ROCKWASH PTY LTD

2018

EXPLORATION OPERATION

MINING MANAGEMENT PLAN (MMP) Application

for

Pine Creek Project
(Exploration Only)

EL31276, EL31313, EL31517, EL31524, EL31563, EL31632

- Rock Wash Pty Ltd
- Pine Creek Project
- MMP Reporting Year: 2018
- 17/4/18, additional information 8/8/18
- Distribution:

	Author	Reviewed by	Approved by
Date	17/04/18	17/04/18	17/04/18
Name	Andrew Chapman	Sandra Jonson	Craig Witte
Signature	A.Chapman	S Johnson	C Witte

I *Craig Witte (name of approving person) Managing Director (position title)* 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: 12/4/18

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AMENDMENTS

In accordance with section 41(3) of the Mining Management Act, an MMP reviewed and amended under section 41(1) is to clearly identify amendments made. All amendments throughout a revised MMP must be clearly marked in the document by applying "underlining" and a coloured font to all insertions, and "~~strikethrough~~" to all deletions.

Section	
2 Identified Stakeholders	Update to all stake holder consultations
3 Project Details	Added map figure/map legend information
4.2 Site Conditions/Hydrology and climate	Added map figure/map legend information figure 13,14,15
4.2 Site Conditions/Location of bores	Corrected Tenement Number to EL31276
	Added map figure/map legend information figure 16, 17, 18
4.3 Flora and Fauna	Section Redone to include likely hood of Flora and Fauna within Rockwash Tenements with help of Environmental Consultants SLR Global Environmental Consultants NT
4.5 Historical, Aboriginal, Heritage Sites	Added map figure/map legend information figure 29. Added buffer to all sites and moved maps to appendix
Appendix B	Moved figures from Section 4.5 to appendix B
Appendix F	Added Mapinfo files for proposed works

1 OPERATOR DETAILS

Company Background:

Rockwash Pty Ltd is owned and managed by Managing Director Craig Witte. The Witte's have a well-established connection to the Northern Territory that includes four generations of Territorians. They are well respected mining, transport and civil contract operators and successful small business owners in Katherine and throughout the NT.

In 2016 RockWash Pty Ltd decided to acquire/apply for mining tenements with gold mining potential focusing on alluvial/ eluvial gold opportunities. The Witte's believe that these deposits have been neglected by the bigger mining companies that concentrate on lode gold.

They have enlisted Capricorn Mapping and Mining Title Services and geological consultants to assist and provide advice with this process.

They currently have 6 granted tenements (EL31276, EL31313, EL31517, EL31632, EL 31524, EL 31563) and 1 pending application (EL 31708).

Company Name: Rockwash Pty Ltd

Company Address: 264 Whitewood Road, Howard Springs NT 0835/ GPO Box 3770, Darwin NT 0801

Company Phone: 0400 656 202

Company Email: craigwitte@hotmail.com

Key Contacts:

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1.1 Organisational Structure Chart

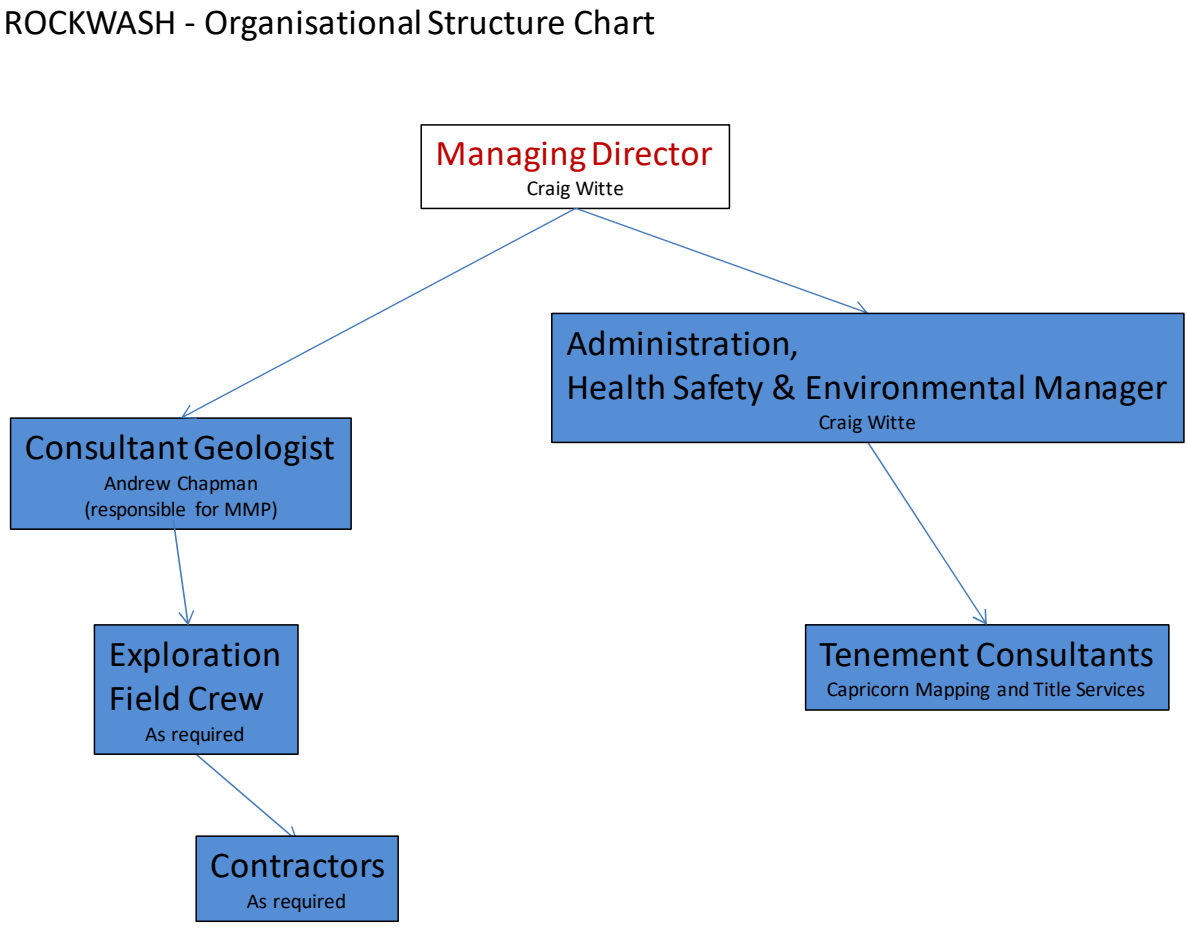


Figure 1 Rockwash Organisation Structure Chart

1.2 Workforce

The onsite normal work force will include both company and contractor personnel. A normal workforce would include up to four operators:

- Supervising Geologist
- Earth moving equipment operator
- Field assistant(s)

At various times additional personnel may be required on site, including a geophysicist and technicians, surveyors, truck drivers as well as regulatory personnel (eg DME inspectors and Landowners etc). It is anticipated that the maximum number of people on site at any one time would normally be no more than eight, with accommodation in Pine Creek.

2 Identified Stake Holders and Consultation

Rockwash endeavors to have good working relationship with stakeholders. These include:

- Ban Ban StationMary River West Station
- Mary River East Station
- Bonrook Station
- Douglas Station

There are no native title claims over the tenements included in the MMP.

Rockwash deals with all stake holders in accordance to its Land Owner Consultation Procedure (appendix D).

Table 1 Land owner details.

Parcel	Type	Name	Address
000 00695	Pastoral Lease (PPL)	Ban Ban Springs	PO Box 7207, St Kilda Road, Vic 8004
000 00710	Pastoral Lease (PPL)	Bonrook	Foundation Franz Weber, Bonrook Station, PO Box 155, Pine Creek NT 0847
000 01630	Pastoral Lease (PPL)	Mary River West	PO Box 474 Carlton South, Victoria 3053
000 01631	Pastoral Lease (PPL)	Mary River East	Mary River Wildlife Ranch Pty. Ltd. PO Box 137, Pine Creek, NT 0847
000 02722 (02683)	Pastoral Lease (PPL)	Douglas	NT Vet Supplies Pty Ltd, as trustee for the Hayne Family Trust, PO Box 165, Noonamah NT 0837

Significant Consultations:

- Ban Ban, Mary River West, Mary River East and Douglas Station:

  Letter explaining proposed works and map with general areas sent to landowner and station manager. phone call to confirm that such exploration will be ok and that an MMP will be submitted. (Appendix A).

Proposed works in this MMP are on the following:

- Ban Ban Station:

Ban Ban Springs Station – Ty Blokland has agreed to access for “low impact activities”. Ty Blokland has requested that no additional/ new track be pushed in to exploration targets and that we are not to utilise existing, overgrown tracks. Ty is concerned that illegal fossickers/ hunters will use the tracks. This issue has been referred to the Mines Division, Frances Perret has been informed of the numerous attempts made for over 3 months. Rockwash will also continue, with the departments support, to attempt to work out an access that is practicable and that the landowner is happy with.

- Mary River West:

No response. Rockwash has made multiple attempts to establish communication with the landowners. This issue has been referred to the Mines Division, Frances Perret has been informed of the numerous attempts made for over 3 months.

- Mary River East:

Verbal agreement has been reached: AN and SN Fisher have agreed to access on the condition that they are supplied the MMP. Once the MMP has been approved Rockwash will send a copy to them.

Bonrook and Douglas Station: No work is proposed on Bonrook Station or Douglas Station at this stage.

Please note that Craig Witte has made attempts to email and call stakeholders with AN and SN Fisher the only party willing to negotiate reasonably.

It should be noted that the department's request for land access notification (July 2014) is met by these consultations, documentation is included in appendix A.

Changes to the process of notification of a title application to the land manager were introduced in Jul 2014 and have been working well. Additional procedural changes were made to provide more effective communication opportunities between the explorer and the land manager before the start of any exploration activity. Under the new process that applies to the assessment of a Mining Management Plan (MMP), the explorer and the landholder have a maximum of 60 days to reach a land access agreement and associated conditions (note that this applies to activities deemed to cause substantial disturbance, for example, drilling programs). These land access agreements may be achieved through informal "handshake agreement" or a formal documented agreement and preferably commence on the drafting of the MMP to minimise time frames to reach agreement prior to activity commencing. The department only requires written evidence that agreement has been reached and riot the details of any land access agreements.

Schedule of consultations:

The following consultations are planned as the operation progresses (main stake holders have already been given the companies exploration plans and have agreed to it – appendix A).

- Within 60 Days to meet and make agreements with Ban Ban, Mary River West, Mary River East and Douglas Station.
- Mary River West Station: will be consulted and updated on the proposed works once the exploration MMP approval is granted, prior to the commencement of on ground work.
- Ban Ban Station: will be consulted and updated on the proposed works once the exploration MMP approval is granted prior to the commencement of on ground work.
- Mary River East Station: will be consulted and updated on the proposed works once the exploration MMP approval is granted, prior to the commencement of on ground work.
- No work proposed on Bonrook or Douglas Stations at this stage.
- Significant Change updates for all stake holders – if any significant variations to the original proposal are required then all stake holders will be notified prior to implementation. No significant variations will be implemented without submitting an addendum to the approved MMP.
- Post Closure/Rehabilitation works, relevant stake holders will be consulted to ensure closure and rehabilitation is appropriate.

Pine Creek township is over 5 km away and hence no information sessions are planned for the town community for the style of exploration proposed.

Details of stakeholder correspondence will be provided in subsequent MMP's.

Other stakeholders include:

- NT Government Departments (including NT Worksafe & DPIR)
- Mt Wells Rail Road (will not be contacted unless exploration activities are within 100m)
- Northern Land Council (NLC)
- 9 mining tenements are within EL21276 and one overlaps EL31313. see table below:

Table 2 Mining Leases within EL31276 and EL31313

Tenement ID	Tenement Affecte	Status	Grant Date	Expiry Date	Party Name	Percentage	Holder Type	Area (Ha)
ML29795	EL21726	Current	15/03/2013	14/03/2018	Robert SINGLETON	100	Holder	19
ML29960	EL21726	Current	24/06/2013	23/06/2018	Janet CASEY	50	Holder	37
					Raymond CASEY	50	Holder	
ML30200	EL21726	Current	7/02/2014	6/02/2019	John PERSHOUSE	100	Holder	4
ML30202	EL21726	Current	7/02/2014	6/02/2019	John PERSHOUSE	100	Holder	6.2
ML30214	EL21726	Current	7/02/2014	6/02/2024	Ian GENAT	100	Holder	35
ML30215	EL21726	Current	7/02/2014	6/02/2024	Ian GENAT	100	Holder	18.63
ML30216	EL21726	Current	7/02/2014	6/02/2024	June GENAT	100	Holder	33
ML30217	EL21726	Current	7/02/2014	6/02/2024	June GENAT	50	Holder	16
					Ian GENAT	50	Holder	
ML30218	EL21726	Current	7/02/2014	6/02/2029	June GENAT	50	Holder	35.22
					Ian GENAT	50	Holder	
N1109	EL31313	Current	16/12/1993	31/12/2034	NEWMARKET GOLD NT HOLDINGS PTY	100	Holder	3998

No exploration will be done within the Mining leases however contact will be made prior to commencement of exploration to notify the title holders of the presence of exploration crews and the use of access tracks in the area.

3 Project Details

Rockwash's Pine Creek Alluvial project currently consists of 6 granted tenements and 1 application between Adelaide River and Pine Creek (from 5 to 40km's of Pine Creek township – see figure below).

This MMP is for the six granted tenements, although it is planned for remaining application to be included once it is granted, in subsequent MMP renewals. The tenements are situated on map sheet SD5208 Pine Creek 1:250,000 (figure below).

Access to the granted tenements is via the Stuart Highway, then station tracks. They are wholly within pastoral leases (see table and figures below) with EL31276 within Ban Ban Springs and Mary River West, EL31313 within Mary River West and EL31524 within Mary River West.

The Table below details the tenements that are the subject of this Mining Management Plan (MMP).

Table 3 Tenements

Title number	Title holder	Area (blks)	Grant Date	Expiry Date
EL31276	ROCKWASH PTY LTD	24	24/11/16	23/11/22
EL31313	ROCKWASH PTY LTD	13	13/4/17	12/4/23
EL31517	ROCKWASH PTY LTD	23	11/12/17	10/12/23
EL31524	ROCKWASH PTY LTD	36	17/01/18	16/01/24

EL31563	ROCKWASH PTY LTD	1	7/02/18	06/02/24
EL31632	ROCKWASH PTY LTD	1	7/2/18	6/2/24

Figure 2 shows the location of tenements and current access.

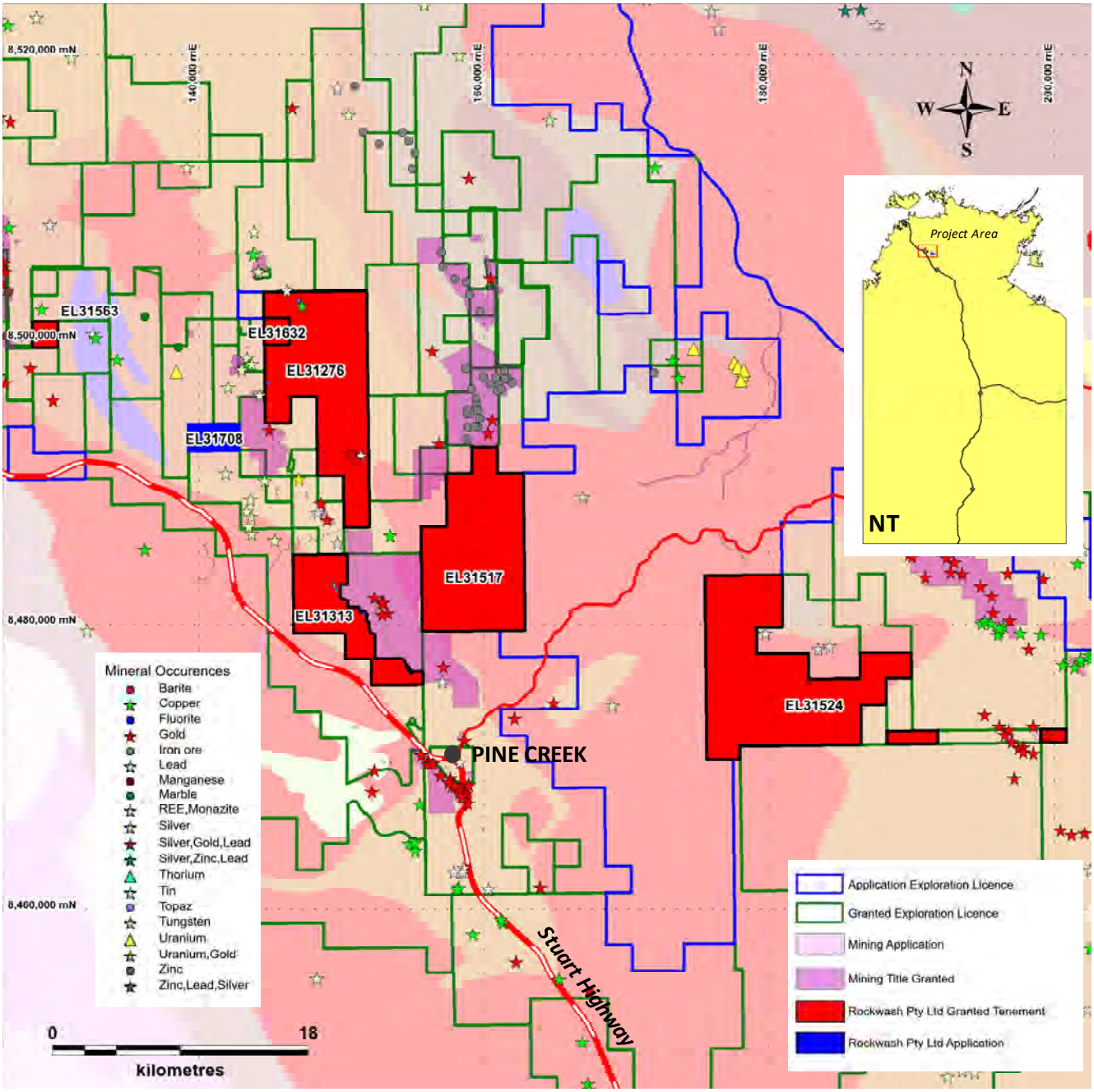


Figure 2 Project/Tenement Location (and NT)

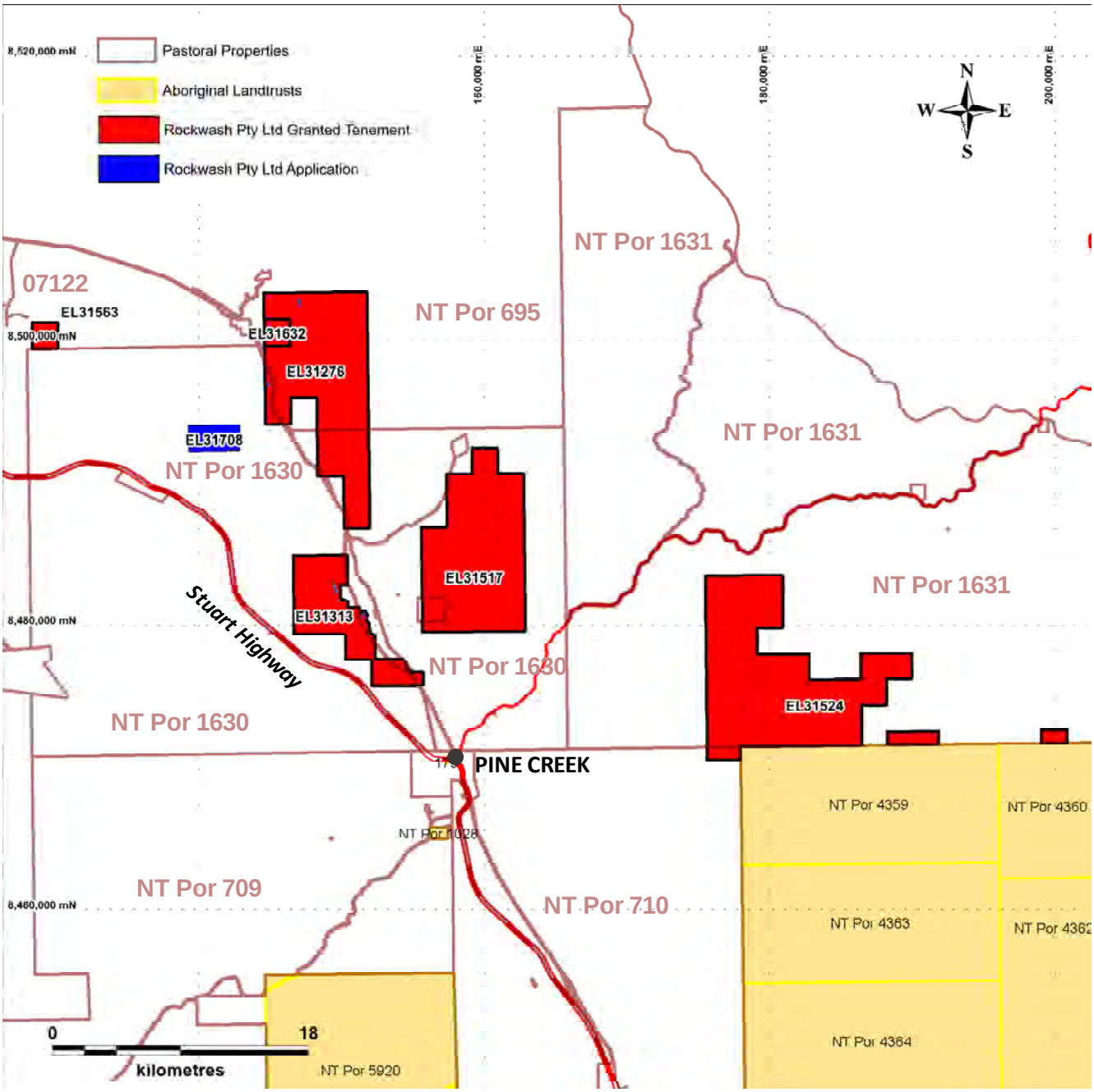


Figure 3 Tenements and Landowners

3.1 Previous Activities and Current Status

Historical Exploration Activities

EL31276, EL31313 and EL31632:

Exploration over EL31276 tenement area has been conducted by a few Exploration companies including work between 1988 and 1993 Billiton Australia and Dominion Gold Operations. Acacia Resources also explored in the area in 1990's. Exploration primarily involved stream, soil and rock chip sampling. Some soil samples were taken with a mechanical auger or back hoe.

Historical data review shows that considerable alluvial gold mining has been completed within the tenement boundary, in the southern part of the tenement. The figure below shows known areas and estimated volumes of alluvial mining activity from 1990 to present.

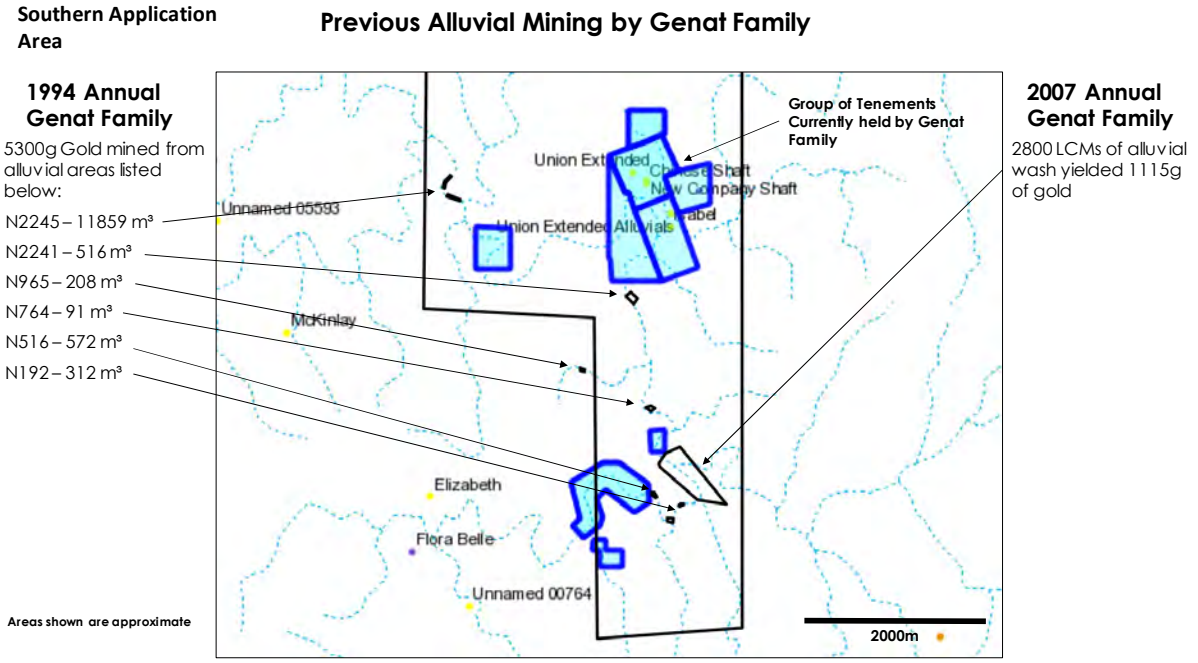


Figure 4 Significant Historical work within EL31276

EL31313 is immediately west of and adjacent to Union Reefs mining tenement (MLN1109). It has undergone basic historical exploration. Historical soil and stream sampling has been done across most of the tenement area, mainly in the 1990's by Billiton and Acacia. So far historical data review has shown there is no historical drilling in the tenement, but review work is ongoing.

Of significance is a stockpile area at the middle eastern edge of the tenement, constructed during mining activity at Union Reef mines (figure below).

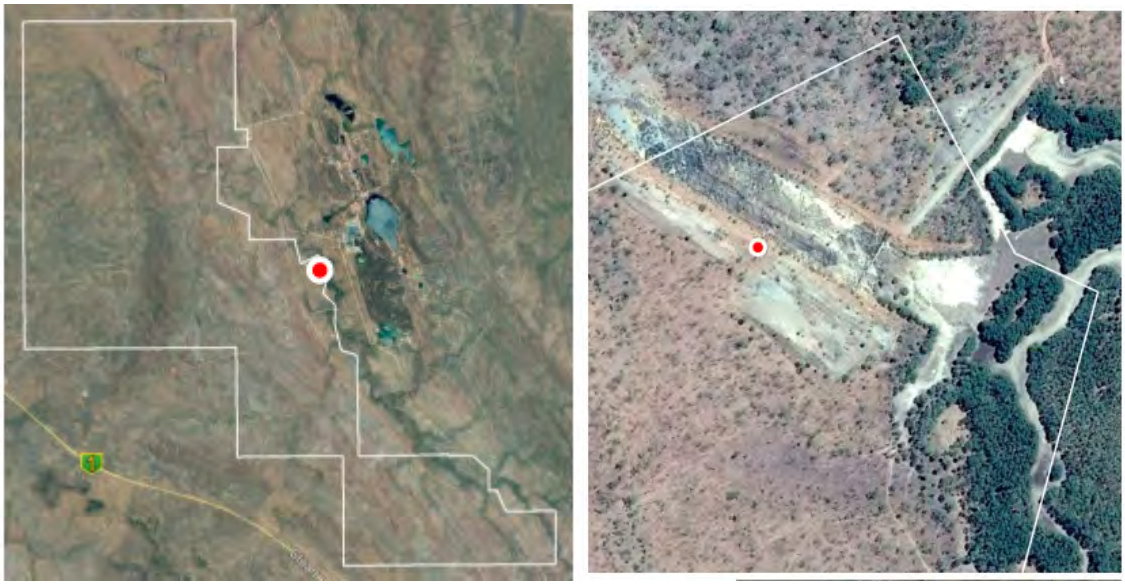


Figure 5 EL31313 adjacent to union reef mines, stockpile within EL31313, red dot is site photographed, white polygon is EL31313 boundary.

A summary of companies that have explored on these licences is given below:

GBS Gold Australia (2003 – 2008)

- Drilling (outside lease)
- Rock chipping
- Remote sensing

Burnside Operations P/L (2004 – 2006)

- Remote sensing

AngloGold (Ashanti) Australia (1993 – 2000)

- Stream sampling
- Soil sampling
- Auger sampling
- Rock chips

Acacia Resources (1994 – 1999)

- Extensive exploration and mapping
- RC drilling

- Soil sampling
- Remote sensing including magnetics and radiometrics

Territory Goldfields NL (1993 – 1996)
- Soil sampling
- Stream sampling

Northern Gold NL (1993)
- Soil sampling

Rosequartz Mining (1991 – 1993)
- Mapping and Rock chipping

Enterprise Exploration NL (1989)
- Soil sampling

Western Gulf Oil and Mining (1989)
- Rock chipping

Zapopan (1988)
- Stream sampling

Billiton (1988 – 1993)
- Extensive exploration
- RC drilling
- Auger drilling
- Stream sampling
- Soil sampling

EL31524

The focus of historical research is on the eastern block of the lease. Extensive alluvial and eluvial gold mining has occurred in the area. The lease is proximal to the extensive workings of the Wandie prospect. Within the lease is the Gilmortona prospect which appears to be eluvial gold scrapings. There appears to be no significant exploration within the eastern block of the lease. Previous exploration in the area has been carried out by Dominion mining, Territory Goldfields, Vista Gold and Pegasus Gold.

EL31563

Exploration over the lease area included mapping, soil and stream sampling. There are several companies which have significant results within the lease area.

Significant exploration includes:

CSR Limited (1986 – 1990)
- Stream sampling

Dundas Gold Corporation (1986 – 1989)
- Stream sampling

Oceania Exploration and Mining (1988 – 1989)
- Stream sampling

- Geological mapping

Exploration by Rockwash

Rockwash has not undertaken any ground disturbing activities within the tenement.

3.2 Proposed Activities

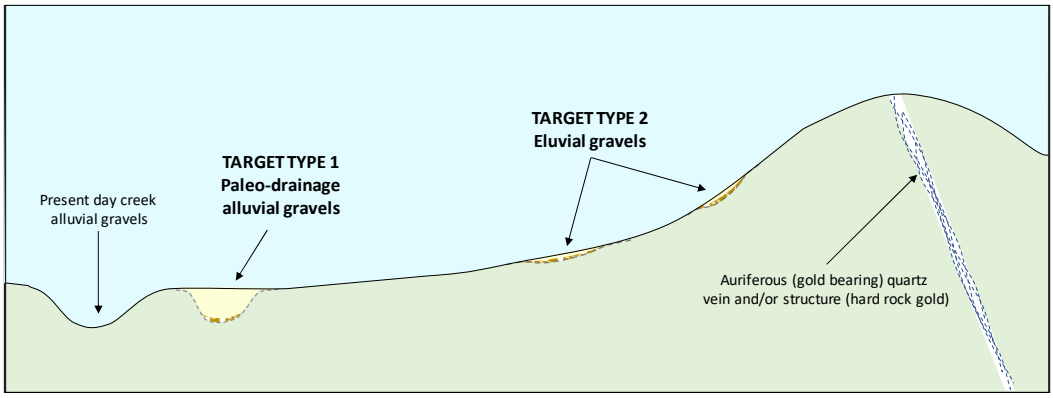
Exploration Model – Conceptual Targets

Rockwash is targeting alluvial gold within palaeo-drainage channels – not within existing creeks (Figure below).

Rockwash is also targeting eluvial gold down slope of in situ deposits (Figure below).

Conceptual targets

- Target paleo-drainage areas – likely more concentrated higher grades but greater overburden
- Target eluvial areas proximal to hard rock gold – likely lower grades but less overburden
- It should be noted that hard rock gold grades can be quite low (and uneconomic) but can still produce viable gold bearing gravels due to weathering and enrichment



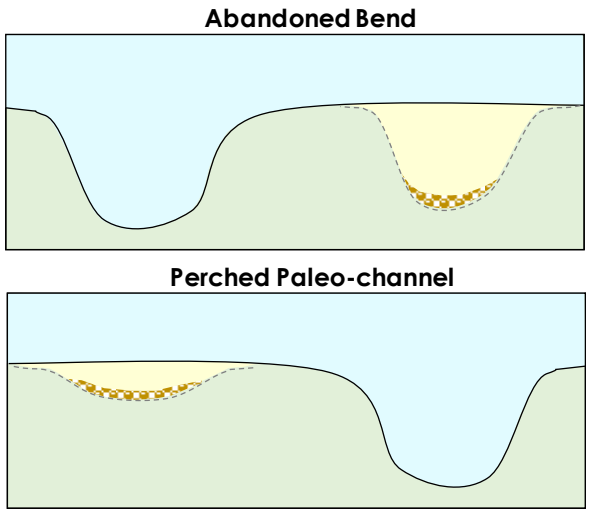


Figure 6 Exploration Concept – Targeting Palaeo drainage areas not existing creeks.

Method

Rockwash proposes to dig a total of 49 costeans at key locations within its alluvial gold project (in 4 different tenements). The target commodity is alluvial gold. Each costean will be backfilled with the original material immediately after sampling.

Costeans will not be dug in existing creek beds or within AAPA sites/restricted work areas (see section 4.5).

Costeans will be dug with a 22t excavator. They will be up to 10m long, and up to 1.0m wide with a total volume of up to 24m^3. A pad will be cleared prior to the digging of the costeans (12mx8m) and 2 sumps will be dug off one side of each pad.

Costean depths will depend on the depth to regolith with depths up to 2.6m expected. The proposed location of costeans are shown in the Figures in Section 3.2 - Location. A total of 49 costeans are proposed:

- EL31276: 18
- EL31632: 2
- EL31313: 16
- EL31524: 13

Costean profiles will be photographed, and different sedimentary layers mapped (transported layers through to regolith). No personnel are to enter the costeans. One end of the costean will be slopped to allow for animal egress.

A sample of material (up to 24m^3) – most likely 10m^3 from the deeper gravels - will be collected from each costean and positioned by the excavator at the corner of the pad. The sample will then be fed (with a 1.5t excavator) into the portable test sampler which includes a miniature hopper, trommel and centrifuge bowl (figure below).

Figure 7 Portable Testing Unit

The 2 sumps (5x3x1m per sump) will collect water runoff from the test unit. The first sump will enable settling of finer materials and will feed into the second sump which will be used for recycling water (similar to diamond drill sumps).

The test sampling unit will separate the material into two piles: oversize and fines, also there will be a small amount of fines in the bowl. Each costean sample will take up to three hours to process (the test unit can process 3-4m^3 per hour) and will require a total through put of 23,000lt of water. By recycling water from the sumps then one costean sample (~10m^3) can be easily be tested using a single water cart load (i.e. at the most 8,000lt – much less than is normally required for a diamond drill hole).

Once a costean sample has been through the testing unit a grab sample (up to 5kg each) will be collected from the bowl, oversize and tails for analysis at a laboratory.

After testing is completed all remaining material will be returned to fill the costean (tails and oversize).

Water for the testing unit will be collected from sources such as: nearby water holes, settled sumps at previous costean sites or brought in by water cart (expected maximum water requirement per costean sample is 8,000lt) depending on location and availability.

Access to each costean/sample pad will be via existing tracks, where possible. Otherwise tracks will be made using a loader or grader with ‘blade up’ technique.

Applicable Procedures

The following company procedures will be followed for track construction, clearing of pads and sump digging:

- RW Site & Access Preparation.doc
- RW Site Rehabilitation.doc
- RW Riparian Vegetation and Clearing.doc

Although these procedures pertain primarily to drill site preparation they are applicable to any the type of work proposed in this MMP (pad clearing and sumps).

Location

The location of the costeans and proposed tracks are shown in the figures below and the coordinates of the costeans are given in appendix F.

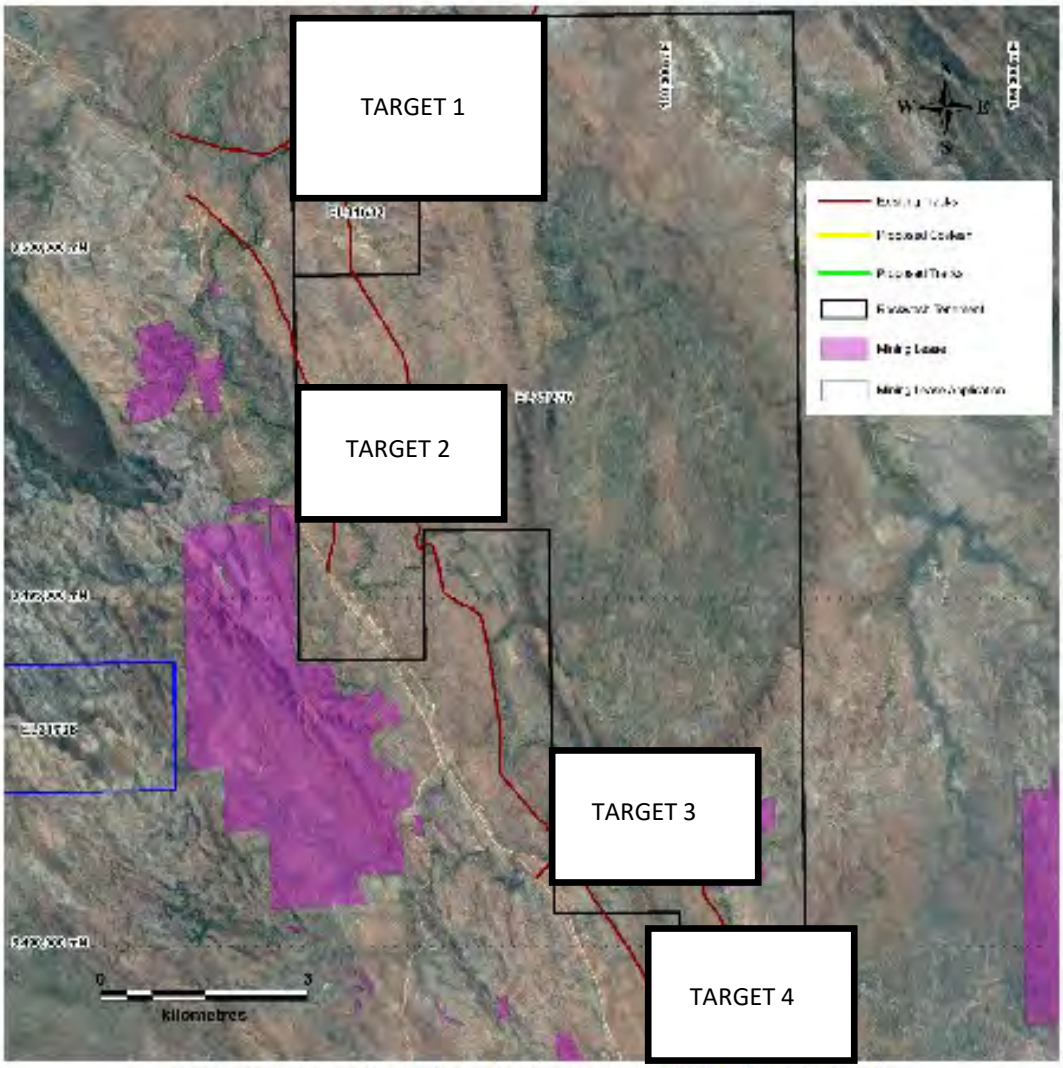


Figure 8 Proposed Tracks and Costeans on EL31276 and EL31632

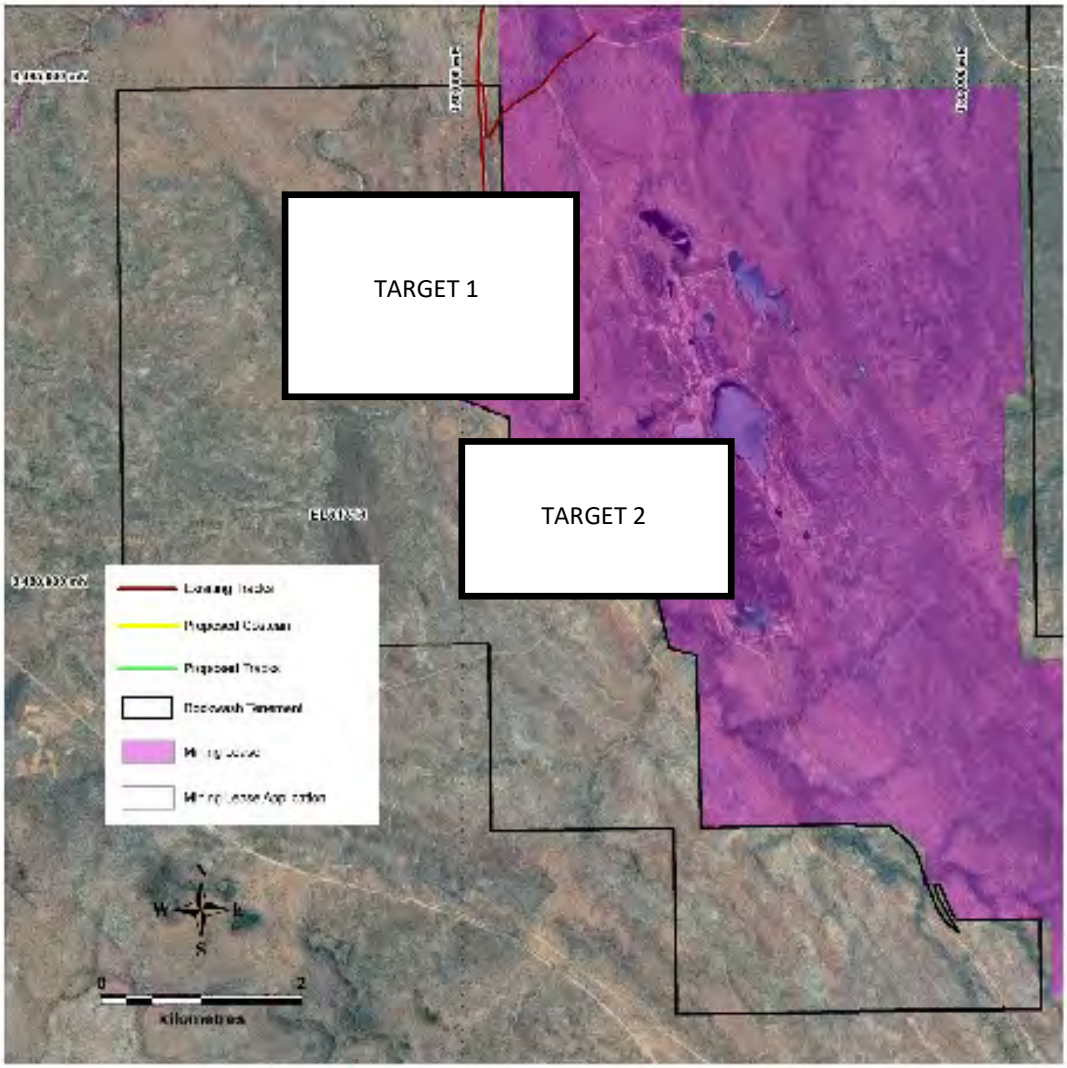


Figure 9 Proposed Tracks and Costeans on EL31313

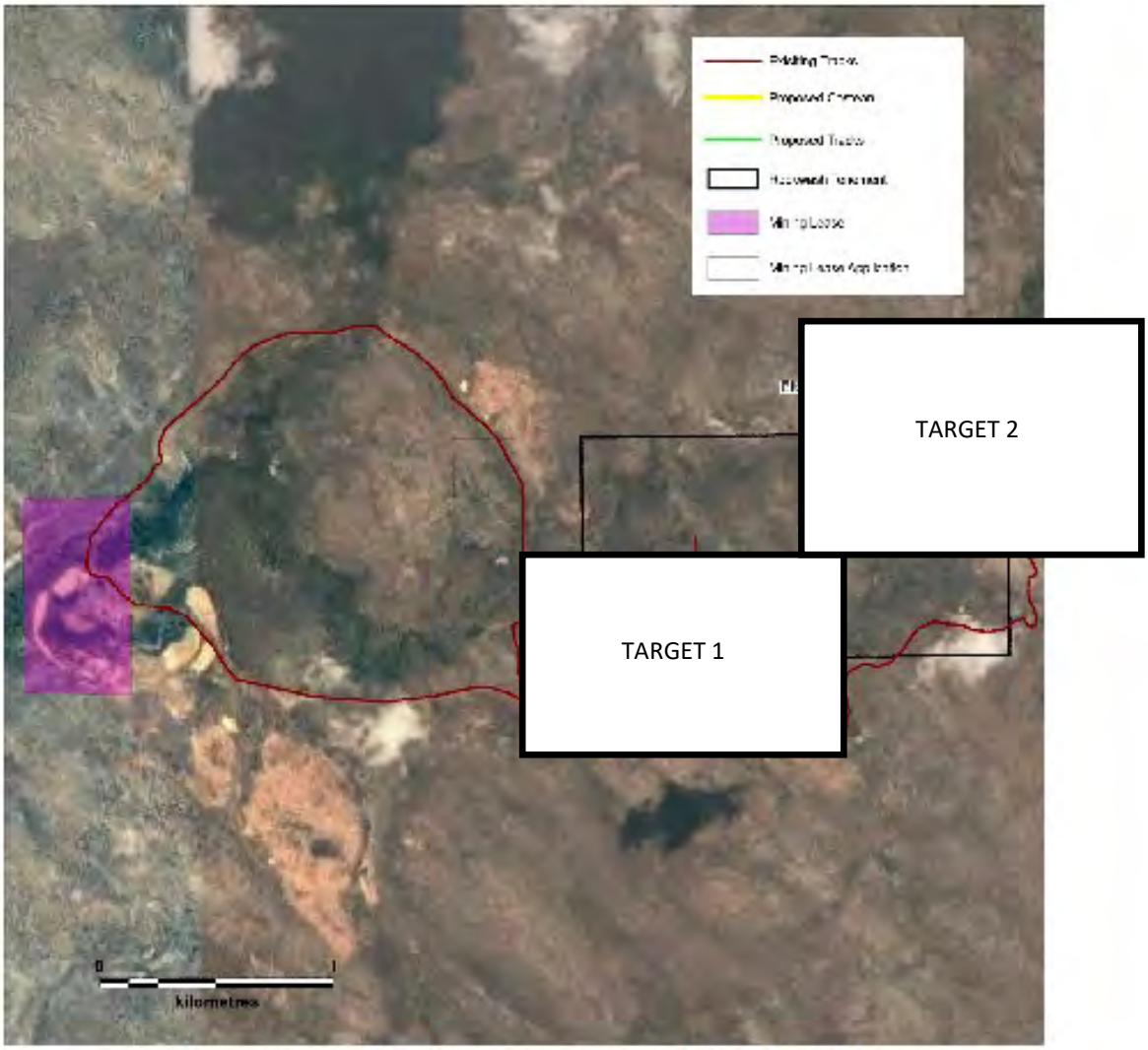


Figure 10 Proposed Tracks and Costeans on EL31524 (East Side)

Equipment to be used

- 5t Excavator
- 1.5t Excavator
- Loader
- Grader
- 8,000 water truck

Picture	Description
	22t excavator to dig costeans
	Small excavator for filling the test unit
	Small bulldozer for ripping tracks and shaping surfaces during rehabilitation
	Small loader for loading trucks, clearing tracks/pad, filling costeans.
	Small grader for restoration of existing tracks

Table 4 Type of equipment used for surface earthworks

Site Infrastructure & Location: It is planned that exploration personnel will stay at accommodation in Pine Creek. However, the option to use onsite camps is included in case it is found necessary for logistical reasons. For camps in the field a small pad (18mx18m) will be cleared of long grass and a fire break constructed from the camp access track in a semi circle around the camp. There will be no infrastructure on site and all equipment will be removed offsite after completion of the work program. Any field camp sites will be rehabilitated by ripping of the fire break and camp pad (if necessary), filling of all pits and sumps and removal of all rubbish, regular camp inspections are to be completed as part of the EMP Pre/During and Post Program Audit (Appendix D).

Transportation and Site Access

Access to the project area will be along existing graded tracks from the Stuart Highway. Transport to the site will be via standard 4WD vehicles, along the pre-existing tracks (Figures above).

Rehabilitation

Rehabilitation is discussed in Section 6.

Exploration Schedule

The exact timing for commencement of the proposed exploration activities is dependent upon:

- Consultation with landowners (they will be consulted once the MMP is approved, prior to the commencement of exploration).
- Mining Management Plan (this document); assessment and authorisation by the department and subsequent payment of the required security sum (environmental rehabilitation bond);
- Onset of wet season, the program is divided into two parts for 2018 dry season and 2019 dry season.

Figure 11 details the times allotted to various events.

	2018									Wet Season	2019					
Phase	**APRIL**	**MAY**	**JUNE**	**JULY**	**AUG**	**SEPT**	**OCT**	**NOV**	**DEC**		**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUNE**
AAPA Clearance																
MMP Approval																
Final Program Planning																
Site & Access Track Preparation																
Costeans																
Rehab of Costeans																
Laboratory Analysis																
Analysis of Results																
Rehabilitation																
2019 MMP Renewal – propose ph 3																

Figure 11 Exploration Schedule

Summary

The tables below summarises the proposed operation.

Table 5 Proposed works summary table by tenement

Mining Interests (i.e. titles)	EL31276	EL31632	EL31313	EL31524
What time of the year will exploration occur?	Summer	Summer	Summer	Summer
How long is exploration expected to occur?	3 weeks	1 weeks	2 weeks	2 weeks
Type of drilling (i.e. RAB, RC, Diamond, aircore)	0	0		
Target commodity	Au	Au	Au	Au
Is drilling likely to encounter radioactive material?	N	N	N	N
Number of proposed drill holes	0	0	0	0
Maximum depth of holes	0	0	0	0
Number of drill pads (Length: 15 x Width: 12 m)	18 (for Costeans)	2 (for Costeans)	16 (for Costeans)	13 (for Costeans)
Is drilling likely to encounter groundwater? (Y, N, unsure)	N	N		
Number of sumps (Length: 5mx Width: 3mx Depth:1.0m)	36	4	32	26
Length of line / track clearing (Kilometres:7.65 x Width:3m)	2.52	0.53	2.48	2.1
Number of costeans (Length: 10x Width:0.9x Depth:2.6m)	18	2	16	13
Total bulk sample (tonnes)	-	-	-	
Will topsoil be removed for rehabilitation purposes?	Blade up Stockpiled	Blade up Stockpiled	Blade up Stockpiled	Blade up Stockpiled
Previous disturbance yet to be rehabilitated on title (ha) if known	0	0	0	0
Camp (Length:18x Width:18m)	1	0	0	1
Total area disturbed (hectares)	1.031	0.165	0.792	0.851
Other:	0	0		

4 CURRENT PROJECT SITE CONDITIONS

4.1 Geology and Topography

The tenements are within the Pine Creek Geosyncline. The Pine Creek Geosyncline consists of Early Proterozoic, dominantly clastic sediment and minor volcanics that have been folded and metamorphosed. The stratigraphy comprises the Early Proterozoic Gerowie Tuff and Mt. Bonnie Formation of the South Alligator Group and the overlying Burrell Creek Formation of the Finniss River Group. A major dolerite dyke, which is magnetic and fine grained and in some places foliated, intrudes the stratigraphy. Several thin (generally < 1.0m thick) lamprophyre dykes are also known to intrude the stratigraphy. Rocks of the South Alligator and Finniss River Groups outcrop poorly. EL31276, EL31313 and the eastern part of EL31524 the dominant outcropping rock types are siltstone, mudstone, greywacke and chert of the Burrell Creek Formation. Rock outcrop generally occur on low rises often with pisolitic scree. Surrounding the rises are tertiary sands, gravels and silts as well as younger alluvium associated with the Main Rivers. EL31563 is wholly within the South Alligator Group with where steeper hills and valleys are formed around creek systems. EL31517 and western part of EL31524 are within the Cullen granite with low-lying undulating landforms in which exposure is generally poor and vegetation mainly scrubby.

Generally, the topography of the tenement areas consists of undulating terrain with scattered hills, isolated strike ridges and alluvial flats. The hill slopes and summits consist of erosional remnants of siltstone, sandstone and quartz on slightly weathered meta- sediments of the Burrell Creek geological formation. Colluvial wash slopes have a veneer of siltstone flakes and/or sub-angular stony quartz in a loamy mix. Soils are either gravelly or skeletal on the slopes and summits or silty, sand or clay soils on the flats. The Figures below show the 1:250K geology and topography and the air photo imagery (google earth) over the tenements.

Figure 12 Representative photographs of land type/forms and topography on EL31276.

4.2 Current Site Conditions

Hydrology and Climate

River hydrology is highly predictable with the wet season characterised by a series of flood peaks and the dry season characterised by high base-flow. Variability occurs in the timing of the onset and cessation of wet season floods. This distinctive pattern has exerted a strong influence over aquatic ecosystems for thousands of years. The climatic control over the hydrological regimes of aquatic and wetland ecosystems would be affected by harvesting of wet season flows, excessive extraction of surface and/or groundwater, and climate change. Most recharge is thought to occur throughout the wider savannah.

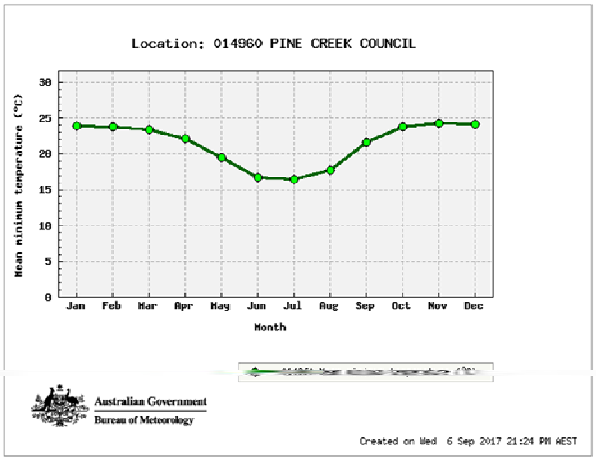
The project area is in the upper region of the Adelaide River catchment, with all drainage predominantly northwards. Margaret River downstream usually contains water year round, although sections in the vicinity of the current project are observed to become pooled or dry out completely during the dry season. The tributaries in the upper reaches are all ephemeral. Stream flows occur after sufficient rain has fallen to replenish the soil water deficit, typically 300 to 400 mm.

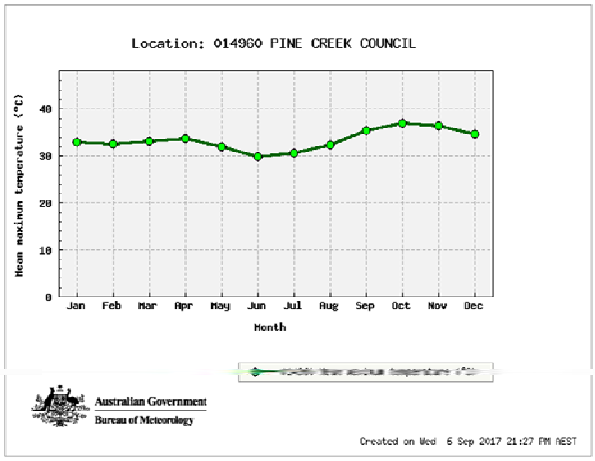
First flows in streams in this part of Northern Australia are characterised by high levels of soluble and physical constituents (i.e. turbidity, suspended matter) due to the —flushing effect of first rains on the catchment following the end of the dry season. Water quality typically improves throughout the wet season, with the best quality water encountered during

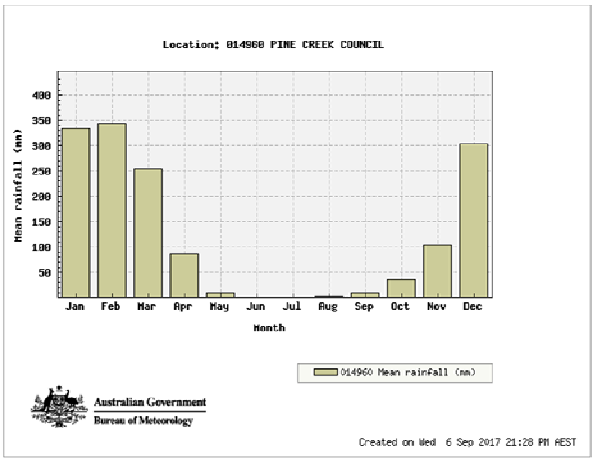
the peak rain events late in the wet season. Tropical catchment areas tend to produce flows around 10 to 30% of the incident rainfall on a monthly basis, depending upon climatic condition and the nature of stream channels and catchments.

The interpreted hydrogeology is that regional groundwater direction is to the north, groundwater levels are generally 25m below the surface, depending on local topography.

Mean Climate statistics are shown in the figure below based on the Pine Creek Weather Station form Bureau of Meterology.







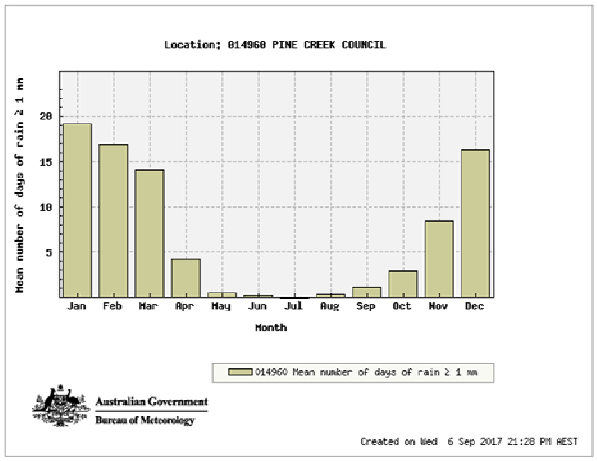


Table 6 Average Monthly Climatic Data - Pine Creek

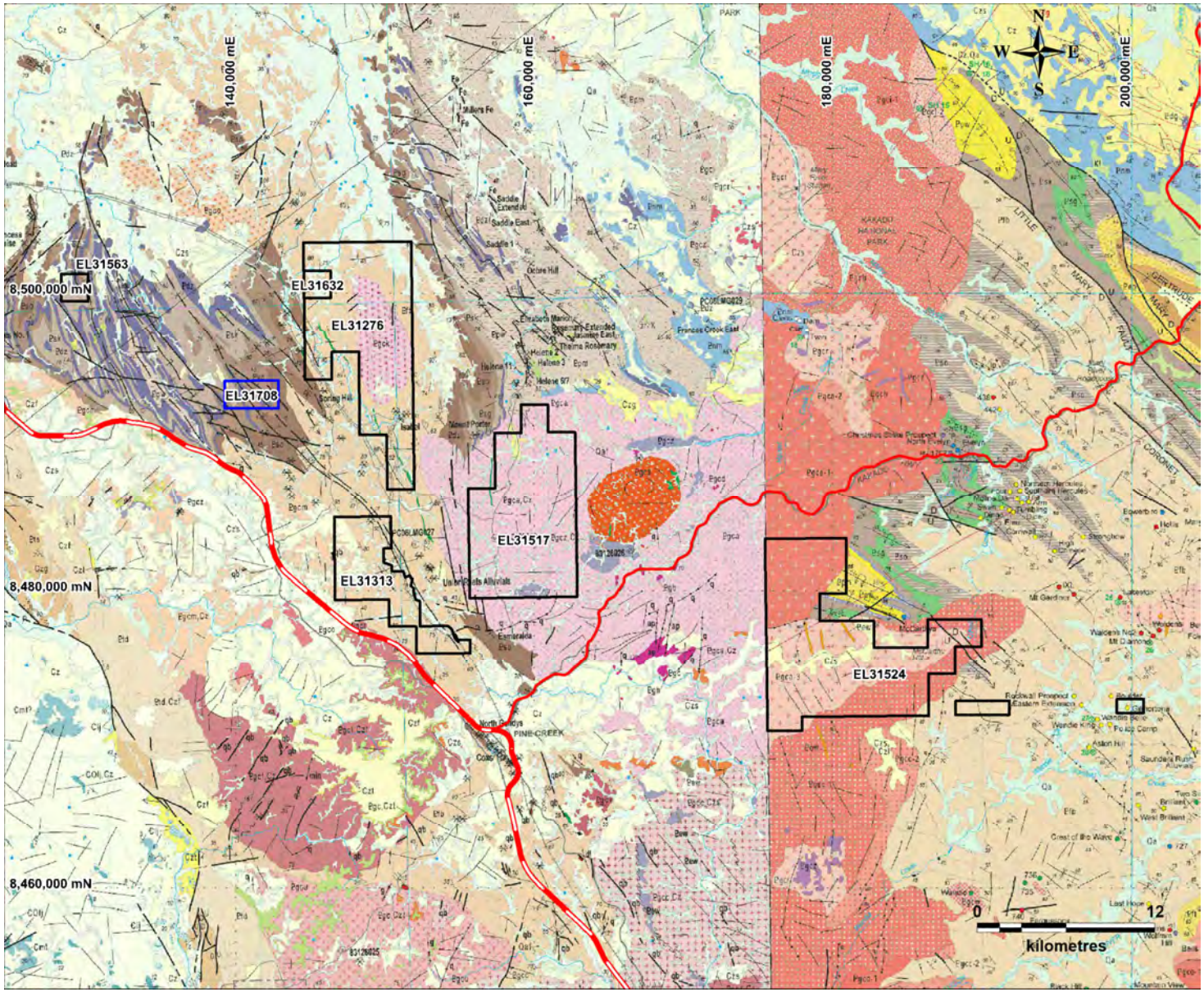


Figure 13 Geological map 1:250K, Rockwash tenements show as black polygons

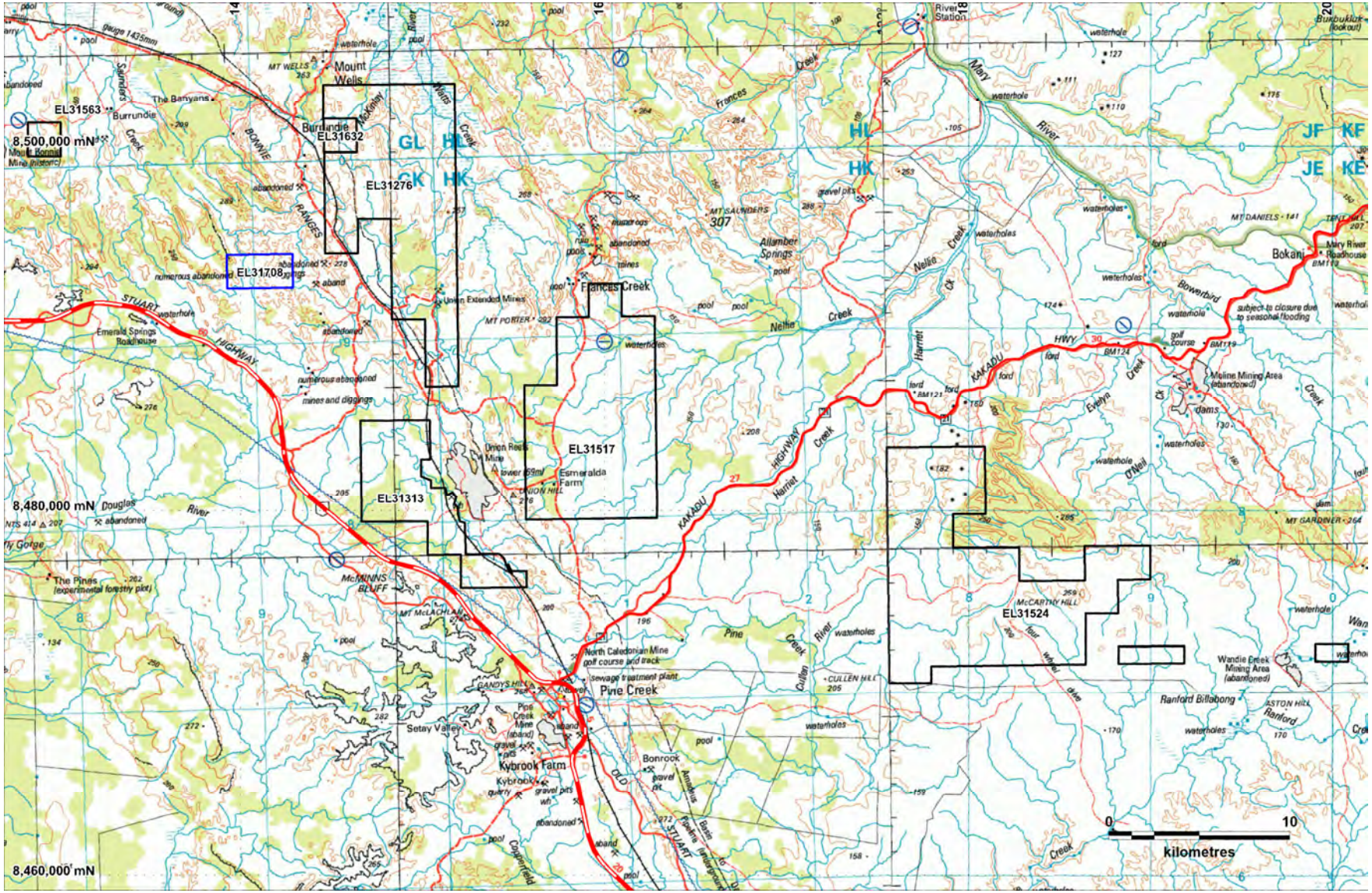


Figure 14 Topography map 1:250K, also shows surface water features noted on EL31276 and EL31517. Rockwash tenements show as black polygons

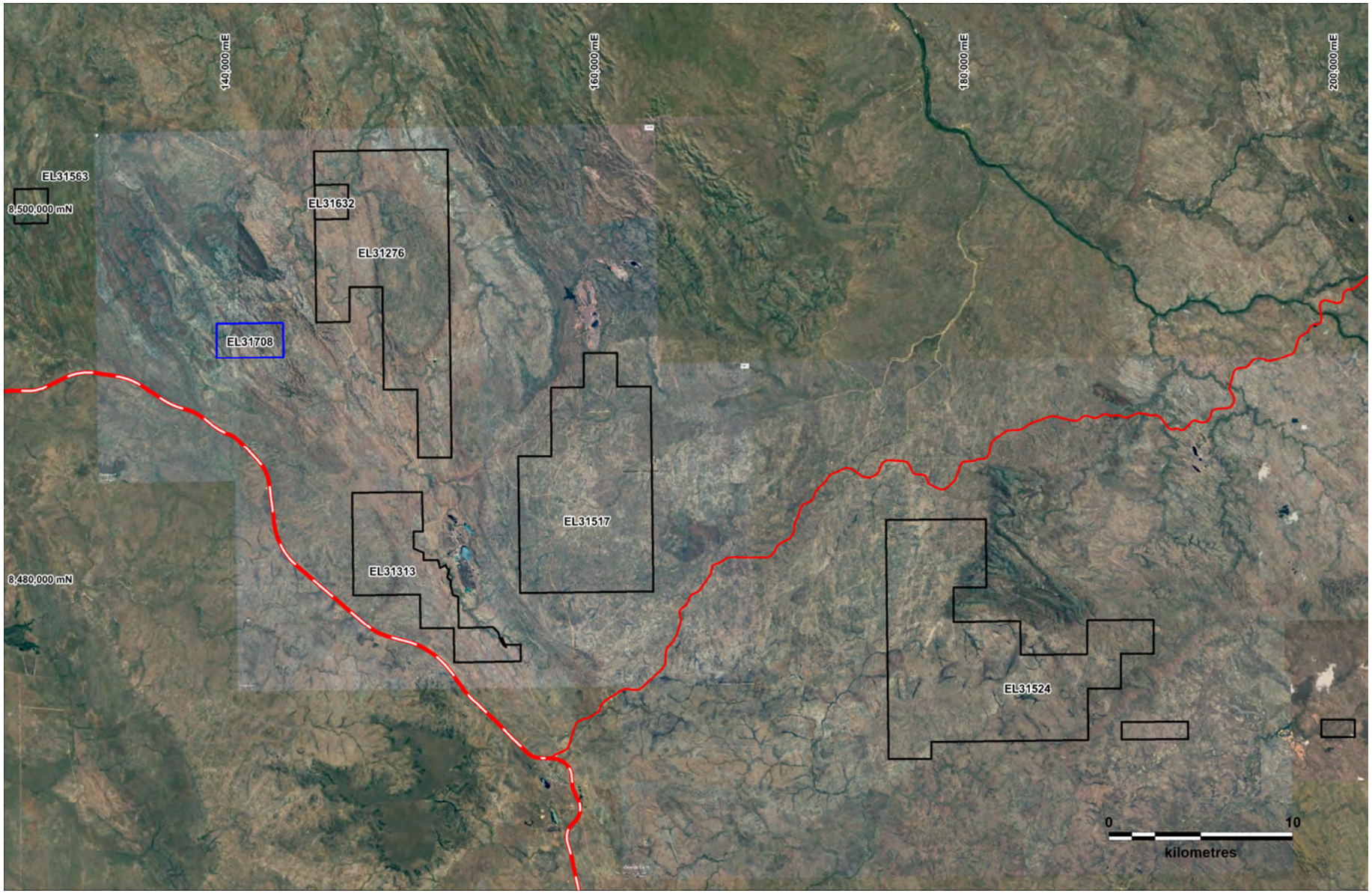


Figure 15 Google Earth Image showing Rockwash Tenements, Rockwash tenements shown as black polygons.

Location of Bores

Locations of Bores within the tenements are shown in the figures below. Bore data is included in Appendix H.

EL31276: Union Extended Mine Shaft – standing water level 25.4, no suitable for drinking – elevated arsenic levels, RN026319 standing water level 12m

EL31313: RN007180 standing water level 12.19m, RN036105 and RN036106 no info. RN025571 just of tenement reported 8.2m standing water level – expected elevation in contaminants due to proximity of Union Reef mines and dams immediately to the east

EL31517: RN029587 incorrect location, RN005488 standing water level at 18.8m, water quality noted as good.

EL31524: No bores in tenement, closes bore on eastern side is RN21538 had conflicting standing water levels noted at 29m and 63m, sample at 66m with quality noted as good, drinking water quality another nearby bore – RN25154 noted standing water level at 31.3m with good water quality (arsenic noted).

EL31563: No bores in tenement, nearby bore to the east RN026332 for Mount Bonnie mine processing gave standing water level at 3.8m no quality data reported. RN022640 drilled to supply water to the mine dam struck first water supply at 21m.

EL31632: No bores in tenement but RN026319 2km to the north reported standing water level at 12m no quality information. RN009141 at the Mt Wells battery 3km to the north reported standing water level at 5.5m with good water quality (drinking water).

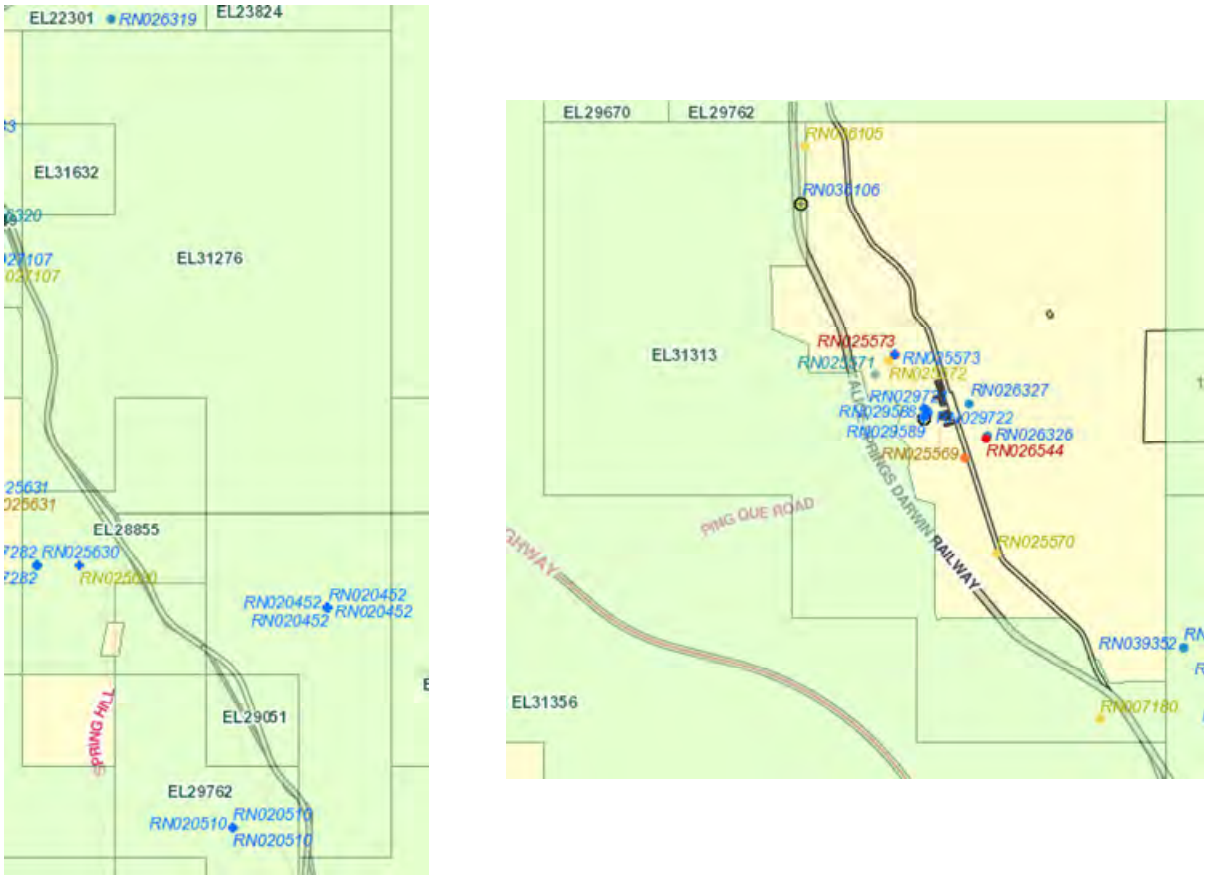


Figure 16 Bore hole locations around EL31276, EL31632 and EL31313. Bore locations shown as dots, tenement boundaries shown as green polygons.

Figure 17 Bore hole locations around EL31517 and EL31563. Bore locations shown as dots, tenement boundaries shown as green polygons.

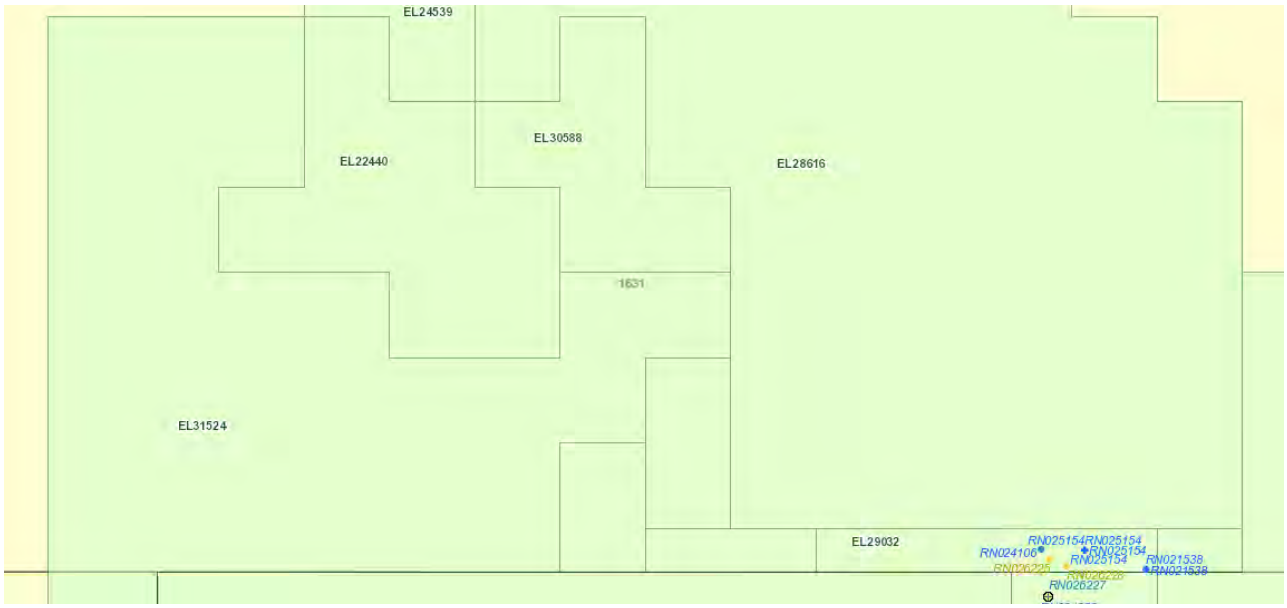


Figure 18 Bore hole locations around EL31524. Bore locations shown as dots, tenement boundaries shown as green polygons.

Planned/Present uses/users of Surface and Groundwater

Within the prospect areas there are no current uses of ground or surface water. It is highly likely that cattle passing through the area are likely to drink from surface water in streams and billabongs when present.

Water for exploration will be pumped from low-lying inundated areas, dams or water bores and tanks after consultation with the Landholder.

Active mines in the region use local groundwater supplies, supplemented with surface water. A smaller portion of groundwater is used for agriculture and pastoral purposes, though surface water supplies are usually sufficient. No water will be drawn from water bores without prior permissions from landowners and care will be taken not to over draw any bores.

4.3 Flora and Fauna

The species Survival Commission of the IUCN (International Union for the Conservation of Nature) has developed a classification system for use in assessing the conservation status of species. Categories are as follows:

- Extinct (EX)
- Extinct in the Wild (EW)
- Critically Endangered (CR)
- Endangered (EN)
- Vulnerable (VU)
- Near Threatened (NT) and;
- Least Concern (LC)

Note: This category includes widespread and abundant taxa

Details of searches for threatened (or above) species, pests and weeds within a designated search area covering the tenements, and for the species observation grid (see NRM reports appendix E), are included in Appendix E.

The resulting booklets/presentations and reports are used to assist with flora and fauna identification and management (Appendix E) and are provided to contractors and employees at inductions. Also Rockwash has a weeds identification booklet for recording known weeds in the area (Appendix D).

For each tenement:

- NRM Report – Rockwash.pdf
- Pest animals - Rockwash.pdf
- Threatened species - Rockwash.pdf
- Weeds - Rockwash.pdf
- Wildlife Management - Rockwash.pdf

Also included are:

- RegionalWeedsIdentificationPictures.pdf (Appendix D)
- Weed-Management-Handbook-2013_web.pdf (Appendix D)

Rockwash site clearing procedures and inspection/audit forms (Appendix D) assist in protecting native flora and fauna such as checking that all holes, pits and costeans have fauna egress points.

A register of identified weeds, pests and flora/fauna will be kept, and the time, location, details and photo are to be recorded. Should a weed or threatened species be identified it will be logged in the flora/fauna register and relevant action, responsible person and time frame will be designated.

Relevant Procedures include (Appendix D):

- RW Weed Identification and Management
- RW Vehicle Washdown Standard

- RW RW Riparian Vegetation and Clearing

Flora Near Threatened or Above

The likelihood of flora species identified by the NRM Report (as having been recorded within the leases, or within any grid squares overlapped by the leases, Appendix E) occurring within the leases was assessed taking into account the species' ecology and the available habitat. None of the species identified by the NRM Report are likely to occur (Table 7).

Table 7 Flora Species Vulnerable or Above

Common name	Scientific name	NT status	National status	Leases		Habitat/ecology[1]	Likelihood
				Known	Within grid cell		
Armstrong's Cycad	*Cycas armstrongii*	VU	Not listed	None	EL31276	Open grassy woodland	**Unlikely** - This species is common in woodlands in the Darwin Area and north of Adelaide River. There are few records south of Adelaide River, these records are >20km from the leases.
Bladderwort	*Utricularia singeriana*	VU	Not listed	None	EL31524	The species occurs on the margins of wet sandy flats and swamps with short relatively open grasses and sedges.	**Unlikely** - There is no suitable habitat in the Eucalypt woodland in the leases.
Helicteres	*Helicteres macrothrix*	EN	EN	None	EL31276, EL31517, EL31524, EL31632, EL31313, EL31563	This species occurs in woodland dominated by *Eucalyptus tectifica, E. tetrodonta* or *E. miniata*, however only three populations are known – including Mt Bundy, near Batchelor and Lake Bennett.	**Unlikely** – the leases are not near any of the known populations – the results of the NRM Report are incorrect for this species.
Jacksonia	*Jacksonia divisa*	VU	Not listed	None	EL31524	This species is restricted to the edges of a gorge on the eroding western margin of the Marrawal Plateau at Bloomfield Springs in southern Kakadu National Park.	**Unlikely** – the leases are all >20km from the only known population and do not comprise suitable habitat.
Wattle	*Acacia praetermissum*	VU	VU	EL31313	EL31276, EL31632	This species has been collected from two general roadside localities: near Emerald Springs and Hayes Creek, it grows on upper to lower slopes with various aspects in stony skeletal or sandy soils on sandstone or laterite substrates.	**Unlikely** – The location within EL 31313 is considered likely to be inaccurate (Cowie & Kerrigan, 2012) – other records of the species are clustered approximately 9km from the leases.

[1] Habitat and ecology descriptions are reproduced from the relevant 'Threatened Species of the Northern Territory' factsheets, produced by DENR and available from https://nt.gov.au/environment/native-plants/threatened-plants

Rockwash will manage the possible presence of any near threatened or above species by methods of:

- Training and Awareness - Employees are contractors are made aware of the possible presence of these species in the locality, and are able to identify them
- Pre-disturbance inspections and regular site audits.
- Avoidance where possible.
- Avoid disturbing typical habitats such as hollow tree stumps, areas of dense bush, holes etc.
- Consultation, with relevant Station and Aboriginal Traditional owners.
- Reporting of flora/fauna sightings and flora/fauna register.

Fauna Near Threatened or Above

The likelihood of fauna species identified by the NRM Report (as having been recorded within the leases, or within any grid squares overlapped by the leases, Appendix E) occurring within the leases was assessed taking into account the species' ecology and the available habitat. Species that are known from some or all of the leases include:

- Gouldian Finch (***Erythrura gouldiae***) listed as vulnerable in the NT
- Partridge Pigeon (***Geophaps smithii***) listed as vulnerable in the NT
- Fawn Antechinus (***Antechinus bellus***) listed as endangered in the NT
- Ghost Bat (***Macroderma gigas***) not listed in the NT
- Northern Leaf-nosed Bat (***Hipposideros stenotis***) listed as vulnerable in the NT
- Pale Field-rat (***Rattus tunneyi***) listed as vulnerable in the NT

In addition, the Black-footed Tree-rat (*Mesembriomys gouldii,* listed as vulnerable in the NT) is considered likely to occur.

Table 8 Fauna Species Vulnerable or Above

Common name	Scientific name	NT status	National status	Leases		Habitat/ecology[2]	Likelihood
				Known	Within grid cell		
Birds							
Greater Sand Plover	*Charadrius leschenaultii*	VU	VU	None	EL31276, EL31313, EL31517, EL31524, EL31563, EL31632	In Northern Australia this species is most commonly found along coastlines. There are a small number of records from island which are presumed to be transiting migratory birds using inland saline wetlands.	**Unlikely** – There are no saline wetlands in the leases.
Grey Falcon	*Falco hypoleucos*	VU	Not listed	None	EL31276, EL31313, EL31517, EL31524, EL31563, EL31632	The species occurs at low densities through much of the arid and semi-arid areas of Australia and has been recorded in all Australian mainland states and territories. They use nests built by other species and prefer nests in the tallest trees along watercourses.	**Possible** – This species may nest in riparian vegetation at the site, or may forage over the woodlands.
Gouldian Finch	*Erythrura gouldiae*	VU	EN	EL31313, EL31517	EL31276, EL31524, EL31563, EL31632	The species forages in open woodland with groundcover of *Sorghum* and other annual and perennial grasses. Nests in hollows in *Eucalyptus tintinnans.*	**Known** – The Gouldian Finch is common in the Pine Creek region, and has been recorded within two of the leases.
Partridge Pigeon	*Geophaps smithii*	VU	VU	EL31276, EL31313, EL31517	EL31524, EL31563, EL31632	Occurs in open forest and woodland dominated by *Eucalyptus tetrodonta* and *E. miniata* with a structurally diverse understorey.	**Known** – Partridge Pigeons are common in the region and the Eucalypt woodland of the leases is likely to provide suitable habitat.

[2] Habitat and ecology descriptions are reproduced from the relevant 'Threatened Species of the Northern Territory' factsheets, produced by DENR and available from https://nt.gov.au/environment/animals/threatened-animals

Common name	Scientific name	NT status	National status	Leases		Habitat/ecology[2]	Likelihood
				Known	Within grid cell		
Red Goshawk	*Erythrotriorchis radiatus*	VU	VU	None	EL31524	The species forages over forest and woodland with a mosaic of vegetation types, including eucalypt woodland, open forest, gallery rainforest, swamp sclerophyll forest and rainforest margins.	**Possible -** This species may nest in riparian vegetation at the site, or may forage over the woodlands.
White-throated Grasswren	*Amytornis woodwardi*	VU	VU	None	EL31524	The White-throated Grasswren is restricted to the rugged sandstone massif of western Arnhem Land, extending south-west as far as Nitmiluk National Park and northeast as far as the Mann River.	**Unlikely** – suitable habitat does not occur within the leases.
Mammals							
Arnhem Leaf-nosed Bat	*Hipposideros inornata*	VU	EN	None	EL31276, EL31313, EL31517, EL31524, EL31563, EL31632	This species is only known from the western Arnhem Land sandstone massif and from Litchfield Park, where it roosts in caves or abandoned mine adits in cool draughty areas, close to water and	**Unlikely** – there is no suitable habitat on the leases.
Arnhem Rock-rat	*Zyzomys maini*	VU	VU	None	EL31524	This species is highly habitat specific and is restricted to areas with large sandstone boulders or escarpment with fissures and cracks. It occurs in these areas very patchily, being restricted mostly to monsoon rainforest patches, notably in gullies and along creeklines, or in fire-protected refugia.	**Unlikely** – there is no suitable habitat within the leases.

Common name	Scientific name	NT status	National status	Leases		Habitat/ecology[2]	Likelihood
				Known	Within grid cell		
Black-footed Tree-rat	*Mesembriomys gouldii*	VU	EN	None	EL31276, EL31313, EL31517, EL31524, EL31563, EL31632	Occurs in the Top End of the NT in tropical woodlands and open forests in coastal areas.	**Likely** – The species has been recorded in the area and suitable habitat is likely to occur.
Fawn Antechinus	*Antechinus bellus*	EN	VU	EL31276, EL31517	EL31313, EL31524, EL31563, EL31632	Occurs in savannah woodland and tall open forest of the Top End of the NT, shelters in tree hollows and fallen logs, shows a preference for areas exposed to cooler and less frequent fires.	**Known** - The species has been recorded in the area and suitable habitat is likely to occur.
Ghost Bat	*Macroderma gigas*	-	VU	EL31276, EL31313, EL31517, EL31524, EL31563	EL31313, EL31632	The distribution of this species is influenced by the availability of suitable caves and mines for roost sites. Daytime roosts may change seasonally. One of the largest known colonies occurs in a series of gold mine workings at Pine Creek in the Northern Territory.	**Known** – The species has been recorded in most of the leases. It is not known if there are suitable caves and mines for a breeding site within the leases.
Golden-backed Tree-rat	*Mesembriomys macrourus*	CR (PE)	VU	EL31524	EL31276, EL31313, EL31517, EL31563, EL31632	The species is known from only three definite records in the NT - Balbarini, Nellie Creek and Deaf Adder Gorge. The only information from the NT is that all three records were from riverine vegetation.	**Unlikely** - There is a record from close to the leases from 1902, however, it is likely that the species is locally extinct.
Nabarlek	*Petrogale concinna*	VU	EN	None	EL31524	Nabarleks are restricted to rocky areas, especially on steep slopes, with large boulders, caves and crevices. They may move from these to forage in	**Unlikely** – there is no suitable rocky habitat in the leases or close enough for this species to forage locally.

Common name	Scientific name	NT status	National status	Leases		Habitat/ecology[2]	Likelihood
				Known	Within grid cell		
						adjacent flat areas.	
Northern Brush-tailed Phascogale	*Phascogale pirata*	EN	VU	None	EL31276	Most records are from tall open forests dominated by *Eucalyptus miniata* and *E. tetrodonta.*	**Possible** – there is a relatively recent record of the species locally (recorded in 2012 approximately 10km west) and suitable habitat is likely to occur.
Northern Leaf-nosed Bat	*Hipposideros stenotis*	VU	-	EL31276	EL31313, EL31517, EL31524, EL31563, EL31632	Little is known of the ecology of this species. It is associated with rocky outcrops and roosts in shallow caves, boulder piles and disused mines, and forages in a variety of habitats from monsoon vine thickets and woodlands to open grasslands.	**Known** – The species has been recently recorded in the local area (recorded in 2016 from within 5km).
Northern Quoll	*Dasyurus hallucatus*	CR	EN	EL31524	EL31276, EL31313, EL31517, EL31563, EL31632	This species formerly occurred across much of northern Australia, from south-eastern Queensland to the south-west Kimberley, with a disjunct population in the Pilbara. The most suitable habitats appear to be rocky areas.	**Possible** – The species has previously been recorded in the area, however declines of the species across most of its former range mean it may be locally extinct.
Pale Field-rat	*Rattus tunneyi*	VU	-	EL31276, EL31517	EL31313, EL31524, EL31563, EL31632	Found in the higher rainfall areas of northern Australia, extending from the Kimberley to south-eastern Queensland. Including the Top End of the NT. Formerly the range extended into arid and semi-arid area and temperate south-western Australia but retracted into higher rainfall areas in the north. It was once widespread and found in dense vegetation along creeks.	**Known** – The species has previously been recorded within two of the leases.

Common name	Scientific name	NT status	National status	Leases		Habitat/ecology[2]	Likelihood
				Known	Within grid cell		
Reptiles							
Arnhem Land Egernia	*Bellatorias obiri*	EN	EN	None	EL31524	This species is restricted to the Western Arnhem Land plateau and outliers.	**Unlikely** – the leases are not within the known range of the species and suitable rocky habitat does not occur.
Mertens' Water Monitor	*Varanus mertensi*	VU	Not listed	None	EL31276, EL31517, EL31524, EL31632, EL31313, EL31563	This species is widespread across the Top End of the NT, generally in the vicinity of permanent freshwater.	**Possible** – this species may occur adjacent to waterways in the leases.
Mitchell's Water Monitor	*Varanus mitchelli*	VU	Not listed	None	EL31517, EL31276, EL31524, EL31632, EL31313, EL31563	This species is widespread across the Top End of the NT and occurs in the catchments of all rivers flowing to the Timor Sea, Arafura Sea and the Gulf of Carpentaria, generally in the vicinity of permanent freshwater.	**Possible** – this species may occur adjacent to waterways in the leases.
Oenpelli Python	*Morelia oenpelliensis*	VU	Not listed	None	EL31524	This species occurs in rugged broken sandstone escarpments and gorges.	**Unlikely** – suitable sandstone habitat does not occur in the leases.
Yellow-snouted Gecko	*Lucasium occultum*	VU	EN	None	EL31276	This distribution of this species is poorly understood, although in generally occurs in open forests dominated by *Eucalyptus miniata* and *E. tetrodonta*.	**Possible** – there is suitable *Eucalyptus miniata* and *E. tetrodonta* habitat on the leases.
Yellow-spotted Monitor	*Varanus panoptes*	VU	Not listed	None	EL31276, EL31313, EL31517, EL31524, EL31563,	This species has recorded across most of the Top End and the Gulf Region in a variety of habitats, including coastal beaches, floodplains, grasslands	**Possible** – there is suitable habitat in the leases.

Common name	Scientific name	NT status	National status	Leases		Habitat/ecology[2]	Likelihood
				Known	Within grid cell		
					EL31632	and woodlands.	

Management:

Rockwash will manage the possible presence of any near threatened or above species by methods of:

- Training and Awareness - Employees are contractors are made aware of the possible presence of these species in the locality, and are able to identify them
- Pre disturbance inspections and regular site audits.
- Avoidance where possible.
- Avoid disturbing typical habitats such as hollow tree stumps, areas of dense bush, holes etc.
- Consultation, with Station and Aboriginal Traditional (site clearances must be attained before any new ground disturbance).
- Reporting of flora/fauna sightings and flora/fauna register.

Descriptions and management methods for the species discussed in Table 8 are provided in the threatened species booklet in Appendix E. Species known from the leases are considered likely to occur will be discussed at inductions as potential concerns, these species are described below:

(the following information is taken from the NTWPC Threatened species lists).

Northern Quoll

Figure 19 Northern Quoll

Northern Quolls are grey brown with white spots on the body. The long black tail is sparsely furred with no spots. The size of a possum, a Northern Quoll has a pointed face, sharp teeth and a clawless big toe. Northern Quolls live at scattered locations across northern Australia, from south-eastern Queensland to the south-west Kimberley, with a disjunct population in the Pilbara. In the Northern Territory, they are found only in the Top End. They live in near-coastal forests and woodlands, most commonly in rocky country.

Northern Quolls are an indicator of well-managed fire regimes, as they seem unable to persist after extensive late dry season fires, except where they can retreat to rock crevices and caves. They also show that there is a healthy population of small animals for them to eat. However, poisoning by Cane Toads may have eliminated them even from well-managed country. Disease may also be a factor in their rapid decline.

General Management

By managing fire. Create an effective network of early dry season fires to prevent large scale fires later in the year, particularly where quolls have been recorded. Control feral cat numbers, with baiting or shooting. Keep pet cats inside at night. When travelling, check your load to make sure you do not transport toads to islands or beyond their current range.

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats.

Partridge Pigeon

The Partridge Pigeon is a ground-dwelling bird, more likely to scurry away than fly when disturbed, but will sometimes eject from the grass in alarm. Mostly greyish-brown, they sport distinctive red eye rings and white cheeks, and their wings have both an iridescent green speculum and a white shoulder.

Partridge Pigeons live in lowland eucalypt open forests and woodlands that have grassy understoreys, where they nest on the ground, and feed on fallen seeds between grass tussocks. Partridge Pigeons are found across the Top End of the Northern Territory and in Western Australia's Kimberley region. Unfortunately, they have declined or disappeared from much of the lower rainfall parts of this range over the last century, and are rarely seen in eastern and central Arnhem Land.

These ground-dwelling birds are highly susceptible to predation by feral cats. Reliant on ground cover for protection and food production, they are also affected by overgrazing or fires that reduce ground cover or seed availability. These largely sedentary birds therefore only persist where fire, grazing and feral animals are well managed.

General Management

Look after Partridge Pigeon by developing a patchy fire mosaic that prevents too large an area being burnt in any one year. Control introduced grasses, such as Gamba Grass and Mission Grass, which overcrowd the species' feeding habitat and increase the risk of extensive, high intensity fires. Control feral animals, particularly cats. On grazing lands, make sure some areas are free from stock at all times, and allow significant areas of grasses to seed in the early wet.

■ Do not clear habitat ■ Maintain ground layer ■ Control pest animals ■ Control weeds ■ Graze moderately & wet season spell

■ Exclude stock from at least part of pastoral properties ■ Manage fire ■ More information is needed about this species

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats.

Black-footed Tree-rat

The black-footed tree-rat is one of the largest rodents in Australia, weighing up to 830 g. Itis an attractive solid rodent with long shaggy medium grey to black fur on top, pale underside, large black ears and a distinctive long hairy tail with terminal white brush.

Found in the Top End of the Northern Territory (NT) in tropical woodlands and open forests in coastal areas. Also occurs in the Kimberley in Western Australia, and the east and west coastal areas of Cape York Peninsula south to Townsville and inland to the Lynd Junction, where it is far less common.

This is one species that may have remained relatively abundant (or become more abundant) in the Darwin rural area, perhaps because of fire regimes (Price et al. 2005).

Black-footed tree-rats are fairly solitary, nocturnal animals, sheltering in tree hollows and pandanus stands during the day Griffiths et al. 2002). Hard fruits and seeds are a major component of their diet, supplemented by grass and invertebrates and other seasonal resources such as nectar rich flowers. Breeding occurs throughout the year with a peak in the late Dry season (August and September). Females are able to produce one to three young every nine months. Young grow quickly and are weaned within about four weeks.

The black-footed tree-rat is one of a suite of Top End mammals showing evidence of sharp decline within the past ten years (Woinarski et al 2010). Recent monitoring in Kakadu and Gunak Gurig Barlu National Parks has not recorded any tree-rats in areas where they were previously in good numbers.

General Management

Fire management on its sanctuaries to reduce the incidence of extensive hot late season fires. Fire management and control of feral herbivores helps maintain ground cover, reducing the impact of feral cats on wildlife.

Site Management

If sited to be recorded, control and report any feral animals. Control burning off. Do not disturb habitats.

Ghost Bat

The Ghost Bat is the largest species of microchiroptern bat in Australia (those bats that use echo-location) and one of the largest in the world. It is pale grey or brown on the back and lighter on the belly. The wing membranes are pale cream to brown. The ears are very large, joined together above the head and have a large tragus. The nose-leaf is large but relatively simple and the eyes are large. There is a tail membrane but no tail.

At the time of European settlement the species was sparsely distributed in Central Australia but more numerous in northern Australia. There are several records of the Ghost Bat in

rocky areas in the southern NT up until the early 1960s but an extensive survey of caves and mine sites in the region in1985 failed to find continuing populations (Churchill and Helman 1990). At this time, however, the Ghost Bat remained in the recent memory of several Aboriginal people from Papunya and Docker River.

The Ghost Bat is primarily insectivorous, but also feeds on other bats, small terrestrial mammals, birds, frogs and reptiles (Milne et al2016). It perches in vegetation and preys on passing prey, or actively flies over surfaces, such as the ground, looking for prey. Ghost bats use several roosts or perches each night but often return to the same day time roost, often in a deep crack or cave. Day time roosts may change seasonally. Mating typically occurs in May, with births a couple of months later. Females usually aggregate in maternity roosts when breeding, but few such sites are known. The largest known site is near Pine Creek.

Nationally, the most significant threatening processes to the Ghost Bat are habitat loss and degradation due to mining – particularly destruction or disturbance of roost sites in Queensland and Western Australia. Habitat alteration through livestock and feral herbivore grazing, inappropriate fire regimes or weed incursion can make foraging more difficult.

General Management

Ghost Bats are easily disturbed and disturbance can cause loss of young and/or abandonment of the roost site. Ghost Bats are known to be susceptible to cane toad toxin and bats have been found dead with chewed toads in their throats

■ Maintain tree cover ■ Maintain tree hollows ■ Control pest animals ■ Manage fire ■ Minimise tourist impact ■ More information is needed about this species

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats – tree cover and hollows.

Northern Leaf-nosed Bat

The Northern Leaf-nosed bat is a relatively small microbat with a complex nose leaf that covers most of the face. Distinguished from other Northern Territory (NT) leaf-nosed bats by having acutely tapered ear tips.

The Northern Leaf-nosed bat has been recorded in a few locations associated with high sandstone escarpment areas in the Top End of the NT. It also occurs in the eastern and western Kimberly, and in Queensland around the southern Gulf of Carpentaria. Conservation

reserves where reported: Kakadu National Park, Gregory National Park, Nitmiluk National Park and Umbrawarra Nature Reserve.

Little is known of the ecology of this species. It is associated with rocky outcrops and roosts in shallow caves, boulder piles and disused mines. It forages in a variety of habitats from monsoon vine thickets and woodlands to open grasslands.

General Management

■ Maintain tree cover ■ Maintain tree hollows ■ Control pest animals ■ Manage fire ■ Minimise tourist impact ■ More information is needed about this species

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats – tree cover and hollows.

Pale Field-Rat

The pale field-rat is a medium sized rodent whose coat is rough but shiny, pale brown above grading through yellowish-grey to cream below. The tail is shorter than head body length with dark scale rings. The eyes are large and protruding, the ears pale brown and the feet are white above. The head is broad and rounded.

Found in the higher rainfall areas of northern Australia, extending from the Kimberley to south-eastern Queensland. Including the Top End of the Northern Territory (NT).

It was once a widespread species found in dense vegetation along creeks. The pale field rat is nocturnal, sheltering in extensive shallow burrows during the day. Pale field rats form loose colonies. Food consists of roots, grass stems and seeds. In the NT breeding occurs during the dry season. Litter size is 2-11, although usually four, and several litters may be raised in a year.

The pale field-rat is one of a suite of mammal species that have considerably declined across the Top End of the NT over the past ten years, with no clear explanation.

No single factor has been demonstrated to have caused the decline of pale field-rat. The current Territory wide decline is probably due to ongoing inappropriate fire regimes (too frequent) affecting habitat suitability, and predation by feral cats.

General Management

By managing fire. Control feral cat numbers, with baiting or shooting. Keep pet cats inside at night. When travelling, check your load to make sure you do not transport toads to islands or beyond their current range.

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats

Gouldian Finch

Male Gouldian Finches are small multi-coloured birds with black or red heads, violet breasts and yellow bellies. Females and young birds are mostly green. Gouldian Finches are found in small or large flocks, often with other finch species, and can most easily be seen at waterholes.

Gouldian Finches nest in hollows in white gum trees, and feed on grass seeds, relying on perennial grasses through the early wet season and annual grasses the rest of the year. Though once more common throughout northern Australia, they are now known to nest at a small number of isolated locations, mostly within the Northern Territory and the Kimberley. The largest known population is in the Yinberrie Hills.

Presence of nesting Gouldian Finches indicates a healthy environment with an abundance of seeding perennial grasses that have not been overgrazed by cattle or feral pigs, and where fire has been well-managed. Airsac mite has been identified as a threat to this species in the past, but its current incidence is unknown. Trapping is also a threat that was more significant before the species was well established in captivity.

General Management

Look after Gouldian Finch by patch-burning in the early dry season to break up the fuel load and prevent extensive late dry season fires. Storm-burn small patches of perennial grasses to extend the availability of high quality seeds in the wet season. Control weeds, such as Gamba Grass, that modify feeding habitat and increase fire hazard. Control pigs, which dig up and destroy clumps of Cockatoo Grass, and spell areas of perennial grasses periodically in the wet season to allow them to recover vigour and produce seed.

■ Maintain tree cover ■ Maintain tree hollows ■ Maintain ground layer ■ Control pest animals ■ Control weeds ■ Graze moderately & wet season spell

■ Manage fire ■ Do not collect from the wild ■ Investigate/manage disease

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats

Fawn antechinus

Figure 20 Fawn Antechinus

The fawn antechinus is a small (30-60 g) dasyurid, that is pale to medium grey-brown above, sometimes with a brownish tinge, cream or light grey below. The chin and feet are white and there is a pale eye-ring (Menkhorst & Knight 2009). The tail is uniformly brown, slightly darker above and is shorter than the head-body length (Cole and Woinarski 2002). Females do not have true pouch (Watson & Calaby 2008).

A terrestrial and arboreal insectivore that is generally active at dusk and dawn (Cole and Woinarski 2002). Diet mainly consists of insects although it may occasionally take small geckos (Watson & Calaby 2008). The fawn antechinus shelters in tree hollows and fallen logs (Cole and Woinarski 2002). Much of the habitat is burnt during the Dry season and this antechinus shows a preference for areas exposed to cooler and less frequent fires (Woinarski et al 2004).

General Management

By managing fire. Control feral cat numbers, with baiting or shooting. Keep pet cats inside at night. When travelling, check your load to make sure you do not transport toads to islands or beyond their current range.

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats

Northern Brush-tailed Phascogale

Figure 21 Northern Brush-tailed Phascogale

The Northern Brush-tailed Phascogale is the size of a small Common Brushtail Possum. It has speckled grey fur, a long, brush-tipped tail, large eyes and a pointed snout.

This species lives in tall open Darwin Woollybutt (Eucalyptus miniata) and Darwin Stringybark (Eucalyptus tetrodonta) forests. It shelters in tree hollows during the day, and feeds in trees or on the ground by night, taking insects and other small animals. It is known only from offshore islands and a few parts of the mainland of the Top End of the Northern Territory, having declined since the late nineteenth century.

Persistence of the Northern Brush-tailed Phascogale indicates good environmental management – where fires are neither too frequent nor too extensive, and country is neither overgrazed nor over-run by predators. However, even under these conditions, disease and cane toads may be significant problems for this species.

General Management

by not clearing forests where it occurs, as it is unlikely to survive the loss of habitat. Control cats, which are significant predators of native mammals. When travelling, check your load to make sure you do not transport toads to islands or beyond their current range. On pastoral

properties, ensure a moderate grazing pressure, and periodically spell country from grazing. Light fires only under mild weather conditions, when their extent can be controlled. Burn small areas every year to break up the fuel load and ensure a mosaic of post fire ages. This will also reduce severe late dry season fires, the death of animals in tree hollows, and loss of tree hollows themselves. Control Gamba Grass, which increases fire hazard and intensity. Best practice management for Northern Brush-tailed Phascogale in the Northern Territory

■ Do not clear habitat ■ Maintain tree cover ■ Maintain tree hollows ■ Keep logs and litter ■ Control pest animals ■ Control weeds

■ Graze moderately & wet season spell ■ Manage fire ■ Investigate/manage disease ■ Report new populations

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats

Arnhem Land Egernia

Figure 22 Arnhem Land Egernia

The Arnhem Land Egernia is a pale brown, slow-moving, stocky skink with a long tail. It has a small neat head with dark markings, short fat legs and a brown streak down the middle of its back.

The Arnhem Land Egernia lives in sandstone country, where it shelters in rock crevices through the day and comes out to feed on insects and other small animals as the sun goes down. This skink is found only in the Northern Territory, where it is known from a few places on the western Arnhem Land plateau and nearby sandstone outcrops.

Persistence of Arnhem Land Egernia is likely to reflect well on the management of the country in which it lives. A patchy fire regime will promote the availability of the species on which it feeds. Populations of this skink may be adversely affected by introduced animals. Skinks are a favoured food of cats, so this sluggish species may be especially at risk. Even in a well-managed environment, cane toads may compete for prey, leading to a reduction in numbers of Arnhem Land Egernia.

General Management

Look after Arnhem Land Egernia and other animals of the sandstone country by managing fire. Create an effective network of early dry season fires to prevent large scale fires later in the year, particularly where Egernia have been recorded. Control cat numbers with effective methods, such as shooting or baiting.

Best practice management for Arnhem Land Egernia in the Northern Territory

■ Maintain ground layer ■ Keep logs and litter ■ Control pest animals ■ Manage fire ■ More information is needed about this species

Site Management

If sited to be recorded, control and report any feral animals. Do not disturb habitats.

Golden Backed Tree Rat

Figure 23 Golden Backed Tree Rat

Golden-backed Tree-rat is a large rodent with white feet and a long, slightly brush- tipped tail that is white for more than half its length. Its grey fur is highlighted along the back in a broad chestnut-gold sweep.

Golden-backed Tree-rats spend most of their lives in trees, roosting in hollows or the tops of Screw Palms (Pandanus) by day, and emerge to feed on seeds, fruits, leaves and insects by night. In the Northern Territory, there are only three widely-spaced collections from across the Top End. These records were all from riverine vegetation, and there have been no official reports since 1969. Aboriginal knowledge of the species also indicates that it occupied most of the Arnhem Land plateau. Golden-backed Tree-rats are also found in the Kimberley region of western Australia, where they are more common.

The apparent disappearance of the Golden-backed Tree-rat is a sign of poor habitat conditions. Predation by cats may be the most significant threat. However, loss of hollows, extensive wildfires (in part fuelled by introduced grasses), grazing of food plants by livestock and feral animals, and disease may have all contributed to the species' demise.

General Management

Look after Golden-backed Tree-rat by controlling cats using effective methods, such as shooting or baiting. Reinstate a patchy fire regime that provides areas of recently burnt and Minimise fire intensity to avoid damaging tree hollows. Control weeds, particularly those that increase fire intensity. Excluding grazing animals, both domestic and feral, from even small parts of pastoral properties will create habitat for a range of native species, and allow recolonisation by Golden-backed Tree-rats if these are still present in the area. This species is so rarely recorded that any sightings should be reported to the Department of Natural Resources, Environment, the Arts and Sport in Darwin.

Site Management

If sited to be recorded and reported to NRETA, control and report any feral animals. Do not disturb habitats

Weeds, Pests and Introduced Species

Weed & Pest Management

Local Weeds, pests and introduced species are listed in the NRM search Report in Appendix E. Location maps from NR Maps for the different tenements are supplied in appendix E.

Details of these species and relevant controls are given in the following booklets (Appendix E):

- Pest animals
- Weeds
- RegionalWeedsIdentificationPictures.pdf (Appendix D)
- Weed-Management-Handbook-2013_web.pdf (Appendix D)

Rockwash requires all employees and contractors to brush down their vehicles prior to leaving any site designed to remove any lodged weeds and/or seeds from the vehicles so as to not spread weeds from one site to another (appendix D). All employees, contractors, consultants are inducted on the procedure, the type of weeds and a photo identification handbook (attached in appendix E) is provided where necessary to help in the identification of Weeds.

The Rockwash regular site inspection includes checking for weeds (appendix D) where appropriate action and the responsible person/time frame is allocated.

The Company may consult with the NT Government Herbarium in Palmerston to assist with identification and management of vegetation if required.

If identified, weeds will be reported and recorded in the pest register, and can be controlled by biological, chemical and physical controls. Rockwash will use chemical (herbicides and other chemicals) and physical controls (hand pulling, grubbing). Regular checks will be made to ensure regrowth is not occurring. Should these be insufficient to control any on site weed outbreak then advice will be sought from NT Government Herbarium in Alice or a weeds specialist.

Native and Introduced/Pest flora and fauna sightings will be reported to the supervisor for compilation of a register and information will be used for Toolbox Meeting awareness sessions.

Domestic pets will not be allowed on site. All care will be taken not to disturb natural habitats. Sighting of feral animals will be reported to the Landholder and the supervisor.

Known weeds for Rockwash Tenements:

Table 9 Known Weeds

EL31276:

Common Name	Scientific Name	NT Status	National Status	Other Status	ID
Rubber Bush	*Calotropis procera*	B C (S of 16.5 deg S)	.	*WA1 WA2 G&M*	288914
Mission Grass (annual)	*Cenchrus pedicellatus*	.	.	*WeedsAus*	291864
Mission Grass (perennial)	*Cenchrus polystachios*	B C	.	*MP K2 C&E G&M*	291884
Gambia Pea	*Crotalaria goreensis*	.	.	*MP*	183442
Ulcardo Melon	*Cucumis melo*	.	.	*DEU*	289734
Awnless Barnyard Grass	*Echinochloa colona*	.	.	*DEU*	290114
Indian Heliotrope	*Heliotropium indicum*	.	.	*DEU*	290584
Hyptis	*Hyptis suaveolens*	B C	.	*G&M*	290734
Physic Nut	*Jatropha curcas*	A C	.	*MP WA1 WA2 WA4 G&M*	290794
Roadside Leafbract	*Malachra fasciata var. lineariloba*	.	.	*CYP*	361325
Small Devil`s Claw	*Martynia annua*	A C	.	*MP K2 WA1 WA2 G&M CYP*	291124
Red Natal Grass	*Melinis repens*	.	.	*DEU*	291224
Mimosa	*Mimosa pigra*	A (S of 14 deg S) B (N of 14 deg S) C	WONS	*MP K2 WA1 WA2 Q1 G&M CYP SA*	291304
Sicklepod	*Senna obtusifolia*	B C	.	*WA1 WA2 Q2 G&M CYP DEU*	131903
Coffee Senna	*Senna occidentalis*	B C	.	*G&M DEU*	292474
Spiny-head Sida	*Sida acuta*	B C	.	*WA1 G&M*	292584
Flannel Weed	*Sida cordifolia*	B C	.	*WA1 G&M DEU*	292594
Caribbean Stylo	*Stylosanthes hamata*	.	.	*DEU*	292974
Townsville Lucerne	*Stylosanthes humilis*	.	.	*DEU*	292984
Shrubby Stylo	*Stylosanthes scabra*	.	.	*G&M DEU*	292994
Para Grass	*Urochloa mutica*	.	.	*MP G&M*	293304

EL31313/ EL31362/31517/31563 and EL31524

Common Name	Scientific Name	NT Status	National Status	Other Status	ID
Rubber Bush	*Calotropis procera*	B C (S of 16.5 deg S)	.	*WA1 WA2 G&M*	288914
Mission Grass (annual)	*Cenchrus pedicellatus*	.	.	*WeedsAus*	291864
Mission Grass (perennial)	*Cenchrus polystachios*	B C	.	*MP K2 C&E G&M*	291884
Gambia Pea	*Crotalaria goreensis*	.	.	*MP*	183442
Ulcardo Melon	*Cucumis melo*	.	.	*DEU*	289734
Awnless Barnyard Grass	*Echinochloa colona*	.	.	*DEU*	290114
Indian Heliotrope	*Heliotropium indicum*	.	.	*DEU*	290584
Hyptis	*Hyptis suaveolens*	B C	.	*G&M*	290734
Roadside Leafbract	*Malachra fasciata var. lineariloba*	.	.	*CYP*	361325
Red Natal Grass	*Melinis repens*	.	.	*DEU*	291224
Mimosa	*Mimosa pigra*	A (S of 14 deg S) B (N of 14 deg S) C	WONS	*MP K2 WA1 WA2 Q1 G&M CYP SA*	291304
Sicklepod	*Senna obtusifolia*	B C	.	*WA1 WA2 Q2 G&M CYP DEU*	131903
Coffee Senna	*Senna occidentalis*	B C	.	*G&M DEU*	292474
Spiny-head Sida	*Sida acuta*	B C	.	*WA1 G&M*	292584
Flannel Weed	*Sida cordifolia*	B C	.	*WA1 G&M DEU*	292594
Caribbean Stylo	*Stylosanthes hamata*	.	.	*DEU*	292974
Townsville Lucerne	*Stylosanthes humilis*	.	.	*DEU*	292984
Shrubby Stylo	*Stylosanthes scabra*	.	.	*G&M DEU*	292994

EL31524

Common Name	Scientific Name	NT Status	National Status	Other Status	ID	Info
Rubber Bush	*Calotropis procera*	B C (S of 16.5 deg S)	.	*WA1 WA2 G&M*	288914	
Mission Grass (annual)	*Cenchrus pedicellatus*	.	.	*WeedsAus*	291864	Info
Mission Grass (perennial)	*Cenchrus polystachios*	B C	.	*MP K2 C&E G&M*	291884	Info
Gambia Pea	*Crotalaria goreensis*	.	.	*MP*	183442	
Ulcardo Melon	*Cucumis melo*	.	.	*DEU*	289734	
Awnless Barnyard Grass	*Echinochloa colona*	.	.	*DEU*	290114	
Phassa Plaum	*Grewia asiatica*	.	.	*C&E G&M CYP*	290544	
Indian Heliotrope	*Heliotropium indicum*	.	.	*DEU*	290584	
Hyptis	*Hyptis suaveolens*	B C	.	*G&M*	290734	
Bellyache Bush	*Jatropha gossypiifolia*	B C	WONS	*K2 WA1 WA4 Q2 C&E G&M CYP DEU*	113957	Info
Roadside Leafbract	*Malachra fasciata var. lineariloba*	.	.	*CYP*	361325	
Red Natal Grass	*Melinis repens*	.	.	*DEU*	291224	
Mimosa	*Mimosa pigra*	A (S of 14 deg S) B (N of 14 deg S) C	WONS	*MP K2 WA1 WA2 Q1 G&M CYP SA*	291304	Info
Water Lettuce	*Pistia stratiotes*	B C	.	*WA1 WA2 Q2 CYP NSW*	292034	
Bitter Broom	*Scoparia dulcis*	.	.	*DEU*	292424	
Sicklepod	*Senna obtusifolia*	B C	.	*WA1 WA2 Q2 G&M CYP DEU*	131903	
Coffee Senna	*Senna occidentalis*	B C	.	*G&M DEU*	292474	
Spiny-head Sida	*Sida acuta*	B C	.	*WA1 G&M*	292584	
Flannel Weed	*Sida cordifolia*	B C	.	*WA1 G&M DEU*	292594	
Spiny Sida	*Sida spinosa*	.	.	*DEU*	292614	
Cayenne Snakeweed	*Stachytarpheta cayennensis*	B C	.	*NSW*	292924	
Caribbean Stylo	*Stylosanthes hamata*	.	.	*DEU*	292974	
Townsville Lucerne	*Stylosanthes humilis*	.	.	*DEU*	292984	
Shrubby Stylo	*Stylosanthes scabra*	.	.	*G&M DEU*	292994	

Known pests for Rockwash tenements are listed below:

Table 10 Known Pests

EL21576/EL31313/EL31362/EL31517/EL31563 and EL31524

Group	Common Name	Scientific Name	NT Status	National Status	ID	Info
Frogs	Cane Toad	*Rhinella marina*	P	.	183252	Info
Reptiles	Asian House Gecko	*Hemidactylus frenatus*	P	.	188964	
Birds	Rock Dove	*Columba livia*	P	.	183336	
Birds	Red-tailed Black-cockatoo	*Calyptorhynchus banksii macrorhynchus*	N	.	223765	
Birds	Sulphur-Crested Cockatoo	*Cacatua galerita*	N	.	223772	
Mammals	Agile Wallaby	*Macropus agilis*	N	.	223786	
Mammals	House Mouse	*Mus musculus*	P	.	187720	
Mammals	Black Rat	*Rattus rattus*	P	.	183236	Info
Mammals	Dingo / Wild dog	*Canis lupus*	N	.	183280	Info
Mammals	Cat	*Felis catus*	P	.	183259	Info
Mammals	Donkey	*Equus asinus*	P	.	183287	Info
Mammals	Horse	*Equus caballus*	P	.	183315	Info
Mammals	Pig	*Sus scrofa*	P	.	183329	Info
Mammals	Swamp Buffalo	*Bubalus bubalis*	P	.	183245	Info
Mammals	Cattle	*Bos taurus*	P	.	183266	Info

EL31524

Group	Common Name	Scientific Name	NT Status	National Status	ID	Info
Frogs	Cane Toad	*Rhinella marina*	P	.	183252	Info
Reptiles	Asian House Gecko	*Hemidactylus frenatus*	P	.	188964	
Reptiles	Flower-pot Blind Snake	*Ramphotyphlops braminus*	P	.	189084	
Birds	Rock Dove	*Columba livia*	P	.	183336	
Birds	Red-tailed Black-cockatoo	*Calyptorhynchus banksii macrorhynchus*	N	.	223765	
Birds	Sulphur-Crested Cockatoo	*Cacatua galerita*	N	.	223772	
Mammals	Agile Wallaby	*Macropus agilis*	N	.	223786	
Mammals	House Mouse	*Mus musculus*	P	.	187720	
Mammals	Black Rat	*Rattus rattus*	P	.	183236	Info
Mammals	Dingo / Wild dog	*Canis lupus*	N	.	183280	Info
Mammals	Cat	*Felis catus*	P	.	183259	Info
Mammals	Donkey	*Equus asinus*	P	.	183287	Info
Mammals	Horse	*Equus caballus*	P	.	183315	Info
Mammals	Pig	*Sus scrofa*	P	.	183329	Info
Mammals	Swamp Buffalo	*Bubalus bubalis*	P	.	183245	Info
Mammals	Cattle	*Bos taurus*	P	.	183266	Info

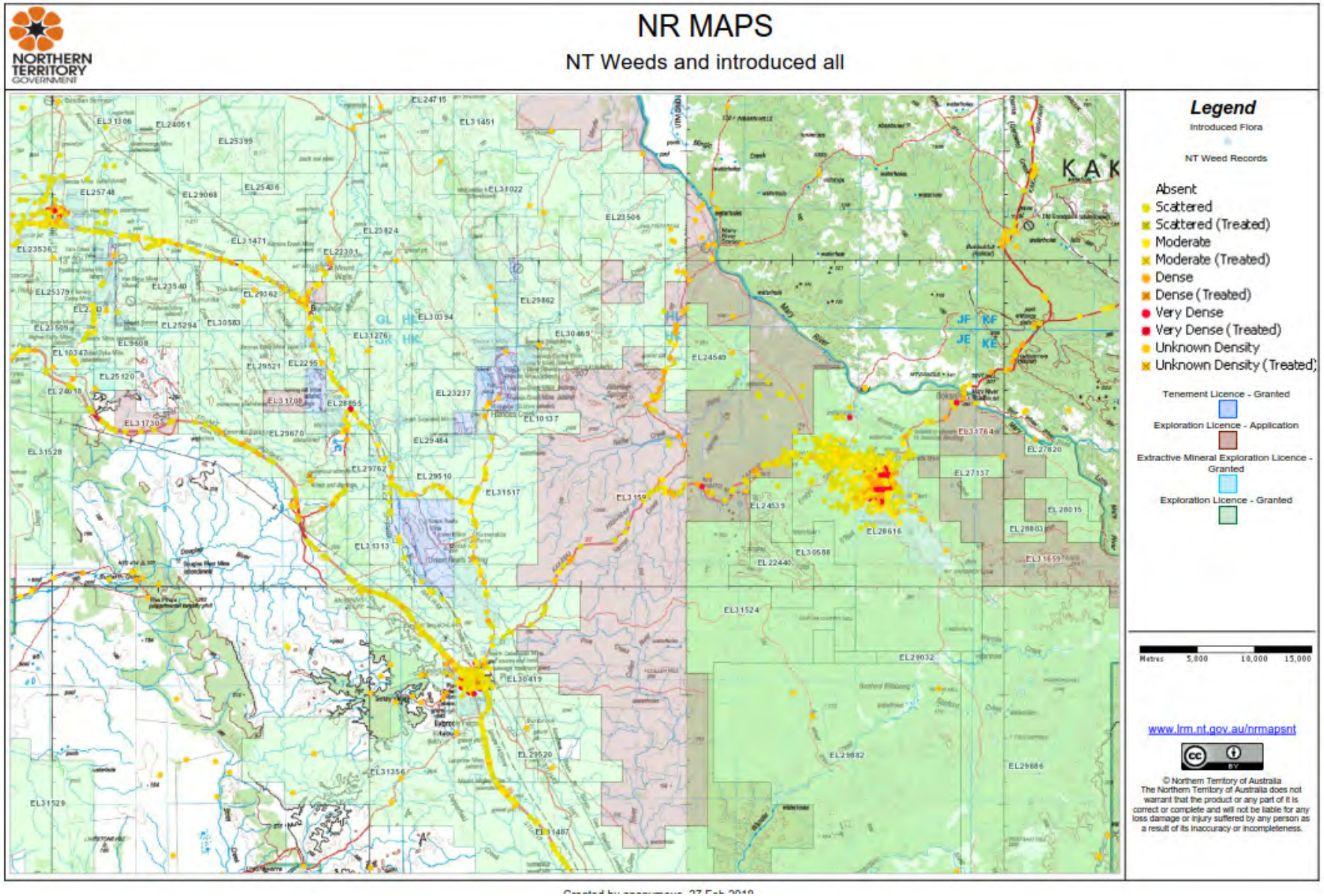


Figure 24 NR Maps search for nearby weeds and pests all tenements

4.4 Current Land Use

The area is currently used for cattle grazing by Pastoral & Perpetual Pastoral leaseholders.

4.5 Historical, Aboriginal, Heritage Sites

All tenements are over perpetual pastoral leases, there is no aboriginal freehold land. The following registered native title claims exist (no determinations).

Table 11 Native Title Claims

Tenement ID	ID	Date Effective
EL31524	DC2001/018	1/03/2001
EL31276, EL31313 & EL31517	DC2001/006	1/02/2001
EL31276 & EL31632	DC2001/021	13/03/2001

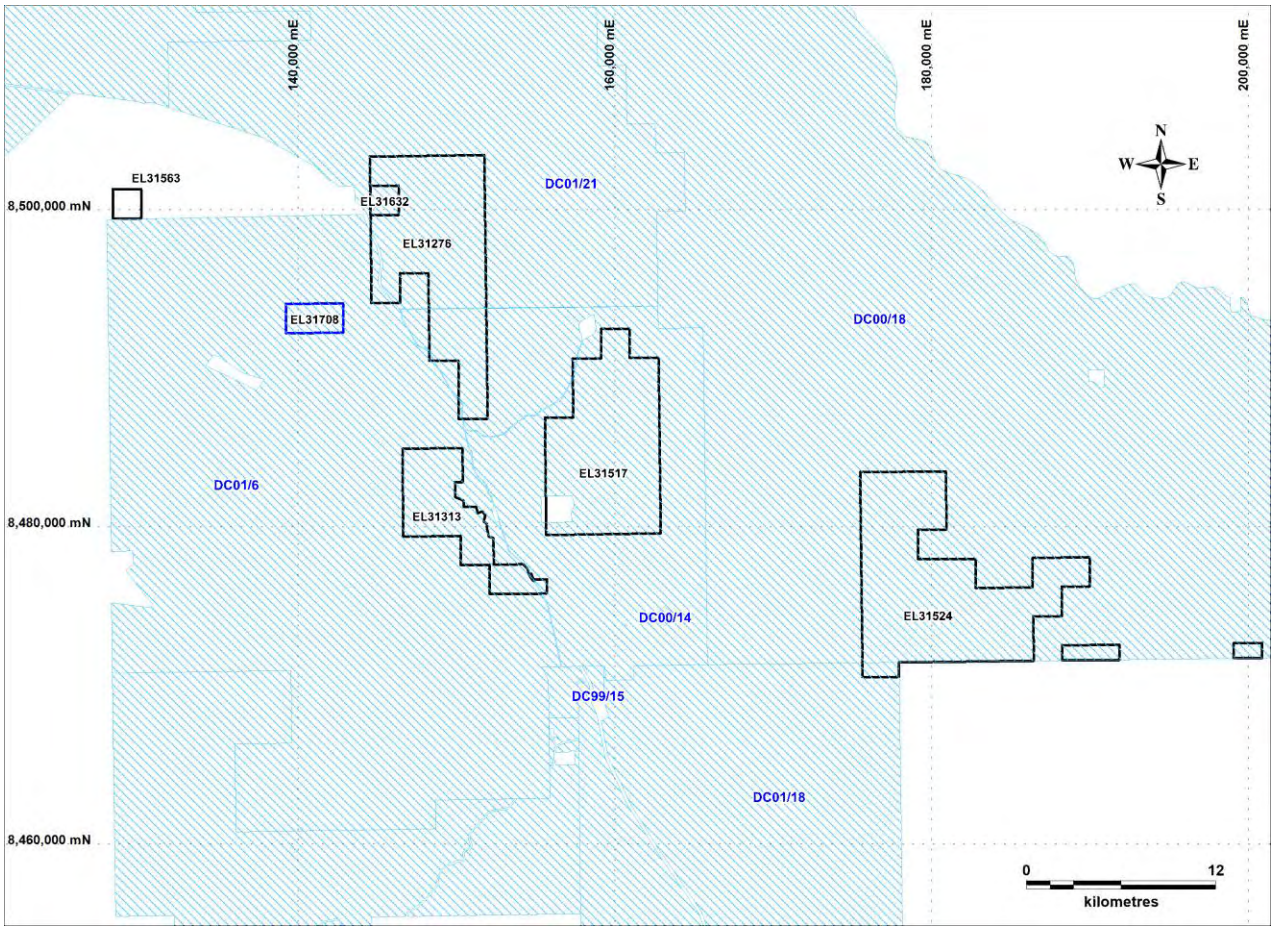


Figure 25 NT applications (blue stripped polgyons) over Rockwash Tenements (black polygons)

'No Go' zones are discussed in the Drill Site Access and Preparation procedure which is included as supporting documentation with this Management Plan and the Induction Manual (Appendix D).

Searches of the Register by the AAPA indicate the following (Appendix B):

- EL31276: No registered or recorded sites.
- EL31313: One recorded sacred site, one restricted work area, procedures to be followed, all proposed work outside of restricted areas and sacred sites (figures in appendix B). All work to avoid sites and restricted areas. A minimum 50m buffer is to be enforced around all sites. Appendix B, Map 2 shows Rockwashes buffer (no go zone) currently at 100m.
- EL31517: No registered or recorded sites.
- EL31524: 3 restricted work areas in north west part of tenement, far from proposed work areas and 1 sacred site. A minimum 50m buffer is to be enforced around all sites. Appendix B map 1 shows the buffer currently at 1km diameter.
- EL31563: No registered or recorded sites.
- EL31632: No registered or recorded sites.

The figures below show the results of the AAPA register search.

For EL31313 and EL31524 a minimum 50m buffer zone will be enforced as no go zones around any sites. All maps showing sacred sites are in appendix B. There is no proposed works within or close to any sites or restricted work areas.

No work is to be done within restricted work areas. 'No Go' zones are discussed in the Exploration Site Access and Preparation procedure which is included as supporting documentation with this Management Plan and the Induction Manual (Appendix D).

Heritage and Archaeological Sites

Results of a search of the NT Archaeological Resources Database for the tenements are attached in Appendix B. There is one declared heritage site located at the Spring Hills Battery Complex within EL31276 and some ELs contain known Aboriginal archaeological sites (Appendix B, Map 3). All sites are away from proposed exploration areas.

50m buffer (no go zones) will be enforced around all heritage and aboriginal archaeological sites as well as sacred sites. Map 3, Appendix B, shows the buffer (no go zone) currently at 1km diameter.

5 ENVIRONMENTAL MANAGEMENT PLAN

Rockwash is dedicated to environmentally responsible operation and aims to achieve minimal environmental impact at its projects. Rockwash's environmental policy and procedures are provided in digital format in Appendix D.

The EMP is comprised of a series of documents outlining the environmental objectives, policies and procedures; which are constantly reviewed and updated as the Company and its activities evolve. The Environmental management plan includes:

- Policies and regulatory requirements
- Risk identification and assessment
- JSA's
- Procedures
- Training and education
- Communication and meetings
- Monitoring
- Hazard identification
- Inspection and audits
- Emergency Response
- Incident Reporting
- Yearly Review
- Reporting
- Stake holder consultation
- Records and Documentation
- Continuous Improvement
- Ongoing meetings, inspections and reporting will 'feedback' into the relevant parts of the EMP resulting in continual improvement and adjustment.

Details for the EMP include:

- Noise and dust hazards (appendix D)
- Hazardous Substance and Waste Management (Section 5.8 and 5.9, Appendix D)
- Soil and land and erosion management (site & access and rehabilitation procedures and site audit forms – Appendix D).
- Native Flora and Fauna Management plan (section 4.3, and Appendix E).
- Pest and Weed management plan and vehicle wash down (section 4.3, Appendix D and E).
- Socio economic and Cultural Heritage management (see section 4.5)
- Rehabilitation management (section 6 and mine access/rehabilitation procedure Appendix D).

Rockwash is dedicated to environmentally responsible operation and aims to achieve minimal environmental impact at its projects. Rockwash's environmental policy is attached in Appendix D.

5.1 Environmental Policy and Responsibilities

At the core of the EMP are the companies policies (Appendix D)

- Rockwash aims to avoid, minimize or remediate environmental impacts to an acceptable standard. Rockwash acknowledges the comment of responsibility under the Mining Management Act and is committed to its "Duty of Care" environmental responsibilities.
- Rockwash endeavours to maintain a record of zero serious environmental incidents during the year.
- Rockwash believes that issues relating to the Environment are value driven leadership behaviours, which should be core to all Rockwash employees. The Managing Director holds the overall responsibility.
- Rockwash is responsible for the implementation and compliance with current statutes and Company policy.
- Each employee is expected to remain informed and proactive in taking care of the environment, as is outlined in Rockwash's Environmental Policy (Appendix D).
- Contractors are expected to have in place their own environmental management systems that address environmental requirements under the Mine Management Act. This is audited by Rockwash.
- All contractors must agree to participate in and comply with Rockwash policies, systems and the EMP.
- Contractors must agree to hold and maintain relevant insurance policies to protect any employees in their company, and copies of insurances are checked before commencement of work.

5.2 Statutory and Non Statutory Requirements

Statutory Requirements

Mining Activities will be conducted under all relevant Acts and Regulations, especially:

State Legislation:

- Aboriginal Land Rights (NT) Act (Commonwealth)
- Aboriginal and Torres Strait Islander Heritage Protection Act (Com)
- Australasia Railway (Special Provisions) Act
- Building Act
- Building Regulations
- Bushfires Act
- Bushfires Regulations
- Control of Roads Act
- Crown Lands Act
- Crown Lands Regulations
- Dangerous Goods Act
- Dangerous Goods Regulations
- Disasters Act

- Electrical Workers and Contractors Act
- Electrical Workers and Contractors Regulations
- Energy Pipelines Act
- Energy Pipelines Regulations
- Environmental Assessment Act
- Environmental Offences and Penalties Act
- Environment Protection and Biodiversity Conservation Act (Com)
- Fences Act
- Heritage Act
- Heritage Regulations
- Lands, Planning and Mining Tribunal Act
- Lands and Mining Tribunal Rules
- Litter Act
- Mineral Royalty Act
- Minerals (Acquisition) Act
- Mineral Titles Act
- Mineral Titles Regulations
- Mining Management Act
- Mining Management Regulations
- Motor Vehicles Act
- Motor Vehicles Regulations
- Motor Vehicles (Standards) Regulations
- Motor Vehicles (Standards) Regulations – Australian Vehicle Standards Rules
- National Environment Protection Measures (Implementation) Act (Com)
- Northern Territory Aboriginal Sacred Sites Act
- Northern Territory Aboriginal Sacred Sites Regulations
- Northern Territory Employment and Training Act
- Parks and Wildlife Commission Act
- Planning Act
- Planning Regulations
- Rail Safety Act
- Rail Safety Regulations
- Soil Conservation and Land Utilisation Act
- Territory Parks and Wildlife Conservation Act
- Territory Parks and Wildlife Conservation By-Laws
- Territory Parks and Wildlife Conservation Regulations
- Traffic Act
- Traffic Regulations
- Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act
- Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Regulations
- Validation (Mining Tenements) Act
- Waste Management and Pollution Control Act
- Waste Management and Pollution Control (Administration) Regulations
- Water Act
- Water Regulations
- Water Supply and Sewerage Services Act
- Water Supply and Sewerage Services Act
- Weeds Management Act
- Work Health and Safety (National Uniform Legislation) Act
- Work Health and Safety (National Uniform Legislation) Regulations

Prior to the commencement of the program a risk management plan will be submitted to NT work safe to assess and manage safety risks that may arise.

Non Statutory Requirements

Rockwash where appropriate will work with the non-government organisations including those listed below:

- NT Bushfire council

- Minerals Council of Australia – NT Division

Rockwash will contact all landowners prior to access and any agreements will be attached in subsequent MMPs (see Section 2: Stakeholders and Consultation).

5.3 Induction & Training

Only suitably competent and experienced personnel will work on the site. All persons will be inducted where they will receive basic training in company policies, environmental requirements and emergency response procedures (Appendix D - induction). All staff will receive supervised on job training in all procedures pertaining to their work area.

Rockwash have established communication procedures (see Appendix D). Weekly Toolbox meetings will highlight any environmental requirements, incidents or hazards and also be used to review company procedures. JHA's will be taught in inductions and used for tasks where procedures have not yet been written.

Ongoing awareness and communication of environmental issues will be reinforced through email notifications and induction programs.

5.4 Identification of Environmental Aspects and Impacts

The risk management plan in Appendix C (RW environmental aspects and risks) identifies all activities associated with the project, actual and potential impacts and significant environmental aspects.

Ongoing risk assessments will occur as part of Rockwash's Environmental Management Plan (section below). Rockwash has a JSA procedure and risk assessment matrix for new jobs and for dealing with identified hazards (attached appendix D).

5.5 Environmental Audits and Inspections

Pre- program, during program and post program Inspections are completed for all programmes (Appendix D), disturbances are documented for rehabilitation. These Workplace inspection forms (Pre/during/post audits – appendix D) are provided to all employees during induction. Monthly workplace inspections are undertaken by supervisors and Contractors. Drill rig and earthmoving equipment inspections are undertaken prior to the commencement of contract work and at regular monthly intervals.

These audits and inspections include environmental considerations (eg. audits with questions pertaining to waste oil containment). Inspection tools such contain corrective actions or '3W' (who, what, when) registers for environmental hazards noted. EMP documentation is reviewed and audited annually under document control.

The audits include consideration of:

- Surface water
- Groundwater
- Invasive species
- Flora and fauna
- Hydrocarbons and hazardous materials
- Waste
- Noise and air quality
- Cultural and heritage sites

- Erosion and sediment control.

For any issues identified during inspections then the corrective action, time frame and responsible person are assigned, normally during the inspection. Time frames will range from immediately to end of exploration programme depending on a risk assessment of the issues and its impact/potential impact. Also a relevant incident report will be completed if required (see reporting). Progress on the corrective actions is monitored monthly.

These forms are checked by the managing director on a monthly basis to ensure corrective actions have been implemented.

Should the inspections or other observations detect 'potential for' or actual adverse trends then remedial/corrective strategies and actions will be implemented and reported in subsequent MMPS.

This could include:

- Increased monitoring
- Modification of causative process
- Employment of consultant environmental specialist
- Cessation of causative process
- Immediate rehabilitation

Relevant EMP Documentation (from Appendix D):
- Exploration Rehabilitation Inspection sheet.pdf
- Noise Guideline.pdf
- Dust & Silica Guideline.pdf
- Induction Manual.pdf (Appendix D)
- Monthly_rig audit_workplace_equipment_Inspection Sheet.pdf (corrective actions listed)
- Pre/During and Post Exploration Program Audit Form.pdf

5.6 Environmental Performance Reporting

Objectives and Targets

Rockwash's main EMP objective is to maintain a record of zero serious environmental incidents during the year. Incident reports are completed if such an incident should occur and logged for reporting on a monthly basis. Attainment of the target objective (zero serious environmental incidents), is defined by the amount of serious incident reports filed (zero). The company aims to keep the objectives S.M.A.R.T.

- **S**pecific and unambiguous, with explicit targets;
- **M**easurable, so that performance can be measured against targets;
- **A**chievable. Does the company have the resources or the capability to meet targets?
- **R**ealistic, so not trying to achieve the impossible; and
- **T**ime-based, so targets can be met within a certain time frame.

Objectives to be met:

- Regular inspections of site completed and results summarised in subsequent MMP's
- All required actions detailed in audits and incident reports addressed and signed off by management.
- No transport of imported species of flora and fauna to/or from work program areas.
- Completion of statutory rehabilitation reports.
- Compliance with environmental guidelines with regards to noise and dust emissions.
- Monitoring and recording of environmental effect of work program for incorporation in future MMPs.
- End of programme rehabilitation inspected and satisfactory.

Details of environmental audits/inspections carried out for the project will be incorporated in future MMPs for this area.

Overall responsibility for meeting performance objectives and management is held by the Managing Director. An experienced supervisor will manage the environmental aspects of the exploration programme. The Managing Director will manage Community relations issues.

Performance Reporting

Rockwash audits its environmental performance based on the following criteria:

Have (will) Environmental Performance Targets been (be) set?
NO ☐ **YES X** ☐

Performance Targets relevant to exploration (outlined in supporting documentation; Site Access & Preparation Procedure, Site Rehabilitation Procedure & Collar Cutting and Plugging Procedure) are the rehabilitation of tracks, pads, costeans and collars where appropriate, removal of waste from site and back-filling sumps as soon as possible after completion of the programme. These targets are measured via the Exploration Rehabilitation Inspection Sheet (also included as supporting documentation to this document). Photos will be taken of the sites, which act as a 'baseline', and photos will be taken after rehabilitation also.

If exploration results are sufficiently encouraging and indicate that further work is warranted during the next field season then some or all of the tracks and pads may be required for this purpose. In this case, rehabilitation will be delayed or modified to prevent erosion over the wet season.

What progress has been made against rehabilitation and closure objectives?
Appropriate audits to be completed, post programme audits and rehabilitation audits. Photos of before, during and after rehabilitation to be taken.

Were there any complaints relating to environmental performance during the previous year?
NO ☐ YES ☐

Were any reviews (eg. audits) conducted through the year?
NO ☐ YES ☐

See section 5.5. Equipment Audits, Pre, during and post drill Audits completed.

Has Environmental Monitoring (eg. water, vegetation, fauna) been done on the site?
NO X ☐ YES ☐

Is there a program for managing industrial waste, oils, greases, domestic waste, and sewage on the site?

NO X ☐ **YES** ☐

All waste from drilling activities will be removed from site for disposal in an approved manner and recycled where possible by the drilling company. Hydrocarbon storage will be in bunded tanks, on bunded pallets or containers placed in lined earthen bunds. Management of hydrocarbon fluids by contractors is audited in the monthly inspection (Appendix D). Contractors are required to have spill kits as part of the pre selection criteria, and monthly inspections (Appendix D).

Are there any other Environmental Performance issues that have been/will be measured?

At this stage it is difficult to foresee environmental performance issues, but reviews and audits (Supporting documentation; Monthly Rig Audit Workplace Equipment Inspection & Exploration Rehabilitation Inspection Sheet, Hazard & Incident Reporting Form attached in Appendix D) will be conducted both during and after programme and other measures may be introduced if reviews/audits indicate a need for further work.

5.7 Emergency Procedures & Incident Reporting

Emergency Response

The emergency response procedure is attached in appendix D.

An overview of the response to potential emergency situations is listed in the table below:

Table 12 Overview of response to potential emergency situations

Nature of the Hazard	Scale	Immediate Response	Communication	Action to Reduce	Assistance
Significant fuel spill	Use of heavy equipment such as diggers and loaders means a large hydrocarbon spill could occur such as hydrolic fluid leak, leaks upto 100litres would be considered large for this programme	Storage procedures means bunding will easily contain complete rupture of tank (the tank will also be self bunded). Potential of large spill outside of bunding is very low however response would include: emergency response procedure, immediate containment/ restriction with easily available earth moving equipment to contain spill with priority to avoid impact on any water courses. Spill mats (in this situation it is expected that the spill exceeds spill mat capacity).	follow empergency response procedure and section 29 with notification of managing director and department where applicatble	Removal of contaminated soil to bioremediation area. Monitoring and rehabiliation of incident site.	Pine Creek Emergency Services where applicatble, employment of relevant consultants if necessary
Fire on site	A potential fire that spreads across community and pastoral land. Could be started by earth moving equipment or hot works such as welding, generators and other continuous operating machines.	fire fighting unit on site at all times, emergency response procedure, installed fire breaks will greatly reduce chance of fire spreading. easily available earth moving equipment to restrict fire from spreading.	follow empergency response procedure and section 29 with notification of managing director and department where applicatble	Monitoring and rehabiliation of incident site if requried as fires are natural events.	Pine Creek Emergency Services where applicatble
Flooding	Flooding is not expected as the programme will be undertaken in the dry season and all equipment removed and costeans filled at end of programme.	All chemicals and hazardous materials to be secured, sealed, contained, or removed from site.	follow empergency response procedure and section 29 with notification of managing director and department where applicatble	Post flood inspection, monitoring and rehabiliation of any incident sites or erosion.	Pine Creek Emergency Services where applicatble, employment of relevant consultants if necessary

Nearby services that can be called on to assist with emergencies include (see Appendix D emergency contact details):

- Pine Creek Emergency Services
- Ban Ban and Mary River West Stations.
- Genat Operations.
- Companies undertaking active exploration in the area.

Emergency response and preparedness is covered at induction (appendix D). All employees are provided with an emergency response procedure and contact numbers. The use and storage of hazardous materials is detailed in the procedure in appendix D. Emergency procedures to handle fuel spills and fires will be required from larger contractors if used, and this will be checked as part of the contractor selection process.

Emergency preparedness and hazard procedures are reviewed and tested throughout the year; during weekly toolbox meetings and formally on a yearly basis.

Hazardous material information will be provided to field crews. Emergency response equipment will be kept in support vehicles (spill kits, neutralizing agents if required etc).

Incident Reporting

The incident report procedure and form (Appendix D) is explained at induction. All incidents, spills or animal mortalities are investigated using this tool. This tool provides guidance and sets dates for corrective actions. The use of a reporting tool helps prevent further incidents. Hazard identification techniques are employed by Rockwash through regular inspections and audits with environmental components. Any actual or potential hazards are registered on the Hazard Register upon discovery or occurrence.

Procedures for reporting serious environmental incidents are outlined at induction. The occurrence of any environmental incident classified as serious would be reported to the Managing Director as soon as is practicable, as is stipulated in Division 4, Section 29 of the Northern Territory Mining Management Act. Any incident that meets a severity class of 2 or greater is to be reported to the Chief Executive Officer of the Department of Resources.

Table 13 Guide to severity classification (Section 29 reporting is required for all incidents identified as being within severity class 2, 3 or 4.).

Severity Class	Physical Environmental Consequence	Social/Cultural Environmental Consequence	Appropriate Actions
1	Unplanned low level impact on the physical environment, health of humans, structures or amenity of site, which was of short duration with no enduring actual or potential harm to the environment. No lasting effect observed or measured. For example: Minimal and reversible impact on any aspect of the environment. No impact on well-being of humans. All products of incident capable of being immediately retrieved or neutralised. No risk of further escape, contamination or injury.	Unplanned low-level impact on social, cultural, heritage conditions or amenity of community, which was of short duration with no enduring actual or potential harm to the environment; For example: Minimal disturbance to heritage items or structures; Minimal disturbance to local community, social or cultural conditions. No lasting effect observed or measured.	Obligation to inspect, assess, monitor for ongoing impact, rehabilitate physical damage, mitigate any damage. Obligation to record in register of incidents and include in annual report to DME. Unlikely to require investigation by Regulator.
2	Unplanned minor environmental impact with some minor actual or potential harm to the environment. For example: A discernible but reversible impact on non-threatened species and their environment, the duration of which is likely to be < 1 month. Minor impact on the well-being of humans which may be left untreated or require only minor short term treatment. All products of incident capable of being safely contained, retrieved or neutralised in short term. Low risk of further escape, contamination or injury.	Unplanned minor impact on social, cultural, heritage conditions or amenity of community, which was of short to medium duration with some enduring actual or potential harm to the environment. For example: People affected by minor loss of amenity or minor reduction of usual conditions; Minor repairable damage to cultural or heritage sites, structures, property and items. Minor disturbance to community, social, cultural conditions, where it is possible to restore conditions in short term. Short term effect observed or measured.	Identify non-compliance with MMA, authorisation, MMP, or operators own management system. Identify procedures to be followed, take appropriate action to contain/minimise impact or harm resulting from incident Obligation to inspect and assess impact of incident, monitor for ongoing impact, rehabilitate physical damage, mitigate any damage. Obligation to record in register of incidents and include in annual report to DME. Obligation to report incident to CEO of DME. Possibility that an Investigation by Regulator will be required.
3	Unplanned moderate environmental impact >1 month duration to non-threatened species in their natural environment. Unplanned moderate impact on the well-being of humans. For example:	Unplanned moderate impact on social, cultural, heritage conditions or amenity of community, which was of medium duration with some enduring actual or potential harm to the environment. For example: People affected by moderate loss of amenity	Identify non-compliance with MMA, authorisation, MMP, or operators own management system. Identify procedures to be followed, take appropriate action to contain/minimise impact or harm resulting from incident. Obligation on operator to investigate

	A moderate impact on non-threatened species and the environment, the duration of which is likely to be > 1 month. A moderate impact on the well-being of humans which requires treatment. All products of incident capable of being safely contained, retrieved or neutralised in medium term. Moderate risk of further escape, contamination or injury.	or moderate reduction of usual conditions; Moderate repairable damage to cultural or heritage sites, structures, property and items. Moderate disturbance to community, social, cultural conditions, where it is possible to restore conditions in medium term. Medium term effect observed or measured.	incident, including inspection and assessment of impact of incident. Obligation to rehabilitate physical damage to environment, mitigate any other damage, including by provision of treatment/services. Obligation to provide continued monitoring for ongoing impact. Obligation to record in register of incidents and include in annual report to DME. Obligation to report incident to CEO of DME. Investigation by Regulator will be required.
4	Unplanned major impact on environment > 1 year duration on ecosystem Unplanned impact on a threatened species or its habitat. Possible, irreversible damage to ecosystem. Unplanned major impact on well-being of humans. For example: A major impact on non-threatened species and the environment, the duration of which is likely to be > 1 month. Any impact on a threatened species or its habitat whether reversible or not. A serious impact on the well-being of humans which requires urgent or long-term treatment. Likelihood of safely containing, retrieving or neutralising products of incident is limited or will require long term action. High risk of further escape, contamination or injury.	Unplanned major impact on social, cultural, heritage conditions or amenity of community, with some enduring actual or potential harm to the environment. For example: People affected by significant loss of amenity or significant reduction of usual conditions; Significant repairable or irreparable damage to cultural or heritage sites, structures, property and items. Significant disturbance to community, social, cultural conditions, where it is possible to restore conditions in the longer term, or where it may not be possible to restore conditions. Long term effect observed or measured.	Identify non-compliance with MMA, authorisation, MMP, or operators own management system. Identify procedures to be followed, take appropriate action to contain/minimise impact or harm resulting from incident. Obligation on operator to investigate incident, including inspection and assessment of impact of incident. Obligation to rehabilitate physical damage to environment, mitigate any other damage, including by provision of treatment/services. Obligation to provide continued monitoring for ongoing impact. Obligation to record in register of incidents and include in annual report to DME. Obligation to report incident to CEO of DME. Investigation by Regulator will be required.

5.8 Waste Management

All waste from exploration activities will be removed from site for disposal in an approved manner and recycled where possible. Hydrocarbon storage will be in bunded tanks, on bunded pallets or containers placed in lined earthen bunds. Management of Hydrocarbons by contractors is audited in the monthly inspection (Appendix D). Earth moving contractors are required to have spill kits as part of the pre-selection criteria, and monthly inspections (Appendix D).

Relevant EMP Documentation (from Appendix D):

- Induction Manual.pdf
- Waste Management Procedure.pdf
- Toolbox Meeting Form.pdf
- Site Rehabilitation.pdf
- Pre/During/Post Programme Audits.pdf

5.9 Hazardous Materials and Hydrocarbon Management

The company has implemented policies and procedures regarding safe storage, transport, and handling of all hazardous goods, including chemicals, hydrocarbons.

Chemicals and hydrocarbon management procedures are covered during Induction for all employees and in the company's EMP documentation, including the Material Safety Data Handbook, site rehabilitation procedures and waste management procedures.

Hydrocarbon storage will be in bunded tanks (a self-bunded, double walled 10,000lt tank will be used for diesel), on bunded pallets or containers placed in lined earthen bunds. Typical hydrocarbons to be stored on site include diesel and petrol fuel for camp generators. Fuel for earthmoving equipment and rigs will be brought in on support vehicles by operators and supplied to machines, rigs and support equipment. Management of drilling fluids by drill contractors is audited in the monthly rig inspection (Appendix D); these are normally contained on support vehicles, and supplies replenished from offsite. Drill contractors are required to have spill kits as part of the pre-selection criteria, and rig inspections monthly rig inspection (Appendix D).

Relevant Documentation:

- *Induction Manual.pdf*
- *Site Rehabilitation.pdf*
- *MSDS Handbook.pdf.*
- *Pre/During/Post Programme Audits.pdf*

6 EXPLORATION REHABILITATION

Rockwash considers the following steps as important in rehabilitation:

- Rehabilitation Planning
- Topsoil Management
- Revegetation Methods
- Fire Management
- Closure Planning
- Rehabilitation Monitoring
- Costing of Closure Activities
- Erosion Management is managed under the site rehabilitation procedures. Ripping along contours, top soil redistribution, stability and re-growth/rehab monitoring are detailed.

The company aims to ensure that after rehabilitation the land can continue to be used for its current/pre-mining usage. At the cessation of the program all equipment will be removed. All compacted areas will be ripped on contour and seeded.

Any introduced weeds will be treated appropriately. Ongoing rehabilitation/ inspections will check for any regrowth or new weeds. Managers of the stations will be involved in the assessment of the completed rehabilitation. The success of the rehabilitation will be assessed by monitoring of erosion and regrowth for two wet season events.

Criteria for assessing regrowth will be:

- No new weeds introduced or growing
- No significant erosion
- No subsidence of backfilled areas
- Regrowth of native flora is established.

Records of rehabilitation inspections will be kept with the companies documents/records and will be submitted with the MMP closure document.

Rehabilitation requirements for the work proposed in this MMP application are listed in the table below:

Disturbance	Rehabilitation Activities	Schedule (Timing)	Closure Objectives / Targets	Monitoring Techniques
Drill Holes	No drilling proposed			
Cleared pads	Return top soil, pads to re-contoured to blend with surrounding topography and ripped across slope, spread cleared vegetation to stop erosion. Remove contaminated soils. Site Access & Preparation.pdf Site Rehabilitation.pdf	Pads will be fully rehabilitated once the costean programme at a site has been completed and no further re-entries or follow-up work is planned. Estimated to be – Oct 2019.	Allow vegetation to regrow and secure surface. No rubbish or contaminated soils.	Check in 6 months after rain season. Remediation to be undertaken if failures found. Photos before and after and at inspections to be taken. Post Program Audit, Rehabilitation Audits. Appendix D
Sumps	Back fill and replace top soil. Site Access & Preparation.pdf Site Rehabilitation.pdf	After completion of each exploration phase before equipment leaves site, October 2018.	Allow vegetation to regrow and secure surface, No contaminated soils.	Check in 6 months after rain season. Remediation to be undertaken if failures found. Photos before and after and at inspections to be taken. Post Program Audit, Rehabilitation Audits. Appendix D
Costeans	Back fill and replace top soil. Site Access & Preparation.pdf Site Rehabilitation.pdf	Costeans backfilled prior to equipment leaving each costean site. Pads will be rehabilitated after completion of programme October 2019.	Allow vegetation to regrow and secure surface, No contaminated soils.	Check in 6 months after rain season. Remediation to be undertaken if failures found. Photos before and after and at inspections to be taken. Post Program Audit, Rehabilitation Audits. Appendix D
bulk sample pits	Nil	Not Applicable.	Not Applicable.	Not Applicable.
Tracks / gridlines	New tracks to be ripped, Landowner will be consulted to see if they want the tracks to remain. Creek crossings to be removed and natural drainages and waterways to be re-established and banks stabilised. Site Access & Preparation.pdf Site Rehabilitation.pdf	Tracks will be fully rehabilitated at the completion of exploration at a prospect. Estimated Oct 2019.	Improve access for local grazier.	Check in 6 months after rain season. Remediation to be undertaken if failures found. Photos before and after and at inspections to be taken. Post Program Audit, Rehabilitation Audits. Appendix D
Sample bags	None left on site	None left on site	None left on site	Post Programme audits
Camp	Backfill any sumps/pits, remove rubbish, make sure there is no contaminated soils. Rip any compacted ground	After the programme has been completed – Oct 2019.	No evidence of camp site.	Pre During and Post Program Audit, Waste Management Procedure Appendix D

Table 14 Rehabilitation Requirements

6.1 Rehabilitation Register

Rockwash will keep a register of all ground disturbances and rehabilitation status and plans. The register will be submitted in subsequent MMP renewals.

Exploration Activities Rehabilitation Summary (Cumulative)											
Reporting period	Tenement	MMP Reference	Drill Holes /Pads (No.)	Drill Holes/ Pads under Rehab (No.)	Drill Line/ Access Track Length (km)	Drill line/access track under Rehab (km)	Camp (ha)	Camp under Rehab (ha)	Costeans /Bulk Samples (No.)	Costeans /Bulk Samples Under Rehab (No.)	Comments

Figure 26 Format of the Cumulative Exploration Activities Rehabilitation Summary

Costean and Bulk Sample Rehabilitation Status									
Tenement	Costean/ Bulk Sample ID	Date Excavated	Dimensions (L x W x D)	Easting (GDA 94 Zone X)	Northing (GDA 94 Zone X)	Status †	Costean Rehab Date	Planned Rehab Date	Comments

† C = rehabilitation completed, N = no rehabilitation completed, PR = partial rehabilitation (specify remaining rehabilitation to be completed within the comments section).

Figure 27 Format of the Costean Rehabilitation Status

7 Costing of Closure Activity

A calculation for the security using the Departments 'Security Calculation Tool' is included in Appendix G.

Table 15: Disturbance Table

Proposed Works	Number	Length (m)	Width (m)	Area Ha
Total number of costeans	49	10	0.9	0.045
Total number of costean pads	49	12	8	0.480
Total number of camps	2	18	18	0.065
Total number of sumps	98	5	3	0.150
Total Km of tracks	7.63	7630	3	2.289
			TOTAL AREA:	**3.029**

Table 16: Summary of Security Calculation

Appendices A – Stake Holder Letters

Files:

Name	Extension
Ban Ban Springs Landower intendedexploration Letter 018.docx	.docx
Douglas Landower intended exploration Letter 2018.docx	.docx
LISTMYFOLDER1.TXT	.TXT
Mary River East Landower intended exploration Letter 2018.docx	.docx
Mary River West Landowner Intended Exploration Letter 2018.docx	.docx
Registeredmailreceipt.pdf	.pdf

Appendices B – AAPA and Heritage Searches

Files:

Name	Extension
AAPA	
el31313J2018-0155.jpg	.jpg
Inspection Reply - Parts of NT Portions 1630 1631 1041 7122 and 695 - 201709242 (1).pdf	.pdf
Reply to Request for Information - EL31313 - 201803035.pdf	.pdf
ROCKWASH PTY LTD AAPA SEARCH OF REGISTER APPLICATION.pdf	.pdf
ROCKWASH_AAPA SEARCH OF REGISTER.jpg	.jpg
HeritageandArchaeology	
All ELs - all archaeological sites.xlsx	.xlsx
SpringHillBatterySite Details.pdf	.pdf
SpringHillBattery_Instrument.pdf	.pdf

Appendix B – Addition

Name	Extension
AppendixBmap1.pdf	.pdf
AppendixBmap2.pdf	.pdf
AppendixBmap3.pdf	.pdf

Appendices C – Environmental Aspects and Risks Assessment

Files:

Environmental Aspects and Impacts Final.pd
RW Environmental Aspects and Impacts Final.xlsxf

Appendices D – Rockwash Policies and Procedures

Files:

Name	Extension
RW Dust & Silica Guideline.pdf	.pdf
RW Emergency Contact List 2017.pdf	.pdf
RW Field Emergency Response Procedure.pdf	.pdf
RW Fire Management Procedure.pdf	.pdf
RW Flora_Fauna_Logbook.pdf	.pdf
RW Hazard and Incident Report Form Template.pdf	.pdf
RW Hazardous Material and Hydrocarbon Management Procedure.pdf	.pdf
RW Head Office Emergency Response Procedure.pdf	.pdf
RW Incident_Investigation_Report.pdf	.pdf
RW Induction Manual.pdf	.pdf
RW Induction Questionnaire.pdf	.pdf
RW JHA_Form.pdf	.pdf
RW Landowner Consultation Procedure.pdf	.pdf
RW Monthly_rig audit_workplace_equipment_Inspection Sheet V1.3.pdf	.pdf
RW Noise Guideline.pdf	.pdf
RW Pre During and Post Program Audit Template V1.4.pdf	.pdf
RW RegionalWeedsIdentificationPictures.pdf	.pdf
RW Riparian Vegetation and Clearing.pdf	.pdf
RW Site & Access Preparation.pdf	.pdf
RW Site Rehabilitation.pdf	.pdf
RW Toolbox Safety Meetings Template.pdf	.pdf
RW Vehicle Washdown Standard.pdf	.pdf
RW Waste Management Procedure.pdf	.pdf
RW Weed Identification and Management.pdf	.pdf
RW Weed-Management-Handbook-2013_web.pdf	.pdf
RW_POLICIESSIGNED020418.pdf	.pdf

Appendices E – Fauna/flora Management Plan

Files:

Folder Path	Name	Extension
EL31276\	NRM Report - ROCKWASH EL31276.pdf	.pdf
EL31276\	Pest animals - ROCKWASH EL31276.pdf	.pdf
EL31276\	Threatened species - ROCKWASH EL31276.pdf	.pdf
EL31276\	Weeds - ROCKWASH EL31276.pdf	.pdf
EL31276\	Wildlife Management - ROCKWASH EL31276.pdf	.pdf
EL31313\	NRM Report - ROCKWASH EL31313.pdf	.pdf
EL31313\	Pest animals - ROCKWASH EL31313.pdf	.pdf
EL31313\	Threatened species - ROCKWASH EL31313.pdf	.pdf
EL31313\	Weeds - ROCKWASH EL31313.pdf	.pdf
EL31313\	Wildlife Management - ROCKWASH EL31313.pdf	.pdf
EL31362\	NRM Report - ROCKWASH EL31632.pdf	.pdf
EL31362\	Pest animals - ROCKWASH EL31632.pdf	.pdf
EL31362\	Threatened species - ROCKWASH EL31632.pdf	.pdf
EL31362\	Weeds - ROCKWASH EL31632.pdf	.pdf
EL31362\	Wildlife Management - ROCKWASH EL31632.pdf	.pdf
EL31517\	NRM Report - ROCKWASH EL31517.pdf	.pdf
EL31517\	Pest animals - ROCKWASH EL31517.pdf	.pdf
EL31517\	Threatened species - ROCKWASH EL31517.pdf	.pdf
EL31517\	Weeds - ROCKWASH EL31517.pdf	.pdf
EL31517\	Wildlife Management - ROCKWASH EL31517.pdf	.pdf
EL31524\	NRM Report - ROCKWASH EL31524.pdf	.pdf
EL31524\	Pest animals - ROCKWASH EL31524.pdf	.pdf
EL31524\	Threatened species - ROCKWASH EL31524.pdf	.pdf
EL31524\	Weeds - ROCKWASH EL31524.pdf	.pdf
EL31524\	Wildlife Management - ROCKWASH EL31524.pdf	.pdf
EL31563\	NRM Report - ROCKWASH EL31563.pdf	.pdf
EL31563\	Pest animals - ROCKWASH EL31563.pdf	.pdf
EL31563\	Threatened species - ROCKWASH EL31563.pdf	.pdf
EL31563\	Weeds - ROCKWASH EL31563.pdf	.pdf
EL31563\	Wildlife Management - ROCKWASH EL31563.pdf	.pdf
FaunaMaps\	FaunaEL31313.pdf	.pdf
FaunaMaps\	FaunaEL31517.pdf	.pdf
FaunaMaps\	FaunaEL31524.pdf	.pdf
FaunaMaps\	FaunaEL31563.pdf	.pdf
FaunaMaps\	FaunaEL31726_EL31631_EL31708.pdf	.pdf
FloraMaps\	Flora-EL31276EL31632.pdf	.pdf
FloraMaps\	Flora-EL31313.pdf	.pdf
FloraMaps\	Flora-EL31517.pdf	.pdf
FloraMaps\	Flora-EL31524.pdf	.pdf
FloraMaps\	FLora-EL31563.pdf	.pdf
Weed_Pestsmaps\	NTWEEDS_EL31276_EL31631.pdf	.pdf
Weed_Pestsmaps\	NTWEEDS_EL31313.pdf	.pdf
Weed_Pestsmaps\	NTWEEDS_EL31517.pdf	.pdf
Weed_Pestsmaps\	NTWEEDS_EL31524.pdf	.pdf
Weed_Pestsmaps\	NTWEEDS_EL31563_31708.pdf	.pdf
Weed_Pestsmaps\	weedsandpests_allRockwash.pdf	.pdf

Appendices F – Proposed Exploration

Files:

FinalMMPcosteans_Z52andZ53Grids.xlsx
MAPINFOFILES:
Rockwash_Proposed_Trench_Z52.DAT
Rockwash_Proposed_Trench_Z52.ID
Rockwash_Proposed_Trench_Z52.MAP
Rockwash_Proposed_Trench_Z52.TAB
Rockwash_Proposed_Trench_Z53.DAT
Rockwash_Proposed_Trench_Z53.ID
Rockwash_Proposed_Trench_Z53.MAP
Rockwash_Proposed_Trench_Z53.TAB

Appendices G – Security calculation

Files:

ROCKWASH MMP af7-014-exploration-security-calculation-tool 220318.xlsx

Appendices H – Water Bore Data

Files:

Name	Extension
RN005488.pdf	.pdf
RN007180.pdf	.pdf
RN009141.pdf	.pdf
RN020452.pdf	.pdf
RN021538.pdf	.pdf
RN025154.pdf	.pdf
RN025571.pdf	.pdf
RN026319.pdf	.pdf
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