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18th August, 2015

**Targeted Search for Malleefowl Mounds and Western Spiny-tailed Skink
Habitat associated with Clearing Permit 5202/3**

Dear Lee-Anne,

Metals X recently commissioned MWH Australia Pty Ltd (MWH) to undertake a targeted survey for Malleefowl (*Leipoa ocellata*) Mounds and Western Spiny-tailed Skink (*Egernia stokesii badia*) habitat associated with Clearing Permit 5202/3. The Study Areas for this survey comprised three areas associated with the Day Dawn mining area: Great Fingall, South Fingall and Yellow Taxi (**Figure 1**). The overarching objective of this work was to comply with Conditions 8 and 9 of Clearing (Purpose) Permit 5202/3, and to record any locations consistent with Condition 10 (**Appendix A**).

The Malleefowl is listed as Vulnerable (EPBC Act) and Schedule 1 (WC Act). The species tends to occur in dense shrublands and low woodlands which may provide leaf litter suitable for use in the construction of nesting mounds (DoE 2015).

The Western Spiny-tailed Skink listed as Endangered (EPBC Act) and Schedule 1 (WC Act). In the Murchison region the species occurs as a black form that inhabits small, isolated stands of granite and larger more extensive clusters of rock (DoE 2015). The black form of the Murchison is distinct from the brown form that occurs from the wheatbelt area and Shark Bay which inhabits tree hollows in woodland dominated by York Gum (*Eucalyptus loxophleba*), and sometimes in Gimlet (*E. salubris*) and Salmon Gum (*E. salmonophloia*) (DoE 2015).

Methods

The survey of the three Study Areas was undertaken on 13 July 2015 by Paul Bolton (Zoologist) and Clinton van den Bergh (Botanist) of MWH. As per the Clearing Permit 5202/3, targeted searches were undertaken for Malleefowl mounds (Condition 8) and for habitat/habitat tree(s) suitable to be utilised by the Western Spiny-tailed Skink (Condition 9).

Access throughout the Study Areas was good as a result of historic mining tracks and all areas were able to be suitably covered by vehicle and by foot (**Figure 1**). Searches were undertaken on foot in more dense vegetation. Habitat assessments were completed and photographs taken at points within each Study Area to capture a representation of the habitats and condition present.

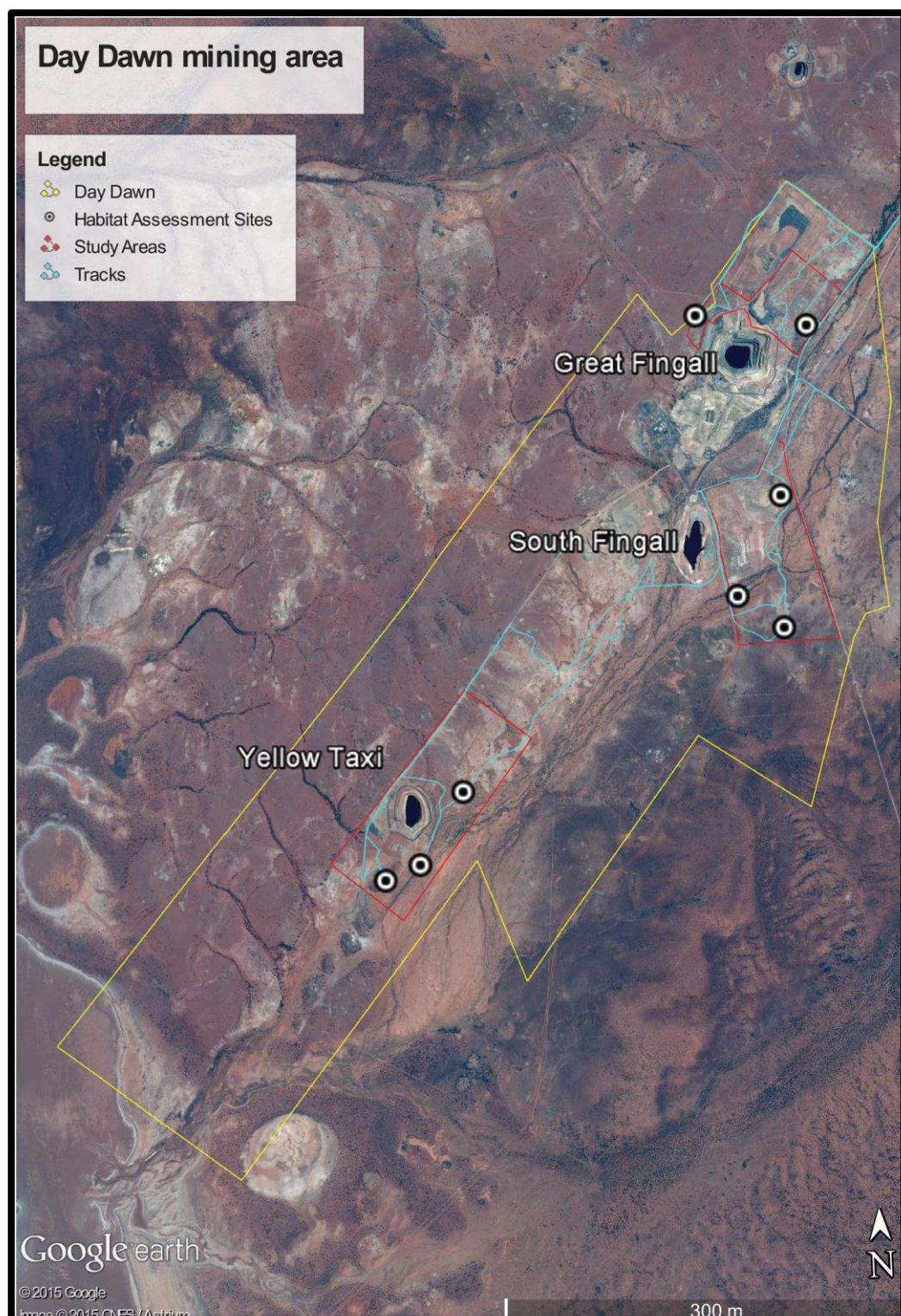


Figure 1: The Day Dawn mining area incorporating the Great Fingall, South Fingall and Yellow Taxi Study Areas

Results

Large proportions of each Study Area was made up of land that had been disturbed or modified as a result of historic mining. The disturbances and modifications within the Study Areas comprised of waste rock landforms, open pits, cleared land, tracks, bunds, berms and weeds. The occurrence of habitats in each Study Area is presented in **Table 1**.

Table 1: habitat types and their occurrence in the Study Areas

Habitat	Photograph	Occurrence		
		Great Fingall	South Fingall	Yellow Taxi
Chenopod shrubland (stony or clay plain)	Figure 2	✓	✓	✓
Drainage line	Figure 3	✗	✓	✓
Stony Rise	Figure 4	✗	✗	✓



Figure 2: Chenopod shrubland on stony or clay plain habitat at Great Fingall



Figure 3: Drainage Line habitat within the Fingall South Study Area



Figure 4: Stony Rise habitat within the Yellow Taxi Study Area

No Malleefowl mounds were found within the three Study Areas and habitats within the Study Areas were not considered suitable for the species. Both the Chenopod shrubland and Stony rise habitats were too open to provide adequate cover for the species or provide adequate leaf litter for mound building. The Drainage Line habitat at Fingall South and Yellow Taxi, although made up of denser vegetation than the surrounds, was too limited in the landscape to support the species. No evidence of the Malleefowl was recorded during the survey and the species is considered unlikely to occur in the Study Areas due to a lack of suitable habitat.

No areas of granite outcropping were present within the Study Areas that could be considered suitable for the Murchison form of the Western Spiny-tailed Skink. The Yellow Taxi Study Area contained Stony Rise habitat, however the size of the rocks (6-20cm in diameter) were not large enough to provide suitable cover for the species. Additionally, as requested in the clearing permit, a search for habitat trees was undertaken however none were present of a suitable size for the wheatbelt form of the species and it is unlikely that the wheatbelt form occurs in the region. No evidence of the Western Spiny-tailed Skink was recorded during the survey and the species is unlikely to occur in the Study Areas due to a lack of suitable habitat.

Conclusion

An appropriate survey by a fauna specialist was undertaken for Malleefowl mounds and Western Spiny-tailed Skink habitat / habitat trees within three Study Areas over the Day Dawn Project Area. The survey complied with Conditions 8 and 9 of Clearing (Purpose) Permit 5202/3 to record any locations consistent with Condition 10. No evidence of either species was recorded over the Study Areas and habitat of suitable size and quality is not present.

Yours sincerely,



Paul Bolton
Terrestrial Fauna – Team Lead
MWH Australia Pty Ltd

References

DoE (2015). Species Profile and Threats Database: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl> Accessed 7th July 2015

Appendix A

Clearing (Purpose) Permit 5202/3



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number: 5202/3

Duration of Permit: From 5 January 2013 to 5 January 2018

Permit Holder: Big Bell Gold Operations Pty Ltd

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I - CLEARING AUTHORISED

1. Land on which clearing is to be done

Mining Lease 20/17
Mining Lease 20/21
Mining Lease 20/78
Mining Lease 20/99
Mining Lease 20/171
Mining Lease 20/192
Mining Lease 20/202
Mining Lease 20/252
Mining Lease 20/354
Mining Lease 21/7
Mining Lease 21/14
Mining Lease 21/44
Mining Lease 21/49
Mining Lease 21/65
Mining Lease 21/75
Mining Lease 21/89
Mining Lease 21/96
Miscellaneous Licence 20/21
Miscellaneous Licence 20/40

2. Purpose for which clearing may be done

Clearing for the purposes of mineral production.

3. Area of Clearing

The Permit Holder must not clear more than 80 hectares of native vegetation. All clearing must be within the areas cross-hatched or shaded yellow on attached Plans 5202/3A and 5202/3B.

4. Clearing not authorised

The Permit Holder shall not clear any native vegetation within the area shaded red on attached Plan 5202/3B.

5. Staged Clearing

The Permit Holder shall not clear native vegetation unless the purpose for which the clearing is authorised is enacted within 3 months of the clearing being undertaken.

6. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II - MANAGEMENT CONDITIONS

7. Weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

8. Fauna Management

- (a) Prior to undertaking any clearing authorised under this Permit, the areas shall be inspected by a *fauna specialist* for the presence of *Leipoa ocellata* (Malleefowl) mounds.
- (b) Where *Leipoa ocellata* (Malleefowl) mounds are identified in relation to Condition 8(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 50 metres of the identified *Leipoa ocellata* (Malleefowl) mounds, unless first approved by the *CEO*.

9. Fauna Management

- (a) Prior to undertaking any clearing authorised under this Permit, the areas shall be inspected by a *fauna specialist* who shall identify habitat/*habitat tree(s)* suitable to be utilised by *Egernia stokesii badia* (Western Spiny-tailed Skink) .
- (b) Prior to clearing, any habitat/*habitat tree(s)* identified by Condition 9(a) shall be inspected by a *fauna specialist* for the presence of fauna listed in Condition 9(a).
- (c) Where fauna are identified in relation to Condition 9(b) of this Permit, the Permit Holder shall ensure that:
 - (i) no clearing of the identified habitat/*habitat tree(s)* occurs, unless first approved by the *CEO*; and
 - (ii) no clearing occurs within 50 metres of the identified habitat/*habitat tree(s)* unless first approved by the *CEO*.

PART III - RECORD KEEPING AND REPORTING

10. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit,
 - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the date that the area was cleared;
 - (iii) the size of the area cleared (in hectares); and
 - (iv) purpose for which clearing was undertaken.
- (b) In relation to fauna management pursuant to Condition 8 of this Permit:
 - (i) the location of each *Leipoa ocellata* (Malleefowl) mound recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
 - (ii) a copy of the *fauna specialists* report

(c) In relation to fauna management pursuant to Condition 9 of this Permit:

- (i) the location of each habitat/*habitat tree* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
- (ii) a copy of the *fauna specialists* report

11. Reporting

- (a) The Permit Holder shall provide a report to the Director Operations, Environment, Department of Mines and Petroleum by 1 October each year for the life of this permit, demonstrating adherence to all conditions of this permit, and setting out the records required under Condition 10 of this permit in relation to clearing carried out between 1 July and 30 June of the previous financial year.
- (b) Prior to 5 January 2018, the Permit Holder must provide to the Director Operations, Environment, Department of Mines and Petroleum a written report of records required under Condition 10 of this Permit where these records have not already been provided under Condition 11(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department of Environment Regulation or an Officer with delegated authority under Section 20 of the *Environmental Protection Act 1986*;

fauna specialist: means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the *CEO* as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Wildlife Conservation Act 1950*;

fill means material used to increase the ground level, or fill a hollow;

habitat tree(s) means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater, that contains or has the potential to develop hollows or roosts suitable for native fauna;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant –

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Parks and Wildlife Regional Weed Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.

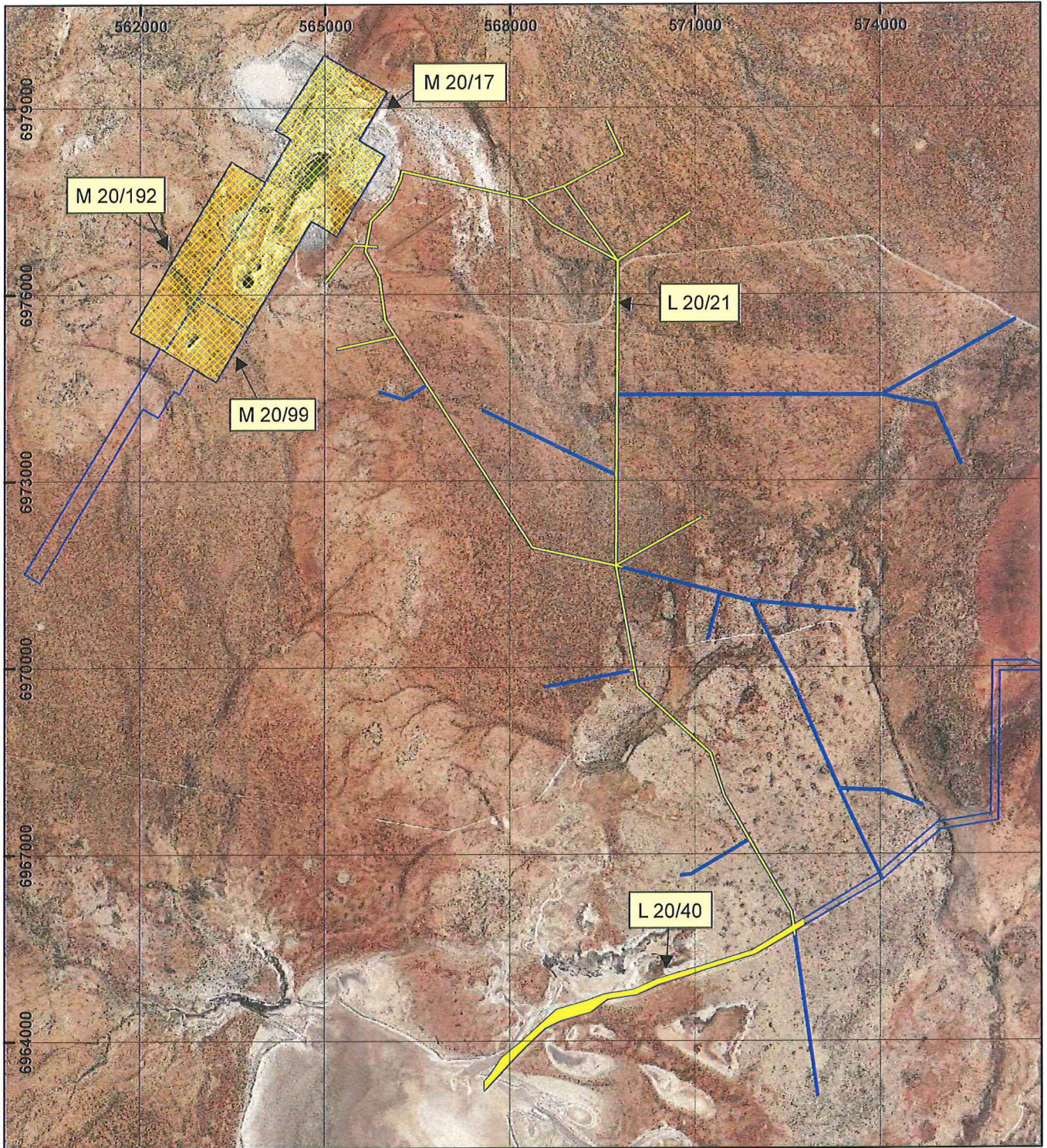


Virginia Simms
A/DIRECTOR OPERATIONS
ENVIRONMENT
DEPARTMENT OF MINES AND PETROLEUM

Officer with delegated authority under Section 20
of the *Environmental Protection Act 1986*

13 August 2015

PLAN 5202/3A



LEGEND

- Mining Tenements
- Clearing Instruments
- Areas Approved to Clear
- Areas Approved to Clear



Scale 1:90,000
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Virginia Simms Date 13/8/2015
VIRGINIA SIMMS

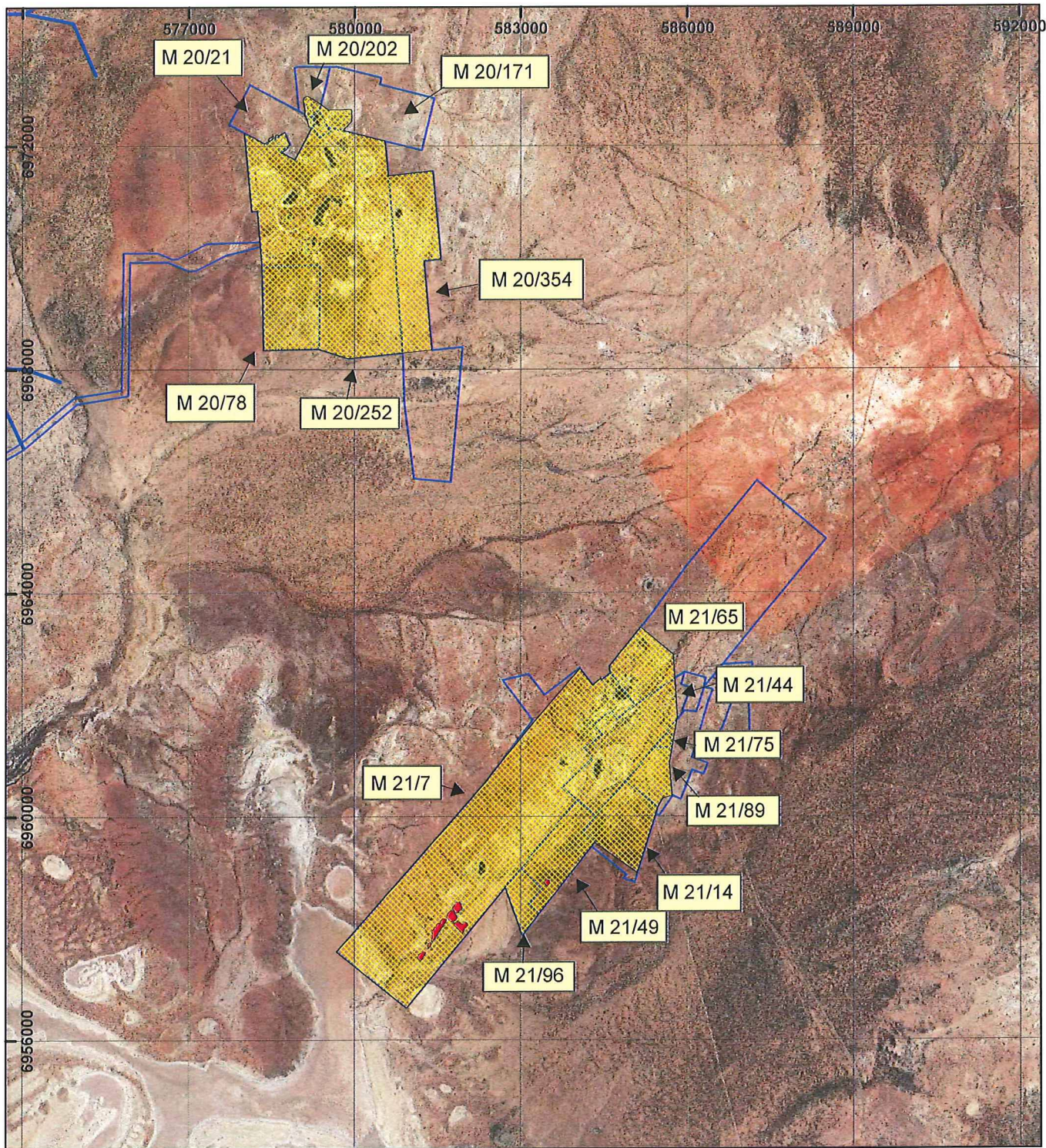
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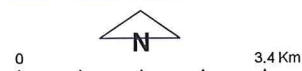
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PLAN 5202/3B



LEGEND

- Mining Tenements
- Clearing Instruments
- Areas Approved to Clear



Scale 1:100,000
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Virginia Simms Date 13/8/2015
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