# Maiden 196,000oz JORC 2012 Resource for Melville Deposit sets strong foundation for growth at Yalgoo

**Strong Indicated component underpins Resource Growth Strategy as Firefly progresses major 30,000m drill campaign at the Yalgoo Gold Project**

**Melville – Mineral Resource Estimate (JORC 2012-compliant):**

- **196,388oz @ 1.45g/t (0.7g/t cut-off) from surface (Melville Indicated and Inferred MRE).**
- **156,753oz @ 1.47g/t (0.7g/t cut-off) in Indicated Resource (80% conversion).**
- **Mineral Resource Estimate independently reviewed and verified by external consultants.**

**Melville – Open Pit Optimisation and Mining Lease Application:**

- **Independent open pit optimisation study delivers various potential early mining scenarios.**
- **Four diamond drill-holes (600m) to be drilled within the "best case" optimised pit shell outline for geotechnical analysis and metallurgical test-work.**
- **Firefly is also seeking a Mining Lease over the wider Melville Resource Area with the submission of a Mineralisation Report to the Department of Mines, Industry Regulation and Safety (DMIRS).**

**Yalgoo – Resource Drilling and further Mineral Resource Estimates - GROWTH**

- **Resource RC drilling currently underway at Yalgoo targeting:**
  - **The Applecross prospect, located 200-400m along-strike north of Melville;**
  - **The Don Bradman prospect, south of, and a parallel high-grade gold analogue to Melville; and**
  - **The Crescent prospect, an advanced high-grade gold prospect in the south of Firefly's extensive Yalgoo tenure.**
- **The current drilling campaign is expected to deliver three new maiden JORC 2012-compliant Mineral Resource Estimates, in addition to the Melville Resource MRE, before the end of Q2 2021.**
- **Firefly has embarked on a 30,000m drilling program to deliver at least seven Mineral Resource Estimates at the Yalgoo Gold Project and evaluate the Project's broader upside and growth potential during 2021.**

Firefly Managing Director, Simon Lawson, said: *"The maiden JORC 2012 Mineral Resource Estimate of 196,000 ounces of gold at Melville establishes a solid base for growth in the centre of our 100%-owned Yalgoo Gold Project. Importantly, this is a high-quality, independently verified resource estimate, 80% of which comprises higher confidence Indicated Resource ounces.*

*"While we have over 100 gold targets, 30 or so untested historical workings with recorded gold production and at least 10 advanced 'pre-resource' gold prospects at Yalgoo, our initial strategy was to confirm the value of the Melville Gold Deposit as our key surface gold asset, and we have achieved that nicely."*

*"The current resource footprint covers just 0.9km of the 5.0km-plus strike length of the Melville/Oakford gold trend and, with the resource extending to a depth of just 200m, that leaves a lot of real estate along-strike and at depth for further growth. Unlike most other gold deposits in the WA's historic goldfields, Melville is a 'virgin' deposit which has never been mined. This untouched status, as well as the thick, folded banded-iron formation host and steeply dipping geometry creates a very favourable scenario for open pit mining. The recently completed independent pit optimisation study on the current resource certainly suggests we have several attractive options available to us.*

*"Moving outward from the central resource, our strategy is to expand on the strength of the wider, kilometre-scale Melville/Oakford gold trend, as well as define resources along the Don Bradman gold trend, which runs parallel to, and with similar strike extent to Melville/Oakford. We are also targeting a high-grade gold resource at the Crescent gold prospect in the south of our Yalgoo package where data-mining of historical drilling assays has revealed strong potential for a high-grade deposit close to surface.*

*"Drills turning, creating value through boots-on-ground geology and always with one eye on the costs, is what we are about. We will deliver at least seven gold Mineral Resource Estimates at Yalgoo this year. We will continue drilling to hopefully make new breakthrough discoveries across our tenement holding. We will drill the first holes into our exciting Paterson Copper-Gold Project in more than 20 years. And we will also continue to deliver a number of other value-add initiatives".*

Firefly Resources Ltd **(ASX: FFR; Firefly** or **the Company)** is pleased to report a maiden JORC-2012-compliant Mineral Resource Estimate (MRE) for the cornerstone Melville Gold Deposit, part of its 100%-owned Yalgoo Gold Project, located 110km west of Mount Magnet in the Murchison Region of Western Australia.

The new Mineral Resource has been independently checked and verified by suitably qualified consultants at Entech Pty Ltd, a highly-regarded Perth-based mining consultancy.

The relevant metrics for the Melville MRE are shown in Table 1 below. Note the high degree of resource conversion from Inferred to Indicated category at 80%, which provides a significant measure of the company's confidence in the quality of the in-ground resource.

**Table 1: Melville JORC 2012 Mineral Resource Estimate**

| Indicated | | | Inferred | | | Total | | |
|---|---|---|---|---|---|---|---|---|
| Tonnes | Au (g/t) | Ounces | Tonnes | Au (g/t) | Ounces | Tonnes | Au (g/t) | Ounces |
| **3,314,900** | **1.47** | **156,753** | **887,547** | **1.39** | **39,635** | **4,202,447** | **1.45** | **196,388** |

[1]Calculated using a 0.7g/t cut-off grade

The Company is also pleased to advise that it has completed 7,000m of Grade Control drilling over the shallow surface component of the Melville Gold Deposit and has submitted 8,000 samples for Fire Assay. These assays will contribute to another JORC-2012 Mineral Resource Estimate for Firefly, a high-resolution Grade Control model for the shallow "blanket" of gold mineralisation over Melville and the first material to be mined in any potential open pit.

Completion of the 7,000m drill program concludes the first phase of the 30,000m multi-stage drill campaign aimed at aggressively growing the resource base at its 100%-owned Yalgoo Gold Project in Western Australia (see Figure 1).

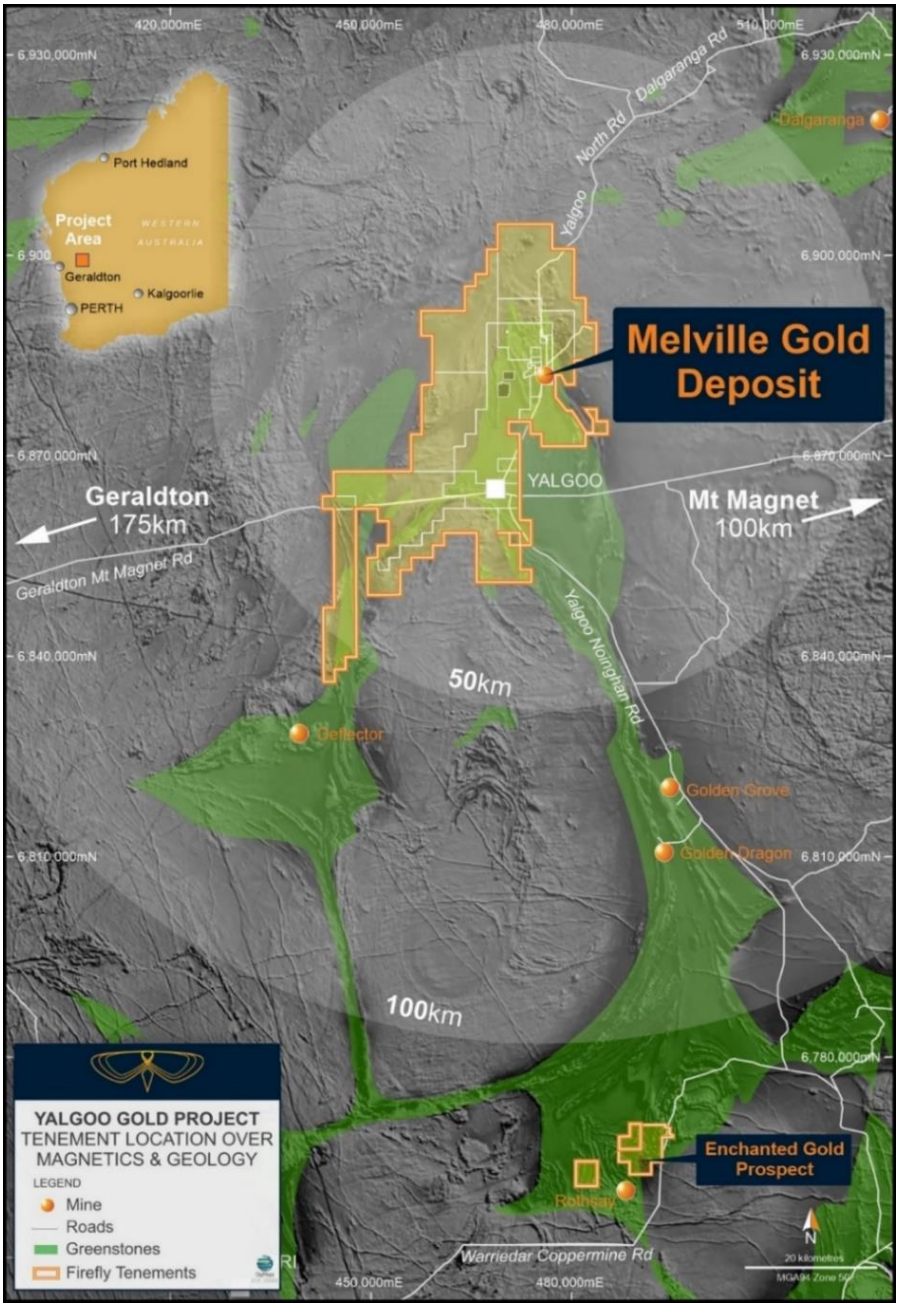


**Figure 1.** Firefly's Yalgoo Gold Project illustrating the Company's regional-scale tenure and applications across the under-explored Yalgoo-Singleton greenstone belt as well as proximity to multiple gold-specific and gold-capable process plants.

The second phase of drilling is currently underway with resource drilling at the high-grade Don Bradman gold prospect and extensional drilling at the Applecross gold prospect to the north of Melville. Both targets are being drilled to establish new, maiden JORC-2012-compliant Mineral Resource Estimates Q2 2021.

In addition to the foreshadowed Phase 2 drilling, Firefly has also brought forward planned drilling at its 100%-owned high-grade Crescent gold prospect from Phase 3 to the current program and added an

opportunistic target at the nearby historic high-grade Olive Queen copper-silver-gold mine (360m west of Crescent). The rig has already intersected multiple quartz/sulphide veins and mineralised shears at shallow depths on both targets.

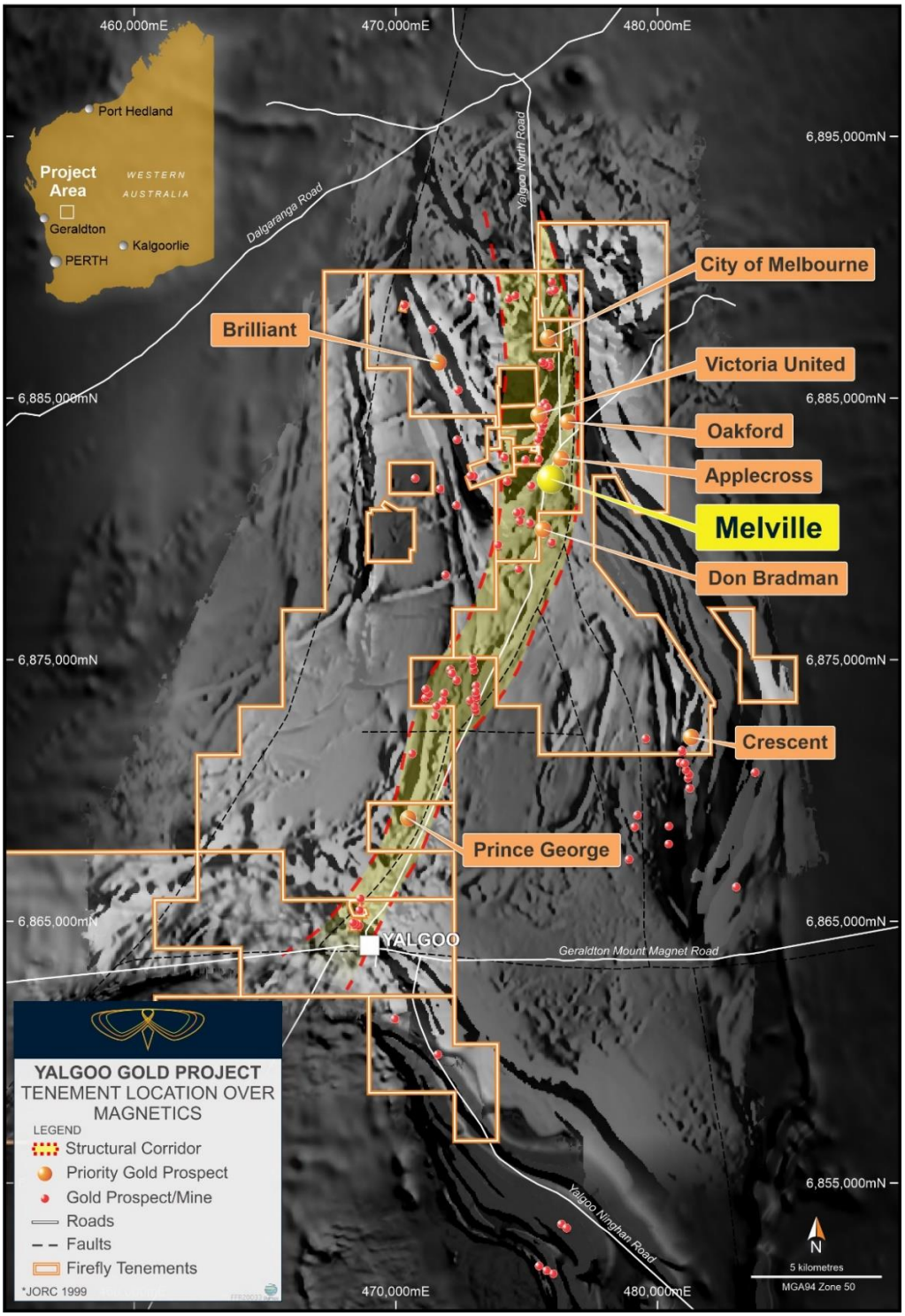


**Figure 2.** Regional plan over 1VD magnetics illustrating the priority advanced gold prospects across Firefly's Yalgoo Gold Project.

For reference, the Crescent gold prospect is a stockwork-style quartz-hosted gold deposit occurring in multiple en-echelon lodes with a 300m-long known strike extent and was historically shaft-mined for gold

down to the water table (35m) during the early 1900's. The site produced ~38 tonnes of hand-sorted ore at 17g/t (reference DMIRS – Minedex – Wadgingarra Main Reef – Site number – S0015304).

The Olive Queen copper-silver-gold prospect is approximately 360m west and strikes parallel to the Crescent gold prospect. The main vein is approximately 4.5m wide (from surface to 35m depth), copper-rich, predominantly malachite and azurite in the oxide (near-surface) domain, and chalcopyrite at depth and hosted in a quartz vein matrix.

Olive Queen was mined via shaft methods at around the same time as Crescent (early-1900's) with historical records stating that around 1 tonne of copper metal was produced from 14 tonnes of hand-sorted ore (7% copper). Like Crescent, the historic Olive Queen mine is only around 35m in depth and the known strike extent is only currently around 150m north-south (reference DMIRS – Minedex – Olive Queen – Site number – S0017359)

Very little deeper drilling has been targeted at Crescent and Olive Queen and both remain open along strike and at depth. Most of the the current Firefly drill metres are targeted at the Crescent Gold Prospect and will result in a maiden JORC-2012-compliant Mineral Resource Estimate. The Firefly drilling at Olive Queen is opportunistic and limited to around 400m and should extend the known mineralisation along-strike and down-dip.

## Summary of the Resource Parameters

A summary of JORC Table 1 is provided below for compliance regarding the Mineral Resource reported within and in-line with requirements of ASX Listing Rule 5.8.1.

### Geology and Mineralisation

The Melville Gold Deposit consists of an Archaean lode-gold system intersecting an extensive structurally modified Banded-Iron-Formation (BIF) which has resulted in a broad gold deposit mineralised from surface. There is sufficient confidence in the geological modelling of the orebody geometry to enable Indicated and Inferred Resource classification. The current Resource update represents the first modern resource for Firefly Resources Ltd 100%-owned Yalgoo Gold Project.

Please refer to the ASX:FFR announcements dated 28/01/21, 01/12/20, 11/11/20, 28/09/20, 16/09/20 and 07/09/20 for details of recent Firefly drilling at the Melville Gold Deposit preceding and related to this Mineral Resource Estimate.

### Geology and Geological Interpretation

Gold mineralisation at the Melville Gold Deposit is hosted in folded Banded Iron Formation sediments within the Norie Group. Mineralisation is characterised by predominantly stratiform to stockwork alteration zones within more iron-rich bands of the Banded-Iron-Formation host, lesser high-grade quartz veins and mineralised porphyrytic intrusives. Northwest-striking orthogonal shearing appears to control the structural modification of the BIF host and subsequent introduction of gold mineralising fluids into the north-striking BIF sequence.

| Hole | Easting | Northing | mRL | Depth | Azi | Dip | From | To | Interval (m) | Au |
|---|---|---|---|---|---|---|---|---|---|---|
| FMRC0001 | 476026 | 6881779 | 385.8 | 120 | 91 | -60.55 | 13 | 14 | 2 | 1.01 |
| | | | | | | | 38 | 42 | 4 | 3.63 |
| | | | | | | | 47 | 48 | 1 | 1.04 |
| | | | | | | | 65 | 65 | 1 | 1.07 |
| FMRC0002 | 476063 | 6881776 | 384.9 | 99 | 82 | -60.76 | 23 | 25 | 2 | 1.10 |
| FMRC0003 | 476046 | 6882093 | 378.7 | 150 | 85 | -61.65 | 4 | 7 | 3 | 1.04 |
| | | | | | | | 51 | 53 | 2 | 1.49 |
| FMRC0004 | 476086 | 6882097 | 378.6 | 120 | 79 | -61.19 | 0 | 8 | 8 | 0.52 |
| | | | | | | | 33 | 81 | 48 | 1.71 |
| | | | | | | | 94 | 94 | 1 | 5.72 |
| | | | | | | | 107 | 109 | 2 | 21.98 |
| FMRC0005 | 476105 | 6882097 | 378.6 | 105 | 83 | -60.73 | 26 | 43 | 17 | 0.66 |
| | | | | | | | 59 | 60 | 1 | 2.66 |
| | | | | | | | 60 | 64 | 1 | 1.09 |
| FMRC0006 | 476127 | 6882097 | 378.4 | 95 | 86 | -60.45 | 25 | 26 | 1 | 1.13 |
| | | | | | | | 42 | 44 | 2 | 1.13 |
| FMRC0007 | 476089 | 6881861 | 382.6 | 95 | 88 | -60.85 | 0 | 11 | 11 | 0.69 |
| | | | | | | | 69 | 70 | 1 | 5.76 |
| FMRC0008 | 476070 | 6881861 | 383.3 | 108 | 91 | -60.15 | 1 | 6 | 5 | 0.79 |
| | | | | | | | 50 | 56 | 6 | 244.91 |
| | | | | | | | 58 | 72 | 14 | 1.00 |
| | | | | | | | 106 | 108 | 2 | 1.06 |
| FMRC0009 | 476048 | 6881863 | 383.5 | 120 | 94 | -60.24 | 0 | 9 | 9 | 1.32 |
| | | | | | | | 96 | 97 | 1 | 3.49 |
| | | | | | | | 101 | 103 | 2 | 1.87 |
| | | | | | | | 105 | 106 | 1 | 2.66 |
| FMRC0010 | 476029 | 6881864 | 384.1 | 140 | 88 | -60.35 | 0 | 8 | 8 | 0.52 |
| | | | | | | | 113 | 126 | 13 | 3.65 |
| FMRC0011 | 476010 | 6881861 | 384.2 | 180 | 81 | -60.87 | 0 | 6 | 6 | 0.54 |
| | | | | | | | 52 | 76 | 24 | 3.50 |
| | | | | | | | 103 | 105 | 2 | 2.97 |
| | | | | | | | 129 | 130 | 1 | 1.17 |
| | | | | | | | 141 | 146 | 5 | 3.39 |
| FMRC0012 | 476105 | 6881874 | 381.9 | 150 | 95 | -59.63 | 0 | 9 | 9 | 0.63 |
| | | | | | | | 21 | 30 | 9 | 1.69 |
| FMRC0013 | 476079 | 6881872 | 382.7 | 146 | 94 | -59.55 | 2 | 7 | 5 | 0.66 |
| | | | | | | | 45 | 47 | 2 | 1.19 |
| | | | | | | | 77 | 80 | 3 | 5.89 |
| FMRC0014 | 476070 | 6881873 | 382.7 | 150 | 88 | -59.4 | 2 | 6 | 4 | 1.06 |
| | | | | | | | 59 | 65 | 6 | 1.74 |
| | | | | | | | 81 | 82 | 1 | 1.98 |
| FMRC0015 | 476060 | 6881873 | 383.0 | 150 | 91 | -60.2 | 2 | 6 | 4 | 0.81 |
| | | | | | | | 64 | 66 | 2 | 1.21 |
| | | | | | | | 78 | 80 | 2 | 2.00 |
| FMRC0016 | 476114 | 6882040 | 379.2 | 151 | 90 | -60.61 | 32 | 34 | 2 | 0.31 |
| FMRC0017 | 476093 | 6882042 | 379.5 | 150 | 92 | -59.44 | 21 | 47 | 26 | 0.81 |
| FMRC0018 | 476074 | 6882043 | 379.6 | 149 | 87 | -60.51 | 0 | 6 | 6 | 0.58 |
| | | | | | | | 26 | 76 | 50 | 1.40 |
| FMRC0019 | 476108 | 6881835 | 382.5 | 150 | 93 | -60.28 | 34 | 44 | 10 | 1.44 |
| FMRC0020 | 476060 | 6881836 | 383.5 | 157 | 91 | -60.46 | 3 | 8 | 5 | 0.75 |
| | | | | | | | 24 | 30 | 6 | 0.60 |
| | | | | | | | 39 | 41 | 2 | 1.30 |
| | | | | | | | 103 | 112 | 9 | 0.70 |
| FMRC0021 | 476023 | 6881839 | 384.7 | 170 | 91 | -59.94 | 0 | 8 | 8 | 0.57 |
| | | | | | | | 24 | 54 | 30 | 1.23 |
| | | | | | | | 93 | 94 | 1 | 8.17 |
| FMRC0022 | 476028 | 6881926 | 382.4 | 120 | 88 | -60.15 | 0 | 6 | 6 | 0.29 |
| | | | | | | | 74 | 81 | 7 | 0.68 |
| | | | | | | | 90 | 91 | 1 | 2.57 |
| FMRC0023 | 476043 | 6881927 | 382.1 | 110 | 89 | -59.58 | 3 | 7 | 4 | 1.06 |
| | | | | | | | 37 | 52 | 15 | 0.56 |
| | | | | | | | 60 | 76 | 16 | 0.76 |
| FMRC0024 | 476060 | 6881927 | 381.8 | 100 | 92 | -61.64 | 0 | 5 | 5 | 1.46 |
| | | | | | | | 30 | 61 | 31 | 1.00 |
| FMRC0025 | 476071 | 6881928 | 381.5 | 90 | 91 | -59.62 | 0 | 50 | 50 | 1.10 |
| FMRC0026 | 476087 | 6881928 | 381.3 | 80 | 91 | -59.87 | 2 | 32 | 30 | 1.35 |
| FMRC0027 | 476072 | 6881898 | 382.2 | 150 | 93 | -59.83 | 41 | 45 | 4 | 1.08 |
| | | | | | | | 56 | 59 | 3 | 1.11 |
| FMRC0028 | 476051 | 6882016 | 380.0 | 150 | 91 | -59.94 | 0 | 6 | 6 | 1.16 |
| | | | | | | | 66 | 73 | 7 | 1.04 |
| FMRC0029 | 476094 | 6882017 | 379.8 | 120 | 91 | -59.4 | 18 | 19 | 1 | 1.18 |
| | | | | | | | 40 | 42 | 2 | 1.01 |
| FMRC0030 | 476113 | 6882017 | 379.5 | 105 | 91 | -59.64 | 0 | 2 | 2 | 0.31 |
| FMRC0031 | 476080 | 6881850 | 383.0 | 150 | 91 | -59.59 | 1 | 7 | 6 | 0.60 |
| | | | | | | | 59 | 81 | 22 | 5.36 |
| FMRC0032 | 476071 | 6881851 | 383.1 | 165 | 92 | -60.86 | 2 | 8 | 6 | 0.91 |
| | | | | | | | 68 | 73 | 5 | 1.06 |
| | | | | | | | 79 | 93 | 14 | 0.78 |
| FMRC0033 | 476061 | 6881851 | 383.2 | 175 | 90 | -60.57 | 0 | 8 | 8 | 1.34 |
| | | | | | | | 48 | 65 | 17 | 2.75 |
| | | | | | | | 91 | 97 | 6 | 3.11 |
| FMRC0034 | 476138 | 6882231 | 376.4 | 180 | 90 | -61 | 16 | 19 | 3 | 1.20 |
| | | | | | | | 55 | 81 | 26 | 1.20 |
| FMRC0035 | 476034 | 6882230 | 376.8 | 144 | 91 | -60.3 | 73 | 74 | 1 | 2.03 |
| | | | | | | | 100 | 104 | 4 | 0.92 |
| FMRC0036 | 476148 | 6881862 | 381.1 | 120 | 92 | -59.95 | 2 | 7 | 5 | 0.51 |
| | | | | | | | 14 | 21 | 7 | 1.77 |
| FMRC0037 | 476133 | 6881901 | 380.5 | 120 | 91 | -60.18 | 6 | 7 | 3 | 1.37 |
| | | | | | | | 36 | 38 | 2 | 1.55 |
| | | | | | | | 83 | 85 | 2 | 1.84 |
| FMRC0038 | 476143 | 6881952 | 379.5 | 120 | 92 | -60.86 | 2 | 4 | 2 | 0.40 |

**Table 2.** Table containing all Firefly Resources significant intercepts from recent drilling and used in the Melville MRE.

The geometry of mineralisation for the north-striking Banded-Iron-Formation lodes varies from flat-lying to steeply west-dipping moving from the north-plunging fold axis of the BIF host to the fold limb respectively.

Geological and mineralisation constraints were generated based on geological observations such as the presence of alteration and quartz veining and gold assays. Numerous drill-hole intercepts, structural observations in outcrop, as well as other regional and local-scale geological observations and previous diamond drill core was used to define the overall attitude and geometry of the individual lodes.

Infill drilling by Firefly Resources Ltd at Melville targets an intercept spacing of 20-25m or better enabling a high degree of confidence in geological interpretation and is the basis of classification to Indicated in the current Resource Estimate.

The Global Mineral Resource area for the Melville MRE has overall dimensions of 900m (north), 400m (east) and has been projected to around 220m below surface. Surface control for all drill collars is provided by a very high resolution DTM from drone LIDAR imagery.

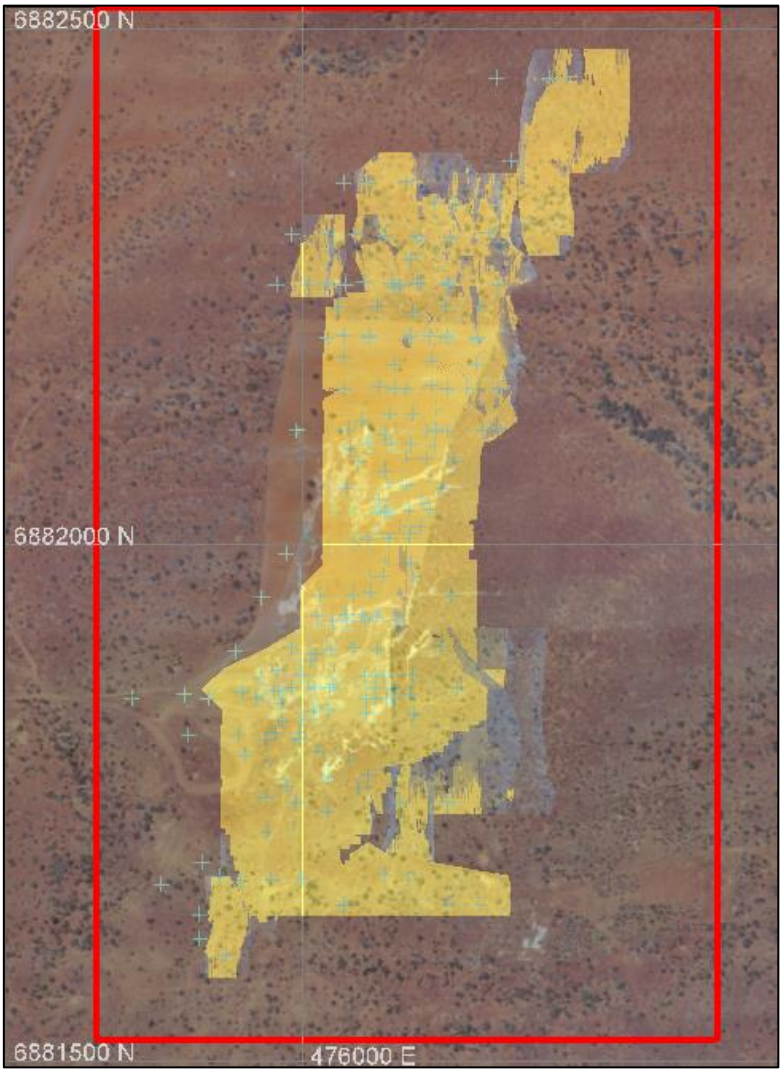


**Figure 3.** Plan view of the Melville MRE - note Indicated blocks in gold and Inferred blocks in light grey. The collar location of all drillholes used in the Melville MRE are shown as blue crosses.

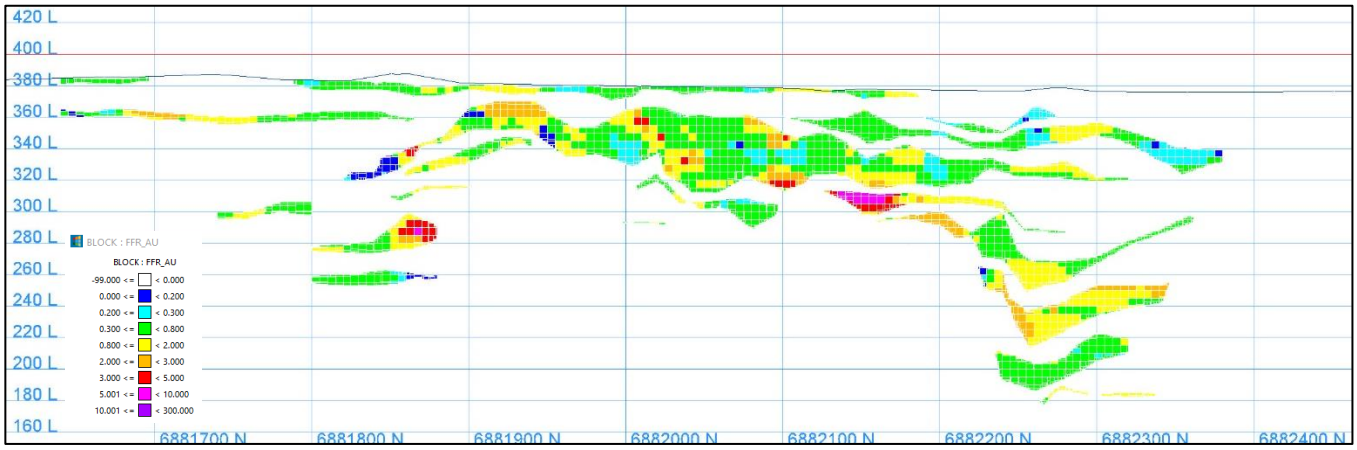


**Figure 4.** Long-section looking west through the north plunging Melville MRE.

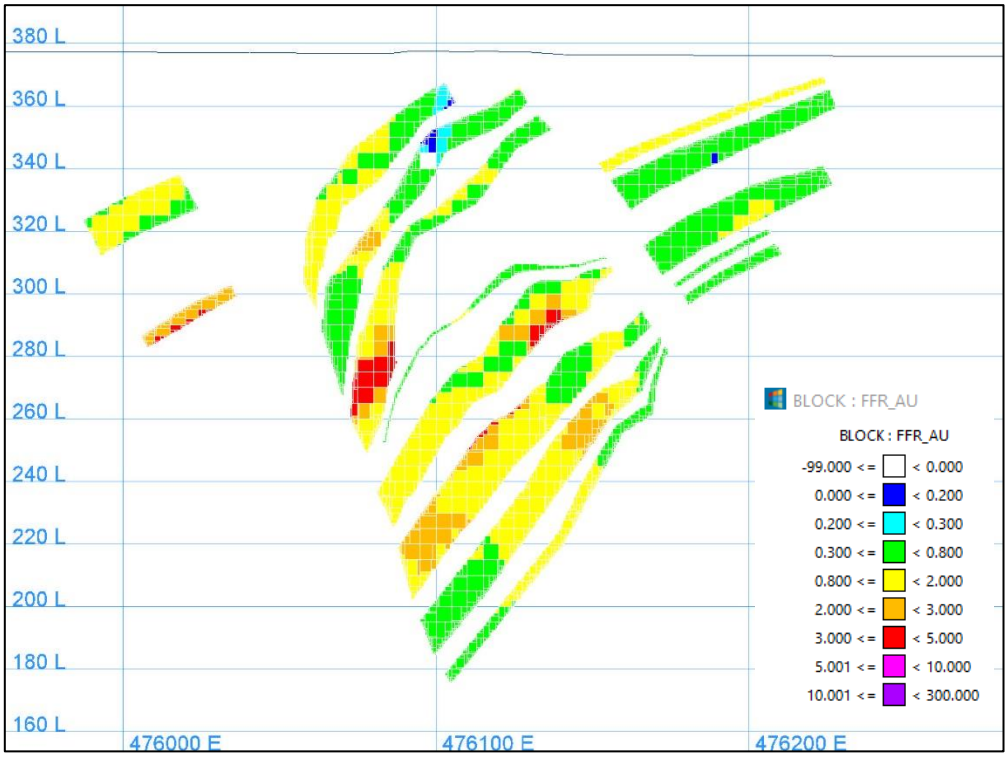


**Figure 5.** Cross-section looking south through the Melville MRE.

## Drilling Techniques, Sampling and Assaying

The drillhole database for the Melville Gold Deposit consists of both historical data and that generated by Firefly Resources. Firefly drilling so far at Melville has sought to confirm and validate the geometry, widths and grade of previous drilling, as well as infill lesser drilled areas and extend known mineralisation.

The predominant sample type in the database is Reverse Circulation rock-chips with both Fire Assay and Leachwell assay methods used to ascertain gold grades. Firefly sampling protocol is to sample at 1m intervals from surface to EOH, taking a nominal 3kg sample directly from the cyclone splitter. The primary sample is submitted to the lab, dried, and a 500g split is pulverised to provide a charge for ore grade gold analyses through accelerated cyanide leach/Leachwell reagent tabs with a 4-hour digest (Au-AA15). All

results equal to or greater than 0.5g/t from leach have their residue Fire Assayed (50g charge) with AAS finish to assess the "tail" grade.

The assay protocol is employed by Firefly to mimic conventional CIL/CIP recovery and to date there have been no significant "tail" grades across Firefly drill samples from across the Melville Gold Deposit. While metallurgical testwork at Melville is still a requirement of any mining study, the assay protocol currently employed by Firefly provides an extra level of confidence in the potential recovery characteristics of the Melville resource.

Firefly QAQC protocol is to insert certified standards and blanks at a 1:40 ratio and to take duplicate samples where appropriate. To date Firefly QAQC protocol has maintained a within 2SD tolerance over assaying of samples from the Melville resource.

**Estimation Methodology**

Geological and mineralisation interpretation was conducted on a section-by-section basis and 3D wireframing/domaining of grade was conducted manually in Maptek Vulcan. Where interpretation extends beyond drilling it is limited to half the nominal drill spacing. 45 domains were created representing 45 unique and continuous mineralisation domains.

Compositing of the drillhole data within each domain was conducted at a nominal 1m length with any small residual composites merged back into the preceding composite.

Statistical and spatial analyses of composite data was conducted using Snowden Supervisor software, Log probability plots of all 45 domains were analysed and suitable top cuts were selected to reduce the effect of statistical outlier grades, A top-cut of 10g/t was also noted as the most suitable value across the entire dataset with composite grades up to this point representing 98,9% of all composites. Suitable search ellipse orientations and search ranges were also selected at this stage and visually validated against composite spacing and the relevant wireframe domains in Vulcan.

The block model parent block size is 5m(N) x 5m(E) x 5m(Z) and was selected due to its relativity to drill-hole spacing (20-25m) and typical open-pit Selective Mining Units. An equilateral block size is utilised to reduce potential spatial bias where there exists no statistical or geological support for an inequal block dimension. The 45 domains were coded into the block model and sub-blocking of 0.5m(N) x 0.5m(E) x 0.5m(Z) was used to fill the volume around the relatively irregular shapes of the domains. The volume of the coded blocks were checked against the volumes of the relevant domains to assess the blocking efficiency.

Inverse Distance to the power of 2 (ID2 or ID squared) was used to interpolate grade between composites and inform the block model. Three estimation passes were conducted across each domain with the first pass having the tightest limiting parameters and representing the most confidence through to the third pass with more relaxed parameters.

The first estimation pass limited the search range to 40m (major axis) x 20m (semi-major axis) x 20m (minor axis), a minimum number of samples of 2 and a maximum number of samples of 10, and octant-based search with a minimum of 1 sample and a max of 5 samples and a minimum of 2 octants with samples.

The basis of the first pass is to only just overlap a 20m x 20m composite spacing while limiting the effect of clustered data which is a known weakness of the Inverse Distance interpolation methodology.

**Specific Gravity**

Specific Gravities of 2.6t/$m^3$ for oxide material, 2.8t/$m^3$ for transitional material and 2.9t/$m^3$ for fresh material were coded into the model based on geological observations in Firefly drillhole logging and extensive SG test-work conducted by previous project owner Prosperity Resources.

**Classification**

The Melville MRE is classified Indicated and Inferred. All blocks coded by domains within the Mineral Resource Estimate were classified Inferred as default as they met the CP requirements of a manual wireframing process performed by a suitably qualified Geologist and were restricted to half the nominal drill-spacing where they extended beyond the last data point. This would not be considered appropriate if an implicit modelling or automated interpretation method was utilised to create domains.

Blocks were then converted and coded as Indicated if they met the CP-defined requirements of the First pass estimation parameters, namely within the search range of 40m (major axis) x 20m (semi-major axis) x 20m (minor axis), with a minimum number of samples of 2 and a maximum number of samples of 10, and octant-based search with a minimum of 1 sample and a max of 5 samples and a minimum of 2 octants with samples. Visual validation of this coding Indicated approach has been assessed by the CP as an effective and representative method in the case of the relatively densely drilled Melville Gold Deposit.

**Mining Factors or Assumptions**

Open-pit mining is the rational and assumed method of potential extraction of the Melville MRE. Firefly commissioned a pit optimisation study on the Melville MRE to assess the likelihood of eventual economic extraction using a variety of fact-based inputs and some assumptions. The optimisation scenarios showed that open-pit mining is the most suitable method for potential mining of the Melville MRE.

**Metallurgical Factors and Assumptions**

Limited historical metallurgical test-work has been performed on samples from the Melville area showing that the Melville ore is amenable to recovery using conventional CIL/CIP gold processing. Firefly is drilling a number of diamond drill-holes within the "best-case" pit optimisation shell to define the geotechnical and metallurgical characteristics of the Melville resource.

**Environmental Factors or Assumptions**

No consideration has yet been given to environmental matters such as waste and process residue disposal options or the environmental impacts of a mining and processing operation. The Mineral Resource Estimate assumes that the Company will be able to obtain all required environmental permitting in a matter that does not adversely affect the Resource estimate.

**Reporting Cut-off grade**

A 0.7g/t Au cut-off grade was used to report the Mineral Resource Estimate. A 0.5g/t Au cut-off grade is estimated to be the minimum grade required for economic extraction at current gold prices, however Firefly has elected to report at a more conservative 0.7g/t Au. As a result of the independent pit optimisation study Firefly is progressing further test-work to better evaluate the potential economics of the Melville Gold Deposit including potential review of the reporting cut-off grade.

Firefly Resources Limited believes the Melville Gold Project has a reasonable prospect of eventually being mined by taking into account the depth, thickness and grades of the deposit and proximity to existing infrastructure such as roads and processing plants.

Firefly is a gold-focussed explorer with three key mineral resource projects in Western Australia. The Company is committed to drilling and creating value for shareholders through the delineation of mineral resources across its 100%-owned highly prospective mineral field-scale projects.

The Yalgoo Gold Project is the Company's focus and the delivery of a maiden JORC 2012 MRE for the flagship Melville Gold Deposit provides a strong foundation to its growth strategy at Yalgoo, which is based on a combination of aggressive resource growth and exploration drilling.

For further information regarding Firefly Resources Ltd please visit the ASX platform (ASX:FFR) or the Company's website www.fireflyresources.com.au

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**Competent Persons Statement**

The information in this announcement that relates to Exploration Results and Mineral Resources is based on and fairly represents information and supporting documentation reviewed, collated and compiled by Mr Simon Lawson, a full-time employee and the Managing Director of Firefly Resources Ltd. Mr Lawson is a professional geoscientist and Member of The Australian Institute of Mining and Metallurgy and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which has been 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 Lawson consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

**Forward Looking Information**

This announcement contains certain "forward-looking statements". Forward looking information can generally be identified by the use of forward looking words such as, "expect", "should", "could", "may", "predict", "plan", "will", "believe", "estimate", "target" and other similar expressions. Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward-looking statements as a result of a variety of risks, uncertainties and other factors. Many other factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of the

Company. Such factors include , among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, regulatory restrictions, including environmental regulation and liability to potential title disputes. Forward-looking statements in this announcement are based on the Company's beliefs, opinions and estimates of the Company as of the date the forward-looking statements are made, and no obligation is assumed to update forward-looking statements if these beliefs, opinions and estimates should change or to reflect other future developments. Firefly disclaim any intent or obligation to publicly update any forward-looking statements, whether as a result of new information, future events or results or otherwise and does not make any representation and provides no warranties concerning the accuracy of these statements.

# APPENDIX A

The following tables are provided to ensure compliance with the JORC Code (2012 Edition requirements) for the reporting of Exploration Results at the Yalgoo Gold Project.

## JORC TABLE 1

## Section 1 - Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

| Criteria | 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. 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.* | *All Reverse Circulation ('RC') samples consist of 1m length primary samples taken in calico bags directly off the cyclone splitter.*<br>*This method of sampling is considered industry standard for narrow-vein Archaean lode gold deposits.*<br>*Historical sampling has consisted of 1m to 4m RC sample composites for pre-2008 drilling.*<br>*FFR sampling is undertaken using industry standard practices including the use of duplicates, standards and blanks at regular intervals. All RC samples are split to 1-3kg in weight through the cyclone splitter on the drill rig for 1m drill intervals.*<br>*All co-ordinates are in UTM grid (GDA 94 Zone 50). All drill hole collars are surveyed professionally on a campaign basis to an accuracy of 0.5 m. Initially all holes are picked up by the geologist with an accuracy of ± 2m using a hand-held GPS.*<br>*No compositing of samples is currently conducted.*<br>*The ~2-3kg primary samples are pulverised to produce a 500g charge for ore grade Au by accelerated cyanide leach using Assay Tabs/LeachWELL ™ 60x reagent and AAS for a total of 4-hour leach (Au-AA15). All results equal to or greater than 0.5g/t are determined by AAS from a 50g fire assay performed on a cyanide leach residue (Au-AA26R) These protocols are used to* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | | *deliver a preliminary understanding of total gold content and potential CIL plant recovery. Screen fire assay (Au-SCR22AA) and gravimetric (Au-GRA22) protocols are undertaken on select high grade gold samples.*<br>*All 1m samples are split to 1-3kg in weight through a cyclone splitter which is air blasted clean at the end of each rod. Individual samples weigh less than 3kg to ensure total preparation at the laboratory pulverisation stage. The sample size is deemed appropriate for the grain size of the material being sampled. Samples are sent to ALS Laboratories in Wangara where they are prepared and analysed using Au-AA15 (Lower limit of 0.01g/t Au and upper limit of 300g/t Au).*<br>*Where high grade gold is noted, a blank quartz wash is inserted between and after bottle rolls to prevent contamination.* |
| *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).* | *RC drilling accompanied by Auxiliary and Booster and a 5.5" face sampling hammer.*<br>*Down hole surveys are undertaken at a maximum of 30m intervals using a north seeking gyroscopic tool not subject to magnetic interference.*<br>*A total of 37 RC holes have been drilled by FFR at Melville.*<br><br>*Historical RAB, AC, RC and DD drilling has been undertaken by several companies over a period of 30 years.* |

| Criteria | Explanation | Commentary |
|---|---|---|
| *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.* | *RC 1m primary samples are collected and assayed. Any high grade or bonanza grades are isolated, and duplicate sampled for reliability. Sample weights, dryness and recoveries are observed and noted in a field Toughbook computer by FFR field staff.*<br>*FFR contracted drillers use industry appropriate methods to maximise sample recovery and minimise downhole contamination including using compressed air to maintain a dry sample in RC drilling. A cyclone splitter is utilised to split 1-3kg of sample by weight. The splitter is air blasted clean at the end of each rod.*<br>*Historical sampling recovery is unclear for pre 2008 drilling.*<br>*No significant sample loss or bias has been noted in current drilling or has been found in historical exploration reports.* |
| *Logging* | • *Whether core and chip samples have been 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.* | *All geological, structural and alteration related observations are stored in the database.*<br>*Lithology, structure, alteration, mineralisation, weathering, colour, and any other important features of RC drill chips have been logged on a 1 m basis or in specific composite intervals. All drill holes are logged in full on completion.* |
| *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* | *Some historic HQ and NQ diamond core is used in this estimate. The sampling of diamond core, typically half core, has intervals ranging from 0.1m to 3m in length.*<br>*Every 1 m RC interval is sampled dry as a bulk calico primary bag taken off the cyclone.*<br>*Drill sample preparation and precious metal analysis is undertaken by a registered laboratory (ALS). Sample preparation is by dry pulverisation to 85% passing 75 micron.*<br>*FFR field QAQC procedures involve the use of certified standards* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | *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.* | *(1:40), blanks (1:40) and duplicates at appropriate intervals for early stage exploration programs. High, medium and low gold standards are used.*<br>*Historical QAQC procedures are unclear for pre 2008 drilling*<br>*Sampling is carried out using standard protocols and QAQC procedures as per industry practice.*<br>*Duplicate samples are taken (~1:40) and more frequently when in prospective zones of mineralisation. These duplicates are routinely checked against the originals at the end of each program*<br>*Sample sizes are considered appropriate for grain size of sample material to give an accurate indication of gold mineralisation.* |
| *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 (ie lack of bias) and precision have been established.* | *On 1m cyclone split samples, analysis is undertaken by ALS laboratories (a registered laboratory), with Assay Tabs/LeachWELL ™ 60x reagent and AAS for a total of 4-hour leach (Au-AA15). A screen fire assay is undertaken on select high-grade gold samples.*<br><br>*Internal certified laboratory QAQC is undertaken including check samples, blanks and internal standards. This methodology is considered appropriate for gold mineralisation at the exploration stage*<br>*No geophysical tools were used to estimate mineral or element percentages.*<br>*FFR field QAQC procedures involve the use of certified reference standards (1:40), duplicates (~1:30) and blanks (1:40) at appropriate intervals for early stage exploration programs. Historical QA/QC procedures are unclear for pre 2008 drilling.* |
| *Verification of* | • *The verification of significant intersections by either independent* | *FFR samples are verified by the geologist before importing into* |

| Criteria | Explanation | Commentary |
|---|---|---|
| *sampling and assaying* | *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.* | *the main FFR database (AcQuire). High-grade coarse gold related samples are managed and validated by laboratory staff in conjunction with company personnel.*<br>*Some twin holes and scissor holes have been drilled at Melville to confirm lode geometry, true width and grade reproducibility.*<br>*Primary data is collected using a standard set of templates. Geological sample logging is undertaken on one metre intervals for all RC drilling with colour, structure, alteration, and lithology recorded for each interval. Data is verified before loading to the database. Geological logging of all samples is undertaken.*<br>*To prevent errors in various spatial software programs any intersects reported by the lab as <0.01 g/t Au are normalised to 0.00 g/t Au.* |
| *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.* | *All maps and location data are in UTM grid (GDA 94 Zone 50) and historical drill hole collars have been surveyed or measured by hand-held GPS with an accuracy of ± 2m. Where collars and unable to be located, historical drilling has been registered to a high resolution digital terrain model.*<br>*Down hole surveys are undertaken using a downhole camera and/or north-seeking gyroscope down hole tool at regular 30m intervals.* |
| *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.* | *Variable drill hole spacings are used to adequately test targets and are determined from geochemical, geophysical and geological data together with historical drilling information.*<br>*At the centre of the Melville ore body, a general grid of 20m drill spacings on 10-25m spaced lines was completed over multiple drill campaigns. Current drilling is planned at variable spacing to both infill (20m spacing) and extend the current resource (50-75 m spaced fence lines at 100-150 m depths).* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | | *There is a JORC 1999 Mineral Resource at Melville defined by Prosperity Resources and reported to the ASX in 2004 above a cut-off grade of 1.0g/t Au. The indicated category contains 1,251,400 tonnes at a grade of 1.83g/t for a total of 75,377 oz Au. The inferred category contains 692,900 tonnes at a grade of 1.87g/t for a total of 41,740 oz Au. The relevant document is publicly available via the WAMEX database as report A74013. For further details refer to FFR ASX announcement 24th June 2020, "Transformational Acquisition of Yalgoo Gold Project, WA".*<br>*All current exploration drilling at Melville is being conducted on a 100% non-composite basis to facilitate assay data efficiency (eliminate field re-sampling), reliable mineralisation control interpretations and high confidence in resource estimations.* |
| *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.* | *Most historical drill holes at the Melville deposit were drilled at a dip of -60 degrees and an azimuth of 090. The mineralisation is interpreted to dip between 45-60 degrees and striking NNE. The true width of historical intercepts is interpreted to be >75% of the drill intersection width. All current drilling is being undertaken at the same orientation for consistency and validation purposes.*<br>*No orientation-based sampling bias is known at this time.* |
| *Sample security* | • *The measures taken to ensure sample security.* | *Chain of custody is managed by FFR internal staff. Drill samples are stored on site and transported by a licenced reputable transport company to a registered laboratory in Perth (ALS Laboratories in Wangara). When at the laboratory samples are stored in a locked yard before being processed and tracked through preparation and analysis (Webtrieve system).*<br>*No data relating to historic samples (Pre-2008) is available.* |
| *Audits or reviews* | • *The results of any audits or reviews of sampling techniques and data.* | *The JORC 1999 Melville resource has been externally reviewed by Entech Mining Consultants as a part of the Firefly Resources* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | | *acquisition due diligence. Entech outlined that independent validation of the block model and review of volume delineation and grade estimation identified no fatal flaws with respect to the Mineral Resource Estimate ('MRE') at the Melville Deposit.* |

# JORC TABLE 1
## Section 2 - Reporting of Exploration Results

| Criteria | 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 Melville Gold Deposit is located on granted tenement E59/2077 in the Yalgoo mineral field of Western Australia.*<br>*The tenement is held by Yalgoo Exploration Pty Ltd, a 100%-owned subsidiary of Firefly Resources Ltd (ASX:FFR).*<br>*The tenure is currently in good standing.*<br>*The Yalgoo project tenements are partially subject to standard Native Title heritage agreements and state royalties. Third party royalties are present on some individual tenements.* |
| *Exploration done by other parties* | *Acknowledgment and appraisal of exploration by other parties.* | *Historical drilling, surface sampling, soil sampling and geophysical surveys have been undertaken in different areas within the tenement intermittently by multiple third parties over a period of ~30 years.* |
| *Geology* | *Deposit type, geological setting, and style of mineralisation.* | *Geology comprises typical Archaean greenstone belt lithologies and granitic intrusions. The main style of mineralisation present is Yilgarn Archaean lode gold. Currently identified rock type hosts include: Channel Iron Deposit/Clay, Banded Iron Formation, Quartz Feldspar Porphyry, Amphibolite/Basalt & Mafic Schist.* |

| Criteria | Explanation | Commentary |
|---|---|---|
| *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 elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole o down hole length and interception depth hole length.* | *All requisite drill-hole information is tabulated elsewhere in this release.*<br>*All relevant historical drill hole information has previously been reported by Chevron Exploration, Johnson's Well Mining NL, Roebuck Resources NL, Acacia Resources, Prosperity Resources, and various other companies over the years. It is publicly available in the Department of Mines and Petroleum's WAMEX open file database.* |
| *Data aggregation methods* | *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* | *Significant assay intervals are generally recorded above 0.3/t Au. Up to 2m of internal dilution (<0.1g/t Au) may be included in reporting of significant assay intervals.*<br>*No cut-off has been applied to any sampling.* |
| | *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.* | *Reported intervals are generally aggregated using individual assays above 0.3g/t Au.*<br>*Up to 2m of internal dilution (<0.1g/t Au) may be included in reporting of significant assay intervals.*<br>*No cut-off has been applied to any sampling.* |
| | *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | *No metal equivalent values are 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* | *Drill intersections of the main lodes at Melville are considered very close to true widths as drilling is planned perpendicular to predicted intercept.* |

| | | |
|---|---|---|
| | *should be a clear statement to this effect (e.g. 'down hole length, true width not known').* | |

| **Criteria** | **Explanation** | **Commentary** |
|---|---|---|
| *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.* | *Included elsewhere in this 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.* | *Included elsewhere in this release.* |
| *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 material results from geochemical and geophysical surveys and drilling, related to the Melville Gold Deposit have been reported or disclosed previously.* |
| *Further work* | *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step out drilling).* | *Firefly intends to drill and define gold resources along the entire mineralised corridor on which the Melville Gold Deposit sits. The Applecross and Oakford gold prospects to the north are priority targets in this growth strategy.* |
| | *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | *Included elsewhere in this release.* |

# JORC TABLE 1

## Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

| Criteria | Explanation | Commentary |
|---|---|---|
| *Database integrity* | • *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*<br>• *Data validation procedures used.* | *Historic data has been compiled utilising available open file data accompanied by data acquired through acquisition of projects.*<br>*Data has been compiled into industry recognised AcQuire software after review by a Firefly geologist. Firefly employs an independent contract database administrator who is responsible for the maintenance and validation of data.*<br>*Firefly field sample data is collected on formatted Excel spreadsheets using a fixed format to prevent the introduction of erroneous data and alignment with database fields.*<br>*The data sheets are imported into AcQuire and automatically report any errors which are addressed then and there.*<br>*Data is continually audited and visually validated by Firefly geologists to ensure quality of information.* |
| *Site visits* | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | *The Competent Person has undertaken multiple site visits, including, but not limited to, drill-site inspections, rock-chip and drill-core analyses, outcrop sampling and mapping, historic workings investigation and geological assessment of estimated resource area.* |
| *Geological interpretation* | • *Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.*<br>• *Nature of the data used and of any assumptions made.*<br>• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*<br>• *The use of geology in guiding and controlling Mineral Resource estimation.* | *The drill data available indicates the resource is hosted within a significant Banded-Iron-Formation (BIF) later cross-cut by structure and intruded by mineralising fluids.*<br>*The interpretation of the deposit has been based on high quality, high confidence drill data, with multiple confirmatory drill-holes completed by Firefly to increase confidence in critical areas of the resource.* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | • *The factors affecting continuity both of grade and geology.* | *The interpretation is guided by the interpreted geology along with broader structural controls (block faulting), with mineralised envelopes conforming to major geological units observed in the drilling data.*<br>*Mineralization occurs as large-scale enrichment along with discrete quartz veining and quartz-porphyry intrusives within, and adjacent to the host BIF unit.* |
| *Dimensions* | • *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.* | *The Melville resource covers an area approximately 900m long, 400m wide and to a depth of 220m below surface. The flat-lying oxide component of the resource is included in these extents.*<br>*Drill spacing is typically 20m to 25m across the length of the resource with many areas at 10m to 15m drill spacing.* |
| *Estimation and modelling techniques* | • *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*<br>• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*<br>• *The assumptions made regarding recovery of by-products.*<br>• *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*<br>• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*<br>• *Any assumptions behind modelling of selective mining units.*<br>• *Any assumptions about correlation between variables.* | ***Software***<br>*Interpretation was performed in Seequent Leapfrog and Maptek Vulcan software. Wireframing of ore domains was performed manually in Maptek Vulcan software on a section-by-section basis. Compositing of sample data was performed in Maptek Vulcan software. Statistical and spatial analyses of composites was performed in Snowden Supervisor software. Estimation was performed in Maptek Vulcan software. Visual validation and report validation of the MRE was performed using Maptek Vulcan software.*<br><br>***Block model***<br>*The block model was created using an unrotated parent block of 5m (N) by 5m (E) by 5m (Z) for various reasons, including equilateral block size, relation to likely Selective Mining Unit (SMU) and a rational subdivision of the 20m to 25m drill spacing.*<br>*Sub-blocking was completed at 0.5m (N) by 0.5m (E) by 0.5m(Z)* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | • *Description of how the geological interpretation was used to control the resource estimates.*<br>• *Discussion of basis for using or not using grade cutting or capping.*<br>• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.* | *as a rational subdivision of parent block size and to fill domain volume.*<br>*A number of default variables were written into the empty block model at this stage for a number of reasons, including but not limited to, reference, recording of various outputs of the estimation and for classification purposes post-estimation.*<br><br>***Wireframing or Domaining***<br>*Firefly geologists interpreted each individual mineralised unit on a section-by-section basis snapping to each relevant drill-hole interval and then "wireframing" between sections to create a valid 3-dimensional solid or "domain", constraining the drill-hole grades within the domain.*<br>*Each domain was checked as valid and closed prior to coding of the domains into the block model. If the centroid of the parent block or sub-block fell within the domain extent then the block was coded with that specific domain identifier.*<br><br>***Compositing***<br>*Compositing of the constrained sample data was performed by running the drillholes against the constrained domains. The compositing run used a 1m length starting at the up-hole intersection of the wireframe against the first "snapped" interval of the drillhole. Compositing continued downhole and through the domain to the downhole or last "snapped" sample interval.*<br>*Any residual lengths less than the minimum sample length of 0.3m were merged back into the previous up-hole composite to reduce the influence of small composites.*<br>*Each composite interval was individually coded by domain during the compositing process.* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | | ***Statistics, Variography, Top cuts***<br>*Composite data from within each domain was interrogated statistically and spatially to determine top-cuts, search orientations and search ranges for each estimation pass. Each search ellipsoid was also visually compared to the relevant domain to optimise search parameters.*<br>*Limiting parameters, such as individual top cuts were defined at this stage to use in the estimation process to restrict statistical outliers and anomalous grade distribution. All domains had individual top cuts applied to them based on their individual statistical population characteristics.*<br><br>***Estimation***<br>*The estimation of the mineral resource was performed using the Inverse Distance to the power of 2 (ID2) interpolation method.*<br>*The estimation used three passes for each domain and estimated an uncut and cut grade value, as well as recording a number of other variables, such as but not limited to, the pass that successfully estimated the block, the number of samples used in the estimation of the block and the average distance of the samples to the block etc.,*<br>*The use of octant search and min/max sample restrictions was used to de-cluster data and to address the known limitations of Inverse Distance interpolation with respect to clustered data.*<br><br>***Validation***<br>*The resultant Mineral Resource Estimate has been visually validated and various checks and spreadsheet comparisons made including but not limited to, wireframe/domain volumes against block volumes (blocking efficiency) and composite grades against block grades.* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | | ***Comparisons***<br>*The Firefly JORC-2012 Melville MRE is similar in all respects, including grade, to the previous JORC-1999 Melville MRE produced by Prosperity Resources, except where Firefly benefits from increased drill spacing and additional extent volume/tonnes from recent drilling.*<br><br>***Reconciliation***<br>*There has been no mining at Melville to allow comparison or reconciliation of actual production against the MRE.*<br><br>***Selective Mining Unit (SMU)***<br>*The MRE block size of 5m x 5m x 5m is derived from the rational assumption that similar SMU are used in open-pit mining of gold and other commodities in Western Australia and elsewhere.*<br><br>***Modifying factors***<br>*Firefly is not aware of any deleterious or non-grade variables or by-products of economic significance within the Melville Resource area.* |
| *Moisture* | • *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.* | *Tonnages are estimated using dry bulk density values.* |
| *Cut-off parameters* | • *The basis of the adopted cut-off grade(s) or quality parameters applied.* | *The Firefly JORC-2012 compliant MRE is reported using a 0.7g/t cut-off grade as a conservative measure should the current price of gold move to the down-side. The economic cut-off grade of a similar unmined surface gold deposit could be as low as 0.5g/t on the current price of gold, however Firefly wishes to take a conservative view at this stage.* |

| Criteria | Explanation | Commentary |
|---|---|---|
| *Mining factors or assumptions* | • *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.* | *No mining has been completed within the Melville resource zone. No official mining assumptions or factors have been made, however Firefly recently commissioned a pit optimisation over the Melville MRE to ascertain the likelihood of eventual economic extraction. The pit optimisation presented a number of scenarios whereby Melville could be potentially economically extracted using medium-scale open pit methods due to its proximity to suitable milling facilities, ore-body thickness and orientation and the style of mineralisation.*<br>*Firefly is drilling a number of diamond drill-holes within the "best-case" pit optimisation shell to define the geotechnical and metallurgical characteristics of the Melville resource.* |
| *Metallurgical factors or assumptions* | • *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.* | *Limited historical metallurgical test-work has been performed on samples from the Melville area showing that the Melville ore is amenable to recovery using conventional CIL/CIP gold processing. Firefly is drilling a number of diamond drill-holes within the "best-case" pit optimisation shell to define the geotechnical and metallurgical characteristics of the Melville resource.* |

| Criteria | Explanation | Commentary |
|---|---|---|
| *Environmental factors or assumptions* | • *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.* | *No assumptions have been made regarding environmental factors during the estimation process.* |
| *Bulk density* | • *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*<br>• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.*<br>• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.* | *Specific Gravities for the Melville Resource Estimate have been defined on three categories or zones - oxide, transitional and fresh.*<br>*The Specific Gravity of each zone has been assigned directly into the block model using Oxide – 2.6t/$m^3$, Transitional – 2.8t/$m^3$ and Fresh 2.9t/$m^3$*<br>*These values are based on the test-work of the previous property owners, Prosperity Resources and are considered by the Competent Person to be reasonable given the nature of the host rocks.* |
| *Classification* | • *The basis for the classification of the Mineral Resources into varying confidence categories.*<br>• *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.* | *The MRE was 100% default coded as Inferred or ResCat = 3 when the block model was created.*<br>*After careful consideration, the Competent Person considers the parameters used in Pass 1 of the estimation process, the highest confidence estimation pass, defining the maximum search distance at 40m as well as the min/max number of samples per drillhole and octant search limitations, combined with consideration of 20-25m drill spacing or better, the continuous nature of mineralisation and the low variability of grade across* |

| Criteria | Explanation | Commentary |
|---|---|---|
| | | *the ore body, as sufficient to convert blocks estimated in Pass 1 to Indicated category or ResCat =2.*<br>*This method of classification converts approximately 80% of the Inferred material to Indicated.*<br>*The Mineral Resource Estimate, including the classification of Indicated material, appropriately reflects the view of the Competent Person.* |
| *Audits or reviews* | • *The results of any audits or reviews of Mineral Resource estimates.* | *This Mineral Resource Estimate has been independently reviewed by suitably qualified consultants at Entech Pty Ltd, a leading Perth mining consultancy firm.* |
| *Discussion of relative accuracy/ confidence* | • *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*<br>• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*<br>• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | *The relative accuracy of the Mineral Resource Estimate is reflected in the reporting of the MRE as per the guidelines of the 2012 edition of the JORC Code for Reporting of Mineral Resources.*<br><br>*The statement relates to global estimates of tonnes and grade.*<br><br>*There has been no production from the Melville Resource area.* |