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The Company Announcement Platform  
ASX Limited  
Exchange Centre  
20 Bridge Road  
SYDNEY NSW 2000

## MARY VALLEY PROJECT – GEOPHYSICAL SURVEYS

Eclipse Metals (ASX:EPM, or the **Company**) is pleased to announce the commencement of a detailed exploration program using innovative geophysical surveys on advanced prospects within its Mary Valley manganese project, near the historic mining district of Gympie, in Queensland (refer Figure 1).

The Amamoor, Upper Kandanga and Eel Creek mine areas (refer Figure 2) will be surveyed using detailed gravity and passive seismic methods to evaluate the potential of projected extensions to known high grade manganese mineralisation, previously observed and sampled during two periods of geological fieldwork in 2014 and 2015. The prospects have previously been worked as high grade mines, and the company is of the belief that a Direct Shipping Ore (DSO) product can be developed in the area.

The surveys are expected to commence during mid-November 2016 and data acquisition should take less than two weeks; interpretation of the results by company consultants will follow, and outcomes are expected to be reported to the market in due course.

### About Manganese

Manganese is a critical ingredient for the booming battery market. Demand is increasing for Lithium batteries and the Company believes it is important to further develop the Mary Valley Manganese project in parallel with Uranium projects in the Northern Territory.

For the four main cathode chemistries, the metal proportions (excluding lithium) in Lithium-ion batteries are listed in the table below showing an estimate percentage of other metals needed.

Cathode Type	Chemistry	Metals needed	Example Use
NCA	LiNiCoAlO <sub>2</sub>	80% Nickel, 15% Cobalt, 5% Aluminum	Tesla Model S
LCO	LiCoO <sub>2</sub>	100% Cobalt	Apple iPhone
LMO	LiMn <sub>2</sub> O <sub>4</sub>	100% Manganese	Nissan Leaf
NMC	LiNiMnCoO <sub>2</sub>	Nickel 33.3%, Manganese 33.3%, Cobalt 33.3%	Tesla Powerwall

Manganese is one of the important metals for lithium-ion cathodes and is also a cheaper metal with substantial market potential for the battery industry and iron / steel market. As the demand for cleaner energy is growing, the company is well focused in delivering value by exploring its Manganese and Uranium projects.

Eclipse Metals Ltd is an Australian exploration company focused on exploring the Northern Territory and Queensland for multi commodity mineralisation. The company has an impressive portfolio of assets prospective for gold, manganese, iron ore, base metals and uranium mineralisation. The Company's mission is to increase Shareholder wealth through capital growth and ultimately, dividends. Eclipse plans to achieve this goal by exploring for and developing viable mineral deposits to generate mining or joint venture income.

### BOARD

Carl Popal  
Executive Chairman

Craig Hall  
Non-Executive Director

Rodney Dale  
Non-Executive Director

### COMPANY SECRETARY

Eryn Kestel

### REGISTERED OFFICE

C/-NKH Knight  
Unit 19  
Level 2, Spectrum  
100 Railway Road  
Subiaco WA 6008  
Phone: +61 8 9367 8133  
Fax: + 61 8 9367 8812

### PRINCIPAL PLACE OF BUSINESS

Level 3, 1060 Hay Street  
West Perth WA 6005  
Phone: + 61 8 9480 0420  
Fax: + 61 8 9321 0320

### AUSTRALIAN BUSINESS NUMBER

85 142 366 541

### SHARE REGISTRY

Security Transfer Registrars  
770 Canning Highway  
Applecross WA 6153

### ASX CODE

EPM

### WEBSITE

[www.eclipsemetals.com.au](http://www.eclipsemetals.com.au)

## Background

The Mary Valley Manganese Project tenements are located approximately 14 road kilometres southwest from Gympie in Queensland. The project area is comprised of three granted Exploration Permit's for Minerals, EPM's 17672, 17938 and 25698, with a combined area of 210km<sup>2</sup>. The Project area is easily accessed via the Brooloo Road from Gympie and is only 165 rail kilometres from the port of Brisbane.

Historically approximately 32,000 tonnes of ore was mined from the area with a manganese grade ranging from 42% to 51% Mn. Limits of all the deposits are not known either along strike or at depth. The largest mine on the tenements controlled by Eclipse was at Amamoor No.1 manganese deposit which has produced 19,630t at 51% Mn. Historical assays indicate that the silica, iron and phosphate levels are all within direct shipping ore parameters, which supports the potential for stand-alone mining operations in the Mary Valley Manganese Project. In the past 50 years little to no geological activities have been recorded over the Mary Valley prospects for manganese.

Geological surveys by the Company have indicated structural potential for development of approximately 167,000 tonnes of high grade manganese mineralisation within 15m from surface. Geological mapping suggests that the observed mineralised formations could have a larger aerial extent and continue to a greater depth.

Historically, it appears that mining concentrated on selectively extracting high grade manganese mineralisation. Now, with development of more efficient ore beneficiation technologies, there is potential to develop much larger manganese resources consisting of higher and lower grade mineralisation, amenable to lower cost mining to produce a high grade product.

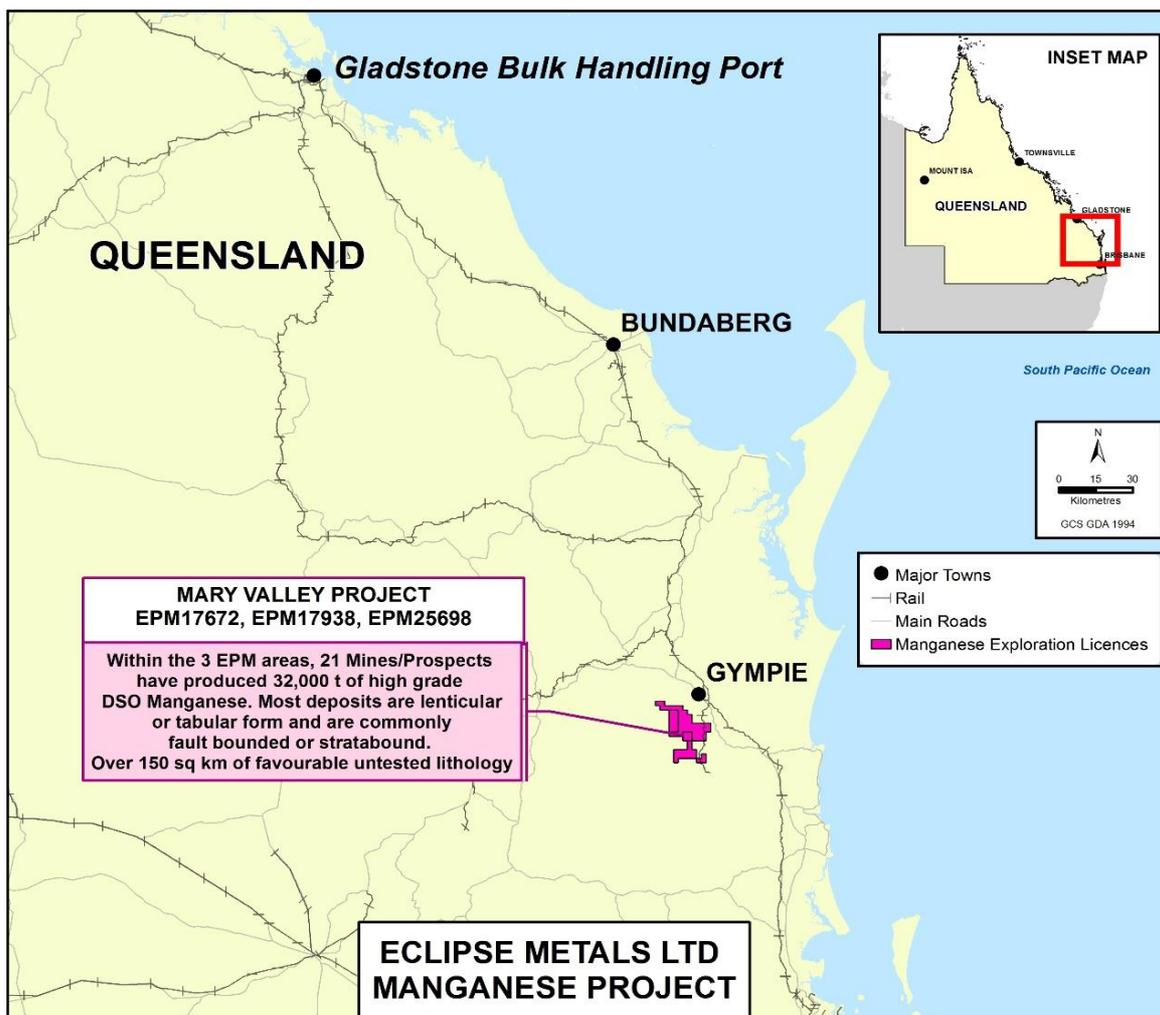


Figure 1. Mary Valley Project location plan

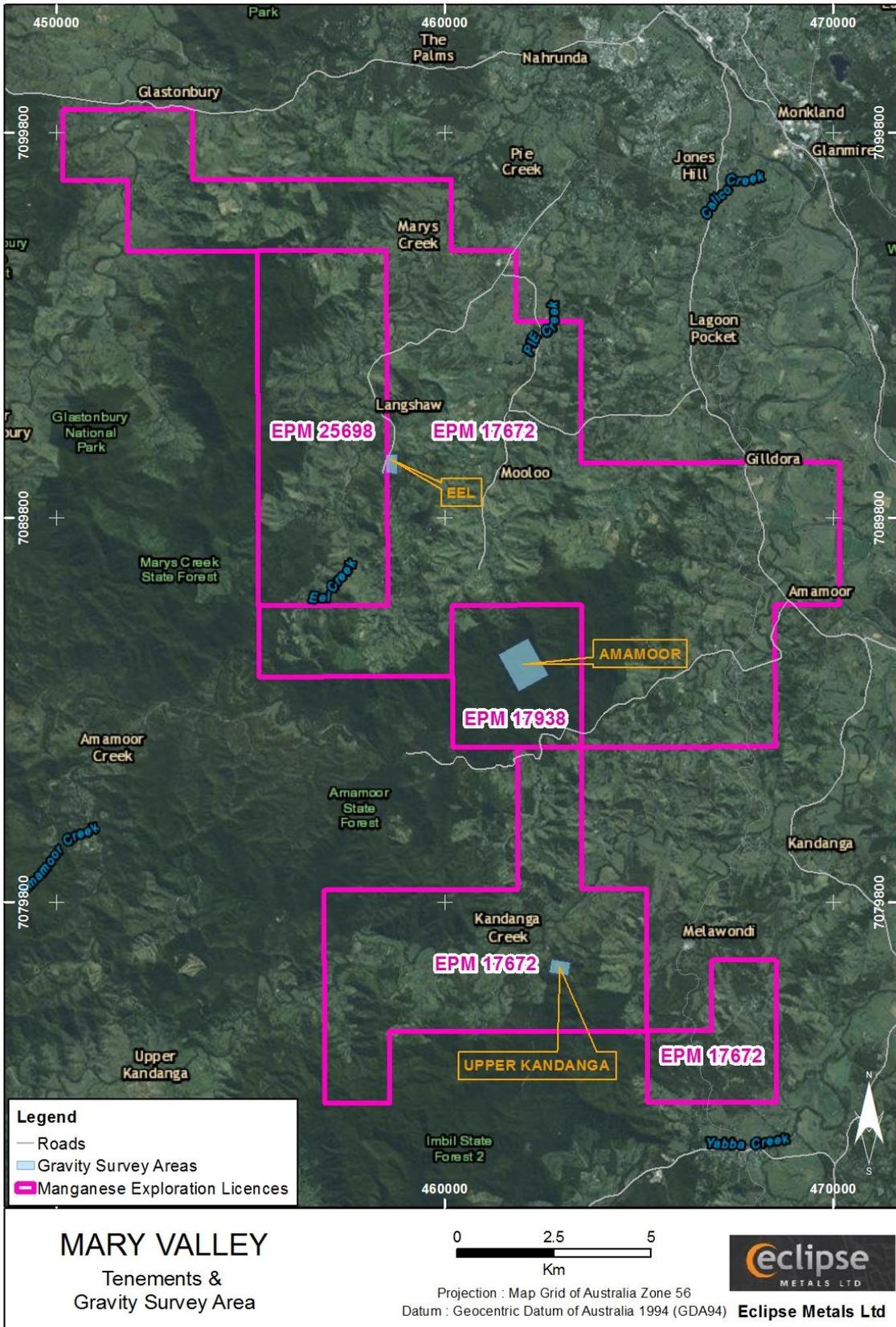


Figure 2. Mary Valley tenements and areas of detailed gravity surveys (in shaded blue) at Eel, Amamoor and Kandanga Creek

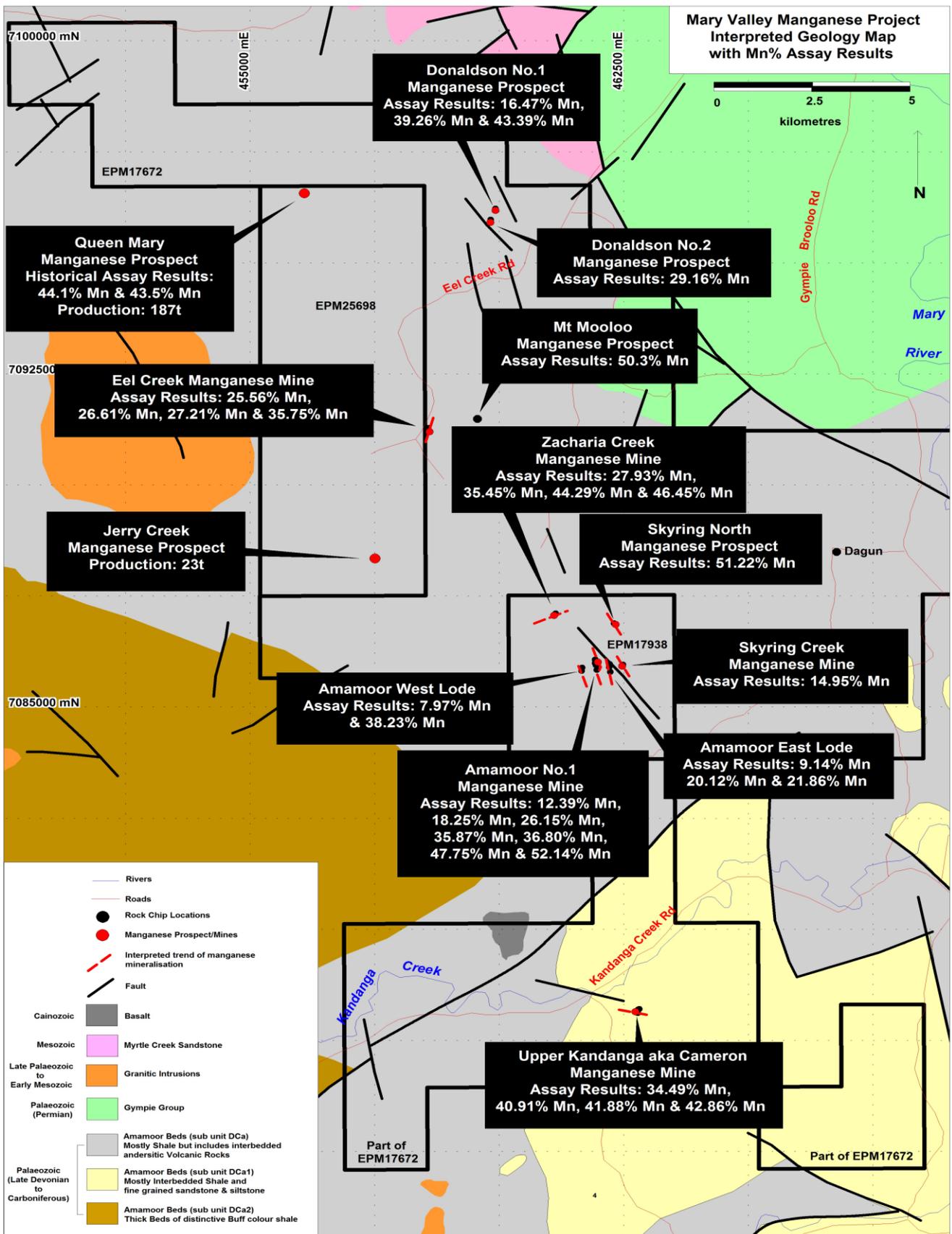


Figure 3. Mary Valley geological interpretation map with tenements, and summaries of main prospects.

## Geophysical Surveys

The geophysical surveys employing gravity measurements, combined with a passive seismic survey are planned to be carried out in three areas, vis:-

- Amamoor No1, Amamoor East and West, and Skyring Creek
- Upper Kandanga (aka Cameron's)
- Eel Creek

Gravity is a commonly used geophysical tool for mapping of structure, alteration and rock density variations in exploration activities. The passive seismic method has only recently been made available in Australia and assists mapping cover and overburden depth in areas of cover or significant contrasts in fresh rock environments that are near flat lying to shallow dipping.

Gravity data processing and corrections are made more complex where cover and weathering profiles vary significantly spatially or a more complex basement contact trajectory is encountered. The combination of the passive seismic and gravity data can be combined to enhance processing and correction of the gravity data to provide more meaningful exploration information and targeting criteria.

Data is to be collected at a very detailed spacing of 25m x 50m, to provide control and mapping points at a potential resource spacing.

## Amamoor Manganese Workings

The mineralisation style at the historical Amamoor workings is best classified as belonging to the Cuban-type subclass of volcanic-exhalative manganese deposits. This type of manganese mineralisation has similarities to the Woodie Woodie deposit in the East Pilbara of WA, but is quite different from sedimentary-type manganese deposits such as Groote Island and deposits associated with banded iron formation.

The thickness and orientation of the lenses of manganese mineralisation in the Amamoor mine workings, along with historic evidence and likelihood that mineralisation is of the Cuban-type, supports the idea that mineralisation continues down-dip, below and beyond the present workings. In most cases, there is likely to be only 5 to 10m overburden (Figures 4 and 5.).

**Table 1: Amamoor Workings - Comparison of the eight lenses of mineralisation**

Workings	Mineralised Lens	No. of Samples	Range % Mn	Mean % Mn	Mean % SiO <sub>2</sub>	Mean % Fe <sub>2</sub> O <sub>3</sub>	Mean % Al <sub>2</sub> O <sub>3</sub>	Mean % CaO	Mean % BaO
Northern	North No. 1	2	10.75 to 26.59	18.53	33.35	7.75	9.94	12.26	0.29
Northern	North No. 2	2	16.54 to 26.14	21.34	33.96	7.75	9.1	11.81	0.24
Central	Central No. 1	3	35.86 to 36.80	36.48	22.02	6.12	6.51	7.57	0.99
Central	Central No. 2	2	6.88 to 8.86	7.87	42.72	9.91	15.22	9.51	0.57
Central	Central No. 3	2	29.32 to 52.14	40.73	14.16	3.88	7.08	8.1	1.25
Central	Central No. 4	2	19.98 to 45.07	32.52	22.19	4.88	8.46	8.12	2.76
Southern	Southern No. 1	4	17.68 to 34.68	23.53	29.16	7.48	8.5	13.01	1.19
Southern	Southern No. 2	4	13.34 to 52.49	31.00	22.82	5.11	7.21	7.91	4.16

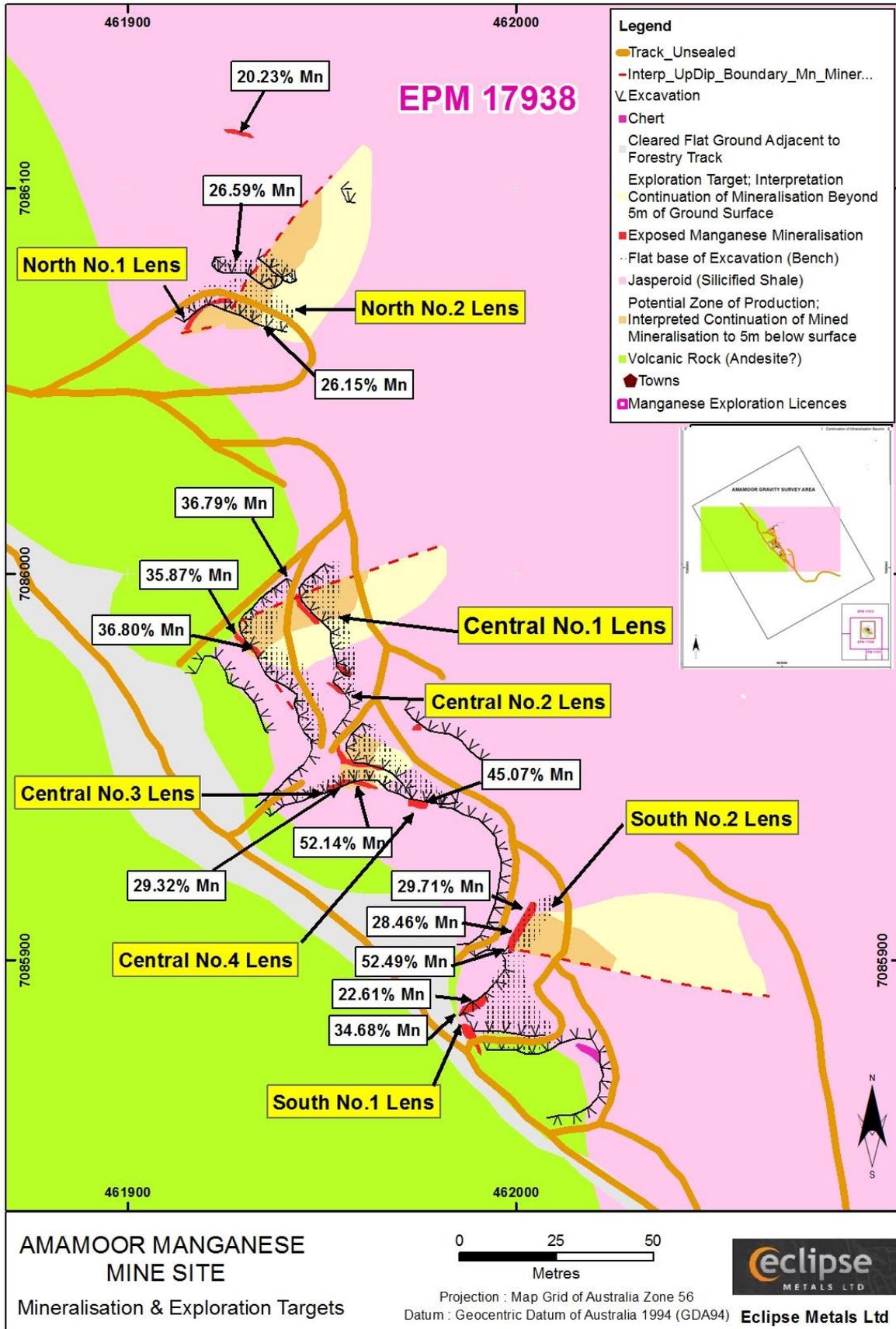
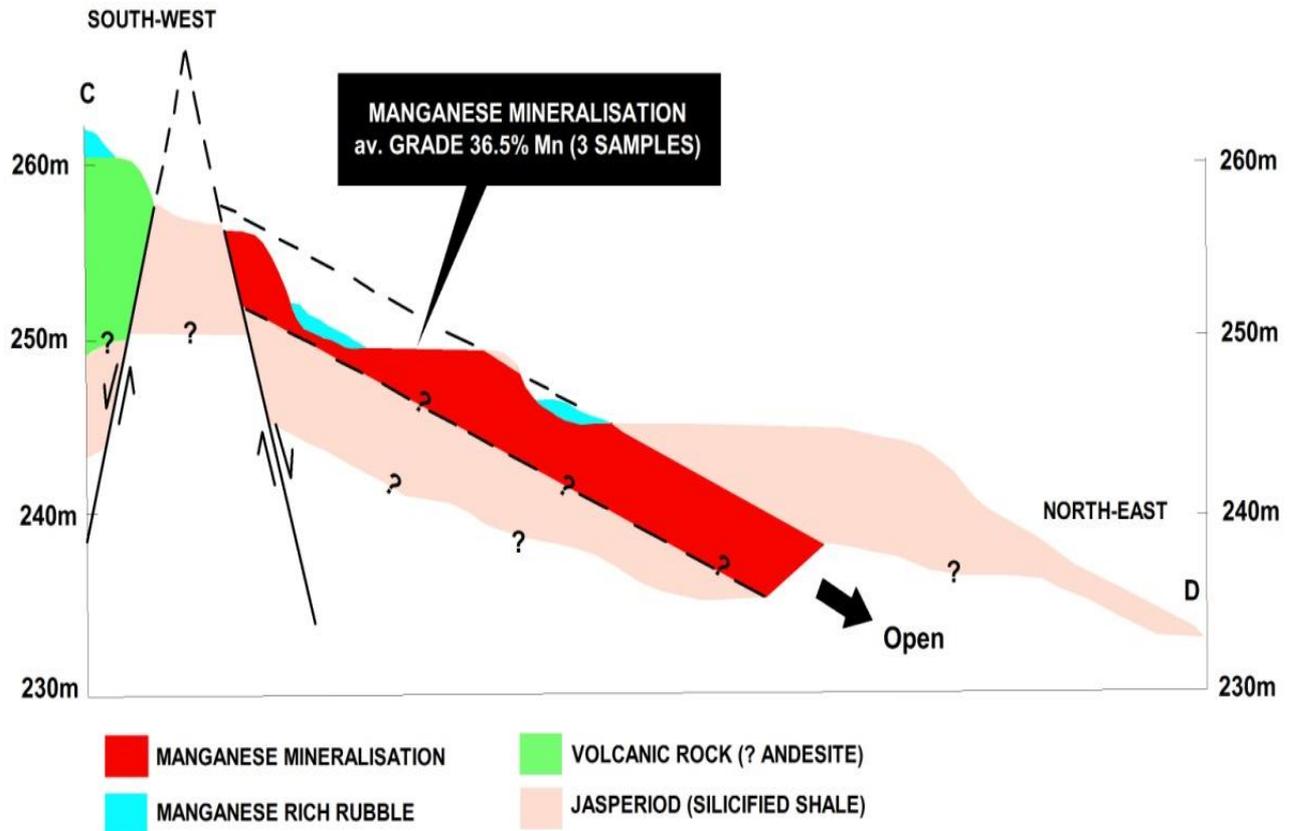


Figure 4. Plan of Amamoor Manganese workings with inset showing boundary of larger gravity survey

## AMAMOOR MANGANESE MINE; CENTRAL WORKINGS CROSS SECTION C-D 1:500 scale



*Figure 5. Cross section of Amamoor Central Workings*

### Upper Kandanga (aka Cameron) Manganese Workings

The Upper Kandanga (aka Cameron) historical manganese mine is located about 6km west-southwest of the village of Kandanga. The mineralisation is in a distinct bed two to three metres thick and appears to be different from other historical operations being associated with shale and sandstone, rather than jasperoidal chert and andesite, and with shallow dip angles.

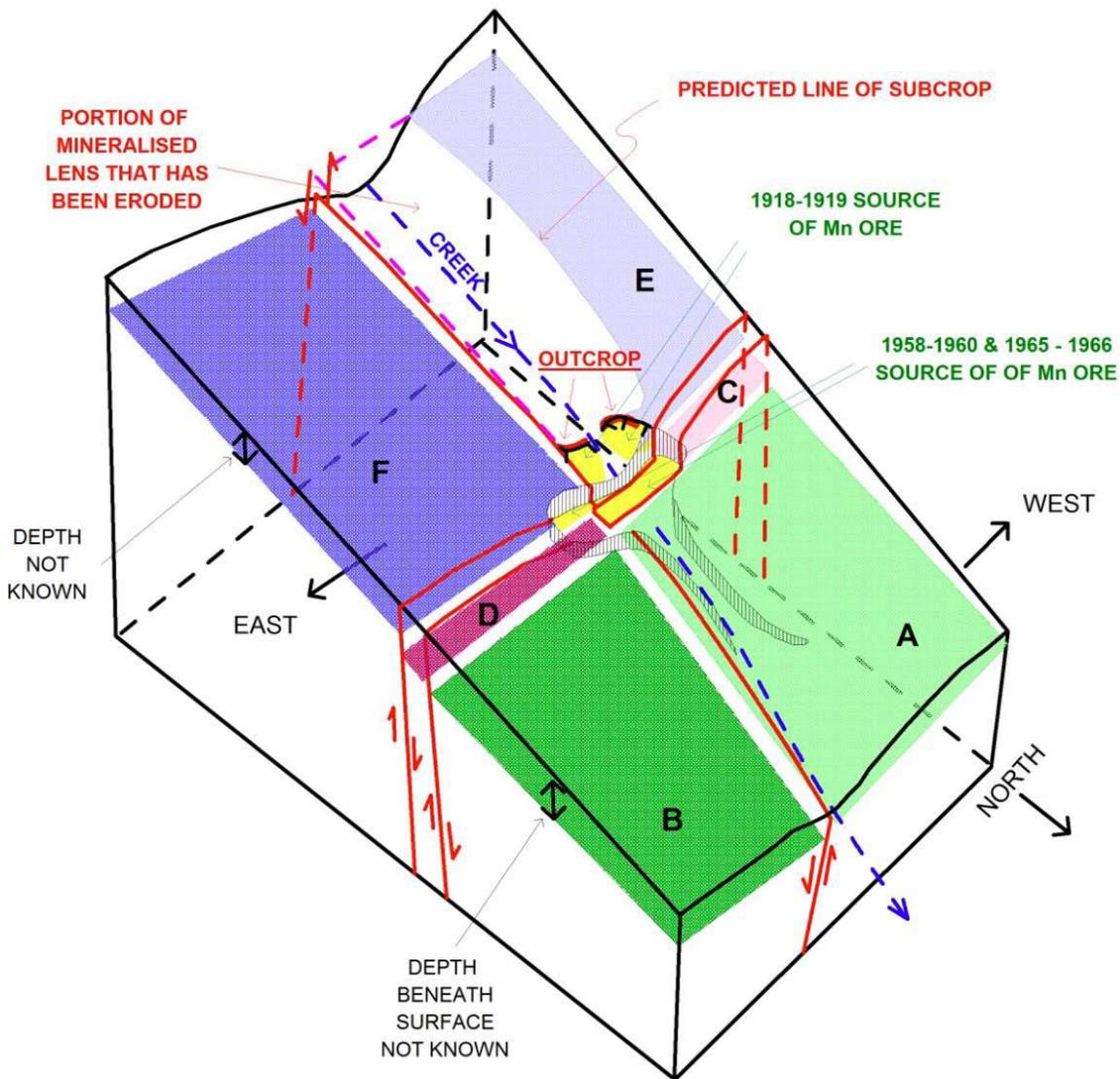
The manganese mineralisation has a strike of about 100° and dips about 35° towards the north. The layer of manganese mineralisation east of a fault is displaced a few metres lower than the layer west of the fault.

Continuity of mineralisation along strike west of the workings is unknown but the thickness of the layer exposed in the western wall of the workings suggests that it is likely to extend a considerable distance westwards into the wall of the gully.

The ore is known to continue along strike from the pit towards the east; Brooks (1962) describes an adit that was excavated into the eastern face of the workings in 1960 and extended at least 12m into the eastern slope of the gully. (Refer Figure 6 – Theoretical block model of mineralisation)

**Table 2: Sample Assay results the the Upper Kandanga Mn Mine samples**

Sample Id	Year	Mn %	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	Al <sub>2</sub> O <sub>3</sub> %	CaO %	BaO %
PS039	2014	40.91	34.48	1.44	2.06	1.52	0.32
PS040	2014	41.88	33.1	0.77	1.34	1.28	0.12
PS041	2014	34.48	36.94	1.84	3.83	1.36	0.76
PS042	2014	42.85	25.55	2.24	2.59	1.23	0.14
PS114	2015	39.57	34.42	1.09	2.67	1.95	0.13
PS115	2015	15.46	68.97	1.47	2.96	0.75	0.15
PS116	2015	18.14	63.36	1.68	3.72	0.89	0.29
PS117	2015	40.64	28.17	0.98	2.01	0.41	0.16
PS118	2015	34.73	38.67	1.31	2.53	0.88	0.46
PS119	2015	35.24	36.88	2.03	0.28	1.6	0.28



**Figure 6: Theoretical 3-D Block model of mineralisation, Upper Kandanga Mn Mine**

## Eel Creek Manganese Workings

The Eel Creek workings are located in a mostly cleared paddock east of Eel Creek Road from which the overgrown workings are visible. The mine consists of an excavation about 50m long, up to 10m wide and about 2m deep. The workings are elongated in a north-northeast direction following the contour of a hill. Strike direction of the mineralisation is similar to the orientation of the workings and remnant ore is visible in the eastern wall.

The host rock of mineralisation is a manganiferous jasperoid which also outcrops up-slope to the east and along strike from the workings as well as adjacent to the workings. Structural evidence suggests that the mineralisation is folded and faulted, providing a setting for extensions and enrichment of the mineralised formation. Surrounding the workings, manganiferous rocks having bedding-parallel layers of manganese mineralisation several centimetres thick occur within an area at least 1000m long and 250m wide. This large area may contain zones of high-grade mineralisation that does not outcrop.

**For and of behalf of the board.**



**Carl Popal**  
**Executive Chariman**

*The information in this report that relates to Exploration Results together with any related assessments and interpretations is based on information compiled by Mr Rodney Dale, a Non-Executive Director of Eclipse Metals Limited. Mr Dale is a Fellow of the Australasian Institute of Mining and Metallurgy and has sufficient experience relevant to the styles of mineralisation under consideration and to the activity being reported to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.*

For further information please contact:

Carl Popal  
Executive Chairman  
T: +61 8 9480 0420

Rodney Dale  
Non-Executive Director  
T: +61 8 9480 0420

