# Macro launches Mining Services Division & Acquires 80% Interest in DSO Manganese Assets

## Highlights

- **Macro Metals Ltd (Macro) has entered into a binding agreement with Firebird Metals Ltd (ASX: FRB) (Firebird) to acquire 80% interest in the Wandanya, Disraeli and Midgengadge Manganese Projects in the Eastern Pilbara region of Western Australia**
- **If Macro makes a decision to mine for a Project and Firebird elects to participate, an incorporated 80:20 SPV will be formed which will enter into a life of mine, mining services contract (Mining Services Agreement) with Macro's wholly owned, mining services subsidiary, Macro Mining Services Pty Ltd (MMS)**
- **Under the Mining Services Agreement, MMS will exclusively provide all services across the entire pit to customer supply chain on a commercial, arms' length schedule of rates**
- **MMS will leverage Macro's proven in-house exploration and fast-tracked development capabilities to acquire project equity interests in the exploration assets of other mining companies that warrant development and provide pit to customer mining services**

**Wandanya Project:**

- **Potential to deliver high grade Manganese Direct Shipping Ore (DSO) product in the near term in a rising manganese market**
- **Consists of 3 Prospects: Wandanya, Donkey and Crossroads**
- **Multiple shallow significant drilling results from Donkey Prospect include:**
    - **13m at 23.6% Mn from 1m (DKAT19), including 4m at 34.45% Mn from 6m**
    - **9m at 25.2%Mn from 1m (DKRC041), including 3m at 39.9% Mn from 3m**
    - **8m at 29.5% Mn from 10m (DKRC032)**
    - **8m at 24.0% Mn from 1m (DKRC1)**
    - **6m at 29.8% Mn from surface (DKRC4)**
    - **5m at 40.8%Mn from surface, EOH in mineralisation (DKAT35)**
    - **5m at 35.0%Mn from surface (DKRC024)**
    - **6m at 30.8% Mn from surface (DKRC045), including 2m at 40.6% Mn from surface**
    - **6m at 28.8% Mn from surface (DKRC6)**
    - **4m at 36.2% Mn from 1m (DKRC7)**
- **Crossroads and Wandanya are two additional prospects defined by rock chip sampling with reported grades of up to 55.3% Mn and 54.55% Mn for Crossroads and Wandanya respectively**


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Macro Metals Limited (**ASX:M4M**) (**Macro** or the **Company**) is pleased to announce it has signed a binding Heads of Agreement with Firebird Metals Ltd (**ASX: FRB**) (**Firebird**) to acquire an 80% interest in each of the Wandanya, Disraeli and Midgengadge Manganese Projects (comprising (E46/1456, E46/1457, E46/1389 and E45/5906) (**Projects**), located in the East Pilbara region of Western Australia (**Acquisition**).

The consideration payable by Macro for its 80% interest in the three Projects is:

- minimum aggregate expenditure of A$150,000 across the three Projects within 12 months of completion of the Acquisition; and
- at least 10 Reverse Circulation (**RC**) drill holes for a minimum of 100 metres drilled in total on each Project, the costs of which shall be included in calculation of the A$150,000 minimum aggregate expenditure.

Macro will free carry Firebird at 20% on each Project through to the completion of a Project Execution Plan (which shall include a high level mine plan, and capital and operating budget estimates) and the giving of a decision to mine (**DTM**) by Macro. During this period, Macro will also be solely responsible for keeping the tenements in good standing by meeting the minimum annual expenditure commitments.

Should Macro make a DTM in respect of a Project then:

- Firebird may elect to retain its 20% interest and form an incorporated joint venture with Macro on a 20% Firebird : 80% Macro basis (**SPV**); or
- convert its project equity interest into a 1% free on board (**FOB**) royalty on all product produced and sold from the Project.

If an SPV is formed, then it will enter into a life of mine, mining services contract (**Mining Services Contract**) with Macro Mining Services Pty Ltd, a wholly owned subsidiary of Macro (**MMS**).

Under the Mining Services Contract, the SPV must appoint MMS as the operator of all mining operations to be conducted by the SPV for the life of mine. MMS will be exclusively responsible for managing and/or self-performing all activities required to develop and operate each mine including, but not limited to, project development, construction, mine planning, drill and blast, mining load and haul, crushing, screening and processing, off-site haulage, port services and international shipping (**Mining Services**).

MMS shall provide the Mining Services to the SPV on an arms' length basis that includes commercial margins being applied to all overhead, capital and operating expenditure MMS incurs in providing the Mining Services.

In addition, the SPV will enter into a sales and marketing agreement with Firebird pursuant to which Firebird will be entitled to receive a commission of 1% of the actual FOB value realised by the SPV from product sold by Firebird. Firebird may also give notice to the SPV electing to acquire any volume of product produced by the SPV at prevailing market prices for use in its own downstream processing operations.

MMS aims to leverage the Company's existing in-house capability of fast tracking permitting, exploration and development of exploration assets by entering into agreements with third parties that have suitable assets warranting development to secure a meaningful project equity stake as well as life of mine, mining services contracts for the entire pit to customer supply chain.

Completion of the Acquisition is conditional upon due diligence to the absolute satisfaction of Macro and any necessary regulatory or third-party consents or approvals required before close of business on 30 September 2024 (or such time as otherwise agreed).

The Company advises that Mr Evan Cranston is a Director of both Macro and Firebird, and that three Macro Directors hold a relevant interest in Firebird as follows; Mr Tolga Kumova (9.37%), Mr Robert Jewson (2.15%) and Mr Evan Cranston (0.35%). This Acquisition has been approved by the independent Directors of Macro.

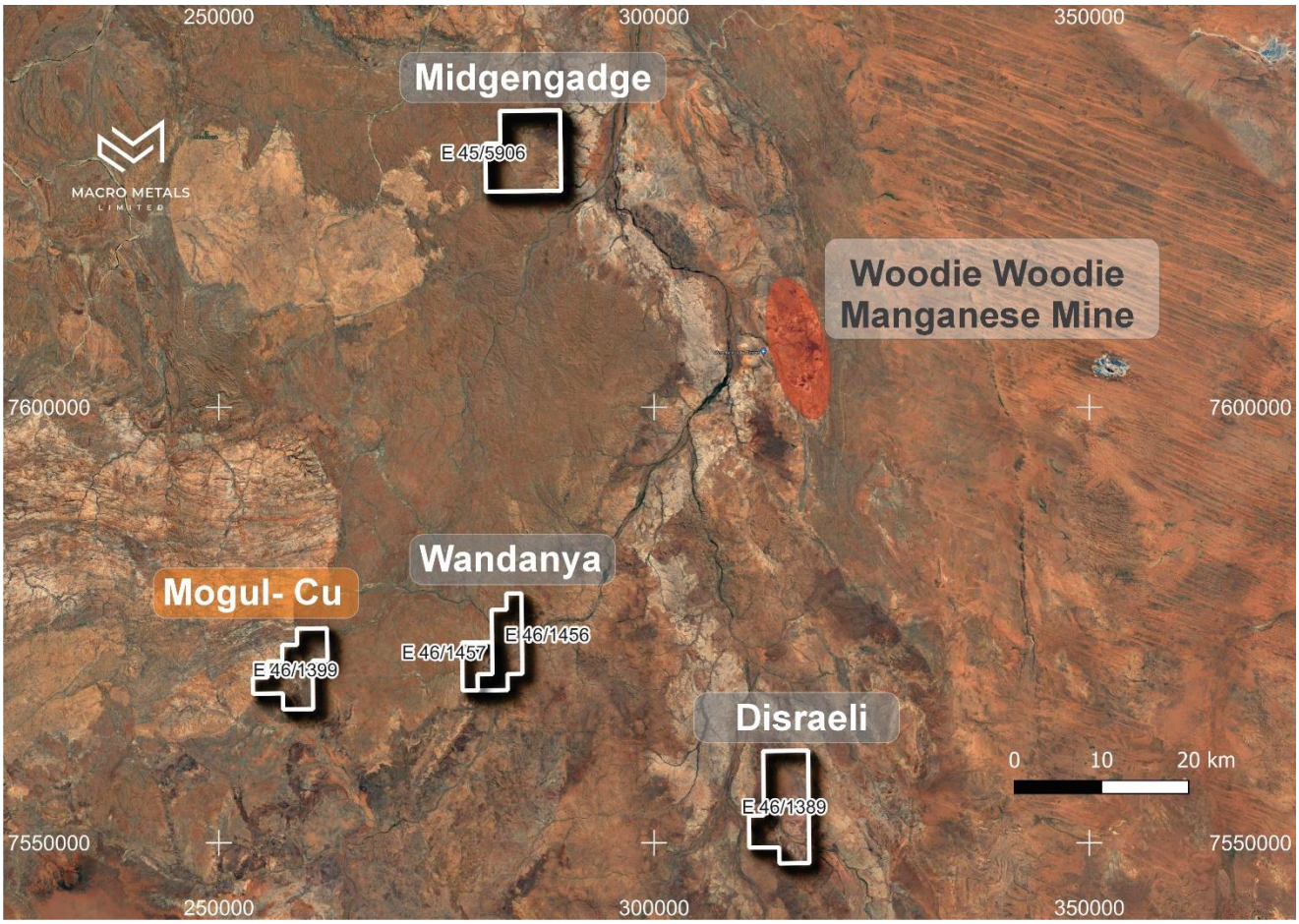


**Figure 1: Location plan of East Pilbara Manganese Portfolio**

*Mr Simon Rushton, Managing Director said: "I am really pleased to have negotiated Macro's first joint venture and launch our mining services division.*

*My aim is to build core project development, construction and operational teams within Macro supported by an appropriately resourced corporate team. There is a minimum overhead required regardless of whether you are supporting one operation or several and the key to being sustainable through the commodity cycles is to get the unit cost of support and operational services down as quickly as possible.*

*By providing mining services to third parties we can scale our teams quicker than by only providing services as we bring each of our own projects into operation. This means we have more resources, a wider array of skills and experience, redundancy and flexibility sooner; all of which are crucial for safely running a profitable, sustainable diversified mining and mining services business.*

*We will look to take the organic mining services revenue and our 80% profit share from exploiting the DSO manganese and investing it into our iron ore projects as well as growing our mining services capabilities. Importantly, this potential revenue may enable us to evaluate and organically fund a future manganese beneficiation operation likely using simple dense media separation post crushing and screening.*

*I wish to extend my thanks to Peter and the team at Firebird for an enjoyable and respectful negotiation process between our two companies. I believe the deal should provide meaningful value add for our respective shareholders and we will now focus on completing our due diligence and thereafter getting these Projects unlocked and evaluated as quickly as possible with the aim of near term production at Wandanya.*

*From a Macro shareholder perspective, to negotiate an 80% interest in three potentially high-quality DSO manganese projects and look to fast track their development in the current favourable manganese market was opportunistic but too good to look past. While it is a divergence from iron ore, it is still very much a Pilbara based focus, and the DSO part of a manganese projects is very similar if not identical to an iron ore operation, in terms of requiring drill and blast, mining, crushing and screening and mine to port logistics. MMS providing these mining services will certainly not distract from the wider Macro technical services team's focus on fast tracking Cane Bore, Turner and Goldsworthy East."*

## Wandanya Project - E46/1456 and E46/1457

The Wandanya Project is located 50km south-west of the Woodie Woodie Manganese Mine in the East Pilbara Region of Western Australia. The project is located 300km south-east of Port Hedland and access is via the all-weather Port Hedland-Marble Bar-Ripon Hills-Nifty Road.

The Project is comprised of two granted exploration licences E46/1456 and 1457 covering a land area of 51km$^2$.

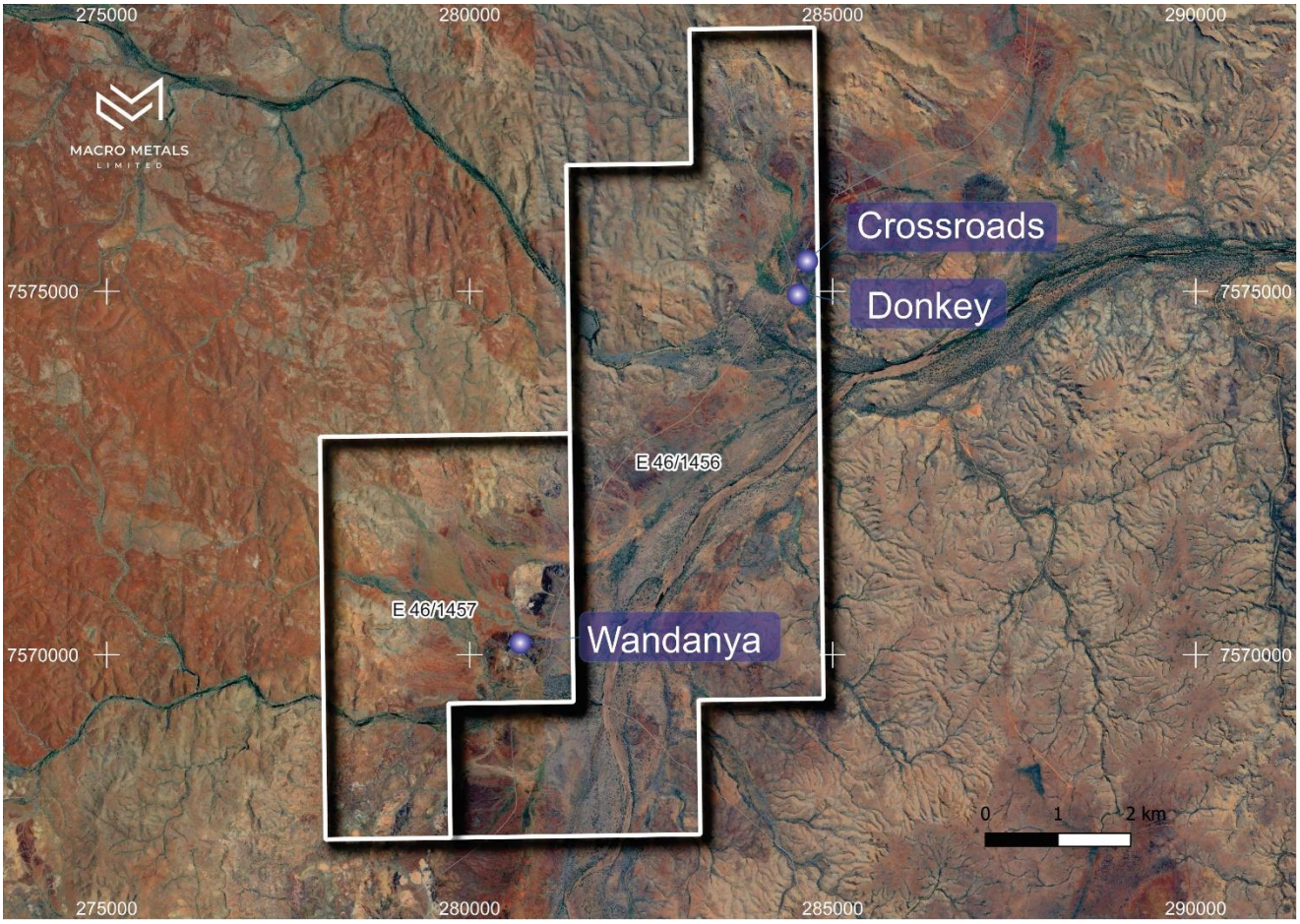


**Figure 2: Wandanya Project - Prospect Location Plan**

## Donkey Prospect

The Donkey prospect is located near the junction of the Redmont Creek and Davis River. Manganese mineralisation crops out in two discrete areas over a 500m long hill area adjacent to the river terrace of Redmont Creek. Mineralisation appears to be hosted by chert breccia and occurs as a small-massive and ferruginous manganese area developed in the north and south of the prospect area. Maximum mineralised depth to bedrock was estimated at 13m.

Extensive drilling has been completed by Pilbara Manganese in 2014 over an area of approximately 390m by 320m. Within areas of high-grade surficial mineralisation, drilling was conducted on an approximate 10m by 10m spacing.

Multiple significant intercepts identified and key results include:

- **13m at 23.6% Mn from 1m (DKAT19) including 4m at 34.4% Mn from 6m;**
- **9m at 25.2%Mn from 1m (DKRC041) including 3m at 39.9% Mn from 3m;**
- **8m at 29.5% Mn from 10m (DKRC032);**
- **8m at 24.0% Mn from 1m (DKRC1);**
- **7m at 31.0% Mn from 11m (DKRC15);**
- **7m at 20.9% Mn from 2m (DKRC9);**
- **6m at 29.8% Mn from surface (DKRC4);**
- **3m at 32.0% Mn from 2m EOH In mineralisation (DKAT13);**
- **5m at 40.8%Mn from surface, EOH in mineralisation (DKAT35);**
- **5m at 35.0%Mn from surface (DKRC024);**
- **6m at 30.8% Mn from surface (DKRC045);**
- **7m at 25.3% Mn from 2m, EOH in mineralisation (DKRC2);**
- **7m at 23.5% Mn from surface (DKRC3);**
- **6m at 28.8% Mn from surface (DKRC6); and**
- **4m at 36.2% Mn from 1m (DKRC7).**


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**Figure 3: Outcropping Manganese Mineralisation at Donkey Prospect**

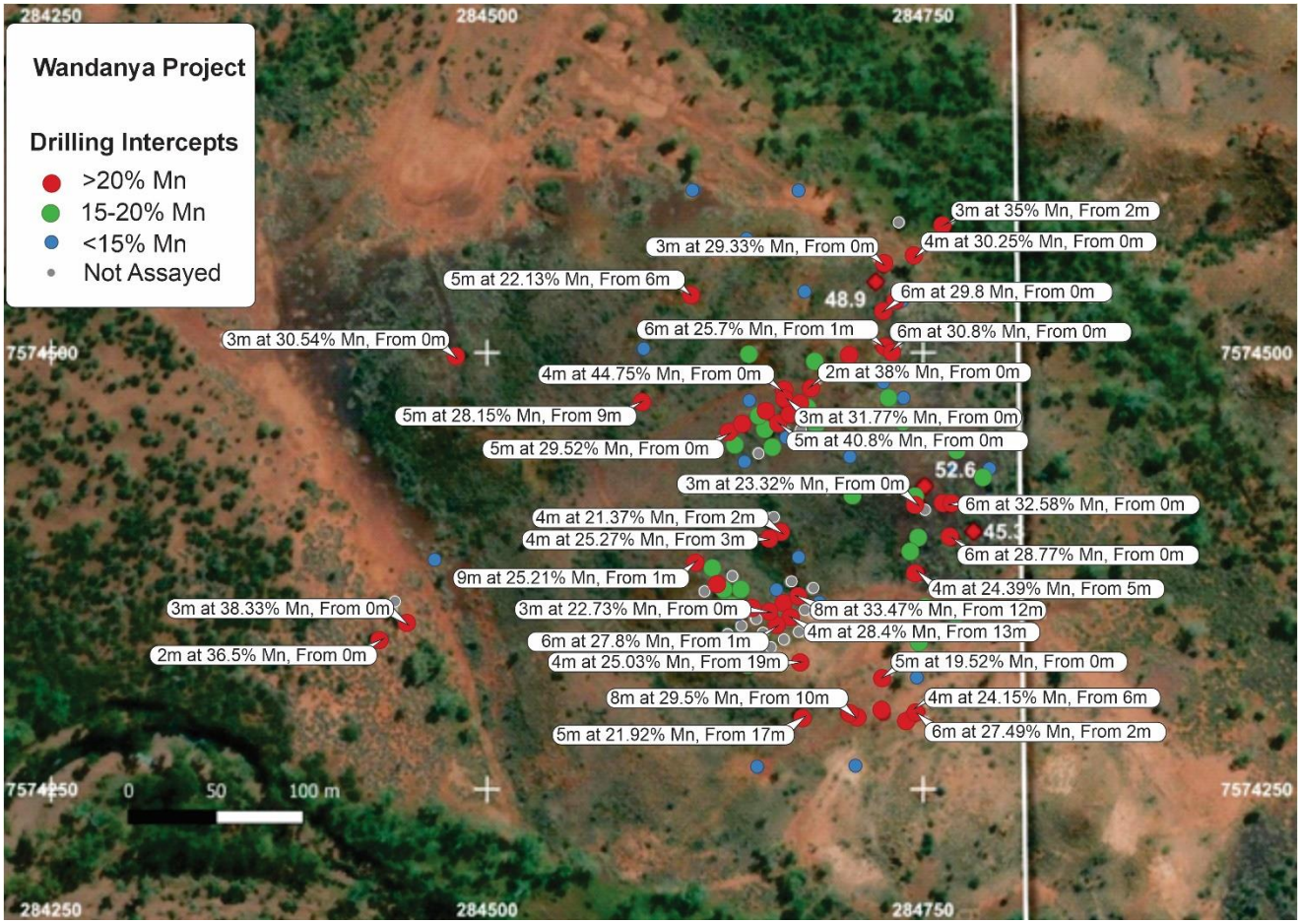


**Figure 4: Donkey Prospect Drill Collar Plan**

## Crossroads Prospect

The Crossroads prospect consist of a flat-topped hill area located adjacent to the Nullagine-Ant Hill-Skull Springs cross-roads.

The western edge of the prospect is marked by a 5m to 8m high scarp, with outcropping of rounded shiny black massive manganese occurring in a chert breccia. The hill is approximately 380m long and 80m to 220m wide. Outcropping away from the western edge of the hill is characterised by lateritic material and minor areas of manganese mineralised outcrop.

The prospect covers an area of approximately 1km north to south and is 300m wide. Exploration activities have included rock chip sampling, with significant results including 55.2% Mn and 53.3% Mn.

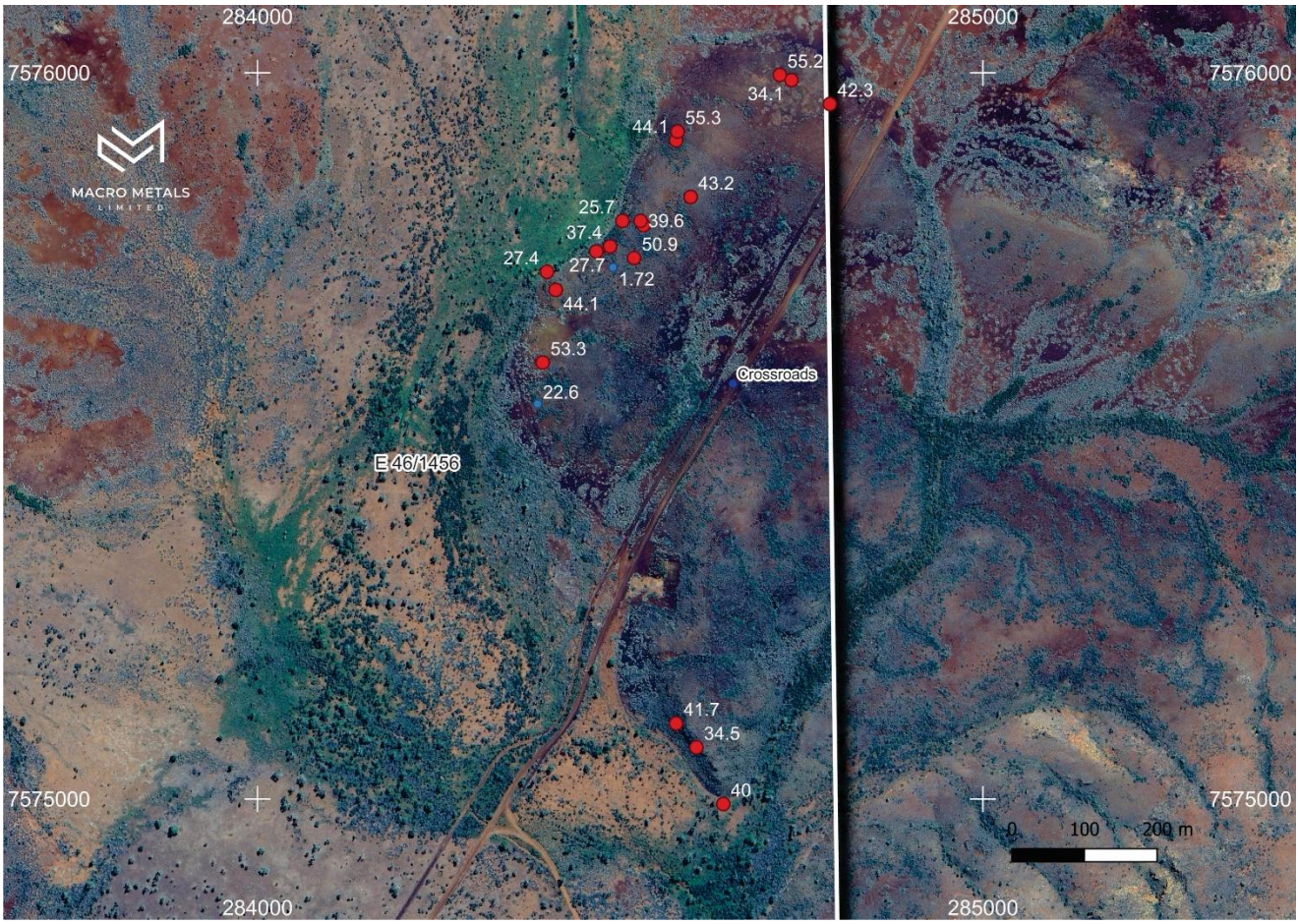


**Figure 5: Crossroads Prospect - Rock Chip Samples (Mn%)**

## Wandanya Prospect

Extensive rock chip sampling has been completed across the Wandanya Prospect by Shaw River Resources and Talisman Mining with grades of up to 64.96% Mn returned.

The southern zone has mineralisation defined over an area approximately 1,000m by 800m. No drilling has been completed to date across this prospect.

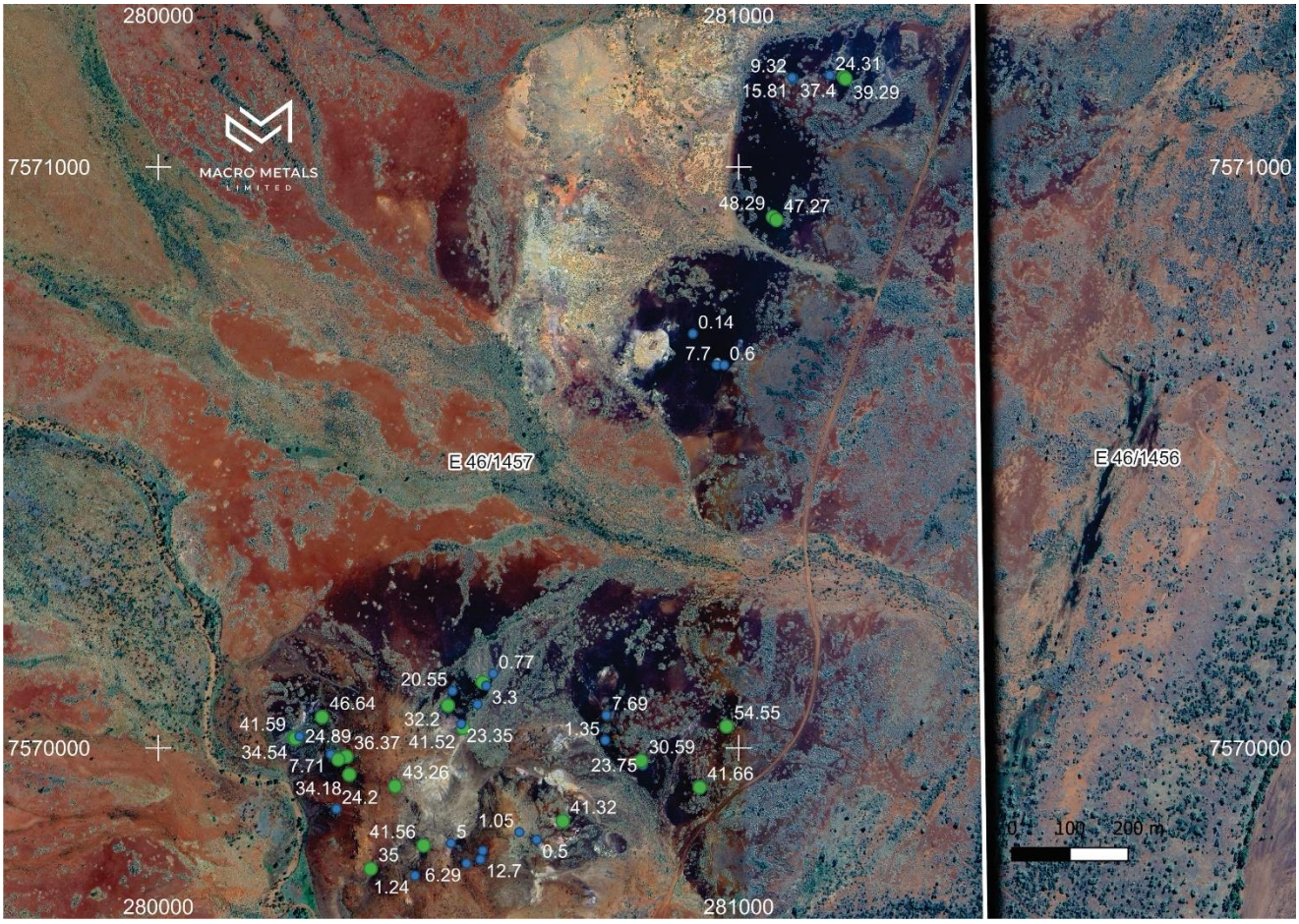


**Figure 6: Wandanya Prospect - Rock Chip Samples (Mn%)**

## Disraeli Project- E46/1389

The Disraeli Project is located 230km north-north-east of Newman and 50km south of the Woodie Woodie Manganese Mine. Access from Newman is via the Balfour Downs gravel road. Exploration conducted has included rock chip sampling, Dipole-Dipole Induced Polarisation (**DDIP**) and limited drilling of the DDIP survey targets.

Drilling of the DDIP targets intersected manganese mineralisation:

- **17m at 14.1% Mn from 76m (SWW320); and**
- **11m at 15.1% Mn from 93m (SWW322).**

Multiple prospects within the Project have been rock chip sampled and have provided encouraging results with no drill testing to date. A comprehensive program of collating the available exploration information on the Project has commenced.

## Midgengadge Project- E45/5906

The Midgengadge Project is located approximately 30km (75km via road) northwest of the Woodie Woodie Managanese Mine.

## Key Terms of the Acquisition

- Subject to due diligence and any required third party consents to be satisfied or waived by Macro on or before 30 September 2024 (or such later date as the parties may agree), Macro will acquire an 80% interest in each of E46/1456, E46/1457, E46/1389 and E45/5906 from Firebird, an unrelated party.
- Macro to pay the following consideration for its 80% interest in the three Projects:
    - spend an aggregate $150,000 on exploration activities across the three Projects over the next 12 months; and
    - drill a minimum of 10 RC holes and a minimum total of 100m drilled on each Project with costs to count towards aggregate expenditure commitment.
- Macro will free carry Firebird at 20% on each Project through to a decision to mine by Macro.
- A decision to mine must be accompanied by a mineral resource estimate and a Project Development Plan prepared by Macro and that includes Macro's high level mining plan and budget estimate pricing for the development and operation of a mineral on the Project.
- Should Macro make a decision to mine in respect of a Project, Firebird can elect by written notice within 30 days to either:
    - retain its 20% interest and form an incorporated joint venture with Macro for that Project; or
    - convert its equity interest in that Project to a 1% FOB royalty on all product produced and sold from the Project.
- Upon formation of an SPV:
    - The SPV will enter into a life of mine, mining services contract with Macro's wholly owned mining services subsidiary, MMS, pursuant to which MMS will provide and/or manage all services in the pit to customer supply chain on an arms' length, commercial basis via a schedule of rates.

- a sales and marketing agreement with Firebird pursuant to which Firebird will:
  - receive a commission of 1% of actual realised FOB value on all product produced by MMS and sold by Firebird; or
  - have the right to acquire product produced by MMS from the Project at prevailing market prices for use in Firebird's own downstream processing operations.

- If Macro determines not to give a decision to mine in respect of a Project, then Firebird will have the right to re-acquire that Project from Macro for nominal consideration.
- The agreement otherwise contains terms and conditions considered standard for agreements of this nature.

This announcement has been authorised for release by the Board of Directors.

**For further information, please contact:**

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## About Macro Metals Limited

Macro's Iron Ore portfolio has the potential for multiple sources of iron ore production utilising the well-established and proven export infrastructure of the Pilbara and emerging infrastructure in the West Pilbara.

The Company is focussing on expediting the development of its Cane Bore, Catho Well, Turner and Goldsworthy projects.

Utilising a fit for purpose, safety and results focused, rapid development approach across the Macro assets the Board sees substantial scale and the real potential for Macro to quickly become a multi mine iron ore producer.

## Competent Person's Statement

The information in this announcement that relates to the East Pilbara Manganese Portfolio is based on information compiled and fairly represented by Mr Robert Jewson, who is a Member of the Australian Institute of Geoscientists and Executive Director of Macro Metals Limited. Mr Jewson has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which he has undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Jewson consents to the inclusion in this report of the matters based on this information in the form and context in which it appears. Mr Jewson is a shareholder of Macro Metals Ltd.

## Forward Looking Statements

This announcement may include forward-looking statements. Forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions which are outside the control of the Company. Actual values, results or events may be materially different to those expressed or implied in this announcement. Given these uncertainties, recipients are cautioned not to place reliance on forward looking statements. Any forward-looking statements in this announcement speak only at the date of issue of this announcement. Subject to any continuing obligations under applicable law, the Company does not undertake any obligation to update or revise any information or any of the forward-looking statements in this announcement or any changes in events, conditions, or circumstances on which any such forward looking statement is based.

## Appendix 1: Exploration Results and Location Information

### Table 1: Wandanya Prospect Rock Chip Results

| Sample | Easting | Northing | Mn % | Al2O3 % | CaO % | Fe % | $K_2O$ % | LOI % | MgO % | $Na_2O$ % | P % | S % | $SiO_2$ % | $TiO_2$ % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RC010** | 280233 | 7570017 | 41.59 | 5.13 | 0.63 | 7.21 | 3.83 | 12.17 | 0.25 | 0.86 | 0.033 | 0.251 | 5.9 | 0.06 |
| **SJE1001** | 280933 | 7569932 | 41.66 | 1.01 | 0.34 | 13.97 | 1.62 | 11.86 | 0.13 | 0.12 | 0.054 | 0.086 | 4.15 | 0.02 |
| **SJE1002** | 280979 | 7570037 | 54.55 | 1.26 | 0.35 | 2.34 | 2.07 | 12.24 | 0.14 | 0.13 | 0.025 | 0.035 | 2.59 | 0.02 |
| **SJE1003** | 280962 | 7570659 | 7.7 | 2.24 | 0.34 | 44.15 | 0.62 | 9.37 | 0.18 | 0.25 | 0.106 | 0.312 | 10.59 | 0.14 |
| **SJE1004** | 281059 | 7570914 | 48.29 | 1.98 | 0.53 | 2.68 | 2.91 | 11.9 | 0.29 | 0.56 | 0.048 | 0.075 | 7.08 | 0.04 |
| **SJE1005** | 281094 | 7571151 | 15.81 | 1.73 | 0.09 | 37.87 | 0.6 | 10.2 | 0.16 | 0.19 | 0.03 | 0.142 | 8.17 | 0.06 |
| **SJE1006** | 281181 | 7571155 | 37.4 | 2.17 | 0.22 | 10.44 | 2.12 | 10.85 | 0.16 | 0.32 | 0.079 | 0.147 | 13.54 | 0.04 |
| **SJE1007** | 280835 | 7569970 | 23.75 | 2.84 | 0.19 | 25.71 | 1.38 | 11.16 | 0.28 | 0.14 | 0.059 | 0.114 | 10.8 | 0.08 |
| **SJE1008** | 280697 | 7569874 | 41.32 | 2.91 | 0.64 | 11.58 | 3.15 | 12.14 | 0.12 | 0.44 | 0.058 | 0.318 | 3.04 | 0.02 |
| **SJE1009** | 280559 | 7570113 | 38.04 | 3.01 | 0.39 | 6.1 | 3.35 | 10.53 | 0.38 | 0.65 | 0.02 | 0.217 | 18.02 | 0.03 |
| **SJE1010** | 280499 | 7570073 | 32.2 | 3.34 | 0.49 | 5.03 | 2.96 | 9.05 | 0.17 | 0.34 | 0.009 | 0.266 | 29.63 | 0.07 |
| **SJE1011** | 280282 | 7570053 | 46.64 | 5.41 | 0.22 | 2.63 | 4.07 | 12.21 | 0.21 | 0.33 | 0.021 | 0.019 | 7.95 | 0.07 |
| **SJE1012** | 280236 | 7570016 | 34.54 | 4.96 | 0.47 | 13.52 | 3.2 | 11.81 | 0.35 | 0.67 | 0.025 | 0.196 | 8.1 | 0.06 |
| **WD011** | 280652 | 7569842 | 0.5 | 3.83 | 2.41 | 27.84 | 0.47 | 5.63 | 1.21 | 0.08 | 0.072 | 0.151 | 46.55 | 0.12 |
| **WD012** | 280622 | 7569855 | 1.05 | 2.03 | 0.07 | 5.3 | 0.66 | 2.68 | 0.33 | 0.03 | 0.029 | 0.02 | 85.72 | 0.09 |
| **WD013** | 280559 | 7569823 | 16.92 | 3.44 | 0.11 | 11.43 | 0.98 | 5.48 | 0.11 | 0.05 | 0.039 | 0.012 | 49.57 | 0.16 |
| **WD014** | 280555 | 7569808 | 12.7 | 2.73 | 0.09 | 12.51 | 0.73 | 4.22 | 0.04 | 0.05 | 0.043 | 0.009 | 56.6 | 0.12 |
| **WD015** | 280531 | 7569801 | 6.29 | 2.66 | 0.09 | 17.13 | 0.38 | 2.97 | 0.03 | 0.03 | 0.062 | 0.048 | 61.81 | 0.09 |
| **WD016** | 280504 | 7569836 | 5 | 4 | 0.27 | 9.5 | 2.02 | 4.27 | 0.48 | 0.02 | 0.014 | 0.051 | 69.62 | 0.19 |
| **WD017** | 280408 | 7569934 | 43.26 | 5.49 | 0.25 | 3.5 | 2.89 | 11.66 | 0.28 | 0.43 | 0.03 | 0.008 | 10.77 | 0.14 |
| **WD018** | 280324 | 7569985 | 36.37 | 8.1 | 0.07 | 11.95 | 1.79 | 12.14 | 0.05 | 0.2 | 0.04 | 0.014 | 5.41 | 0.24 |
| **WD019** | 280243 | 7570020 | 24.89 | 5.53 | 0.23 | 21.3 | 2.57 | 10.93 | 0.39 | 0.32 | 0.041 | 0.069 | 11.54 | 0.13 |
| **WD020** | 280525 | 7570034 | 41.52 | 6.85 | 0.21 | 4.69 | 3.67 | 12.51 | 0.16 | 0.3 | 0.013 | 0.037 | 7.64 | 0.06 |
| **WD021** | 280522 | 7570041 | 23.35 | 2.76 | 0.39 | 6.45 | 2.1 | 7.44 | 0.06 | 0.23 | 0.008 | 0.25 | 44.42 | 0.06 |
| **WD022** | 280550 | 7570075 | 13.35 | 1.26 | 0.29 | 39.17 | 1.08 | 10.89 | 0.22 | 0.1 | 0.233 | 0.116 | 9.08 | 0.04 |
| **WD023** | 280565 | 7570107 | 3.3 | 2.19 | 0.2 | 49.46 | 0.64 | 10.66 | 0.23 | 0.07 | 0.192 | 0.125 | 9.2 | 0.08 |
| **WD024** | 280507 | 7570098 | 20.55 | 1.2 | 0.29 | 28.58 | 1.55 | 10.74 | 0.14 | 0.15 | 0.149 | 0.126 | 12.6 | 0.04 |
| **WD025** | 280577 | 7570128 | 0.77 | 1.67 | 0.08 | 6.12 | 0.11 | 1.93 | 0.05 | 0.03 | 0.017 | 0.071 | 88 | 0.09 |
| **WD026** | 280772 | 7570056 | 7.69 | 2.83 | 0.11 | 39.69 | 0.8 | 10.04 | 0.18 | 0.14 | 0.145 | 0.093 | 18.23 | 0.11 |
| **WD027** | 280770 | 7570013 | 1.35 | 2.12 | 0.21 | 58.52 | 0.2 | 5.19 | 0.15 | 0.03 | 0.041 | 0.196 | 5.9 | 0.05 |
| **WD028** | 280832 | 7569978 | 30.59 | 2.94 | 0.14 | 18.52 | 2.04 | 11.26 | 0.2 | 0.19 | 0.053 | 0.049 | 10.7 | 0.1 |
| **WD029** | 280975 | 7570659 | 0.6 | 2.21 | 0.29 | 51.85 | 0.31 | 9.01 | 0.12 | 0.23 | 0.162 | 0.328 | 12.51 | 0.09 |
| **WD030** | 280921 | 7570713 | 0.14 | 1.26 | 0.49 | 50.9 | 0.07 | 10.11 | 0.03 | 0.31 | 0.124 | 0.386 | 15.52 | 0.04 |
| **WD031** | 281065 | 7570909 | 47.27 | 2.39 | 0.57 | 1.7 | 3.2 | 12.25 | 0.32 | 0.67 | 0.041 | 0.069 | 6.53 | 0.05 |
| **WD032** | 281092 | 7571154 | 9.32 | 2.92 | 0.07 | 43.19 | 0.54 | 9.27 | 0.08 | 0.15 | 0.039 | 0.17 | 11.13 | 0.08 |
| **WD033** | 281157 | 7571158 | 24.31 | 2.23 | 0.13 | 29.69 | 0.92 | 9.59 | 0.08 | 0.19 | 0.038 | 0.139 | 6.65 | 0.04 |
| **WD034** | 281184 | 7571152 | 39.29 | 2.61 | 0.24 | 9.55 | 2.56 | 11.26 | 0.22 | 0.32 | 0.064 | 0.073 | 10.13 | 0.05 |
| **WD035** | 280297 | 7569989 | 7.71 | 1.46 | 0.08 | 5.24 | 0.62 | 3.08 | 0.02 | 0.08 | 0.014 | 0.049 | 77.74 | 0.02 |
| **WD036** | 280310 | 7569980 | 33.3 | 3.52 | 0.28 | 11.61 | 1.64 | 11.92 | 0.25 | 0.15 | 0.081 | 0.023 | 5.91 | 0.05 |
| **WD037** | 280329 | 7569954 | 34.18 | 5.77 | 0.08 | 15.93 | 1.75 | 11.54 | 0.03 | 0.12 | 0.042 | 0.023 | 6.66 | 0.26 |

| Sample | Easting | Northing | Mn % | Al2O3 % | CaO % | Fe % | $K_2O$ % | LOI % | MgO % | $Na_2O$ % | P % | S % | $SiO_2$ % | $TiO_2$ % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WD038** | 280307 | 7569895 | 24.2 | 5.63 | 0.06 | 6.73 | 1.79 | 8.15 | 0.04 | 0.34 | 0.018 | 0.013 | 39.62 | 0.2 |
| **WD039** | 280366 | 7569792 | 35 | 7.3 | 0.22 | 8.69 | 2.45 | 12.54 | 0.16 | 0.34 | 0.01 | 0.007 | 13.61 | 0.05 |
| **WD040** | 280129 | 7569555 | 2.17 | 13.17 | 0.02 | 41.85 | 0.24 | 9.99 | 0.03 | 0.03 | 0.057 | 0.059 | 13.82 | 0.77 |
| **WD041** | 280183 | 7569443 | 28.3 | 15.84 | 0.39 | 9.86 | 1.43 | 14.53 | 0.19 | 0.21 | 0.039 | 0.02 | 11.58 | 1.13 |
| **WD042** | 280182 | 7569600 | 1.01 | 19.31 | 0.04 | 33.53 | 0.15 | 12.46 | 0.1 | 0.02 | 0.061 | 0.052 | 18.76 | 1.14 |
| **WD043** | 280457 | 7569832 | 41.56 | 6.2 | 0.32 | 4.96 | 3.77 | 11.84 | 0.12 | 0.22 | 0.024 | 0.045 | 10.09 | 0.05 |
| **WD044** | 280442 | 7569780 | 1.24 | 1.12 | 0.08 | 2.79 | 0.21 | 1.48 | 0.07 | 0.02 | 0.003 | 0.022 | 92.55 | 0.04 |
| **WD045** | 280481 | 7569615 | 42.16 | 7.33 | 0.44 | 4.07 | 3.4 | 12.79 | 0.51 | 0.46 | 0.072 | 0.057 | 9 | 0.07 |
| **WD046** | 280714 | 7569623 | 7.71 | 1.64 | 0.34 | 50.62 | 0.69 | 3.45 | 0.03 | 0.07 | 0.038 | 0.187 | 11.17 | 0.07 |
| **WD047** | 280625 | 7569578 | 40.56 | 6.98 | 0.22 | 3.85 | 2.98 | 12.29 | 0.14 | 0.48 | 0.008 | 0.04 | 11.84 | 0.08 |
| **WD048** | 280467 | 7569614 | 29.46 | 3.47 | 3.34 | 11.2 | 2.52 | 13.93 | 1.89 | 0.66 | 0.078 | 0.041 | 15.91 | 0.03 |
| **WD049** | 280474 | 7569626 | 36.43 | 9.01 | 0.53 | 2.84 | 3.23 | 12.01 | 0.48 | 0.39 | 0.054 | 0.017 | 18.77 | 0.15 |

## Table 2: Donkey and Crossroads Rock Chip Results

| Sample | Easting | Northing | $Al_2O_3$% | CaO % | Fe % | $K_2O$% | LOI% | MgO% | Mn% | $SiO_2$ % | SO3% | $TiO_2$% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DKJP056** | 284532 | 7575790 | 2.16 | 0.12 | 24.5 | 1.52 | 12.7 | 0.05 | 33.1 | 2.34 | 0.03 | 0.08 |
| **DKJP057** | 284577 | 7575907 | 1.11 | 0.15 | 14.3 | 1.26 | 12.8 | 0.07 | 44.1 | 2.48 | 0.11 | -0.01 |
| **DY001** | 284736 | 7575990 | 2.35 | 0.83 | 21.1 | 1.34 | 14.1 | 0.56 | 34.1 | 4.2 | 0.12 | 0.09 |
| **DY002** | 284720 | 7575997 | 1.5 | 0.24 | 2.21 | 2.44 | 12.6 | 0.25 | 55.2 | 2.57 | 0.06 | 0.06 |
| **DY003** | 284789 | 7575957 | 2.39 | 0.81 | 13.6 | 0.94 | 14.1 | 0.5 | 42.3 | 3.28 | 0.11 | 0.04 |
| **DY004** | 284579 | 7575919 | 1.44 | 0.26 | 3.32 | 2.15 | 13 | 0.21 | 55.3 | 1.64 | 0.07 | 0.02 |
| **DY005** | 284597 | 7575829 | 6.67 | 0.13 | 8.8 | 1.37 | 13.7 | 0.15 | 43.2 | 5.18 | 0.09 | 0.58 |
| **DY006** | 284528 | 7575796 | 2.67 | 0.1 | 16.6 | 1.58 | 13.5 | 0.11 | 39.6 | 1.9 | 0.05 | 0.1 |
| **DY007** | 284519 | 7575745 | 1.95 | 0.09 | 7.87 | 1.05 | 13.1 | 0.06 | 50.9 | 1.4 | 0.06 | 0.04 |
| **DY008** | 284490 | 7575732 | 1.12 | 0.03 | 56.1 | 0.11 | 11.2 | 0.07 | 1.72 | 2.39 | 0.11 | 0.06 |
| **DY009** | 284503 | 7575796 | 2.08 | 0.09 | 31.4 | 1.65 | 12.5 | 0.28 | 25.7 | 3.21 | 0.08 | 0.09 |
| **DY010** | 284486 | 7575761 | 4.02 | 0.07 | 17.6 | 2.07 | 13.5 | 0.15 | 37.4 | 3.53 | 0.08 | 0.15 |
| **DY011** | 284467 | 7575754 | 2.17 | 0.23 | 25.5 | 2.37 | 12.7 | 0.23 | 27.7 | 7.15 | 0.09 | 0.09 |
| **DY012** | 284399 | 7575726 | 6.47 | 0.04 | 25.6 | 1.59 | 13.6 | 0.09 | 27.4 | 3.99 | 0.1 | 0.34 |
| **DY013** | 284411 | 7575701 | 6.94 | 0.07 | 8.56 | 1.93 | 14.4 | 0.12 | 44.1 | 3.28 | 0.08 | 0.41 |
| **DY014** | 284393 | 7575601 | 3.75 | 0.13 | 3.03 | 2.29 | 13.4 | 0.14 | 53.3 | 1.1 | 0.05 | 0.07 |
| **DY015** | 284386 | 7575544 | 7.54 | 0.05 | 29.6 | 0.66 | 13.6 | 0.19 | 22.6 | 4.51 | 0.22 | 0.3 |
| **PM102326** | 284750 | 7574422 | 1.22 | 0.1 | 4.88 | 1.35 | 12.6 | 0.06 | 52.6 | 5 | 0.06 | 0.03 |
| **PM106821** | 284722 | 7574539 | 2.36 | 0.08 | 9.43 | 1.6 | 13 | 0.03 | 48.9 | 0.92 | 0.04 | 0.06 |
| **PM106822** | 284605 | 7575071 | 3.11 | 0.13 | 18 | 0.89 | 12.8 | 0.08 | 34.5 | 8.89 | 0.08 | 0.1 |
| **PM106823** | 284577 | 7575104 | 3.27 | 0.12 | 11.4 | 2.04 | 13.2 | 0.05 | 41.7 | 6.15 | 0.08 | 0.1 |
| **PM106824** | 284778 | 7574396 | 1.31 | 0.07 | 3.84 | 1.24 | 10.7 | -0.01 | 45.3 | 17.3 | 0.06 | 0.03 |
| **PM106825** | 284642 | 7574993 | 1.26 | 0.09 | 18.6 | 1.05 | 13.2 | 0.04 | 40 | 2.43 | 0.05 | 0.04 |

## Table 3: Donkey Drill Results

| Hole | Type | Easting | Northing | Maximum Depth | Azimuth | Dip |
|---|---|---|---|---|---|---|
| **DKAT1** | AC | 284727.6 | 7574550 | 6 | 0 | -90 |
| **DKAT10** | AC | 284446.8 | 7574357 | 3 | 0 | -90 |
| **DKAT11** | AC | 284438.7 | 7574335 | 3 | 0 | -90 |
| **DKAT12** | AC | 284629.6 | 7574372 | 13 | 0 | -90 |
| **DKAT13** | AC | 284634 | 7574363 | 6 | 0 | -90 |
| **DKAT14** | AC | 284638.4 | 7574355 | 6 | 0 | -90 |
| **DKAT15** | AC | 284642.7 | 7574347 | 6 | 0 | -90 |
| **DKAT16** | AC | 284647 | 7574339 | 21 | 0 | -90 |
| **DKAT17** | AC | 284655.1 | 7574343 | 6 | 0 | -90 |
| **DKAT18** | AC | 284663.1 | 7574348 | 4 | 0 | -90 |
| **DKAT19** | AC | 284671.3 | 7574352 | 14 | 0 | -90 |
| **DKAT2** | AC | 284744.7 | 7574555 | 6 | 0 | -90 |
| **DKAT20** | AC | 284667.1 | 7574360 | 13 | 0 | -90 |
| **DKAT21** | AC | 284679.5 | 7574356 | 19 | 0 | -90 |
| **DKAT22** | AC | 284675.6 | 7574344 | 18 | 0 | -90 |
| **DKAT23** | AC | 284662.1 | 7574389 | 9 | 0 | -90 |
| **DKAT24** | AC | 284670.3 | 7574393 | 12 | 0 | -90 |
| **DKAT25** | AC | 284665.9 | 7574401 | 12 | 0 | -90 |
| **DKAT26** | AC | 284752.2 | 7574406 | 19 | 0 | -90 |
| **DKAT27** | AC | 284748 | 7574414 | 9 | 0 | -90 |
| **DKAT28** | AC | 284784.7 | 7574423 | 7 | 0 | -90 |
| **DKAT29** | AC | 284740.5 | 7574457 | 6 | 0 | -90 |
| **DKAT30** | AC | 284733.7 | 7574469 | 9 | 0 | -90 |
| **DKAT31** | AC | 284755.5 | 7574350 | 15 | 0 | -90 |
| **DKAT32** | AC | 284689.2 | 7574456 | 9 | 0 | -90 |
| **DKAT33** | AC | 284685 | 7574464 | 6 | 0 | -90 |
| **DKAT34** | AC | 284676.8 | 7574460 | 7 | 0 | -90 |
| **DKAT35** | AC | 284668.6 | 7574455 | 8 | 0 | -90 |
| **DKAT4** | AC | 284761.9 | 7574572 | 6 | 0 | -90 |
| **DKAT5** | AC | 284736.5 | 7574575 | 6 | 0 | -90 |
| **DKAT6** | AC | 284685.5 | 7574480 | 3 | 0 | -90 |
| **DKAT7** | AC | 284669.7 | 7574478 | 5 | 0 | -90 |
| **DKAT8** | AC | 284659.7 | 7574466 | 4 | 0 | -90 |
| **DKAT9** | AC | 284454.2 | 7574345 | 8 | 0 | -90 |
| **DKRC019** | RC | 284677.6 | 7574591 | 40 | 0 | -90 |
| **DKRC020** | RC | 284681.6 | 7574534 | 34 | 0 | -90 |
| **DKRC021** | RC | 284708.1 | 7574560 | 34 | 0 | -90 |
| **DKRC022** | RC | 284737.3 | 7574528 | 34 | 0 | -90 |
| **DKRC023** | RC | 284768 | 7574443 | 34 | 0 | -90 |
| **DKRC024** | RC | 284763.8 | 7574411 | 28 | 0 | -90 |
| **DKRC025** | RC | 284736.2 | 7574472 | 34 | 0 | -90 |
| **DKRC026** | RC | 284742.3 | 7574383 | 22 | 0 | -90 |

| Hole | Type | Easting | Northing | Maximum Depth | Azimuth | Dip |
|---|---|---|---|---|---|---|
| **DKRC027** | RC | 284708.9 | 7574415 | 34 | 0 | -90 |
| **DKRC028** | RC | 284767.2 | 7574347 | 28 | 0 | -90 |
| **DKRC029** | RC | 284800.3 | 7574321 | 22 | 0 | -90 |
| **DKRC032** | RC | 284709.8 | 7574291 | 34 | 0 | -90 |
| **DKRC033** | RC | 284616.3 | 7574531 | 40 | 0 | -90 |
| **DKRC034** | RC | 284588.3 | 7574500 | 34 | 0 | -90 |
| **DKRC035** | RC | 284587.8 | 7574471 | 28 | 0 | -90 |
| **DKRC036** | RC | 284707.7 | 7574439 | 28 | 0 | -90 |
| **DKRC037** | RC | 284706.7 | 7574496 | 28 | 0 | -90 |
| **DKRC038** | RC | 284679.3 | 7574469 | 22 | 0 | -90 |
| **DKRC039** | RC | 284649.5 | 7574497 | 28 | 0 | -90 |
| **DKRC040** | RC | 284648 | 7574562 | 22 | 0 | -90 |
| **DKRC041** | RC | 284619 | 7574378 | 34 | 0 | -90 |
| **DKRC042** | RC | 284643.4 | 7574349 | 28 | 0 | -90 |
| **DKRC043** | RC | 284677.8 | 7574381 | 22 | 0 | -90 |
| **DKRC044** | RC | 284619.5 | 7574350 | 28 | 0 | -90 |
| **DKRC045** | RC | 284730.7 | 7574500 | 22 | 0 | -90 |
| **DKRC046** | RC | 284687.2 | 7574494 | 28 | 0 | -90 |
| **DKRC047** | RC | 284649.7 | 7574471 | 22 | 0 | -90 |
| **DKRC048** | RC | 284647.6 | 7574321 | 28 | 0 | -90 |
| **DKRC049** | RC | 284679.2 | 7574321 | 28 | 0 | -90 |
| **DKRC050** | RC | 284680.3 | 7574289 | 28 | 0 | -90 |
| **DKRC051** | RC | 284654.4 | 7574260 | 28 | 0 | -90 |
| **DKRC052** | RC | 284742.1 | 7574290 | 28 | 0 | -90 |
| **DKRC053** | RC | 284710.3 | 7574261 | 22 | 0 | -90 |
| **DKRC056** | RC | 284618.9 | 7574592 | 16 | 0 | -90 |
| **DKRC057** | RC | 284481.6 | 7574497 | 22 | 0 | -90 |
| **DKRC058** | RC | 284469.1 | 7574380 | 16 | 0 | -90 |
| **DKRC1** | RC | 284726.3 | 7574292 | 18 | 0 | -90 |
| **DKRC10** | RC | 284746.3 | 7574392 | 25 | 0 | -90 |
| **DKRC11** | RC | 284746.3 | 7574412 | 22 | 0 | -90 |
| **DKRC12** | RC | 284786.3 | 7574432 | 25 | 0 | -90 |
| **DKRC13** | RC | 284746.3 | 7574332 | 25 | 0 | -90 |
| **DKRC14** | RC | 284726.3 | 7574312 | 28 | 0 | -90 |
| **DKRC15** | RC | 284706.3 | 7574292 | 33 | 0 | -90 |
| **DKRC16** | RC | 284746.3 | 7574312 | 13 | 0 | -90 |
| **DKRC17** | RC | 284746.3 | 7574352 | 13 | 0 | -90 |
| **DKRC18** | RC | 284786.3 | 7574412 | 13 | 0 | -90 |
| **DKRC2** | RC | 284746.3 | 7574292 | 30 | 0 | -90 |
| **DKRC3** | RC | 284726.3 | 7574502 | 40 | 0 | -90 |
| **DKRC4** | RC | 284726.3 | 7574522 | 22 | 0 | -90 |
| **DKRC5** | RC | 284726.3 | 7574482 | 22 | 0 | -90 |
| **DKRC6** | RC | 284766.3 | 7574392 | 25 | 0 | -90 |

| Hole | Type | Easting | Northing | Maximum Depth | Azimuth | Dip |
|---|---|---|---|---|---|---|
| **DKRC7** | RC | 284766.3 | 7574412 | 22 | 0 | -90 |
| **DKRC8** | RC | 284766.3 | 7574432 | 25 | 0 | -90 |
| **DKRC9** | RC | 284746.3 | 7574372 | 30 | 0 | -90 |
| **DYAT1** | AC | 284642.1 | 7574368 | 6 | 0 | -90 |
| **DYAT10** | AC | 284680.1 | 7574336 | 9 | 0 | -90 |
| **DYAT11** | AC | 284683.9 | 7574348 | 9 | 0 | -90 |
| **DYAT12** | AC | 284692 | 7574353 | 9 | 0 | -90 |
| **DYAT13** | AC | 284687.7 | 7574361 | 6 | 0 | -90 |
| **DYAT14** | AC | 284675.2 | 7574364 | 12 | 0 | -90 |
| **DYAT15** | AC | 284656.7 | 7574438 | 11 | 0 | -90 |
| **DYAT16** | AC | 284664.8 | 7574443 | 9 | 0 | -90 |
| **DYAT17** | AC | 284660.5 | 7574451 | 10 | 0 | -90 |
| **DYAT18** | AC | 284656.2 | 7574459 | 9 | 0 | -90 |
| **DYAT19** | AC | 284648 | 7574455 | 6 | 0 | -90 |
| **DYAT2** | AC | 284646.5 | 7574360 | 12 | 0 | -90 |
| **DYAT20** | AC | 284673 | 7574447 | 9 | 0 | -90 |
| **DYAT21** | AC | 284681.1 | 7574451 | 10 | 0 | -90 |
| **DYAT22** | AC | 284672.4 | 7574468 | 9 | 0 | -90 |
| **DYAT23** | AC | 284639.9 | 7574450 | 9 | 0 | -90 |
| **DYAT24** | AC | 284644.2 | 7574442 | 10 | 0 | -90 |
| **DYAT25** | AC | 284648.6 | 7574434 | 9 | 0 | -90 |
| **DYAT3** | AC | 284650.8 | 7574351 | 10 | 0 | -90 |
| **DYAT4** | AC | 284638.9 | 7574335 | 9 | 0 | -90 |
| **DYAT5** | AC | 284625.8 | 7574359 | 10 | 0 | -90 |
| **DYAT6** | AC | 284659.5 | 7574335 | 9 | 0 | -90 |
| **DYAT7** | AC | 284667.6 | 7574340 | 10 | 0 | -90 |
| **DYAT8** | AC | 284663.8 | 7574327 | 9 | 0 | -90 |
| **DYAT9** | AC | 284672 | 7574331 | 11 | 0 | -90 |

| Hole | From | To | Interval | Mn% | Fe% | $SiO_2$% | $Al_2O_3$% |
|---|---|---|---|---|---|---|---|
| **DKAT11** | 0 | 2 | 2 | 36.5 | 11.2 | 11.05 | 3.8 |
| **DKAT10** | Not assayed | | | | | | |
| **DKAT9** | 0 | 3 | 3 | 38.33 | 9.73 | 11.27 | 4.23 |
| **DKAT1** | 0 | 3 | 3 | 29.33 | 19.67 | 9.7 | 6.17 |
| **DKAT5** | Not assayed | | | | | | |
| **DKAT2** | 0 | 4 | 4 | 30.25 | 25 | 5.28 | 4.32 |
| **DKAT4** | 2 | 5 | 3 | 36 | 14 | 10.33 | 6.13 |
| **DKAT6** | 0 | 2 | 2 | 38 | 6.65 | 17 | 5.4 |
| **DKAT7** | 0 | 4 | 4 | 44.75 | 6.37 | 13.4 | 2.1 |
| **DKAT8** | 1 | 3 | 2 | 50 | 4.5 | 6.25 | 1.75 |
| **DKAT12** | 0 | 1 | 1 | 24.4 | 10.6 | 28 | 4.2 |
| **DKAT13** | 2 | 5 | 3 | 32 | 19.4 | 10.33 | 2.33 |
| **DKAT14** | 3 | 4 | 1 | 20.6 | 18.5 | 18 | 6 |
| **DKAT15** | 2 | 3 | 1 | 30.9 | 8 | 21 | 5.6 |
| **DKAT18** | 0 | 3 | 3 | 22.73 | 18.57 | 20 | 4.56 |
| **DKAT19** | 1 | 2 | 1 | 28.3 | 8.2 | 25 | 5.3 |
| **DKAT19** | 3 | 14 | 11 | 24.65 | 7.59 | 31.9 | 4.06 |
| **DKAT2** | 0 | 4 | 4 | 30.25 | 25 | 5.27 | 4.32 |
| **DKAT20** | No significant intercepts | | | | | | |
| **DKAT21** | 9 | 15 | 6 | 27.16 | 10.04 | 24 | 5.28 |
| **DKAT22** | 13 | 17 | 4 | 28.4 | 16.3 | 20.25 | 3.37 |
| **DKAT23** | 3 | 7 | 4 | 25.27 | 3.77 | 36.75 | 3.12 |
| **DKAT24** | 2 | 9 | 7 | 19.15 | 7.85 | 33.66 | 4.18 |
| **DKAT27** | 3 | 4 | 1 | 18.8 | 12.1 | 23 | 7.4 |
| **DKAT28** | 1 | 2 | 1 | 19.7 | 11.6 | 30 | 6.1 |
| **DKAT29** | 0 | 2 | 2 | 23.8 | 17.25 | 15.5 | 6.75 |
| **DKAT30** | 0 | 1 | 1 | 32 | 17.8 | 10 | 5.6 |
| **DKAT31** | 0 | 1 | 1 | 37.3 | 11.6 | 11 | 5.7 |
| **DKAT32** | 0 | 1 | 1 | 20.6 | 8.7 | 36 | 5.6 |
| **DKAT33** | 0 | 2 | 2 | 20.85 | 6.45 | 31.5 | 9.8 |
| **DKAT34** | 0 | 4 | 4 | 20.07 | 9.05 | 28.5 | 6.35 |
| **DKAT35** | 0 | 5 | 5 | 40.8 | 5.07 | 17.5 | 2.97 |
| **DKAT4** | 2 | 5 | 3 | 36 | 14 | 10.33 | 6.13 |
| **DKAT5** | Not assayed | | | | | | |
| **DKAT6** | 0 | 2 | 2 | 38 | 6.65 | 17 | 5.4 |
| **DKAT7** | 0 | 4 | 4 | 44.75 | 6.37 | 13.4 | 2.1 |
| **DKAT8** | 1 | 3 | 2 | 50 | 4.5 | 6.25 | 1.75 |
| **DKAT9** | 0 | 3 | 3 | 38.33 | 9.73 | 11.27 | 4.23 |
| **DKRC019** | No significant intercepts | | | | | | |
| **DKRC020** | No significant intercepts | | | | | | |
| **DKRC021** | No significant intercepts | | | | | | |
| **DKRC022** | No significant intercepts | | | | | | |
| **DKRC023** | 2 | 3 | 1 | 20.53 | 13.68 | 26.87 | 6.99 |

| Hole | From | To | Interval | Mn% | Fe% | $SiO_2$% | $Al_2O_3$% |
|---|---|---|---|---|---|---|---|
| **DKRC024** | 0 | 6 | 6 | 32.58 | 10.89 | 17.99 | 5.64 |
| **DKRC025** | No significant intercepts | | | | | | |
| **DKRC026** | 3 | 4 | 1 | 22.98 | 15.43 | 23.81 | 3.73 |
| **DKRC026** | 6 | 7 | 1 | 26.51 | 7.87 | 27.66 | 8.6 |
| **DKRC026** | 12 | 13 | 1 | 17.58 | 22.97 | 21.77 | 7.02 |
| **DKRC027** | 0 | 2 | 2 | 23.45 | 19.73 | 18.97 | 6.98 |
| **DKRC027** | 20 | 21 | 1 | 15.7 | 27.97 | 19.94 | 4.72 |
| **DKRC028** | 17 | 19 | 2 | 17.48 | 19.32 | 29.205 | 5.52 |
| **DKRC029** | 8 | 9 | 1 | 17.51 | 6.08 | 40.08 | 6.46 |
| **DKRC030** | 18 | 19 | 1 | 19.81 | 6.46 | 39.07 | 9.48 |
| **DKRC031** | No significant intercepts | | | | | | |
| **DKRC032** | 10 | 18 | 8 | 29.5 | 16.3 | 15.23 | 4.22 |
| **DKRC033** | 6 | 11 | 5 | 22.13 | 15.47 | 24.85 | 8.2 |
| **DKRC034** | No significant intercepts | | | | | | |
| **DKRC035** | 9 | 14 | 5 | 28.15 | 17.14 | 18.18 | 4.58 |
| **DKRC036** | No significant intercepts | | | | | | |
| **DKRC037** | 0 | 6 | 6 | 22.35 | 16.46 | 22.19 | 8.16 |
| **DKRC038** | 2 | 4 | 2 | 24.39 | 13.94 | 19.97 | 7.96 |
| **DKRC039** | 11 | 12 | 1 | 18.25 | 17.79 | 33.24 | 4.66 |
| **DKRC039** | 14 | 16 | 2 | 18.15 | 19.15 | 25.28 | 8.93 |
| **DKRC040** | No significant intercepts | | | | | | |
| **DKRC041** | 3 | 10 | 7 | 28.19 | 16.37 | 18.49 | 5.57 |
| **DKRC041** | 19 | 20 | 1 | 28.47 | 9.3 | 23.68 | 8.57 |
| **DKRC041** | 24 | 25 | 1 | 21.29 | 11.02 | 31.84 | 8.72 |
| **DKRC042** | No significant intercepts | | | | | | |
| **DKRC043** | No significant intercepts | | | | | | |
| **DKRC044** | No significant intercepts | | | | | | |
| **DKRC045** | 0 | 6 | 6 | 30.8 | 19.06 | 8.98 | 5.32 |
| **DKRC046** | 7 | 8 | 1 | 20.58 | 17.75 | 21.74 | 8.31 |
| **DKRC047** | No significant intercepts | | | | | | |
| **DKRC048** | 22 | 24 | 2 | 29.69 | 16.92 | 14.76 | 4.94 |
| **DKRC049** | 19 | 23 | 4 | 25.02 | 8.7 | 35.08 | 5.1 |
| **DKRC050** | 18 | 22 | 4 | 24.76 | 10.55 | 31.27 | 5.98 |
| **DKRC051** | 22 | 23 | 1 | 15.29 | 13.13 | 43.54 | 5.85 |
| **DKRC052** | 5 | 10 | 5 | 23.16 | 5.76 | 43.88 | 3.06 |
| **DKRC052** | 19 | 20 | 1 | 32.1 | 4.89 | 32 | 3.04 |
| **DKRC053** | No significant intercepts | | | | | | |
| **DKRC054** | 1 | 9 | 8 | 21 | 20.36 | 19.17 | 3.79 |
| **DKRC055** | No significant intercepts | | | | | | |
| **DKRC056** | No significant intercepts | | | | | | |
| **DKRC057** | 0 | 3 | 3 | 30.54 | 13.3 | 12.77 | 9.48 |
| **DKRC058** | No significant intercepts | | | | | | |
| **DKRC1** | 1 | 6 | 5 | 31.1 | 8.42 | 27.74 | 4.26 |

| Hole | From | To | Interval | Mn% | Fe% | $SiO_2$% | $Al_2O_3$% |
|---|---|---|---|---|---|---|---|
| **DKRC1** | 8 | 9 | 1 | 19.67 | 0.93 | 54.53 | 5.86 |
| **DKRC10** | 0 | 2 | 2 | 24.6 | 12.09 | 25.76 | 6.1 |
| **DKRC10** | 3 | 4 | 1 | 24.48 | 5.22 | 37.3 | 6.31 |
| **DKRC10** | 5 | 6 | 1 | 34.13 | 5.78 | 20.56 | 8.97 |
| **DKRC11** | 0 | 3 | 3 | 23.32 | 5.27 | 38.5 | 8.42 |
| **DKRC13** | 2 | 3 | 1 | 17.04 | 12.07 | 39.66 | 3.29 |
| **DKRC14** | 0 | 5 | 5 | 19.52 | 19.75 | 21.7 | 5.81 |
| **DKRC15** | 11 | 18 | 7 | 31.04 | 15.43 | 15.7 | 5.13 |
| **DKRC16** | No significant intercepts | | | | | | |
| **DKRC17** | No significant intercepts | | | | | | |
| **DKRC18** | No significant intercepts | | | | | | |
| **DKRC2** | 2 | 8 | 6 | 27.49 | 4.5 | 40.12 | 3.11 |
| **DKRC3** | 1 | 7 | 6 | 25.69 | 21.85 | 11.18 | 7.05 |
| **DKRC4** | 0 | 6 | 6 | 29.8 | 19.75 | 8.78 | 6.54 |
| **DKRC6** | 0 | 6 | 6 | 28.77 | 9.29 | 30.43 | 3.67 |
| **DKRC7** | 1 | 5 | 4 | 36.25 | 6.89 | 18.43 | 6.35 |
| **DKRC8** | No significant intercepts | | | | | | |
| **DKRC9** | 2 | 3 | 1 | 22.19 | 3.91 | 39.12 | 5.58 |
| **DKRC9** | 5 | 9 | 4 | 24.39 | 6.94 | 33.11 | 6.45 |
| **DYAT1** | Not assayed | | | | | | |
| **DYAT10** | Not assayed | | | | | | |
| **DYAT11** | Not assayed | | | | | | |
| **DYAT12** | 4 | 6 | 2 | 22.75 | 10.35 | 31 | 5.25 |
| **DYAT13** | Not assayed | | | | | | |
| **DYAT14** | Not assayed | | | | | | |
| **DYAT15** | Not assayed | | | | | | |
| **DYAT16** | 0 | 1 | 1 | 26.2 | 7.9 | 30 | 4.5 |
| **DYAT17** | 0 | 1 | 1 | 19.5 | 7.6 | 38 | 4.5 |
| **DYAT17** | 4 | 5 | 1 | 30.4 | 10.4 | 27 | 5 |
| **DYAT18** | 0 | 1 | 1 | 16.8 | | | |
| **DYAT18** | 3 | 4 | 1 | 31.8 | 13.5 | 18 | 3.8 |
| **DYAT19** | 0 | 3 | 3 | 21.07 | 11.23 | 29 | 5.83 |
| **DYAT2** | 7 | 8 | 1 | 24 | 3.5 | 52 | 3.6 |
| **DYAT20** | 0 | 1 | 1 | 24 | 6.8 | 33 | 5.6 |
| **DYAT21** | Not assayed | | | | | | |
| **DYAT22** | 0 | 3 | 3 | 31.77 | 8.77 | 20.67 | 5.63 |
| **DYAT23** | 0 | 5 | 5 | 29.52 | 16.1 | 14.25 | 3.42 |
| **DYAT24** | 0 | 1 | 1 | 23.7 | 12.1 | 33 | 3.7 |
| **DYAT25** | No significant intercepts | | | | | | |
| **DYAT3** | 1 | 8 | 7 | 18.41 | 26.73 | 42 | 3.8 |
| **DYAT4** | Not assayed | | | | | | |
| **DYAT5** | Not assayed | | | | | | |
| **DYAT6** | Not assayed | | | | | | |

| Hole | From | To | Interval | Mn% | Fe% | $SiO_2$% | $Al_2O_3$% |
|---|---|---|---|---|---|---|---|
| **DYAT7** | 1 | 7 | 6 | 27.8 | | | |
| **DYAT8** | | | | Not assayed | | | |
| **DYAT9** | | | | Not assayed | | | |

### Table 4 (A): Disraeli Rock Chip Results (>35% Mn) by Australian and New Zealand Exploration 1977 (a7613)

| Sample | East (MGA) | North (MGA) | Mn (%) |
|---|---|---|---|
| **AL-EC-0S1** | 316075.4 | 7550777 | 37.4 |
| **AL-EC-0S2** | 316033.4 | 7550692 | 40.3 |
| **AL-EC-0S3** | 316018.9 | 7550625 | 41.7 |
| **AL-EC-0S4** | 316075.7 | 7550828 | 34.2 |
| **AL-EC-0S5** | 316071.9 | 7550915 | 38.4 |
| **AL-EC-0S6** | 316059.4 | 7550996 | 42.6 |
| **AL-EC-0S7** | 316152.3 | 7550458 | 51.1 |
| **AL-EC-0S8** | 316154.8 | 7550380 | 37.0 |
| **AL-EC-0S9** | 316215.1 | 7550248 | 36.0 |

### Table 4(B): Disraeli Rock Chip Results (>40% Mn) by Planet Mining 2004 (a71400)

| Sample | East (MGA) | North (MGA) | Type | Mn (%) |
|---|---|---|---|---|
| **CR39** | 314527 | 7550300 | Rock Chip | 51.1 |
| **CR40** | 314502 | 7550320 | Rock Chip | 49.7 |
| **448042** | 315781 | 7554758 | Rock Chip | 49.6 |
| **448059** | 314621 | 7549877 | Rock Chip | 49.3 |
| **448060** | 314462 | 7549916 | Rock Chip | 48.6 |
| **448062** | 314462 | 7549916 | Rock Chip | 48.2 |
| **CR38** | 314977 | 7549545 | Rock Chip | 48.1 |
| **448044** | 314330 | 7550423 | Rock Chip | 45.2 |
| **448054** | 314370 | 7550498 | Rock Chip | 44.8 |
| **448068** | 314462 | 7549916 | Rock Chip | 42.8 |
| **448050** | 314338 | 7550837 | Rock Chip | 42.7 |
| **448079** | 314333 | 7550847 | Rock Chip | 42.6 |
| **448058** | 314621 | 7549877 | Rock Chip | 42.3 |
| **CR34** | 314751 | 7550025 | Rock Chip | 42.0 |
| **448066** | 314462 | 7549916 | Rock Chip | 41.6 |
| **448061** | 314462 | 7549916 | Rock Chip | 41.3 |
| **448056** | 314359 | 7550504 | Rock Chip | 41.0 |
| **448043** | 314313 | 7550376 | Rock Chip | 40.5 |
| **CR43** | 314449 | 7550505 | Rock Chip | 40.4 |
| **CR54** | 315340 | 7550080 | Rock Chip | 40.3 |
| **CR08** | 314485 | 7550983 | Rock Chip | 40.2 |
| **448067** | 314462 | 7549916 | Rock Chip | 40.2 |

## Table 5: Disraeli Drill Results by Spitfire (2013) (reported using 8% Mn cut-off)

| Hole | Easting GDA94 | Northing GDA94 | Elevation metres | Hole Depth metres | Drill Type | Dip degrees | Azimuth MAG |
|---|---|---|---|---|---|---|---|
| **SWW317** | 311571 | 7550304 | 346 | 100 | RC | -90 | 0 |
| **SWW318** | 311743 | 7550358 | 346 | 112 | RC | -90 | 0 |
| **SWW319** | 311691 | 7550456 | 346 | 100 | RC | -90 | 0 |
| **SWW320** | 311419 | 7550258 | 346 | 100 | RC | -90 | 0 |
| **SWW321** | 311824 | 7550069 | 346 | 118 | RC | -90 | 0 |
| **SWW322** | 306251 | 7545806 | 346 | 118 | RC | -90 | 0 |

| Hole | From (m) | To (m) | Mn (%) |
|---|---|---|---|
| SWW320 | 76 | 77 | 11.8 |
| | 77 | 78 | 18.1 |
| | 78 | 79 | 29.8 |
| | 79 | 80 | 23.9 |
| | 80 | 81 | 16.1 |
| | 81 | 82 | 14.6 |
| | 82 | 83 | 10.0 |
| | 83 | 84 | 3.5 |
| | 84 | 85 | 12.5 |
| | 85 | 86 | 8.5 |
| | 86 | 87 | 11.5 |
| | 87 | 88 | 8.1 |
| | 88 | 89 | 5.3 |
| | 89 | 90 | 21.3 |
| | 90 | 91 | 21.8 |
| | 91 | 92 | 11.7 |
| | 92 | 93 | 10.7 |
| SWW321 | 93 | 94 | 9.1 |
| | 94 | 95 | 12.0 |
| | 95 | 96 | 11.5 |
| | 98 | 99 | 11.4 |
| | 99 | 100 | 23.4 |
| SWW322 | 93 | 94 | 11.5 |
| | 94 | 95 | 10.5 |
| | 95 | 96 | 13.7 |
| | 96 | 97 | 20.1 |
| | 97 | 98 | 24.0 |
| | 98 | 99 | 18.2 |

| Hole | From (m) | To (m) | Mn (%) |
|---|---|---|---|
| | 99 | 100 | 11.7 |
| | 100 | 101 | 10.9 |
| | 101 | 102 | 17.0 |
| | 102 | 103 | 12.0 |
| | 103 | 104 | 16.3 |
| | 104 | 105 | 11.6 |


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## Appendix 2: JORC Tables

### JORC Code, 2012 Edition – Table 1 (Wandanya Project)

### Section 1 Sampling Techniques and Data

*(Criteria in this section apply to all succeeding sections)*

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Sampling techniques*** | • *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.* | **Rock Chip Sampling:**<br>• Rock chip samples were collected manually from a small zone of manganese mineralisation in outcropping dolomite. Samples were collected from the surface, however the quantity of material collected is unknown.<br>• Selective rock chip sampling was undertaken across the Wandanya, Donkey and Crossroads prospects by Talisman and Pilbara Manganese.<br>• Samples were dried, crushed, ring pulverised and analysed by X-Ray Fluorescence Spectrometry (XRF). The elements determined by XRF were $Al_2O_3$, Ba, CaO, Cr, Cu, Fe, $K_2O$, MgO, Mn, P, Pb, $SO_3$, $SiO_2$, $TiO_2$, $V_2O_5$, Zn. Loss on Ignition results were determined using a TGA system. Furnaces in the system were set to 1,000 degrees Celsius.<br>• The Competent Person (CP) considers that the sample techniques adopted were appropriate for the style of mineralisation and for reporting of an Exploration Result.<br><br>**Aircore and RC Drilling:**<br>• With respect to Aircore and RC drilling no further specifics were provided in previous reports in relation to sample sizes or methods of sample splitting.<br>• The Competent Person (CP) considers that the sample techniques adopted were appropriate for the style of mineralisation and for reporting of an Exploration Result. |
| ***Drilling techniques*** | • *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).* | Both aircore and RC drilling have been conducted across the Project. |
| ***Drill sample recovery*** | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.* | • Drilling is historical in nature and no records are available with respect to recoveries or specific sampling procedures. |
| ***Logging*** | • *Whether core and chip samples have been* | • Logging of RC and aircore drilling was of a |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | qualitative and quantitative nature and was generally of sufficient quality for inclusion in mineral resource estimation.<br>• All drill holes reported were logged. |
| ***Sub-sampling techniques and sample preparation*** | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • Rock chip samples of manganese mineralisation in outcropping dolomite collected from the surface. The sampling technique is appropriate as a first pass method to assess manganese anomalism at the surface however it is unknown whether the rock chip sampling methods were representative of the outcrop. No duplicate samples were recorded as being collected. The material and sample sizes are considered appropriate given the style of mineralisation being targeted.<br>• No records are available with respect to sub sampling methods or sample weights submitted due to the drilling being historical in nature. |
| ***Quality of assay data and laboratory tests*** | • *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*<br>• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*<br>• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.* | • Pilbara Manganese submitted drill samples and rock chips to SGS Australia Pty Ltd at their Woodie Woodie mine site laboratory and analysed by XRF for $Al_2O_3$, Ba, CaO, Cr, Cu, Fe, $K_2O$, MgO, Mn, P, Pb, $SO_3$, $SiO_2$, $TiO_2$, $V_2O_5$, Zn. Loss on Ignition results were determined using a TGA system. Furnaces in the system were set to 1,000 degrees Celsius.<br>• The use of duplicate, standard and blank samples by the laboratory is not recorded in the data. As the laboratory used internal quality control procedures to analyse samples, the rock chip analyses are considered suitable for regional geochemical exploration to aid in defining manganese targets. |
| ***Verification of sampling and assaying*** | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • Primary data on rock chips including, project, sample number, co-ordinates, zone, sample type, sample date, lithology, tenement number and laboratory job number were collated in a Company database, as evidenced by the WAMEX metadata. |
| ***Location of data points*** | • *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | • Rock chip sample locations and drill collars were located by handheld GPS. Expected accuracy is +/- 5m for northing and easting.<br>• GDA94 Zone 51 datum is used as the coordinate system.<br>• There is no record of topographic control in the WAMEX metadata.<br>• A detailed terrain survey is required in order to obtain adequate topographic control |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Data spacing and distribution*** | • *Data spacing for reporting of Exploration Results.*<br>• *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*<br>• *Whether sample compositing has been applied.* | • Rock chip sampling was conducted along outcropping surficial manganese mineralisation and isn't on a regular grid.<br>• Drilling was conducted from broad targeted drilling through to detailed 10x10m grids across areas of interest. The spacing on the detailed infilled area is sufficient for inclusion in a mineral resource estimation. |
| ***Orientation of data in relation to geological structure*** | • *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*<br>• *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.* | • Rock chip sample spacing, and orientation is considered suitable for regional geochemical exploration to define manganese targets.<br>• From a preliminary evaluation the drilling of vertical holes appears to be valid based on the flat lying to gently dipping mineralisation style. |
| ***Sample security*** | • *The measures taken to ensure sample security.* | • No records are available with respect to chain of custody of sample security. |
| ***Audits or reviews*** | • *The results of any audits or reviews of sampling techniques and data.* | • There is no record of any audits or reviews having been undertaken on the sampling data. |

## Section 2 Reporting of Exploration Results (Wandanya Project)

*(Criteria listed in the preceding section also apply to this section)*

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Mineral tenement and land tenure status*** | • *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*<br>• *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.* | • The Wandanya Project consists of two granted exploration licences (E46/1456 and 1457) located 40km WSW of the Woodie Woodie Manganese Mine in the Eastern Pilbara Region of Western Australia.<br>• Macro has entered into an agreement to acquire 80% of the Project from Firebird Metals Ltd.<br>• Mining Equities Pty Ltd holds a 1% Net Smelter Royalty, Mr Robert Jewson is a shareholder and director of Mining Equities Pty Ltd and a shareholder and a director of Macro Metals Ltd. |
| ***Exploration done by other parties*** | • *Acknowledgment and appraisal of exploration by other parties.* | • Historic exploration of relevance has been undertaken by Pilbara Manganese Pty Ltd and Talisman Mining Ltd.<br>• Work completed within E46/1456 and 1457 consisted of rock chip sampling, aircore drilling and RC drilling. |
| ***Geology*** | • *Deposit type, geological setting and style of mineralisation.* | • Manganese mineralisation in the eastern Pilbara is hosted by the Jeerinah Formation, Carawine Dolomite and parts of the Manganese Subgroup. |
| ***Drill hole Information*** | • *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*<br>  ○ *easting and northing of the drill hole collar* | • All location information and available drillhole metadata has been included as an appendix to this release.<br>• All information, including those with no significant results, is included in this release. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>○ *dip and azimuth of the hole*<br>○ *down hole length and interception depth*<br>○ *hole length.*<br>• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.* | |
| ***Data aggregation methods*** | • *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.*<br>• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • Length weighted averages of drill hole composites were calculated using a minimum cut off grade of 15% Mn and maximum internal dilution of 1m.<br>• No metal equivalents have been reported. |
| ***Relationship between mineralisation widths and intercept lengths*** | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').* | • The mineralisation appears to be flat lying to gently dipping and as such the results approximate true width intercepts. |
| ***Diagrams*** | • *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.* | • Refer to figures within the body of the release. |
| ***Balanced reporting*** | • *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.* | • All results including those with no significant results have been reported. |
| ***Other substantive exploration data*** | • *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.* | • All exploration data has been included in relation to the Project. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Further work*** | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | • Topographic survey to obtain survey control, detailed mapping and further sampling to define areas of interest. In addition, 3D geological modelling of the mineralisation based on available drilling. |

## JORC Code, 2012 Edition – Table 1 (Disraeli Project)

## Section 1 Sampling Techniques and Data

*(Criteria in this section apply to all succeeding sections)*

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Sampling techniques*** | • *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.* | • Sampling was undertaken using Industry-standard practices utilising reverse circulation drilling (RC). A 2-hole drilling program was undertaken by Spitfire Resources (2013).<br>• Soil sampling has also been undertaken by Australia and New Zealand Exploration Company in 1977 and Planet Metals in 2004.<br>• Drill hole coordinates are in MGA 94 Z 51.<br>• These samples are considered representative of where they were found, although presence of transported cover sequences in places may hinder sample representative mineralisation.<br>• The RC drilling was completed by composite sampling 2-4 m intervals with resampling of single meter intervals for anomalous zones.<br>• RC samples were taken from a rig mounted cyclone. |
| ***Drilling techniques*** | • *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).* | • The drilling by Spitfire was completed using RC drilling. From the information available from historical reports, it appears that the drilling was conducted using industry standard techniques. |
| ***Drill sample recovery*** | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.* | • Given the historical nature of drilling, no information is available about sample recoveries for specific drill programs.<br>• No bias is able to be determined based on their being no recovery information available. |
| ***Logging*** | • *Whether core and chip samples have been* | • Logs of the RC drill holes were generally of |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | reasonable quality<br>• Qualitative logging of lithology, alteration, mineralisation, regolith and veining was undertaken at various intervals.<br>• Majority of drill holes were logged in their entirety. |
| ***Sub-sampling techniques and sample preparation*** | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • Limited data is available for sub sampling techniques.<br>• Analyses were conducted by ALS Chemex. Detection limits ranged from 0.001 to 0.01% with the Mn detection limit being 0.008% (80ppm).<br>• Sampling appears to have been carried out using industry best practices. |
| ***Quality of assay data and laboratory tests*** | • *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*<br>• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*<br>• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.* | • Where information was provided in WAMEX reports, the analytical techniques appear appropriate for the stage of exploration being undertaken.<br>• No specific review of QAQC protocols or analysis has been completed although it is assumed that the programs were conducted using industry standard techniques.<br>• Analyses were conducted by ALS Chemex. The samples were analysed by fused disk XRF with LOI data being determined gravimetrically. |
| ***Verification of sampling and assaying*** | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • No twinned holes were identified from the data reviewed, although given the early stage of the exploration this is to be expected.<br>• No adjustments have been made to the original assay data. |
| ***Location of data points*** | • *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | • Drill coordinates are in MGA94-Z51 grid and while not reported it is believed that hole locations were recorded using handheld GPS.<br>• No field validation has been undertaken.<br>• No downhole surveys were recorded for RC drilling.<br>• Topographic control is similarly assumed to be from GPS and appropriate only for early stage exploration. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Data spacing and distribution*** | • *Data spacing for reporting of Exploration Results.*<br>• *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*<br>• *Whether sample compositing has been applied.* | • Drill hole spacing is highly variable over the project with sporadic drilling.<br>• There has been insufficient sampling and no significant results to date to support the estimation of a resource. It is unknown if further drilling will result in the delineation of a mineral resource. |
| ***Orientation of data in relation to geological structure*** | • *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*<br>• *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.* | • Only limited drilling undertaken.<br>• Orientation of the mineralisation is not yet known. No orientation based sampling bias is known. |
| ***Sample security*** | • *The measures taken to ensure sample security.* | • No records are available with respect to chain of custody of sample security. |
| ***Audits or reviews*** | • *The results of any audits or reviews of sampling techniques and data.* | • There is no record of any audits or reviews having been undertaken on the sampling data. |

## Section 2 Reporting of Exploration Results (Disraeli Project)

*(Criteria listed in the preceding section also apply to this section)*

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Mineral tenement and land tenure status*** | • *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*<br>• *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.* | • The Project consists of one granted exploration licence E46/1370.<br>• Macro has entered into an agreement to acquire 80% of the Project from Firebird Metals Ltd. |
| ***Exploration done by other parties*** | • *Acknowledgment and appraisal of exploration by other parties.* | • Rock chip sampling, DDIP and limited drilling has been described in the body of this release. |
| ***Geology*** | • *Deposit type, geological setting and style of mineralisation.* | • Manganese mineralisation in the eastern Pilbara is hosted by the Jeerinah Formation, Carawine Dolomite and parts of the Manganese Subgroup. |
| ***Drill hole Information*** | • *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*<br>  ○ *easting and northing of the drill hole collar*<br>  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>  ○ *dip and azimuth of the hole*<br>  ○ *down hole length and interception depth* | • All location information and available drillhole metadata has been included as an appendix to this release.<br>• All information including those with no significant results is included. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | ○ *hole length.*<br>• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.* | |
| ***Data aggregation methods*** | • *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.*<br>• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • Rock chip results reported.<br>• Length weighted averages of drill hole composites were calculated using a minimum cut off grade of 10% Mn and maximum internal dilution of 1m.<br>• No metal equivalents have been reported. |
| ***Relationship between mineralisation widths and intercept lengths*** | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').* | • Only down hole lengths reported.<br>• The geometry of mineralisation is not yet known. |
| ***Diagrams*** | • *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.* | • Refer to figures within the body of the release. |
| ***Balanced reporting*** | • *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.* | • All results including those with no significant results have been reported. |
| ***Other substantive exploration data*** | • *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.* | • All exploration data has been included in relation to the Project. |
| ***Further work*** | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main* | • Topographic survey to obtain survey control, detailed mapping and further sampling to define areas of interest. In addition, 3D geological modelling of the mineralisation based on available drilling. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | |