



**HASTINGS**  
Technology Metals Limited

**APPENDIX 6-1**

**Visual impact assessment**



# Yangibana Rare Earth Mines Visual Impact Assessment



Hastings Rare Metals



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**Yangibana Rare Earth Mines Visual Impact Assessment**  
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# 1 VISUAL IMPACT ASSESSMENT

The objective of the visual impact assessment (VIA) was to establish the potential visible project area from sites accessible to the public and the surrounding homesteads. To determine the potential visual impact a desktop viewshed analysis was undertaken. 'Seen area' or viewshed analysis is a tool performed using a Geographic Information System computer program, in this case ArcGIS 10.

A viewshed analysis calculates the areas that are theoretically visible from an observation point using a set of user defined parameters such as height of observer, height of target and the extent and angle of the viewing area. The analysis uses a surface elevation derived from a digital elevation model (DEM). The output is therefore dependent on the quality of the input surface. In this case the DEM had a pixel/cell size of 30 metres. The Shuttle Radar Topography Model (SRTM) data set was sourced from Geoscience Australia (<https://data.gov.au/dataset/srtm-derived-1-second-digital-elevation-models-version-1-0>).

Vegetation screening and built form are not considered in the seen area calculation.

In Maps 1 – 5 a colour gradient has been used to indicate the visible areas in each analysis. The colour of the gradient indicates the number of viewpoints from which the area can be seen (the darker the colour, the more viewpoints).

## 1.1 VIEWSHED FROM HOMESTEADS

Viewsheds were calculated from the homesteads within a 100km buffer of the Yangibana project area, including:

- Ashburton Downs
- Cobra
- Dooley Downs
- Edmund
- Eudamullah
- Gifford Creek
- Lyndon
- Mangaroon
- Maroonah
- Minnie Creek
- Moogooree
- Mount Augustus
- Mount Phillips
- Mount Sandiman
- Ullawarra
- Wanna
- Williambury
- Yinnetharra.

The viewshed analysis (Map 1) combines all seen areas from all of the homesteads listed above. The outcome of the analysis demonstrates that only a small portion (approximately 10%) of the overall project area can be seen from at least one of the surrounding homesteads. The areas that can potentially be seen are the tailings storage facility (TSF) and pits.

A second viewshed analysis was undertaken using only the closest homesteads to the site; Edmund and Gifford Creek (Map 5). This analysis confirmed that these are the only two homesteads with significant views into the site.

## 1.2 VIEWSHED FROM PUBLIC AREAS

Viewsheds were calculated from significant publicly accessible sites within a 100km buffer of the Yangibana project area, including:

- Mount Augustus lookout
- Cobra Station

Mount Augustus was chosen as it is the highest point within the 100km buffer and a tourist attraction within the area. The viewshed analysis demonstrates that the tailings storage facility (TSF), roads, camp and pits will be potentially seen from this viewpoint. However, as the site is approximately 80km from Mount Augustus it is unlikely the proposed works will have a significant visual impact (Map 2).

Cobra Station (Cobra) was chosen as it is a historically significant site and tourist attraction within the area. The viewshed analysis demonstrates that none of project area can be seen from Cobra (Map 3).

### 1.3 VIEWSHED FROM ROADS

Viewsheds were also calculated from the public roads within a 100km buffer of the Yangibana project area, including:

- Cobra Gifford Creek Road (Local Distributor)
- Cobra Mount Augustus Road (Regional Distributor)
- Dooley Downs Road (Access Road).

Approximately 40% of the site is visible from some point along these roads, with views to the tailings storage facility (TSF), roads, camp and pits. Cobra-Gifford Creek Road runs through the western edge of the Yangibana project area, and accordingly this area has the highest concentration of visible areas, (Map 4).

No traffic data was available to verify which roads have higher traffic volume.

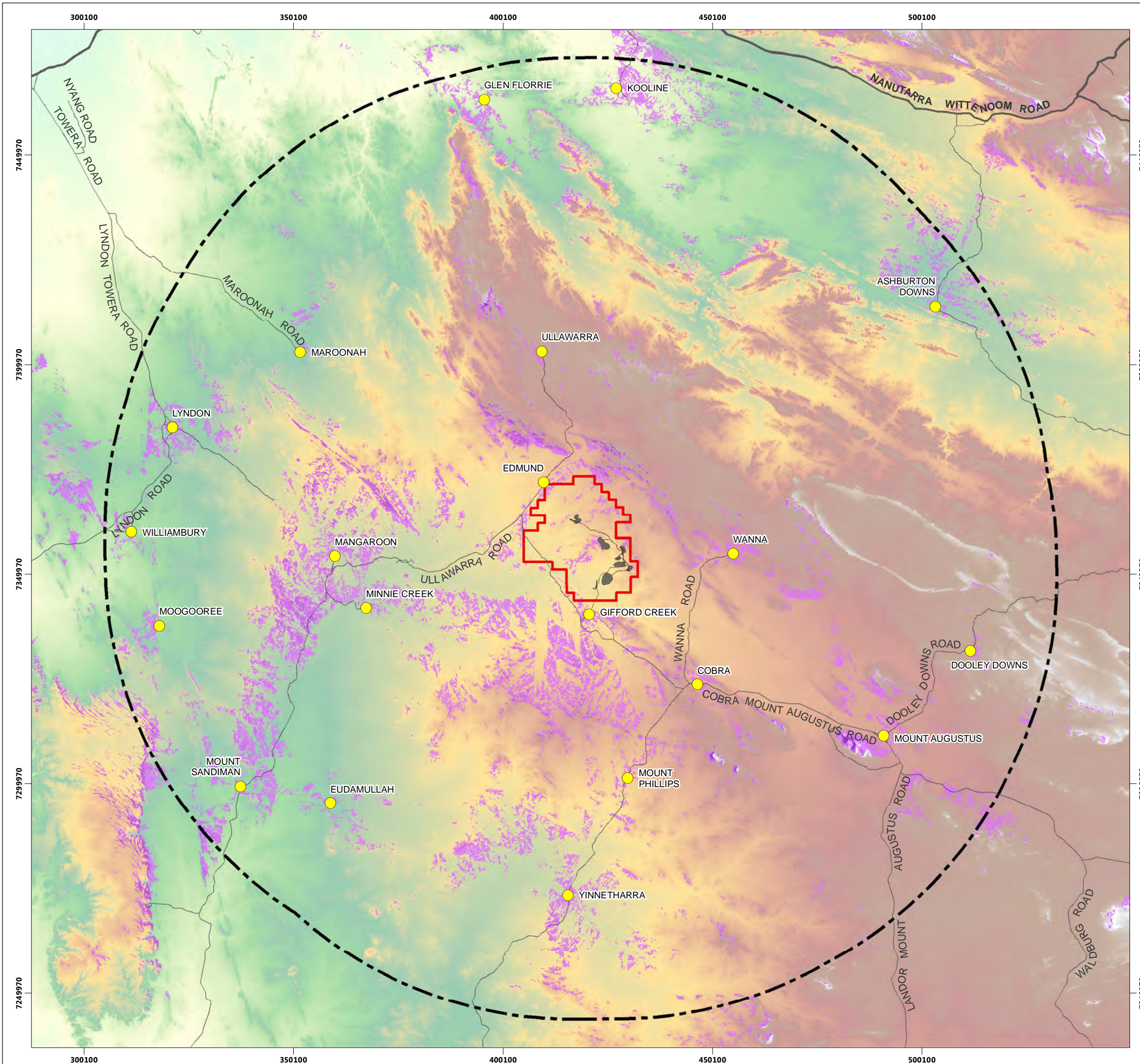
### CONCLUSION

The Yangibana Project Area is characterised by relatively flat and uniform landforms and low vegetation. However, the results of the VIA indicate that relatively small proportions of the Project Area infrastructure will be visible from public roads and the surrounding stations. The Project Area will be visible from Mount Augustus but due to the distance from the site this is regarded as having minimal visual impact.

In summary, the Yangibana Project infrastructure and associated mining operations are expected to have very low visual impacts based on the viewshed analysis, the remoteness of the project area and the comparatively low local population and visitor numbers.

# MAPS

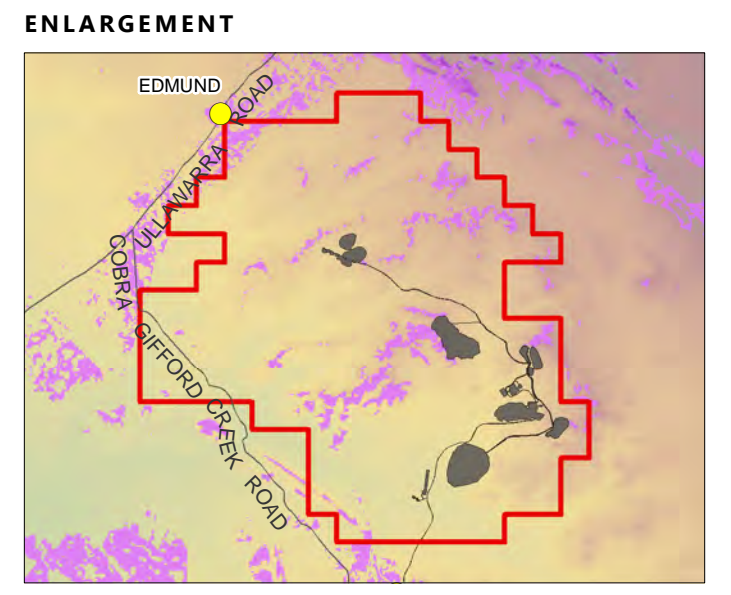
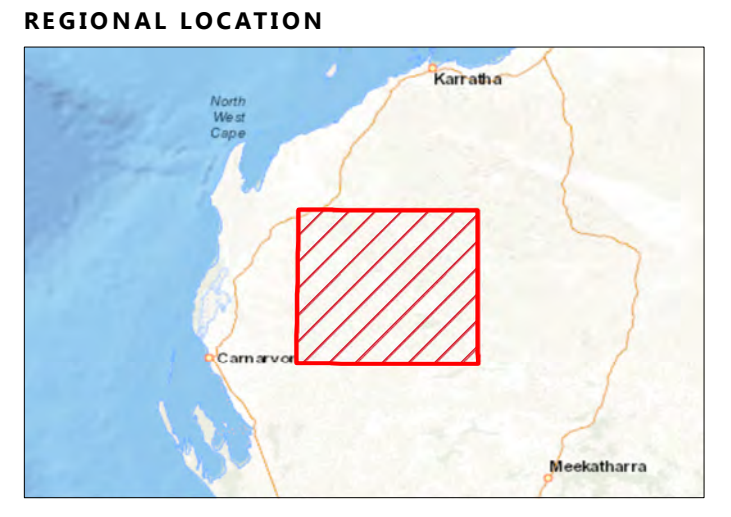




**LEGEND**

- Observer (Yellow dot)
- Principal Road (Thick grey line)
- Secondary Road (Medium grey line)
- Minor Road (Thin grey line)
- Yangibanna Project Area (Red outline)
- 100 km buffer (Dashed black line)
- Visible from High: 11 (Purple gradient)
- Visible from Low: 1 (Dark purple)
- Infrastructure (Dark grey area)
- Elevation (m AHD) High: 1203.36 (Brown)
- Elevation (m AHD) Low: 22.0886 (Green)

**DATA SOURCES:**  
 ELEVATION - GEOSCIENCE AUSTRALIA 1 SECOND SRTM  
 TOPOGRAPHIC MAPPING - GEOSCIENCE AUSTRALIA GEODATA TOPO 250K SERIES 3



**VIEWSHED ANALYSIS PASTORAL HOMESTEADS WITHIN 100 KM**  
**YANGIBANNA RARE EARTHS MINE**  
**HASTINGS TECHNOLOGY METALS LTD**

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50  
 PROJECTION: TRANSVERSE MERCATOR  
 DATUM: GDA 1994  
 UNITS: METER

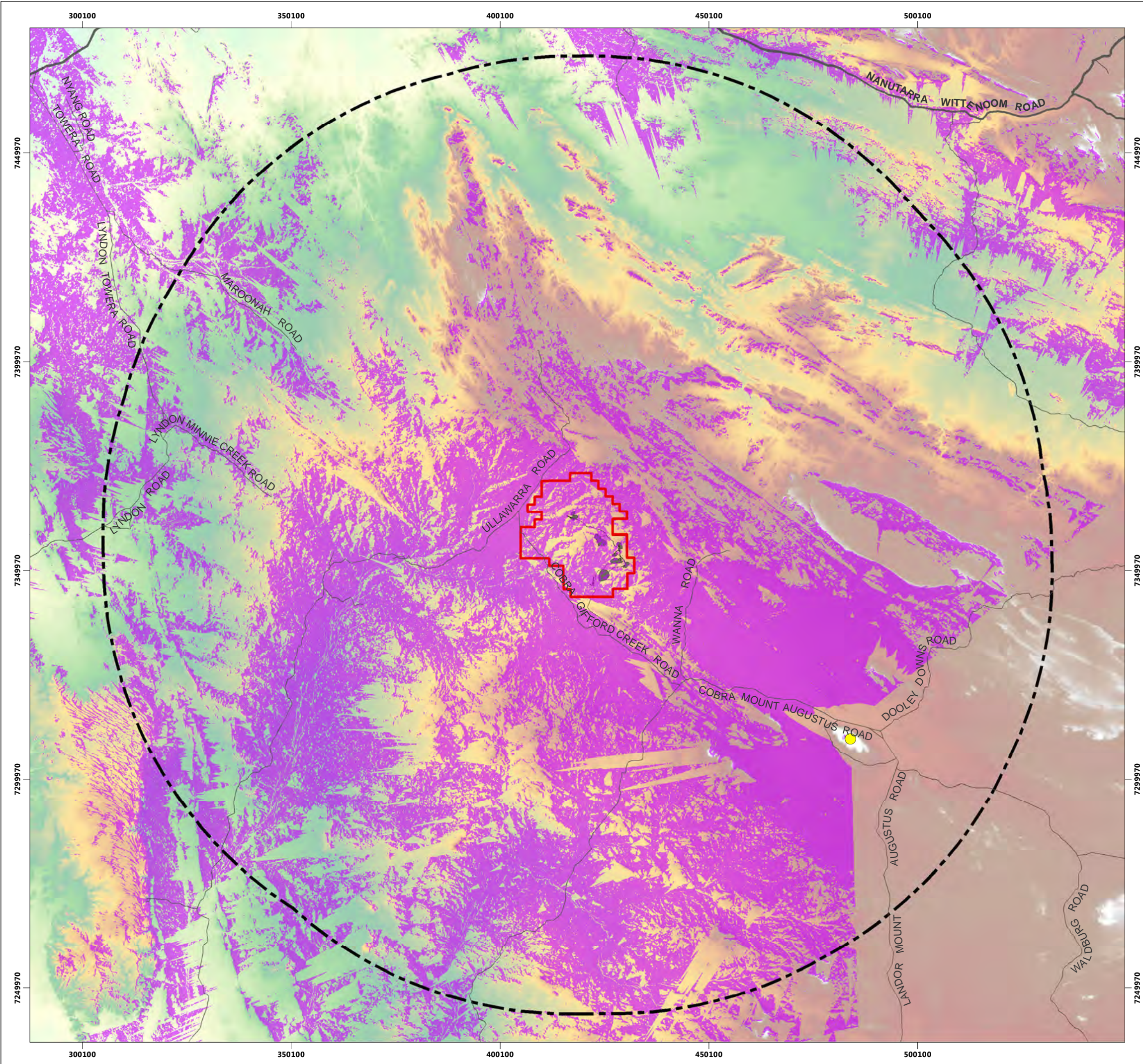
SCALE: 1:900,000 @ A3

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**MAP 01**





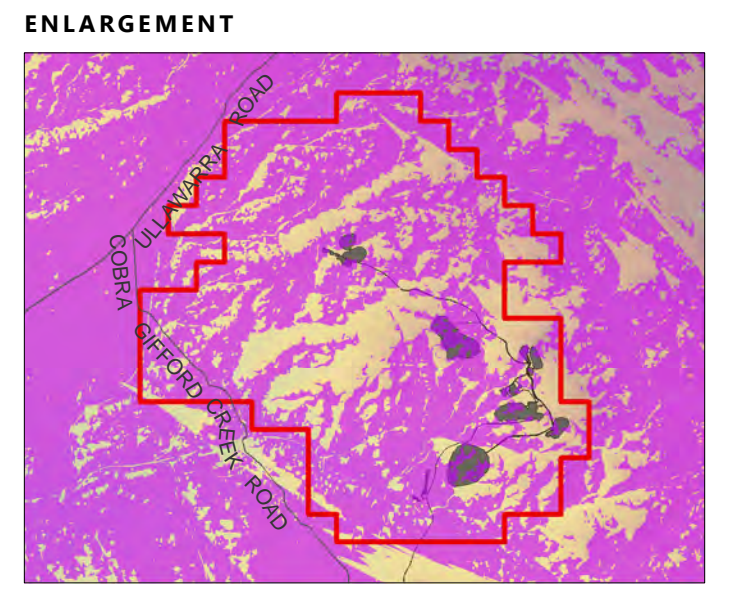
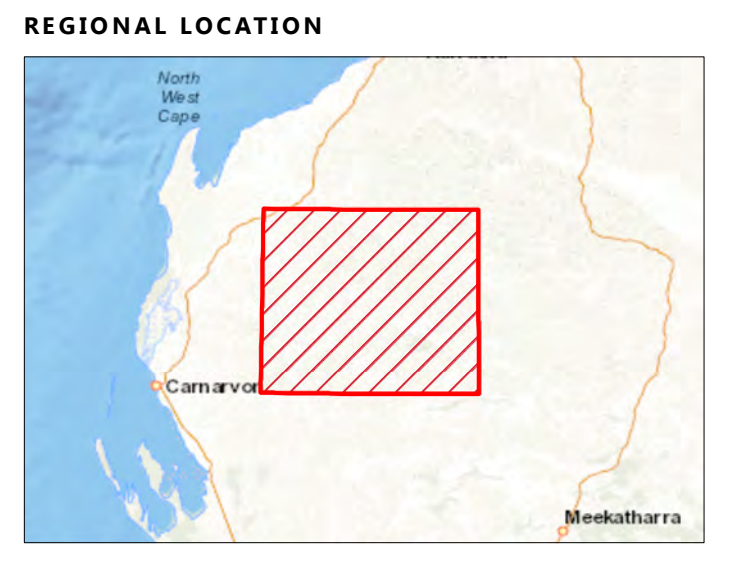
**LEGEND**

- Observer
- Principal Road
- Secondary Road
- Minor Road
- Yangibanna Project Area
- 100 km buffer
- Visible Areas
- Infrastructure

**Elevation (m AHD)**

- High : 12033.6
- Low : 22.0886

**DATA SOURCES:**  
 ELEVATION - GEOSCIENCE AUSTRALIA 1 SECOND SRTM  
 TOPOGRAPHIC MAPPING - GEOSCIENCE AUSTRALIA GEODATA TOPO 250K SERIES 3



**VIEWSHED ANALYSIS  
 MOUNT AUGUSTUS HIGH POINT  
 YANGIBANNA RARE EARTHS MINE**

**HASTINGS TECHNOLOGY METALS LTD**

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50  
 PROJECTION: TRANSVERSE MERCATOR  
 DATUM: GDA 1994  
 UNITS: METER

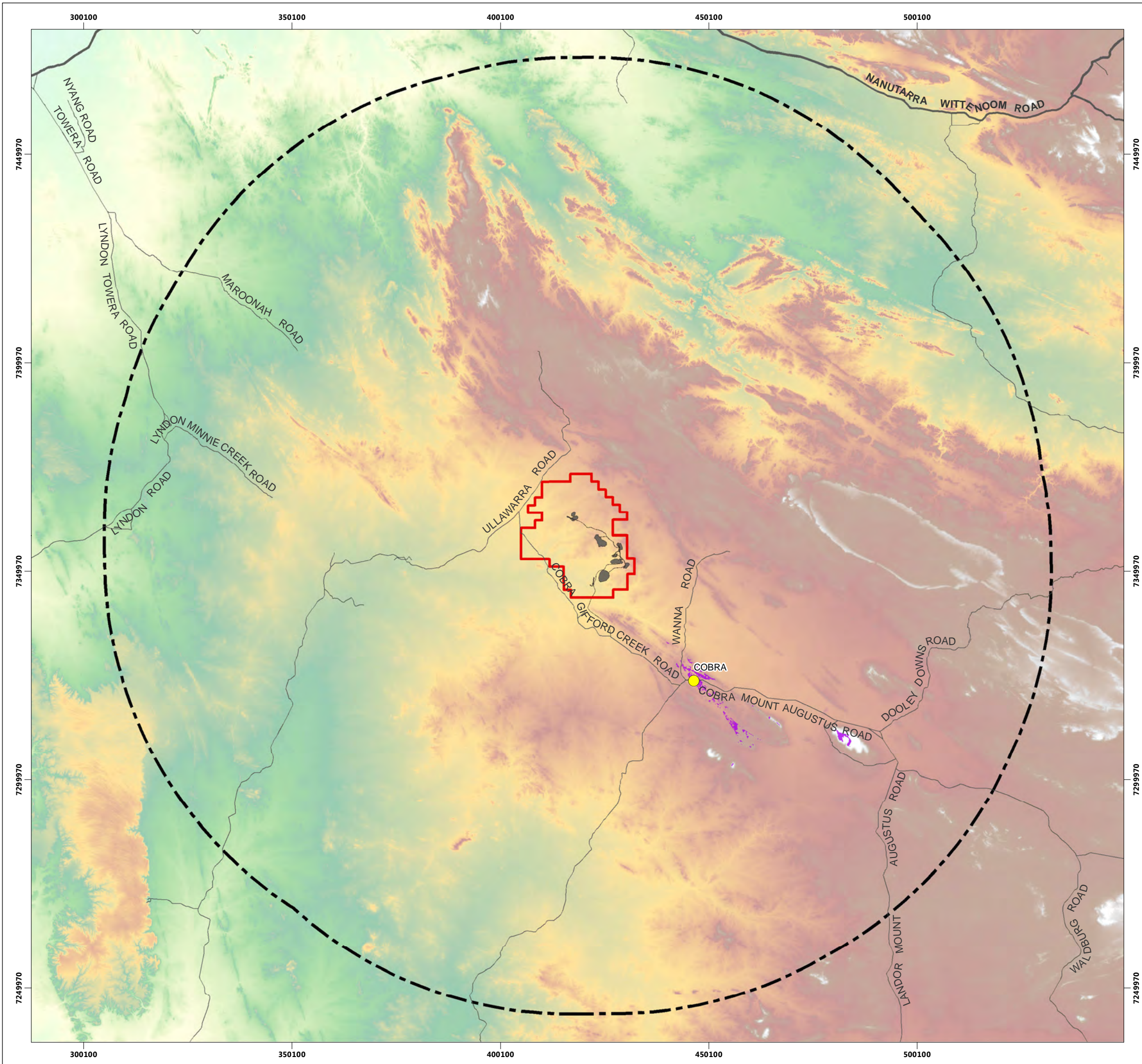
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PROJECT NO: 3397-16

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**MAP  
02**





**LEGEND**

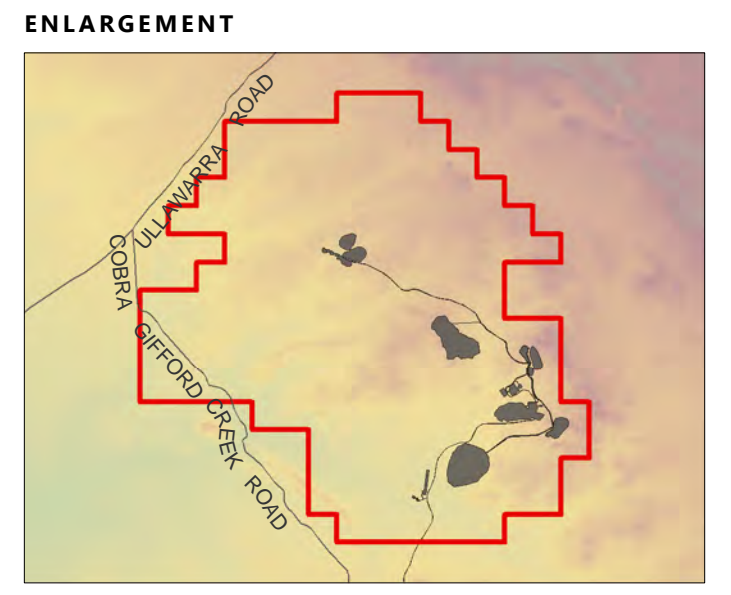
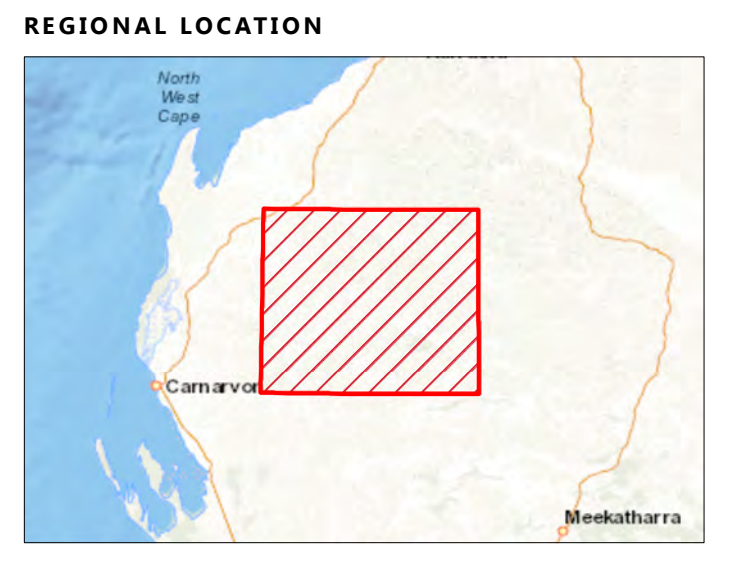
- Observer
- 100 km buffer
- Yangibanna Project Area
- Visible Areas
- Principal Road
- Secondary Road
- Minor Road
- Infrastructure

**Elevation (m AHD)**

High : 1203.36

Low : 22.0886

**DATA SOURCES :**  
 ELEVATION - GEOSCIENCE AUSTRALIA 1 SECOND SRTM  
 TOPOGRAPHIC MAPPING - GEOSCIENCE AUSTRALIA GEODATA TOPO 250K SERIES 3



**VIEWSHED ANALYSIS  
 COBRA BANGEMALL INN  
 YANGIBANNA RARE  
 EARTHS MINE**

**HASTINGS TECHNOLOGY METALS LTD**

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50  
 PROJECTION: TRANSVERSE MERCATOR  
 DATUM: GDA 1994  
 UNITS: METER

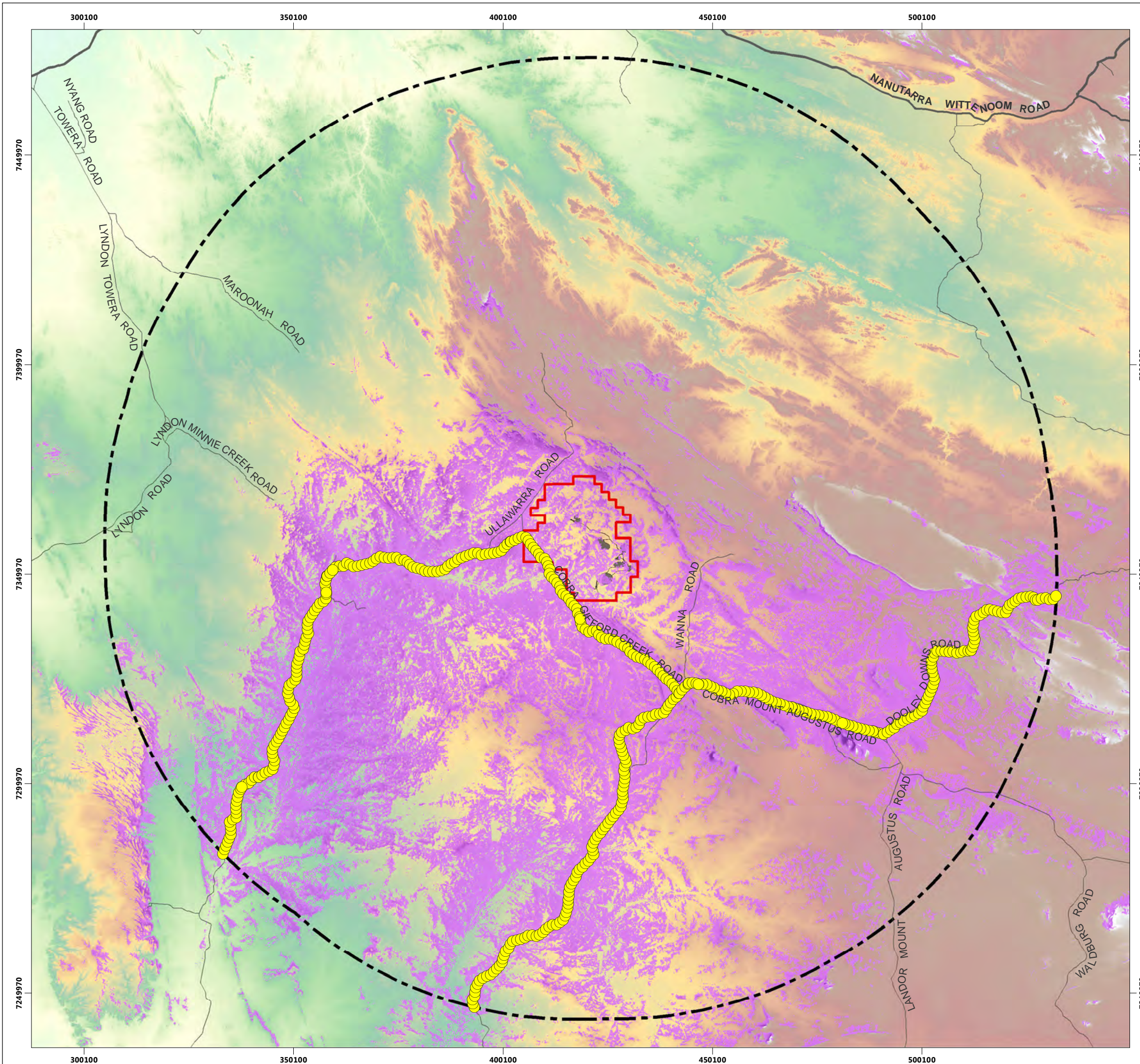
SCALE: 1:900,000 @ A3

PROJECT NO: 3397-16

REV	AUTHOR	APPROVED	DATE
0	JN	MW	09/08/2016

**MAP  
03**

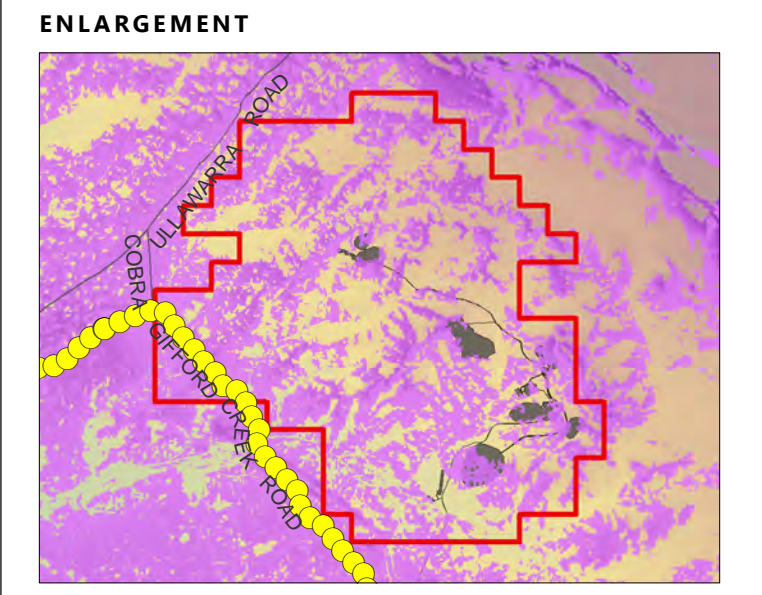
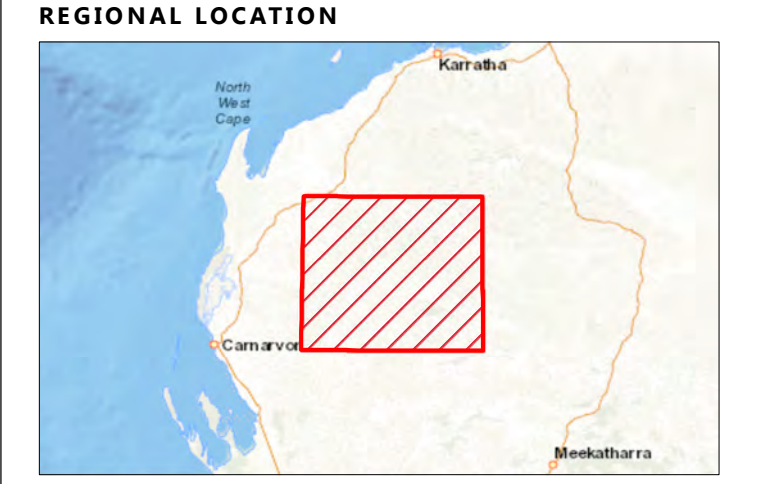




**LEGEND**

- Observer Points (1 km intervals)
- Principal
- Secondary
- Minor
- Yangibanna Project Area
- 100 km Visible from
- High : 352
- Low : 1
- Infrastructure
- Elevation (m AHD)
  - High : 1203.36
  - Low : 22.0886

**DATA SOURCES:**  
 ELEVATION - GEOSCIENCE AUSTRALIA 1 SECOND SRTM  
 TOPOGRAPHIC MAPPING - GEOSCIENCE AUSTRALIA GEODATA TOPO 250K SERIES 3



**VIEWSHED ANALYSIS  
 MAIN ROADS  
 YANGIBANNA RARE  
 EARTHS MINE**

**HASTINGS TECHNOLOGY METALS LTD**

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50  
 PROJECTION: TRANSVERSE MERCATOR  
 DATUM: GDA 1994  
 UNITS: METER

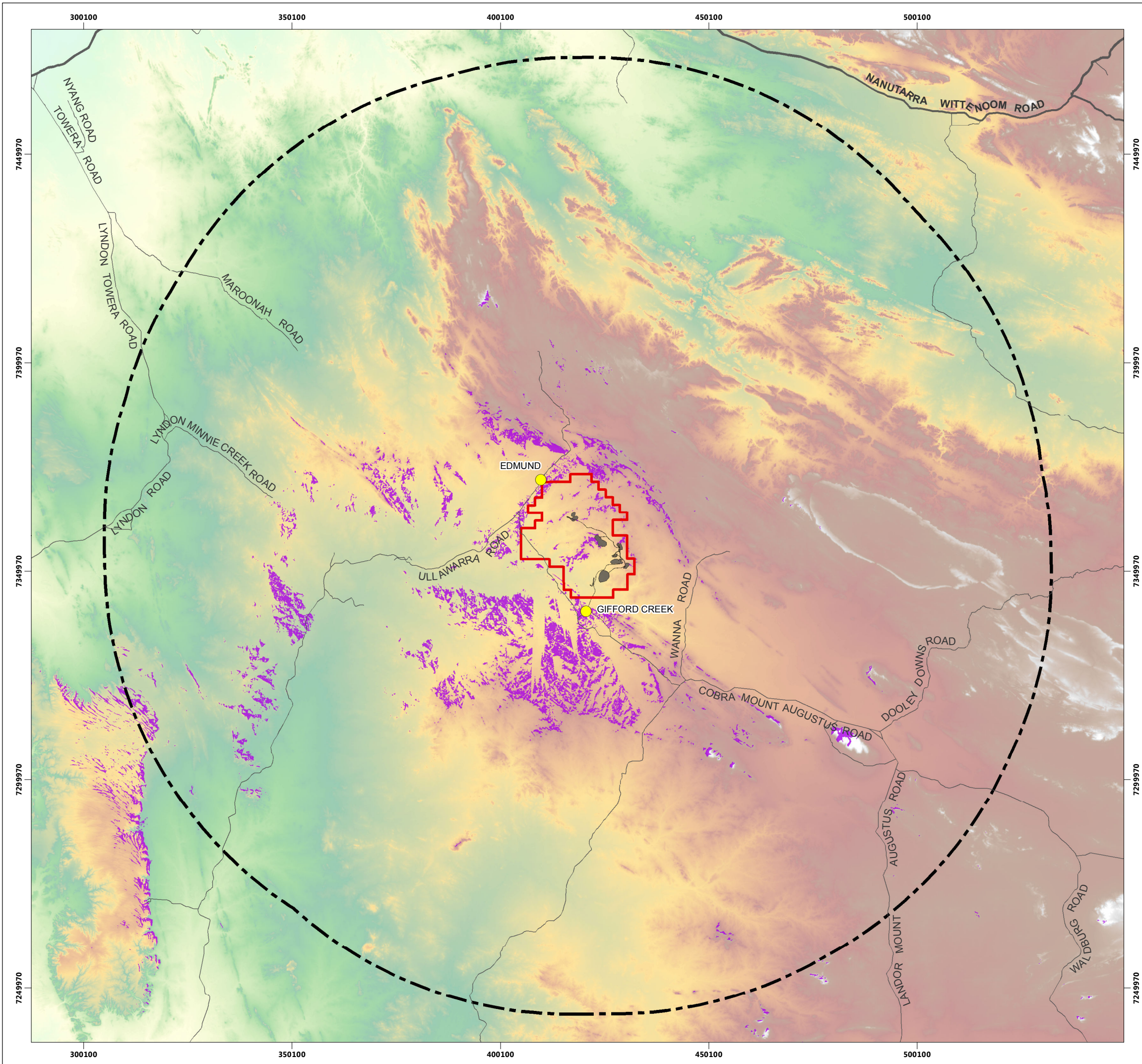
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PROJECT NO: 3397-16

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0	JN	MW	09/08/2016

**MAP 04**





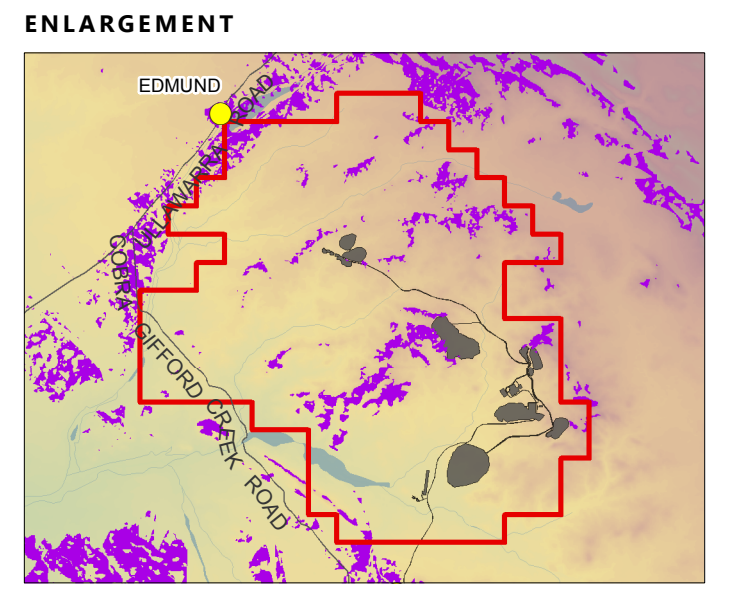
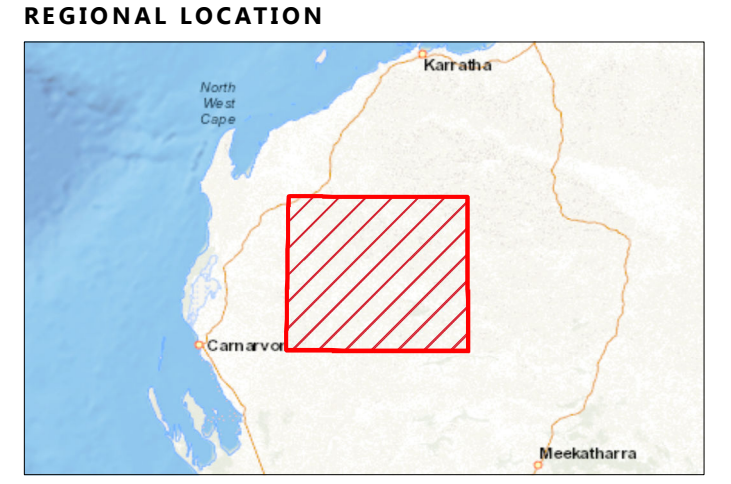
**LEGEND**

- Observer
- Principal Road
- Secondary Road
- Minor Road
- Yangibanna Project Area
- 100 km buffer
- Infrastructure
- Visible Areas

**Elevation (m AHD)**

- High : 1203.36
- Low : 22.0886

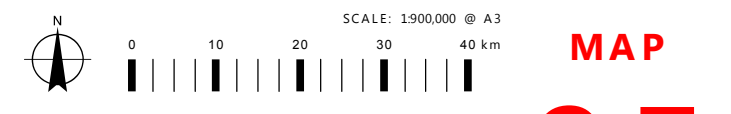
**DATASOURCES :**  
 ELEVATION - GEOSCIENCE AUSTRALIA 1 SECOND SRTM  
 TOPOGRAPHIC MAPPING - GEOSCIENCE AUSTRALIA GEODATA TOPO 250K SERIES 3



**VIEWSHED ANALYSIS  
 EDMUND AND GIFFORD CREEK  
 YANGIBANNA RARE  
 EARTHS MINE**

**HASTINGS TECHNOLOGY METALS LTD**

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 PROJECTION: TRANSVERSE MERCATOR  
 DATUM: GDA 1994  
 UNITS: METER



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**MAP  
 05**