Heron Resources Limited

ASX Release

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30 October 2019

Heron's Woodlawn Project
Mineral Resource and Ore Reserve Statement June 2019

Heron Resources Limited (ASX:HRR, "Heron" or the "Company") is pleased to report the June 2019 Mineral Resource and Ore Reserve estimates at its wholly-owned Woodlawn Zinc-Copper Project, located 250km south-west of Sydney, New South Wales, Australia (Figure 1). The estimates incorporate recent drilling in the G2 Lens area and some modifications to estimation parameters; however neither the Mineral Resource or Ore Reserve have materially changed since previous reports.

Mineral Resource and Ore Reserve Background and Methodology

The underground Woodlawn Volcanogenic Massive Sulphide (VMS) mineralisation is hosted in Late Silurian deep water marine mudstones and volcaniclastic debris flows associated with a rhyolitic volcanic centre within the Goulburn Basin. The Woodlawn deposit comprises 12 known sulphide lenses (Figure 2) which form three mineralised horizons locally disrupted by faulting. The Zinc, Copper and Lead (Zn, Cu and Pb, respectively) mineralisation occurs as massive and stringer sulphide lenses, interpreted to have formed both on the sea floor and as replacement mineralisation developed within coeval mudstones and volcanic breccia flows. The mineralisation is derived from hydrothermal fluids which emanated from the adjacent rhyolitic volcanic centre and is associated with an aerially extensive, zoned alteration envelope. The Mineral Resource at Woodlawn is defined by both historic and more recent Heron diamond drilling, as well as underground mapping from prior operators.

The underground Mineral Resources were estimated using block models for each lens constrained within wire-framed domains defined mainly by interpreted geological and structural contacts and using lower cut-off grades based on population breaks of approximately 4.0% Zn in polymetallic domains, and 1% Cu in copper domains. Where appropriate, some material of lower-grade was included with the mineralised domains for purposes of continuity. Estimations were carried out using ordinary kriging for Zn, Cu, Pb, Fe, Ag and Au. Specific gravity (density) determinations collected from samples of drill cores were applied to blocks using grade-based regression equations.

Keeping with previous underground Mineral Resource statements, tonnages and grades were reported above 7.0% Zinc Equivalent (ZnEq) for the polymetallic mineralisation and at a 1% Cu cut-off grade for the copper mineralisation. The underground Mineral Resource estimate has been classified for each individual lens based upon both geological interpretation confidence and geostatistical variance of assay composites between drill holes into the following categories: Measured (15x15m spaced drilling with geological mapping and sampling of mined areas); Indicated (up to 20x30m spaced drilling); and Inferred (greater than 20x30m spaced drilling).

The Woodlawn mine tailings are an important component of the global Woodlawn Mineral Resource and Ore Reserve inventory. The tailings are fine-grained sulphides and some silicate minerals resultant from the processing of the historic Woodlawn open-pit and underground mining from the late 1970's through to 1998, and are contained within three dams, namely South, North and West (Figure 3).

The underground and tailings Ore Reserves have been derived from the Measured + Indicated categories of the Mineral Resource estimates.

Woodlawn Underground Mineral Resource 2019

The Woodlawn underground Mineral Resource was recalculated for June 2019 incorporating drilling, mainly in the G2 Lens area, undertaken since the November 2017 estimate. Summary of changes made within the estimation between this and the previously reported Mineral Resource include:

- Addition of drilling program within G Lens Area (G2, G3, GH, GC)
- Depletion of the first mining level from the GH, G2 and G3 domains
- Re-interpretation of lens geometries and wire frames using existing data for G1, H1, and Kate package (K1, K2, KK, KC, E1)
- Change of estimation software from Micromine to Datamine
- Project review of lode type classifications, specific gravity and top cuts (grade capping) application to reduce risk within the resource.

Woodlawn Underground Mineral Resource 2019

(7% ZnEq cut-off grade for Polymetallic and 1% Cu cut-off grade for Copper)

Measured + Indicated Mineral Resource

Lens Type	Resource Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
Polymetallic	Mea + Ind	2.8	20.2	10.1	1.5	3.8	0.6	79
Copper	Mea + Ind	1.8	9.5	0.7	2.7	0.1	0.2	7
Combined	Mea + Ind	4.5	16.1	6.5	2.0	2.4	0.5	51

Inferred Mineral Resource

Lens Type	Resource Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
Polymetallic	Inf	2.0	16.3	7.1	1.5	2.8	0.7	55
Copper	Inf	0.9	8.6	0.8	2.4	0.2	0.2	8
Combined	Inf	2.9	14.0	5.2	1.8	2.0	0.5	40

Total Mineral Resource

Lens Type	Resource Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
Polymetallic	Mea + Ind + Inf	4.8	18.6	8.8	1.5	3.4	0.7	69
Copper	Mea + Ind + Inf	2.6	9.2	0.8	2.6	0.2	0.2	7
Combined	Mea + Ind + Inf	7.4	15.2	6.0	1.9	2.2	0.5	48

Notes: 1) Please refer to the end of this section for Competent Persons statements; 2) ZnEq refers to a calculated Zn equivalent grade, the formula for which is stated below; 3) Polymetallic Type refers to polymetallic massive sulphide mineralisation with high-grade Zn and Pb; Copper Type refers to Cu dominated massive and stringer sulphide mineralisation; 4) the Mineral Resource is reported in accordance with the JORC Code (2012); 5) Some rounding related discrepancies may occur in the totals.

Woodlawn Tailings Mineral Resource 2019

The Woodlawn mine tailings are an important component of the global Woodlawn Mineral Resource inventory. The tailings are fine-grained sulphides and some silicate minerals resultant from the processing of the historic Woodlawn open-pit and underground mining from the late 1970's through to 1998, and are contained within three dams, namely South, North and West (Figure 3). The tailings Mineral Resource is summarised here for the three tailings dams and has not materially changed since the previous estimate.

Woodlawn Tailings Retreatment Mineral Resource Estimate 2019

(Production depleted to June 30 2019. Resource previously estimated 2016, no cut-off grade applied)

Measured + Indicated Mineral Resource

Type	Resource Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
South Dam	Meas + Ind	3.2	5.9	2.5	0.5	1.2	0.3	27
North Dam	Meas + Ind	2.7	6.0	2.4	0.4	1.3	0.3	34
West Dam	Meas + Ind	3.9	6.5	2.0	0.6	1.4	0.4	35
Total	**Meas + Ind**	**9.8**	**6.2**	**2.2**	**0.5**	**1.3**	**0.3**	**32**

Inferred Mineral Resource

Type	Resource Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
South Dam	Inf	0.9	5.6	2.3	0.5	1.2	0.3	24
North Dam	Inf	0.2	6.2	2.4	0.4	1.4	0.3	36
West Dam	Inf	0.0	0.0	0.0	0.0	0.0	0.0	0
Total	Inf	1.1	5.8	2.3	0.5	1.2	0.3	27

Total Mineral Resource

Type	Resource Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
South Dam	Mea+Ind+Inf	4.0	5.9	2.4	0.5	1.2	0.3	26
North Dam	Mea+Ind+Inf	2.9	6.0	2.4	0.4	1.3	0.3	34
West Dam	Mea+Ind+Inf	3.8	6.5	2.0	0.5	1.3	0.4	31
Total	Mea+Ind+Inf	10.8	6.1	2.2	0.5	1.3	0.3	31

Notes: 1) Please refer to the end of this section for Competent Persons statements; 2) ZnEq refers to a calculated Zn equivalent grade the formula for which is stated below; 3) the Mineral Resource is reported in accordance with the JORC Code (2012); 4) Some rounding related discrepancies may occur in the totals.

Woodlawn Underground Ore Reserve 2019

Based on the underground Mineral Resources block model, Heron has developed a detailed mine plan to access and mine the resource blocks that meet the required resource classification (Measured or Indicated) and other parameters for inclusion in Ore Reserves. The Ore Reserves estimation is based upon the Mineral Resource block model and incorporates stope designs, cut-off grades, geotechnical parameters, mine recovery and dilution (planned and unplanned). Particular attention was paid to the existing mine workings; areas are excluded where mining recovery concerns remain due to past operations. Cut-off grades for the Ore Reserves vary depending on a variety of mostly economic factors which are detailed in the JORC Table 1 at the end of this report.

Woodlawn Underground Ore Reserve Estimate 2019

Reserve Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
Proven	0.0	-	-	-	-	-	-
Probable	3.1	13.1	5.2	1.6	1.8	0.4	38
Total (Proven + Probable)	**3.1**	**13.1**	**5.2**	**1.6**	**1.8**	**0.4**	**38**

Notes: 1) Please refer to the end of this section for Competent Persons statements; 2) ZnEq refers to a calculated Zn equivalent grade the formula for which is stated below; 3) Cut-off grades vary and have been determined by current economic and metallurgical factors which are slightly different to those used in the ZnEq formula; 4) This estimate has been prepared in accordance with the JORC Code (2012); 5) Some rounding related discrepancies may occur in the totals.

Woodlawn Tailings Ore Reserve 2019

The Woodlawn tailings Ore Reserve estimation method has not changed from the previous estimate. The updated estimate takes into account mining depletion up to 30th June 2019.

Woodlawn Tailings Ore Reserve Estimate 2019

Reported with no cut-off grade applied.

Reserve Category	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
Proven	6.2	6.0	2.2	0.5	1.3	0.3	31
Probable	3.1	6.0	2.1	0.5	1.3	0.3	32
Total (Proven + Probable)	**9.3**	**6.0**	**2.2**	**0.5**	**1.3**	**0.3**	**31**

Notes: 1) Please refer to the end of this section for Competent Persons statements; 2) ZnEq refers to a calculated Zn equivalent grade the formula for which is stated below; 3) This estimate has been prepared in accordance with the JORC Code (2012); 4) Some rounding related discrepancies may occur in the totals;

Figure 1: Location of the Woodlawn Project, News South Wales, Australia.

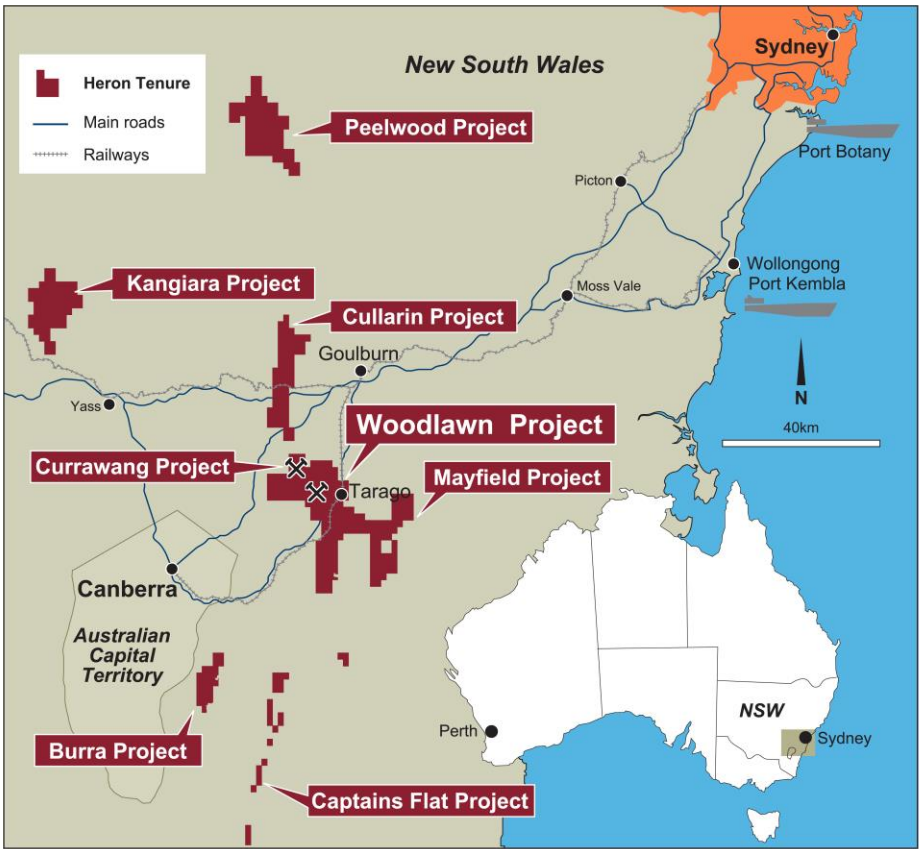


Figure 2: Cross section looking north, showing the VMS lenses, colour coded by name. The originally mined open-pit is located on the right hand side (eastern side).

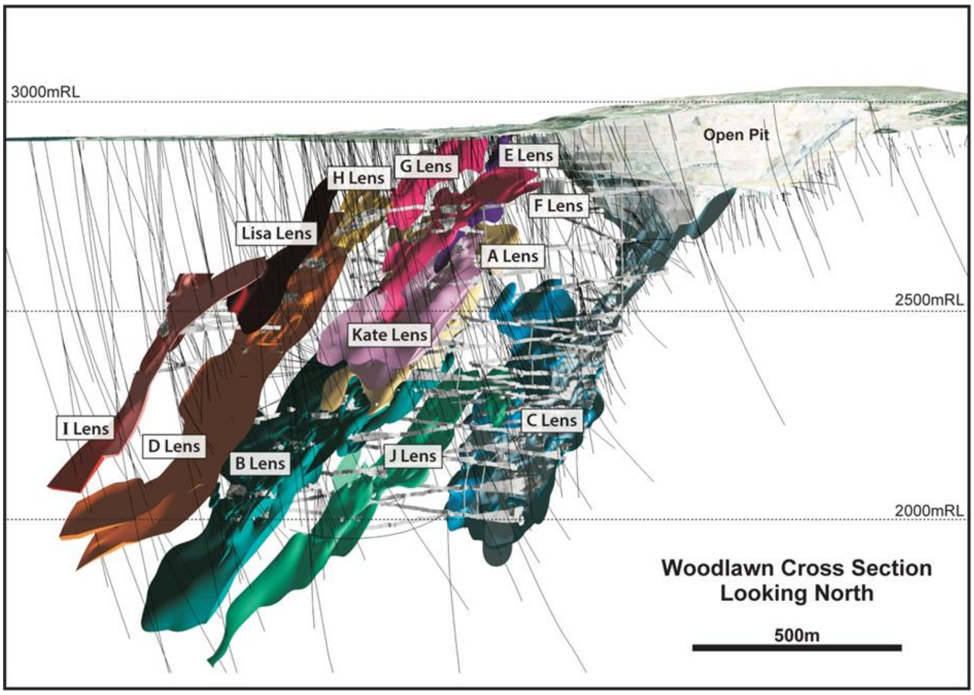
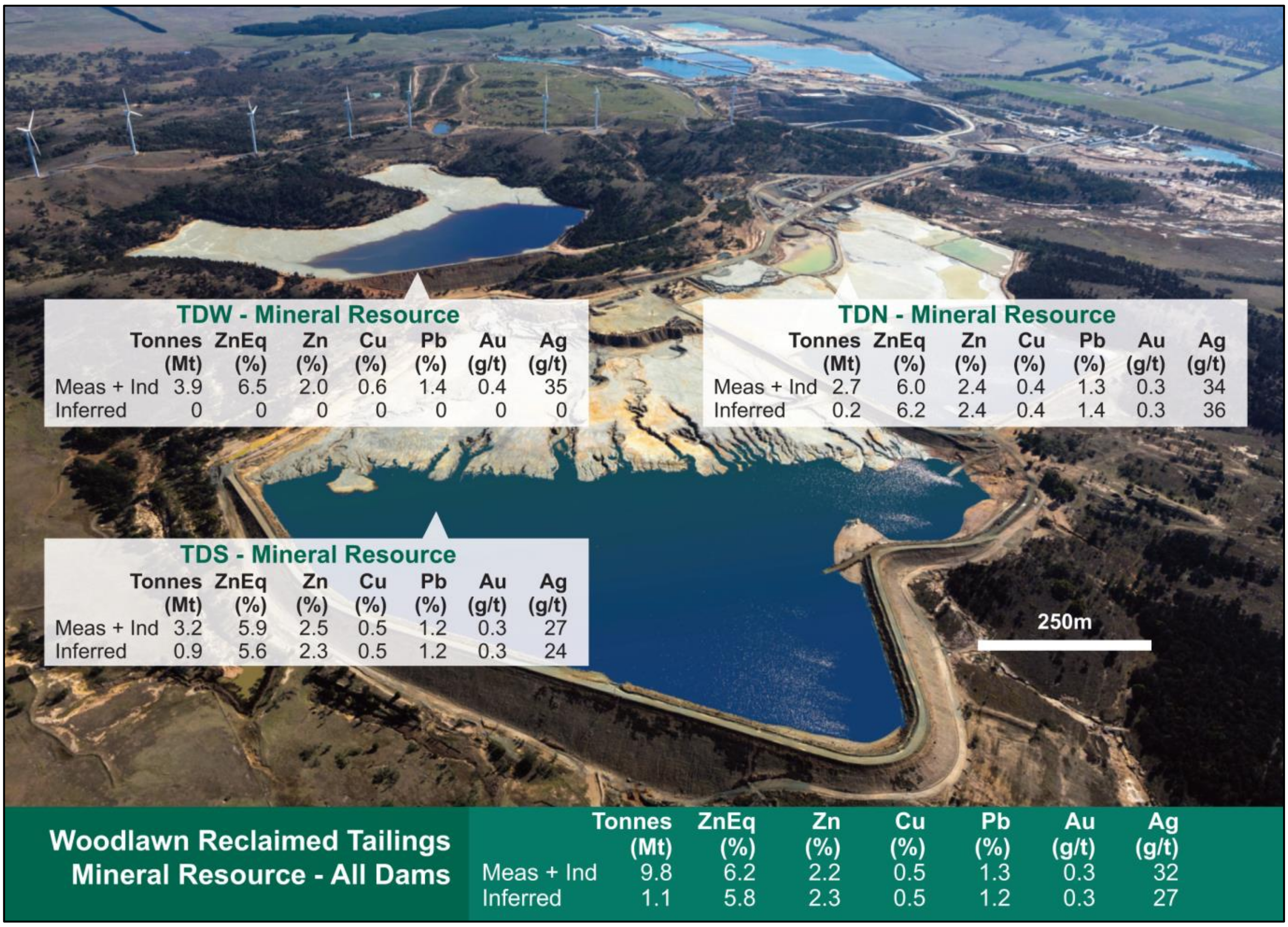


Figure 3: Mine tailings dams, shown prior to commencement of mining in 2018 (view to north).



About Heron Resources Limited:

Heron's primary focus is on its 100% owned, high grade Woodlawn Zinc-Copper Project located 250km southwest of Sydney, New South Wales, Australia – one of the few new zinc projects that is fully-funded to production. Production of base metal concentrates has recently commenced placing the Company on track to participate in a strong pricing environment. In addition, the Company holds a number of significant high-quality, base and precious metal prospects regional to the Woodlawn Project.

For further information, please visit www.heronresources.com.au or contact:

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Compliance Statements (JORC 2012)

1. The information in the report that relates to the Mineral Resources for the Woodlawn Underground Project and the Woodlawn Tailings Retreatment Project is based on information compiled by Ms Katie Yamaguchi, who is an employee of Heron Resources Limited and a Member of the Australian Institute of Mining and Metallurgy. Ms Yamaguchi has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity that she has undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code; Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves. Ms Yamaguchi consents to the inclusion in this report of the matters based on her information in the form and context that it appears.

2. The information in the report that relates to the Ore Reserves for the Woodlawn Underground Project and the Woodlawn Tailings Retreatment Project is based on information compiled by Mr Tim Brettell who is a Member of the Australian Institute of Mining and Metallurgy. Mr Brettell is a full-time employee of Heron Resources Limited and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity that he has undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code; Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Brettell consents to the inclusion in this report of the matters based on his information in the form and context, which it appears.

Zinc equivalent calculation

*The zinc equivalent ZnEq calculation takes into account, mining costs, milling costs, recoveries, payability (including transport and refining charges) and metal prices in generating a Zinc equivalent value for Au, Ag, Cu, Pb and Zn. ZnEq = Zn%+Cu%*3.12+Pb%*0.81+Aug/t*0.86+Agg/t*0.03. Metal prices used in the calculation are: Zn US$2,300/t, Pb US$2,050/t, Cu US$6,600/t, Au US$1,250/oz and Ag US$18/oz. These metal prices are based on Heron's long term view on average metal prices. It is Heron's view that all the metals within this formula are expected to be recovered and sold. Metallurgical metal recoveries used for the formula are: 88% Zn, 70% Pb, 70% Cu, 33% Au and 82% Ag; these are based on historical recoveries at Woodlawn and supported by metallurgical test work undertaken during the 2015-16 feasibility study. Commodity prices and metallurgical recoveries are factored into the zinc equivalent calculation using a standard metal equivalent formula.*

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JORC Code (2012) – Table 1

Woodlawn Underground Mineral Resource and Ore Reserve Estimate (June 2019)

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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *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.*	• Predominately drill core samples that have been collected from the 1970's up to the present day, a subset of channel samples from the previous mining operations, and relatively few near-surface reverse circulation drilling samples. • Quality of drill core samples has been assessed and deemed acceptable for inclusion. Sampling has been industry standard with core samples geologically logged on roughly 1m lengths, constrained by geological contacts; then halved or quarter core sawn and processed in NATA certified commercial laboratories with crush, milling and splitting to a 0.25g sample for aqua-regia or four-acid digest and multi-element spectral finish. • QAQC protocols to industry standard including certified reference material, duplicates and blanks.
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 database comprises 83% diamond drill samples for 135,355m in sample length, and 17% chip (including sludge, face and channel, reverse circulation, percussion, surface expression, and vibration core samples) for 28,253m in sample length. • The drill hole diameter sizes vary across the dataset chronologically by drill purpose and collaring location. The majority of drill cores are taken from HQ3 (61.1 mm) or NQ3 (45 mm). • Historical face or rib (wall) chip samples have been used in the Mineral Resource calculation. This was limited to samples taken from cross cuts that spanned the complete section of the mineralised lens. Rock chip samples were taken as a continuous channel from the ribs on 1-2m intervals, with each sample weighing approximately 2-3kg. Samples were taken to geological contacts.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *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.*	• The drill core was transported to an enclosed facility for logging and preparation. The average recovery exceeds 95%. The core was orientated where possible and marked with 1 metre downhole intervals for logging and sampling. • The recoveries for the RC drilling were visually estimated, with most being close to 100%. • Historical core stored on site shows a similar level of recovery to that from the recent diamond drilling. With the exception of some geotechnical holes, the historical underground core does not appear to have been orientated.
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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• For recent drilling, both diamond core and RC holes were geologically logged. Geotechnical logging was conducted on selected core intervals. Samples for metallurgical testing were stored in a freezer to reduce oxidation prior to metallurgical testing. • Historical core was geologically logged. Some holes were geotechnically logged and some were used for metallurgical test work. • For drill core 98% of drilled core has been geologically logged, being 166,985m logged intervals over 170,809m total meters drilled.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Drill core is cut on half or quarter core if metallurgical testing was required. Cutting occurs along the orientation line for half core and then along the top curvature of the core for quarter core. • RC samples were drilled using a 4.5 inch (11.43 cm) bit and samples collected on 1m intervals. In waste zones a spear sample was taken and composited to 4m intervals. In the mineralised zone the 1m sample was split using a riffle splitter. • Samples sizes are deemed appropriate for base-metal mineralisation and for the associated Ag and Au. • Within the laboratory protocol, all core samples were crushed and then pulverised in a ring pulveriser (LM5) to a nominal 90% passing 75 microns (µm). For each interval, a 250g pulp sub-sample was taken.
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.* • *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.* • *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.*	• Analysis has been conducted in NATA certified laboratories, including for recent drilling ALS Laboratories, Orange and Brisbane, and for historic drilling at the Woodlawn on site laboratory (evidence of certification and protocol obtained). • QAQC protocol for both the Heron data set and provided by the laboratory. • Heron QAQC protocol includes Certified Reference Material, blanks and core duplicates. Samples are inserted at a rate of 5 per 35 samples. • Documentation for historic Woodlawn Laboratory QA-QC protocols included reference samples at a 1:30 ratio; however the data for these samples has not been located or verified.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Recent data, an internal review of results was undertaken by company personnel • All recent field and laboratory data were entered into a database using a Database Administrator (DBA). Validation of both the field and laboratory data was undertaken prior to final acceptance and reporting of the data. • For recent drilling, quality control samples from both the Company and the Laboratory were assessed by the DBA and reported to the Company geologists for verification. Company procedures dictate that all assay data must pass this data verification and quality control process before being reported. • All data was from historical data bases were entered into the Heron Database by the DBA. Original source data and laboratory records have not been located and the assay data has not been verified. • At the time of historical data collection, QA-QC assay/sampling checks were not routinely carried out independently by the Woodlawn mine geology department; however the commercial laboratory did conduct internal standard reference material analyses at the rate of 1-in-30 samples. During operations the mine claim grades (derived from the Reserve and Resource models) were routinely reconciled against the mill concentrate grades. As a semi-quantitative test, this suggests that the historical drilling assay results are sufficiently accurate for the prediction of mining grades. • No adjustments have been made to assay data within the database.
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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The Woodlawn orebody locally contains small quantities of magnetic pyrrhotite and areas of high pyrite concentration that are suspected of locally affecting magnetics-based down-hole survey tools. When this was identified the drilling protocol implemented gyro tools to mitigate risk. • For Heron drilling, drill collars were initially located with a combination of handheld GPS and licenced surveyor using a DGPS system, to an accuracy of approximately 1m. The final drill collar locations are surveyed by a licenced surveyor. • For Heron drilling, downhole surveys were conducted using an Eastman, Pathfinder, Ranger or north seeking gyro survey tool to record the magnetic azimuth and dip of the hole. These recordings were taken approximately every 30m downhole. Approximately 80% of the recent holes were also surveyed with gyroscopic equipment post drilling. • For historical drilling, collar surveys were carried out on all surface and underground holes using conventional Total Station equipment. • Down-hole surveys of historic holes were carried out using down-hole cameras of various types and recording intervals of approximately 30m. • Historical drill holes intersected in underground workings were routinely picked up by the mine surveyor. These data indicated the downhole survey azimuth accuracy was usually in the order of ±2 degrees.

Criteria	JORC Code explanation	Commentary
		• All historical primary source data for collar surveys, and most down-hole surveys, have been located and verified against the historical drill hole database. • Down-hole magnetic survey data have been checked and adjusted for changes in magnetic declination.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• Drill data spacing varies from 15m x 15m in some mining remnant areas of the historical mine to greater than 80m x 80m in some exploration areas. • Historical backs (top of workings) mapping data covering all development (generally on 5m flitches) have been used to help define geological contacts in areas of previous mining. Geological structures identified in the mapping data have been used to constrain the dimensions of drilled extensions to previously mined lenses. • Data are considered to be of sufficient spacing to establish geological and grade continuity for resource estimation, and the resource classification reflects the geological and grade continuity confidence of the modelled material. • The majority of the sample lengths are between 0.22m to 1.0m. Some historical samples were taken over 3 inch (7.62cm) intervals, converted to metric equivalents in the database. Some underground face samples are 2m in length. • All samples were composited to 1m length for resource modelling purposes.
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.* • *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.*	• Typically drill hole orientation was designed to intersect the mineralised lenses at a close to perpendicular angle. The mineralised lenses dip at approximately 50-70 degrees to the west and the drill holes dip at approximately 60 degrees to the east. • The majority of historical drilling has been orientated to intersect the lenses at a close to perpendicular angle. • Some underground drill holes have been collared in the footwall and cross the lenses at a lower angle than 50 degrees. • No significant sampling bias due to the orientation of the drilling has been identified.
Sample security	• *The measures taken to ensure sample security.*	• Sampling was conducted according to written procedures and was performed by appropriately trained and supervised sampling personnel. • Core was photographed after mark-up but before sampling. • Half and quarter core samples were placed in numbered and tied calico sample bags. • Samples were weighed on site before being sent to the laboratory. • Samples were secured in plastic bags and are transported to the ALS laboratory in Orange, NSW via a courier service or with Company personnel. • The sample security of historical drilling is not known; however most samples were assayed at the

Criteria	JORC Code explanation	Commentary
		on-site laboratory so chain of custody is not a concern. • All recent drilling and approximately half of the historical drilling is stored at the Woodlawn core farm.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Laboratory audits have been conducted at least annually by Heron geological staff. • The majority of historical assay work was carried out by the NATA certified Denehurst Analytical Laboratory. • The historical laboratory procedures were reviewed as part of a broader independent assessment of resources and reserves carried out by Mr R E Cotton of Robertson Research in 1986. • Third party audits have been completed. Within the reporting period Optiro consultants completed a high-level review of the resource components including a review of the Specific Gravity measurement station within the core yard.

Section 2 Estimation and Reporting of Exploration Results

Exploration results are not included in this report

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1 also apply to this section.)

Criteria	JORC Code 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.* • *Data validation procedures used.*	• For Heron data, all data was captured digitally, including, collar survey, down-hole survey, geological logging, geotechnical logging, sample selection and assay results. The geological and geotechnical logging and sampling data were validated on entry in the field. Clear written procedures outline how all data is entered and managed in the field and field geologists update the procedures as changes are made to suit new data types (e.g. updating of geological legend). • Digital records were uploading into the database by the DBA. All source files were stored within the database. The database has internal validation for most data types to minimise the chance of transcription errors. Initial data validation was done automatically (the database will not accept data contrary to validation criteria). • Secondary validation was carried out as data was added to the database. Regular downloads from the database were validated in 3D mining packages by the geological team after each assay batch received.

Criteria	JORC Code explanation	Commentary
		• All updates and changes to the database, including corrections from the geological team, were carried out by the DBA. • Contemporary development mining has intersected drill holes within the database with a high level of spatial accuracy.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The competent persons (Katie Yamaguchi, Geology Superintendent and Tim Brettell, Mine Technical Superintendent) are both full time employees of Heron Resources and located at the Woodlawn site. • The previous competent person for Mineral Resources (Steven Jones, Senior Geologist) completed a site visit and handover of the geology and estimation procedures to Katie Yamaguchi. • A site visit also undertaken by Optiro in association with a high level resource review at the request of the competent person (Katie Yamaguchi).
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The geological interpretation was built upon from an extensive body of work by both researchers and previous operators at the mine. • The geological model of the mine was built up from detailed underground mapping, historical underground and surface diamond drilling and recent RC and diamond drilling by TriAusMin and Heron Resources. • The underground mapping was completed during underground mining operations and consisted of 1:500 and 1:250 scale backs maps of every underground development drive, including all flat back stope lifts. The mapping line work was digitised by Heron geologists and is used to develop wireframes of major faults and mineralisation domain boundaries. • The majority of mineralisation domain boundaries correspond to the sharp contacts between the massive or stringer sulphide zones and the silicate host rock. As a result, the mapped and logged geological contacts between sulphides and silicates provide a robust basis for the interpretation of volumes and the selection of samples for estimation of Mineral Resources. • It was recognised in the previous mining operations that individual lenses can have distinct mineralisation characteristics, and this has been used to define the domains used in the resource estimate. In particular, polymetallic mineralisation (sphalerite, pyrite, galena, chalcopyrite and other minor components) has been separated from copper mineralisation (principally pyrite, chalcopyrite) by domain boundaries within the model. • The impact of alternative interpretations on the resource quantities is considered to be adequately reflected in the classifications assigned to the resource estimates: • <u>Measured</u>: material where there is sufficient close-spaced drilling to determine a reliable estimate of the development or stope grades and tonnages within a mine plan and limited scope for alternative interpretations with materially different outcomes.

Criteria	JORC Code explanation	Commentary
		- <u>Indicated</u>, material where there is sufficient data to determine a reliable estimate of the stope panel grades and volumes within a mine plan developed over the resource model. Generally alternative interpretations are restricted to the up and down dip extensions of domains or around fault offsets. - <u>Inferred</u>, material where there is sufficient data to observe geological continuity within the domain and to define a reasonable estimate of grade and tonnage of the overall domain. Alternative interpretations are possible; however a best fit interpretation is applied in consideration of the local and regional geology. - Where insufficient intercepts are available to confirm continuity of either grade or geology between holes, the model cells have been flagged as 'Not Classified' and excluded from the resource estimates. - There is some scope for reinterpretation of Inferred material geometry and considerable scope for alternate interpretation of Not Classified portions of the model. It is expected that further drilling will be required to improve the robustness of the interpretation of these materials. • A similar approach to resource modelling was used during the historical underground operations, and it was considered that the reconciliation between mine and mill supported the classification that had been assigned during this period. • The geological model includes material that has been mined and the lens models closely match the models generated by the mining department during operation. • Recent mine development on the 2695L in the GH and G2 orebodies did not vary significantly from the model.
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 typical lens dimensions are 40 to 120m along strike, approximately 80 to over 500m down plunge and 2 to 30m across strike. • Mineralisation has been modelled to a depth of 820m below surface, however the deposit is considered to be open at depth. The current Mineral Resource estimate is constrained by the limited drill coverage below 700m.
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.*	• **Modelling Techniques – Domains** • Domain wireframes have been created historically within Micromine and Leapfrog and imported into Datamine Studio RM software for resource modelling. The project updates in this report included domain wireframes updated in Datamine Studio RM. • Micromine: Mapping data was digitised using Micromine. Flagged lens outlines from the mapping data and drill hole pierce points were imported into leapfrog where the footwall and hanging wall of each lens were modelled using implicit modelling routines appropriate for the geometry of the surface being modelled. The completed wall wireframes were wire-framed together in Micromine

Criteria	JORC Code explanation	Commentary

	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*
	• *The assumptions made regarding recovery of by-products.*
	• *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*
	• *Any assumptions behind modelling of selective mining units.*
	• *Any assumptions about correlation between variables.*
	• *Description of how the geological interpretation was used to control the resource estimates.*
	• *Discussion of basis for using or not using grade cutting or capping.*
	• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*
		using appropriate geological constraints, including faults, adjacent lens domains and Boolean mathematics to build the final enclosed domain boundaries.
		• Leapfrog: Models, namely G2, G3, GF and GH were built using leapfrogs implicit modelling methodology with coding of intercepts on the drill hole trace as a precursor to the software interpolating and extrapolating the domain.
		• Datamine: Revised domains, namely H1, G1 and K1 were updated by viewing the imported domain wireframe on an EW section (approximately perpendicular to geology trends) and modifying strings to data on 20m sections before re-wireframing together.
		• **Modelling Techniques – Block Model Creation**
		  • A sub blocked block model was built using the lens boundaries and a digital terrain model of the surface. Only the sulphide portion of lenses has been domained and modelled. Waste material was not subdivided into different geological units for this model.
		  • The parent cell of 10m x 20m x 20m in the X, Y and Z dimensions was chosen to reflect the principal mining method of sub-level long hole mining, with 5.5 x 5.5m drives. This also reflects the drill hole intercept spacing of 20m x 20m for a significant portion of the deposit. In some inferred portions of the model, drill hole spacing approaches 80m x 80m spacing and this is accounted for in the resource classification.
		  • The parent blocks were sub-celled to 1m x 2m x 2m to accurately estimate the volume of material inside each lens domain for mining assessment.
		• The block model creation, and subsequent block interpolation and post processing was completed in Datamine Studio RM using a macro and input parameter files written by a former Heron employee (Steven Jones)
		• Validation of outputs was conducted against previously reported models to ensure the change of software and conversion of wireframes and files did not introduce material change.
		• **Estimation of Grades**
		  • Each individual lens was interpolated separately from other lenses by the flagging of both drill hole assays and the block model. Lens boundaries are hard for the purposes of compositing and grade estimation.
		  • For resource modelling purposes adjustments were made to assay data during prior to modelling;
		    ○ Not all historic samples were routinely assayed for Au. The detection limit of 0.01g/t has been applied to all absent Au assays prior to compositing and interpolation.
		    ○ Top cutting (grade capping) was applied where needed using a decile-flagging method for data grouped into three lode types (polymetallic, mixed sulphides, copper), as follows:

Criteria	JORC Code explanation	Commentary
		▪ Lode Type Polymetallic: Au 4.1ppm ▪ Lode Type Mixed Sulphides: Ag 398ppm, Au 5.1ppm ▪ Lode Type Copper: Zn 8.0%, Pb 3.5%, Au 2.1ppm • Due to the limited number of samples in each domain, geostatistical modelling was carried out on all the domained assay data simultaneously, to produce global semi-variogram models for Au, Ag, Cu, Fe, Pb and Zn. These global geostatistical models are considered to be robust for all elements modelled – these show good continuity in general, with low nugget effects. • Grades were interpolated using Ordinary Kriging in Datamine software, with Kriging parameters derived directly from the semi-variogram models. Search parameters were based on the variogram models with ellipsoid searches being used to set a maximum of 32 samples for the initial search, and 16 and 4 for subsequent searches. Search sizes were set to ensure all blocks were filled by the third search and were orientated to match the variography. • Although separate estimation parameters were used for each element modelled there is good correlation between lead and zinc, and moderate correlation between gold and silver. Copper was found to be somewhat shorter in range than the other elements modelled. All elements were broadly anisotropic and of similar orientation and plunge to the lenses. • The maximum range of extrapolation for inferred resources was 80m. Mineralisation estimates beyond this range were not classified or reported. • ZnEq was calculated for each block from the estimated block grades. The ZnEq calculation used to report the resource model is the same as that used in the feasibility study and previous reported resources to allow a direct comparison between the figures. The ZnEq calculation, below, takes into account mining costs, milling costs, recoveries, payability (including transport and refining charges) and metal prices in generating a Zinc-equivalent value for each block grade for Au, Ag, Cu, Pb and Zn, as follows:. ZnEq = Zn%+Cu%*3.12+Pb%*0.81+Au g/t*0.86+Ag g/t*0.03 Metal prices used in the calculation include: Zn US$2,300/t, Pb US$2,050/t, Cu US$6,600/t, Au US$1,250/oz and Ag US$18/oz. Metal recoveries have been considered in the calculations and it is Heron's view that all the metals within this formula are expected to be recovered according to the metallurgical test work, and will be sold. • **Validation of Estimates** • Block models were validated using TIBCO Spotfire data analysis software to compare the outputs of volume and grade estimate over spatial areas and classifications (resource classifications, domains) between the current and previous models.

Criteria	JORC Code explanation	Commentary
		• Visual investigation was completed using Datamine Studio RM by comparing sections of the current and previous models coded for the output in question. The impact of new data, new interpretations and the change of modelling software was considered.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• All estimates were based on dry density. The classified material within the mineral resource is non-porous fresh rock and contains no residual moisture, except along major fault planes (less than 0.01% of the rock mass). A portion of weathered material is included in the upper limits of the block model, and no mineral resources or ore reserves are contained within this section.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A ZnEq cut-off grade of 7% minimum was applied to reported Mineral Resources. This cut-off grade was based on the likely foreseeable minimum grade required for underground mining at the Woodlawn mine site as determined from the feasibility studies. The ZnEq equation remains unchanged from the Preliminary Economic Assessment and Feasibility Study.
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.*	• Dilution factors have not been applied to the Mineral Resource estimate. • The deposit has previously been mined both as an open cut pit and an underground mine. Future open-cut mining has not been considered for the mineral resource at this time. • It is assumed that underground mechanised mining will be used to mine the deposit in the future. • The Indicated and Measured portions of the resource model was assessed for underground mining as a part of the Feasibility Study (FS). Assessment was carried out by SRK mining engineers in conjunction with Beck geotechnical engineers. • The FS included both capital and operating underground mining costs based upon a contract mining scenario with trackless mining equipment and employing primarily long-hole stoping and paste backfill. Other considerations included the presence of existing historic underground development openings, filled and unfilled historic stopes, as well as the ongoing use of the open cut by Veolia. • The mine design included new box-cut and decline access, ventilation design, escape-way design, ground support requirements, stockpiles and cross-cuts as well as level development and stoping designs. • The size of stopes, mining methods and dilution parameters are based on historic mining performance and geotechnical assessment of recent drilling, applied to the mining methods chosen by the study. • The mining study is a thorough but preliminary study and further work will be undertaken on the mining studies as resources are better defined by future drilling. • Material assessed to be inaccessible or unrecoverable by underground mining during the Feasibility Study were excluded from the Mineral Resource estimate and not reported. This includes material in non-recoverable pillars, material at the edges of previously mined stopes (remnants) and in areas

Criteria	JORC Code explanation	Commentary
		of known collapse in the mining records from the previous underground mine.

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.*	• The deposit was previously mined and processed to produce saleable and profitable metal concentrates for copper lead and zinc in the past.
		• Recent metallurgical test work by Heron Resources on underground mineralisation intercepts, including material representing mining dilution, as a part of the Feasibility Study indicates that good recoveries of saleable concentrates can be achieved for Copper, Lead and Zinc concentrates from both the underground mineralisation, and from tailings stored in ponds from previous mining operations.
		  ◦ The test work was based on crushing and grinding underground mineralisation to 70µm, floating of a copper concentrate with separate talc pre-float, then regrinding a blend of tailings and underground material to 30µm with separate talc pre-float, and copper, lead, and zinc concentrate floats.
		  ◦ Test work included the classification of tailings to produce material suitable for use as a past fill in underground voids.
		• Detailed work on the proposed metallurgical processing of the deposit, including estimated capital and operating costs, and plant preliminary designs, metal recoveries, concentrate grades and payabilities can be found in the body of the Woodlawn Feasibility Study document.

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.*	• The site has been subject to previous mining activities and has not been fully rehabilitated.
		• On July 4th, 2013 the company received project approval under Section 75J of the EP&A Act from the NSW Minister of Planning and Infrastructure in relation to the project, covering both:
		  ◦ The Woodlawn Retreatment Project (WRP) — involving the establishment of a hard-rock processing facility and the processing of existing tailings material stored within three existing tailings dams; and
		  ◦ The Woodlawn Underground Project (WUP) — involving excavation of a new box-cut and underground mining development to extract metalliferous sulphide material, subject to successful exploration.
		• The approvals have been granted to allow mining operations at the Woodlawn site until 31st December 2034.
		• The approvals come with a number of reasonable and workable operating conditions relating to hours of operations, operating standards, community consultation, conditions on site operations and restrictions on volumes and transport routes approved.
		• Aside from the conditions the company must also design new tailings dams, implement water management systems (to ensure zero discharge of contaminated water off-site), identify and implement a passive system for the treatment of potential acid forming seepage from the existing

Criteria	JORC Code explanation	Commentary
		waste dump, refurbish, monitor and maintain the existing bore fields.
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.* • *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.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Specific Gravity (SG) is estimated into the block model via a multivariate regression equation, using the block grade estimations. The regression equation varies based upon the material type, polymetallic or copper stream. $SG_{polymetallic} = 2.2118+0.0552*Fe\% + 0.0487*Pb\% + 0.0226*Zn\%$ $SG_{copper} = 2.5479 + Fe\% * 0.0267 + Fe\%2 * 0.0005$ • Density for core samples were determined for all Heron samples by the wet weight/dry weight method on site. The testing area was inspected by a third-party geology resource consultant in December 2018 and reported as industry standard. • Correlation between the multivariate regression and the empirical data was investigated in 2018 and found to be sufficiently accurate for the purpose the Mineral Resource estimate. • Waste material outside of the modelled domains is assigned a value of 2.7 g/t based upon sampling by Heron. This being the average lowest value of measured in the wet/dry weight method. • No verifiable historic density data has been located, although the collection of density measurements is mentioned in a number of historic Woodlawn resource reports.

Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.*
	• *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).*
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*
		• The resource classification was based on both geological and mining engineering assessment.
		• Geological Criteria:
		  • Measured: material where there is sufficient drilling to determine a reliable estimate of the development or stope grades and tonnages within a mine plan, and limited scope for alternative interpretations with materially different outcomes. Drill spacing is generally 20x20m or better. This work incorporates data from underground sampling and mapping, where available.
		  • Indicated, material where there is sufficient data to determine a reliable estimate of the stope panel grades and volumes within a mine plan developed over the resource model. Generally alternative interpretations are restricted to the up- and down-dip extensions of domains or around fault offsets. Drill spacing can vary and may include areas of high drill density (20x20m or better) with additional geological complexity.
		  • Inferred, material where there is sufficient data to observe geological continuity within the domain and to define a reasonable estimate of grade and tonnage of the overall domain. Alternative interpretations are possible; however a best-fit interpretation is applied in consideration of the local and regional geology. Drill hole spacing was typically 80x80m or

Criteria	JORC Code explanation	Commentary
		closer. • Where insufficient intercepts are available to confirm continuity of either grade or geology between holes, the model cells have been flagged as 'Not Classified' and excluded from the resource estimates. • Engineering Criteria; • The Mineral Resource excludes material flagged as previously mined. As a part of the Feasibility Study Heron had remodelled the existing underground voids from the source survey data for the entire mine. • Areas adjacent to, and directly below, existing historic stopes were excluded from the Mineral Resource as it was considered unlikely that this in-situ material could be recovered safely from the deposit. All stope skins were treated in this manner. • Areas in and around known zones of collapse in the previous mine were also excluded.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Optiro were engaged to conduct a high level Mineral Resource review, prompted by the change of Heron Competent Person and as peer review for the worked undertaken in interpretation for the G package of lenses, and proposed projects on specific gravity, top cuts, drill spacing for Ag and Au, and resource classification. Recommendations • Internal dilution identified in multiple domains, with potential to smear grade. The areas were reviewed and updated in this resource update (G1, G2, G3, GH, GF, H1, K1) • Review the modelling cut-off grade to one lower than the economic cut-off to reduce remodelling in the event of fluctuations in economic and financial modifying factors. • Continue the collection of density data on site and visit estimated density as a validation to the regression derived density. • Analytes S% and Fe% showed individual high correlations to the measured density. Expanding the sample dataset to allow estimating S% and/or Fe% as an alternative density field. • Incorporate, with the pending commencement of mining activities, reconciliation processes. • Reviewing the coding of material currently flagged as "Skin" and therefore excluded from the resource, as some material is not associated with historic production voids. • Review the short-range variability of the metals through the use of close spaced sampling (5-10m sections), or • Investigate non-linear estimates for the above.

Criteria	JORC Code explanation	Commentary
		• The overall conclusion of the review is that the model and resource estimates are sound, and the project work being undertaken by the Competent Person was valid.
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.* • *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.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Competent Person has a relatively high confidence in the Mineral Resource estimate. The principal reasons are: ○ Upon commencing employment with Heron the Competent Person undertook a due diligence review, supplemented with a geological consultant peer review. ○ Underground backs mapping data has been digitised and used to develop a geological framework for the Mineral Resource estimate which is inclusive of all geological observations made during previous mining of the deposit. ○ Lenses have been modelled on an individual basis, with a clear separation of the principal mineralisation styles within each lens and validated with population statistics. Interpretation of lens volumes and locations incorporate historic underground mapping data (where available) significantly increasing the confidence in the geological model and the Mineral Resource estimate. ○ Contemporary mining in the 2695L within the GH and G2 lenses performed to the interpretation of the lens volumes and visual grading of material (this material has not been processed through to concentrate at the time of the report awaiting plant commissioning) ○ The geostatistical modelling of the variography is sound, and grade interpolation of the orebody using ordinary kriging is a robust and proven method for modelling this style of deposit. The method is successfully employed to model other similar deposits, including current producing mines. ○ The void model has been completely remodelled for original source data, significantly increasing the confidence in the location of remaining unmined material. ○ Recent surface drilling targeting the void model intersected the model in modelled locations. In addition, contemporary development mining has intersected drill holes with a high-level of accuracy to their location according to the database.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and section 3 also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The Woodlawn underground Mineral Resource June 2019 was used as the basis for the underground Ore Reserve estimate. The Mineral Resource is estimated, at a cut-off grade of 7.0% ZnEq. Details of this Mineral Resource and supporting information can be found in the Sections 1 and 3 above. • The Woodlawn tailings Mineral Resource June 2019 was used as the basis for the tailings Ore Reserve estimate. The Mineral Resource is estimated, at a cut-off grade of 0.0% ZnEq. • The Mineral Resources are reported inclusive of the Ore Reserves.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The competent person (Tim Brettell, Mine Technical Superintendent) is a full-time employee of Heron Resources and is based on site at the Woodlawn Mine.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• A Feasibility Study for the project was completed in 2016. • Construction commenced in late 2017 and continued through 2018 and into the first half of 2019. • Underground development mining commenced in late 2018 with some ore development completed before the end of June 2019. No underground ore had been processed through the new plant during the reporting period. • Tailings reclaim operations commenced in the first half of 2019. This ore was used as part of the processing plant commissioning before the end of the reporting period. • The inputs into the Ore Reserve estimates are primarily based on the work completed in the Feasibility Study because there is insufficient new data available from the limited scale mining operations noted above.
Cut-off grade parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• The underground stope cut-off grades were developed from the over-arching assumptions used in the 2019-2020 Business Plan and FS where applicable (including, commodity prices, exchange rates, recovery factors processing, freight, shipping and treatment costs, operating costs, sustaining capital, and royalties).

Criteria	JORC Code explanation	Commentary
		• The cut-off grade applied varied based on a number of factors including location within the mine and mine designs. The underground mining cut-off grade ranges from 4.2% ZnEq to 6.2% ZnEq. • The tailings retreatment cut-off grade is 0% ZnEq.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	Underground Ore Reserve • The underground orebody has widths between 2 m to 30 m with an average of about 10 m and is steeply dipping, which suits the up-hole open-stoping mining method. The ore zones have a competent hanging wall and footwall. Up-hole open-stoping is the primary method of extraction with some drift and "half uppers", and drift and fill. In general, the level spacing is 20 m floor to floor; however, there is some variation to this in areas where ground conditions allow/require. Paste backfill will be used to fill mined areas. • An exclusion zone of 200 m from the existing pit has been applied. • Underground mining dilution is applied based upon the chosen mining method and lens characteristics/geometry and ranges from 5% to 20%. • The mining recovery is applied based on the mining method and ranges between 85% and 90%. • A minimum mining width of 3 m has been applied to the underground Ore Reserve Estimate. • No Inferred Mineral Resource has been included in the project economics for Woodlawn Tailings Ore Reserve • The tailings will be hydraulically mined using a top-down approach with a sluice channel feeding back to a sump. • The tailings retreatment dilution is calculated based upon 200 mm of dilution which is a volumetric range between 2.2% and 3.2%. A global average of 3% dilution has been applied • The tailings retreatment recovery is applied based on 400 mm of ore loss which is a range between 4.4% and 6.6%. A global average of 95% mining recovery has been applied

Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.*
	• *Whether the metallurgical process is well-tested technology or novel in nature.*
		• The process recovery is based on campaign processing of underground and tailings.
		• The zinc, lead, copper, gold and silver are recovered by conventional industry methods of:
		  ◦ Comminution
		  ◦ Flotation; and
		  ◦ Thickening and Filtration.

Criteria	JORC Code explanation	Commentary
	• *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• The process flowsheet is similar to the original Woodlawn concentrator which operated between 1978 and 1998. • No allowances have been made for deleterious elements. • No bulk sampling has occurred.
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• Major Project approval was received on 4 July 2013 from the NSW Minister for Planning and Infrastructure under Section 75J of the EP & A Act for both the tailings retreatment and underground project
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• The operation uses the existing access road. • New site buildings including processing plant, offices and car park have been constructed. • Power is supplied from the grid which has sufficient capacity. The current sub-station on site also has sufficient spare capacity to service the operation. • Water is sourced from surface site and underground water plus the Willeroo borefield with potable water being generated from a newly constructed reverse osmosis plant.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.*	• The operating costs used for the economic assessment are based on the site's 2019 Business Plan. • Capital expenditure requirements are based on the site's 2019 Business Plan. • Royalties that are applied by the NSW government have been taken into account.

Criteria	JORC Code explanation	Commentary
	• *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• All calculations have been undertaken in Australian dollars.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• Commodity prices are based on consensus forecast from brokers going forward. The prices are consistent with those used in the 2019 Business Plan.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• Heron has a base metal concentrate agreement from the commencement of production through to the end of 2021. This off-take contract covers 100% of the zinc, copper and lead concentrates produced over this period.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	• The Woodlawn deposit is sensitive to the metallurgical recoveries, commodity prices, and exchange rate. • The commodity prices used are Zinc US$1.13/lb, Lead US$0.91/lb, Copper US$2.95/lb, Gold US$1,250 / oz, Silver US$16/ oz, exchange rate AUD:USD 0.72

Criteria	JORC Code explanation	Commentary
	• *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• The Woodlawn deposit is located within the land owned by Veolia Environmental Services Pty Ltd (Veolia). There has been community consultation including government agencies, local government, the community and non-government stakeholders
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• The project is sited within the Special Mining Lease 20 which expires on 16 November 2029. • Heron have a number of legal agreements in place with Veolia regarding the interaction of the two operations. These include a co-operation agreement regarding rehabilitation of the site and use of joint facilities; Deed of Assignment which exercises the Veolia operation from the SML20 and a Call option which gives Heron the option to purchase the land covered by the proposed mining operation.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• The Ore Reserve was classified in accordance with the JORC Code (2012). Standard modifying factors and conversions were applied as described above. • The methods used are considered by the Competent Person to be appropriate for the style and nature of the deposit. • Measured Mineral Resource has been classified as Probable in the Ore Reserves Estimate because of the uncertainty relating to the existing mined area and the ground conditions associated with the remnant areas. • Measured and Indicated Mineral Resource has been classified as both Proven and Probable Ore Reserve for the tailings Ore Reserve estimate based on the geological and mining confidence.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• No audits have been undertaken on the Woodlawn Ore Reserves. However, aside from updated Mineral Resource models, revenue factors and costs, the estimation method and other modifying factors is consistent with the approach employed by SRK Consulting for FS and the previous Ore Reserve estimate in 2016.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *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.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	Underground Ore Reserve • The competent person is of the opinion that the Mineral Reserves for the Woodlawn underground project, which have been estimated using core drill and development data, appropriately consider modifying factors and have been estimated using industry best practices Factors that may affect the Ore Reserve estimate are: • Ground conditions in the remnant areas may be worse than expected. This may reduce the recovery of the ore from these areas. • Stope dilution and recovery factors are based on assumptions that will be reviewed as mining advances. • Stope stability is also an important factor with some stopes having considerable span and thickness which may affect the choice of mining method and expected extraction rates and dilution.. • As always, changes in commodity price and exchange rate assumptions will have an impact on the cut-off grade. • The competent person is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors that could materially influence the Ore Reserves other than the modifying factors already described in this section of the report. Tailings Ore Reserve • The assumptions and modifying factors for the tailings Ore Reserve estimate is unchanged from the previous estimate. The updated estimate takes into account mining depletion up to 30th June 2019.