to commencement of the program. This procedure will be followed in the event that any suspected heritage artefacts are discovered during the works and location details provided to the relevant authority. See Appendix V project maps.
Step 6: Are there archaeological and heritage sites in the Project area?	YES	An online review of the NT heritage register has indicated there is one heritage site in the project area. The old Avon Downs homestead is a registered heritage site located on the tenure, though is located significantly outside the planned work area.

3. AMENDMENTS

Section	Amendment
Section 2.2, step 4	Added note that access tracks and pads will be adjusted to avoid any trees identified during site reconnaissance.
Section 2.2, step 4	Creeks, drainage depressions and associated riparian and wetland areas will be avoided by at least a 25m buffer zone to ensure that they are not impacted by site earthworks and drill activities.
Section 2.2, step 4	Included detailed description of groundwater aquifer management, including cement grouting of individual confined aquifers and plugging of holes below surface.
Section 6	After clarifying context of individual points with the Department, checked additional boxes that had been left unchecked.
Section 7	After clarifying context of individual points with the Department, checked additional boxes that had been left unchecked.

4. ACTIVITIES PROPOSED

The proposed activities below comprise the expected 2023 program.

Mining Interests (i.e. titles)	EL32922	EL32546	EL32550	EL32551	EL32544	EL32734	EL32732	EL32548
Number and type of proposed drill holes	2 Diamond drill holes	2 Diamond drill holes	2 Diamond drill holes	2 Diamond drill holes	2 Diamond drill holes	2 Diamond drill hole	1 Diamond drill hole	1 Diamond drill hole
Maximum depth of proposed holes (m)	1000-1500m	1000-1500m	1000-1500m	1000-1500m	1000-1500m	1000-1500m	1000-1500m	1000-1500m
Number and size of drill pads to be cleared (Length: m x Width: m)	2 drill pads 40m x 40m with three sumps each	2 drill pads 40m x 40m with three sumps each 1 water bore pad 40m x 40m with three sumps	2 drill pads 40m x 40m with three sumps each	2 drill pads 40m x 40m with three sumps each	2 drill pads 40m x 40m with three sumps each	2 drill pads 40m x 40m with three sumps each 1 water bore pad 40m x 40m with two sumps	1 drill pad 40m x 40m with three sumps	1 drill pad 40m x 40m with three sumps
Total area of drill pads to be cleared (ha)	0.32ha	0.48ha	0.32ha	0.32ha	0.32ha	0.48ha	0.16ha	0.16ha
Number of proposed water bores *	N/A	1	N/A	N/A	N/A	1	N/A	N/A
Is drilling likely to encounter groundwater in multiple or confined aquifers?	Possible that at least one aquifer will be	Possible that at least one aquifer will be	Possible that at least one aquifer will be	Possible that at least one aquifer will be	Possible that at least one aquifer will be	Possible that at least one aquifer will be	Possible that at least one aquifer will be	Possible that at least one aquifer will be

(Y, N, unsure) If answering yes, please provide the number of exploration holes where this is likely to occur	intersected in all holes (2)	intersected in all holes (2)	intersected in all holes (2)	intersected in all holes (2)	intersected in all holes (2)	intersected in all holes (2)	intersected in the drill hole	intersected in the drill hole
Number of costeans	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Volume to backfill costeans (Length: m x Width: m **x Depth: m)**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of bulk sample pits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Volume to backfill bulk sample pits (Length: m x Width: m x Depth: m)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bulk sample pits approved under *Mineral Titles Act*? **(Y or N)**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Length of line/track clearing **(km: x Width: m)**	Two ≤1km x 4m new tracks connecting drill pads to existing station tracks Raised blade clearing only as required to establish access	Three ≤1km x 4m new tracks connecting drill pads and water bore to existing station tracks ≤1km x 4m new track connecting camp site to existing station track Raised blade clearing only as required to establish access	Two ≤1km x 4m new tracks connecting drill pads to existing station tracks ≤1km x 4m new track connecting camp site to existing station track Raised blade clearing only as required to establish access	Two ≤1km x 4m new tracks connecting drill pads to existing station tracks Raised blade clearing only as required to establish access	Two ≤1km x 4m new tracks connecting drill pads to existing station tracks Raised blade clearing only as required to establish access	Three ≤1km x 4m new tracks connecting drill pads and water bore to existing station tracks Raised blade clearing only as required to establish access	One ≤1km x 4m new track connecting drill pad to existing station track ≤1km x 4m new track connecting camp site to existing station track Raised blade clearing only as required to establish access	One ≤1km x 4m new track connecting drill pad to existing station track ≤1km x 4m new track connecting camp site to existing station track Raised blade clearing only as required to establish access
Area of proposed line/track clearing (ha)	0.8ha temporary tracks connecting drill pads to existing station tracks	1.6ha temporary tracks connecting drill pads and camp to existing station tracks	1.2ha temporary tracks connecting drill pads and camp to existing station tracks	0.8ha temporary tracks connecting drill pads to existing station tracks	0.8ha temporary tracks connecting drill pads to existing station tracks	1.2ha temporary tracks connecting drill pads to existing station tracks	0.8ha temporary tracks connecting drill pads and camp to existing station tracks	0.8ha temporary track connecting drill pad to existing station track
Camp area to be cleared (ha)**		0.32ha blade-up clearing for a combined driller's / Teck camp	0.32ha blade-up clearing for a combined driller's / Teck camp				0.32ha blade-up clearing for a combined driller's / Teck camp	0.32ha blade-up clearing for a combined driller's / Teck camp
Camp Infrastructure*** **(i.e. demountable, tents) Please provide a complete list with measurements as**		Option 1: 4 caravans with annexes. Option 2: 2 drill caravans and 2-3 demountable	Option 1: 4 caravans with annexes. Option 2: 2 drill caravans and 2-3 demountable				Option 1: 4 caravans with annexes. Option 2: 2 drill caravans and 2-3 demountable	Option 1: 4 caravans with annexes. Option 2: 2 drill caravans and 2-3 demountable

required in the security calculation		accom/ablution units.	accom/ablution units.				accom/ablution units.	accom/ablution units.
Other	Laydown 0.09ha Turnaround 0.04ha	Laydown 0.09ha Turnaround 0.04ha	Laydown 0.09ha Turnaround 0.04ha	Laydown 0.09ha Turnaround 0.04ha	Laydown 0.09ha Turnaround 0.04ha	Laydown 0.09ha Turnaround 0.04ha	Laydown 0.09ha Turnaround 0.04ha	Laydown 0.09ha Turnaround 0.04ha
Total area disturbed proposed (ha)	1.25	2.53	1.97	1.25	1.25	1.81	1.41	1.41

Notes

* Water bore locations may change significantly following full site reconnaissance and assessment of existing water bore/dam suitability, and will only be drilled if necessary

** Four options for camps are proposed due to the large area covered by the proposed drill program. One drill/Teck camp will move between these proposed camp sites as required. Not all sites may be used and the locations may change significantly following site reconnaissance (*areas* should not change significantly however)

*** All camp infrastructure is included within the calculated camp area to be cleared

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.

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	X	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	X	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	X	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	X	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	X	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for rehabilitation purposes
6.6	X	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	X	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used.
6.8	X	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	X	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	X	Drill holes will be securely capped immediately after drilling
6.11	X	Vehicle hygiene measures will be employed to prevent the introduction and spread of invasive species and pathogens when mobilizing vehicles and equipment from one location to another
6.12	X	Hydrocarbon spills will be minimized using liners and drip trays under machinery, and appropriately sized spill-kits available in the event of a spill
6.13	X	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards
6.14	X	Hydrocarbons will be stored in lined and bunded areas
6.15	X	Waste will be stored securely while on-site to minimize windblown rubbish and access by feral animals
6.16	X	Waste will be removed off-site and disposed of at an appropriate waste management facility
6.17	X	All environmental incidents will be reported to the Department in accordance with Section 29 of the *Mining Management Act*.
6.18	X	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.
6.19	X	Radioactive/NORM drill cuttings will be managed to avoid radiation related issues on site.
6.20	X	Dust management will be implemented on site.

Justification and alternative management measures:

6.10 – If drill holes are to be kept open for subsequent extension and/or downhole geophysics, they will be securely capped with a removal cap and rehabilitated fully when works are completed.

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

Justification and alternative management measures:

7.12 We intend to complete rehab within 6 months and prior to the onset of the wet season given the high likelihood of seasonal flooding in the Barkly region.

8. REQUIRED ATTACHMENTS

8.1	X	Initial Application for Authorisation or variation of Authorisation (only if details on the form have subsequently changed). **Appendix II, Variation Of Authorization**
8.2		Nomination of Operator Form, where required **N/A**
8.3	X	Security Calculation Spreadsheet **Appendix III**
8.4	X	**Appendix IV** Evidence of Land Access Agreement if operating on an Exploration Licence (EL) on Pastoral Lease (e.g. two-ways exchange of email) **Existing Land Access Agreements**
8.5		Disturbance tracking spreadsheet (for existing Authorisations)
8.6	X	Spreadsheet with coordinates of proposed drill holes or polygons of target areas **Appendix V**
8.7	X	KML/shape files/track logs of proposed tracks, camp sites and proposed drill holes or polygons of target areas **Polygons Appendix IV**
8.8	X	Map(s) of the work area(s) showing: 1. title boundaries and title numbers 2. current and proposed drill holes, or polygons of target areas 3. current and proposed tracks 4. rehabilitated areas 5. camp sites 6. heritage sites or significant environmental areas 7. environmental constraints **Appendix VI**
8.10	X	Radiation Management Plan (if applicable) **Appendix VII**
8.12		Document(s) being appended in relation to Section 2 (if any): **N/A**

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	27 April 2023	27 April 2023	27 April 2023
Name	David Tillick	Christine Smith	Andrea Reed
Signature			

I Andrea Reed, Country Manager, Teck Australia 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: 27 APRIL 2023