image resources

13 January 2017

TONNAGE DOUBLES IN MINERAL RESOURCE UPDATE FOR BOONANARRING PROJECT

Image Resources NL (ASX: IMA) ("Image" or "the Company") is pleased to announce **a doubling of the total tonnes of mineral resources** for its 100%-owned **Boonanarring Minerals Sand Project** located 120 km north of Perth in the **North Perth Basin**.

As part of the bankable feasibility study being conducted for the Company's **high-grade Boonanarring and Atlas** mineral sand projects, Optiro Pty Ltd (**Optiro**) has completed an update of the Mineral Resource estimate for Boonanarring in accordance with the guidelines of the **JORC Code (2012).** When compared to the Mineral Resource estimate for Boonanarring prepared for Image for its 2013 feasibility study, the **total tonnes of Mineral Resources have increased by 103% from 21.5 million to 43.7 million tonnes**, albeit at lower HM grade and mineral assemblage as detailed below.

A summary of the Mineral Resource estimate by Optiro for the Boonanarring deposit as at January 2017, reported at a cut-off grade of 2.0% total heavy minerals (HM), is presented in Table 1. The Mineral Resource summary from 2013, reported at a cut-off grade of 2.5% HM is shown in Table 2.

Table 1. 2017 Boonanarring Mineral Resource Summary at 2.0% HM cut-off grade

Classification	Million tonnes	HM %	Slimes %	Oversize %	% of total heavy mineral			
					Zircon	Rutile	Leucoxene	Ilmenite
Strandline Mineralisation								
Measured	7.8	8.2	14	6.6	20.1	2.2	1.9	47.3
Indicated	19.5	6.0	17	8.0	21.6	2.4	1.8	50.2
Inferred	6.3	5.2	18	6.8	15.3	3.9	3.2	59.5
Sub-total	33.5	6.3	17	7.5	20.2	2.6	2.0	50.8
Overlying Mineralisation								
Indicated	6.6	3.2	21	10.7	5.7	2.8	3.2	46.1
Inferred	3.6	3.3	25	12.5	2.7	2.3	4.0	25.5
Sub-total	10.2	3.2	23	11.4	4.6	2.6	3.5	38.5
Total								
Measured	7.8	8.2	14	6.6	20.1	2.2	1.9	47.3
Indicated	26.1	5.3	18	8.7	19.2	2.5	2.0	49.6
Inferred	9.9	4.5	21	8.9	11.9	3.5	3.5	50.3
Total	**43.7**	**5.6**	**18**	**8.4**	**18.1**	**2.6**	**2.2**	**49.1**

Table 2. 2013 Boonanarring Mineral Resource Summary at 2.5% HM cut-off grade

Classification	Million tonnes	HM %	Slimes %	Oversize %	% of total heavy mineral			
					Zircon	Rutile	Leucoxene	Ilmenite
Measured	3.0	7.8	10	-	17	3.0	1.0	49
Indicated	14.3	9.0	17	-	22	3.0	6.0	49
Inferred	4.2	6.5	17	-	18	7.0	8.0	51
Total	**21.5**	**8.3**	**16**	**-**	**20.7**	**3.6**	**5.7**	**49.3**

The principal reasons for the substantial increase in Mineral Resource tonnes reported in 2017 are:

- **An expanded area of mineralisation** as a result of drilling completed since 2013;
- **Delineation of a substantially contiguous layer of lower grade mineralisation overlying the high-grade mineralised strands (Overlying Mineralisation)**, previously thought to be discontinuous and sub-economic; and
- **Application of a lower cut-off grade** (2.0% HM versus 2.5% in 2013).

Drilling since 2013 on the southern end of the deposit has extended the strike-length of Boonanarring Strandline Mineralisation from 11.2 km to 13.2 km and added approximately 5 million tonnes of Mineral Resources. In general, this additional mineralisation is significantly lower HM grade (~3.5% HM) and lower in overall mineral assemblage value (~8.5% zircon) than the previously reported main strandline mineralisation. However, this mineralisation is somewhat shallower (lower strip ratio) and therefore carries lower mining costs.

Delineation of the Overlying Mineralisation has added approximately 10 million tonnes of Mineral Resources at a 2.0% HM cut-off. As shown in the Table 1, this mineralisation is significantly lower HM grade and lower overall mineral assemblage value. It is unclear what quantity, if any, of this material will translate to ore reserves. However, given its relatively shallower depth compared to the high-grade Strandline Mineralisation, mining costs for this material will be lower.

The Overlying Mineralisation layer is **potentially** positively significant to the overall economics of the project in that any ore mined and processed from this overlying layer serves to reduce the overall mining strip ratio. In addition, the availability of additional tonnes Minerals Resources from the Overlying Mineralisation, and from lowering the cut-off grade, can potentially allow the ore processing rate to be increased without the sacrifice of mine life. This could lead to improved project economics by operating at a higher economy-of-scale without additional capital cost, by simply utilising the available capacity of the recently acquired wet concentration plant and associated equipment.

It is important to note that while the expanded Mineral Resource estimate by Optiro is reported as substantially higher tonnes than the 2013 Mineral Resource estimate, it remains to be determined what quantity of these additional tonnes of mineralisation will translate to economic reserves. In addition, further economic modelling must be completed to determine if portions of the lower grade Overlying Mineralisation will be economic to process in the shorter term, given current lower mineral sand commodity prices, or whether this lower grade material will need to be stockpiled for later processing under higher commodity prices.

The 2017 Mineral Resource estimate will be incorporated in updated mine design, modelling and scheduling for use in economic modelling of the project as part of the bankable feasibility study currently scheduled to be completed by the end of March 2017. A full copy of the summary report of the Mineral Resource estimate by Optiro is attached.

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COMPLIANCE STATEMENT

The information in this report that relates to the estimation of Mineral Resources is based on information compiled by Mrs Christine Standing, who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG). Mrs Standing is a full-time employee of Optiro Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mrs Standing consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.

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Dear Sir,

BOONANARRING MINERAL RESOURCE ESTIMATE – JANUARY 2017

Optiro has prepared an updated Mineral Resource estimate for the Boonanarring deposit. The Boonanarring Heavy Minerals Sands deposit is located in the North Perth Basin, Western Australia, approximately 120 km north of Perth.

Mineral Resource Summary

Image Resources NL (Image) prepared a Feasibility Study to assess the viability of mining and processing mineral sands from its Boonanarring deposit using a Mineral Resource estimate prepared in 2013. Optiro's updated Mineral Resource, for January 2017, incorporates results from an additional 211 drill holes (for a total 8,300 m) drilled by Image between 2014 and 2016 and an additional 48 composite samples that were analysed to determine the heavy mineral (HM) assemblage components. The 2017 Mineral Resource has been defined from drilling undertaken by Iluka (the previous owners of the project) from 1998 to 2007 and by Image from 2011 to 2016 and comprises data from 1,513 vertical, reverse circulation (aircore) drill holes for a total of 62,499.5 m. The drill hole spacing is generally 20 m to 40 m across strike on section lines spaced at 100 m or 200 m along strike. Some areas have been drilled at a wider spacing of up to 80 m by 400 m.

The Boonanarring mineralisation is hosted by the Pleistocene Yoganup Formation. The Yoganup Formation is a buried pro-graded shoreline deposit, with dunes, beach ridge and deltaic facies. This formation lies unconformably over the Lower Cretaceous Leederville Formation and is overlain by the Quaternary Bassendean Sand. The basement to the main standline mineralisation is identified by the increased slimes content of the Leederville Formation. Some lower grade mineralisation that overlies the standlines may have been concentrated in an aeolian setting.

The heavy minerals within the Yoganup Formation have been concentrated in two main strandlines that are continuous over a north-south strike length of 13.2 km and have a combined across strike width of up to 500 m. The main strandline mineralisation extends from 14 m to 58 m depth and the overlying mineralisation extends from surface to a depth of 39 m. Mineralisation has been identified in the Leederville Formation, below the main strandlines, that extends from a depth of 20 m to 61 m. An additional strandline, to the west of the main strandlines, is present in the southern part of the project area. This western strandline has been shown from drilling to extend for approximately 4 km north-south, has an across strike width of up to 200 m and extends from 11 m to 35 m depth. The main and western strandline mineralisation was interpreted using a nominal cut-off grade of 2% HM and the mineralisation overlying the strandlines was interpreted using a nominal cut-off grade of 1.8% HM.

The majority of samples (98%) are from intervals of 1 m and Image collected samples of ~1.25 kg for each 1 m down hole interval. Almost 43% of samples have been analysed for total HM, slimes and oversize. Samples were analysed for HM content by heavy media separation. Almost 50% of the assayed intervals have been analysed using a <53 µm grain size for slimes and a -2mm+53µm grain size for HM, and almost 50% of the data has been analysed using a <63 µm grain size for slimes and a -1mm+63um grain size for HM. Less than 2% of the HM data is from a grain size fraction of -1mm+53µm. Grain size analysis was used to generate adjustment factors that have been applied to convert the +53 µm HM data to +63 µm HM data and to convert the -53 µm slimes data to -63 µm slimes data. Grain size analysis indicates that the zircon and TiO_2 minerals are all ≤850 µm.

The Mineral Resource includes the results of 292 composite samples (from 569 holes totalling 3,799 m) which were analysed to determine the HM assemblage. The mineral assemblage data includes data from Iluka (magnetic separation followed by density separation using solutions of 3.85 g/cm^3 and 4.05 g/cm^3); XRF data (after microscope examination to exclude non-representative samples e.g. laterite); and QEMSCAN data. The results from QEMSCAN analysis of 20 composite samples, originally analysed using XRF, were used to calibrate the results from XRF with the QEMSCAN results. The QEMSCAN rules for the titanium mineral determination are ilmenite: 50-70% TiO_2; leucoxene: 70-95% TiO_2; and rutile: >95% TiO_2.

HM, slimes and oversize block grades were estimated using ordinary kriging techniques with top-cuts applied to the data. Block grades were estimated for the mineral assemblage components (ilmenite, rutile, leucoxene and zircon) using inversed distance (squared) techniques.

Bulk density was determined using a formula supplied by Image. The formula, which is based on heavy mineral and slimes percentage concentrations and includes assumptions about void space and mineral densities, was calibrated with 19 bulk density measurements from the 2016 geotechnical drilling program.

The estimate has been classified according to the guidelines of the JORC Code (2012) into Measured, Indicated and Inferred Mineral Resources taking into account data quality, data density, geological continuity, grade continuity and confidence in the estimation of heavy mineral content and mineral assemblage. Measured Resources are generally defined where drilling is at 20 m to 40 m on 100 m spaced section lines, Indicated Resources are generally defined where drilling is at 20 m to 40 m by 200 m, and Inferred Resources are defined where the drill spacing is up to 80 m by 400 m. The Mineral Resource estimate for the Boonanarring deposit has been reported in Table 1 at a 2.0% total heavy minerals cut-off grade. This cut-off grade was selected by Image based on technical and economic assessment carried out during Feasibility Studies. The Mineral Resource is reported by mineralisation type and for a range of total heavy minerals cut-off grades in Table 2.

Table 1 Boonanarring Mineral Resource as at January 2017 reported above a cut-off grade of 2.0% total heavy minerals

Classification	Million tonnes	HM %	Slimes %	Oversize %	% of total heavy mineral			
					Zircon	Rutile	Leucoxene	Ilmenite
Strandline Mineralisation								
Measured	7.8	8.2	14	6.6	20.1	2.2	1.9	47.3
Indicated	19.5	6.0	17	8.0	21.6	2.4	1.8	50.2
Inferred	6.3	5.2	18	6.8	15.3	3.9	3.2	59.5
Sub-total	33.5	6.3	17	7.5	20.2	2.6	2.0	50.8
Overlying Mineralisation								
Indicated	6.6	3.2	21	10.7	5.7	2.8	3.2	46.1
Inferred	3.6	3.3	25	12.5	2.7	2.3	4.0	25.5
Sub-total	10.2	3.2	23	11.4	4.6	2.6	3.5	38.5
Total								
Measured	7.8	8.2	14	6.6	20.1	2.2	1.9	47.3
Indicated	26.1	5.3	18	8.7	19.2	2.5	2.0	49.6
Inferred	9.9	4.5	21	8.9	11.9	3.5	3.5	50.3
Total	**43.7**	**5.6**	**18**	**8.4**	**18.1**	**2.6**	**2.2**	**49.1**

Notes:

1. Reported above a cut-off grade of 2.0% total heavy minerals (HM).
2. Boonanarring Mineral Resource is classified and reported in accordance with the guidelines of JORC Code (2012).
3. HM is within the +63um to -1mm size fraction and reported as a percentage of the total material; oversize material is +1mm and slimes is -63µm.
4. Estimates of the mineral assemblage (zircon, ilmenite, rutile and leucoxene) are presented as percentages of the total HM component of the deposit, as determined by Iluka's in-house methods along with QEMSCAN and XRF methods. QEMSCAN rules used for mineral determination as follows: ilmenite: 50-70% TiO_2; leucoxene: 70-95% TiO_2; rutile): >95%
5. All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus sum of columns may not equal.

Table 2 Boonanarring Mineral Resource reported by mineralisation type and for a range of cut-off grades

Cut-off % HM	Million tonnes	HM %	Slimes %	Oversize %	% of total heavy mineral			
					Zircon	Rutile	Leucoxene	Ilmenite
Strandline mineralisation								
1.0	33.9	6.3	17	7.4	20.2	2.6	2.1	50.8
1.5	33.9	6.3	17	7.4	20.2	2.6	2.1	50.8
2.0	**33.5**	**6.3**	**17**	**7.5**	**20.2**	**2.6**	**2.0**	**50.8**
2.5	31.7	6.6	17	7.5	20.4	2.5	2.0	50.7
3.0	27.7	7.1	17	7.5	20.9	2.5	1.9	50.6
Overlying mineralisation								
1.0	14.1	2.8	22	10.1	5.1	2.8	3.4	40.9
1.5	13.5	2.9	22	10.3	5.0	2.8	3.4	40.7
2.0	**10.2**	**3.2**	**23**	**11.4**	**4.6**	**2.6**	**3.5**	**38.5**
2.5	6.8	3.7	24	12.8	4.0	2.5	3.7	34.9
3.0	4.7	4.1	24	13.8	3.7	2.4	3.7	33.2
Total								
1.0	48.0	5.3	18	8.2	17.8	2.6	2.3	49.2
1.5	47.4	5.3	18	8.3	17.8	2.6	2.3	49.2
2.0	**43.7**	**5.6**	**18**	**8.4**	**18.1**	**2.6**	**2.2**	**49.1**
2.5	38.4	6.1	18	8.4	18.6	2.5	2.2	49.0
3.0	32.5	6.7	18	8.4	19.3	2.5	2.1	49.1

Open pit mining methods will be used, similar to those commonly and currently in use in heavy mineral sand mining operations both in Australia and globally. Process test work has shown that the valuable heavy minerals (zircon, ilmenite, rutile and leucoxene) can be recovered using standard mineral sands processing techniques.

Environmental exclusion zones, within 50 m of the Bartlett's Well and the Boonanarring Nature Reserves, have been defined and these areas are excluded from the reported Mineral Resource. Buffers around major roads and the Dampier to Bunbury pipeline were applied to remove these areas from the Mineral Resource.

Compliance Statement

The information in this report that relates to the estimation of Mineral Resources is based on information compiled by Mrs Christine Standing, who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG). Mrs Standing is a full-time employee of Optiro Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mrs Standing consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.

Yours sincerely

Attachment: JORC Table 1

JORC Code, 2012 Edition – Table 1

The table below summaries the assessment and reporting criteria used for the Boonanarring deposit Mineral Resource estimate and reflects the guidelines in Table 1 of *The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves* (the JORC Code, 2012).

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling. 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.	• Sampling of the deposit has been by vertical reverse-circulation air-core method (RCAC). This is a Mineral sands industry-standard drilling technique. • Samples are from intervals of 0.5 m, 0.7 m, 1 m and 1.5 m and 2 m. The majority of samples (98%) are from intervals of 1 m. • 11 vertical diamond core holes were drilled in 2016 to obtain geotechnical and bulk density data.
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).	• All Image RCAC drill holes are drilled vertically using an NQ-sized (76 mm diameter) drill bit. • All Iluka RCAC drill holes are vertical and were drilled using a BQ-sized drill bit (60 mm diameter). • Water injection is used to convert the sample to a slurry so it can be incrementally sampled by a rotary splitter. • 20 vertical diamond core holes were drilled in 2016 using a PQ sized drill bit (85 mm) diameter).
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.	• At the drill site, Image's geologist estimates sample recovery qualitatively (as good, moderate or poor) for each 1 m down hole sampling interval. Specifically, the supervising geologist visually estimates the volume recovered to sample and reject bags based on prior experience as to what constitutes good recovery. • Image has recorded that over 90% of the samples have good recovery and that less than 5% have moderate recovery and less than 5% have poor recovery. • Image also monitors recovery through the mass of the laboratory sample, which is recorded prior to despatch and again on delivery to the laboratory. The mass variation in the laboratory samples can then be correlated back to the original total sample.
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.	• Image's supervising geologist logs the sample reject material at the rig and pans a small sub-sample of the reject, to visually estimate the proportions of sands, heavy mineral (HM) sands, 'slimes' (clays), and oversize (rock chips) in each sample, in a semi-quantitative manner. • The geologist also logs colour, grainsize, an estimate of induration (a hardness estimate) and sample 'washability' (ease of separation of slimes from sands by manual attrition). • To preclude data entry and transcription errors, the logging data is captured into a digital data logger at the rig, which contains pre-set logging codes. • No photographs of samples are taken. • The digital logs are downloaded daily and emailed to Image's

		head office for data security and compilation into the main database server. • Samples visually estimated by the geologist to contain more than 0.5% HM (by weight) are despatched for analysis along with the 1 m intervals above and below the mineralised interval. • The level and detail of logging is of sufficient quality to support Mineral Resource estimates (MRE). • All (100%) of the drilling is logged. • Geotechnical holes have been logged and assessments as to pit stability determined.
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.	• The majority of the samples (98%) are from 1 m intervals and almost 43% of samples were analysed for total HM, slimes and oversize. • The sample from the internal RC rods is directed to a cyclone and then through a 'rotating-chute' custom-built splitting device. This device allows different fraction splits from the cyclone sample stream to be directed to either 25 cm by 35 cm calico bags (as the laboratory despatch samples) or to large plastic polyweave bags for the sample rejects. The rotary splitter directs ≈10 increments from the stream to the laboratory despatch samples, for a specified sampling interval. • Sample tickets with the interval's unique sample ID are placed in each bag. • For resource definition drilling, two (replicate) 1/8 mass splits (each ≈ 1.25 kg) are collected from the rotary splitter into two pre-numbered calico bags for each 1 m down hole interval. A selection of the replicate samples are later collected and analysed to quantify field sampling precision, or as samples contributing to potential future metallurgical composites. • Iluka is understood to have used a similar procedure albeit no records are available to support this assertion. • To monitor sample representation and sample number correctness, Image weighs the laboratory despatch samples prior to despatch. The laboratory then weighs the received sample and reports the mass to Image. This identifies any potential mix up of sample numbers and is also a proxy for sample recovery. • Image considers the nature, quality and size of the sub samples collected are consistent with best industry practices of mineral sands explorers in the Perth Basin region.
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,	• Image and Iluka used industry standard approaches to estimating the contents of HM, slimes and oversize involving screening to remove oversize, washing slimes from samples and then extracting the heavy minerals from the residual sands using heavy media. • Image engaged four laboratories (Western Geolabs, Diamantina Laboratory, Diamond Recovery Services Laboratory and Robbins Metallurgical Laboratory). • Iluka used a few certified reference materials (CRMs) to quantify the accuracy of the drilling with acceptable results. Image inserted CRMs for drilling undertaken during 2014, 2015 and 2016. • Both Iluka and Image collected duplicate samples including field-duplicates of the primary sample, laboratory duplicates at

	duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	the laboratory sub-sampling stage (post de-sliming) and laboratory re-submission duplicates to the original or alternative laboratories used by Iluka and/or Image. • Analysis of QAQC data for the drilling programs indicates that it is of moderate to high quality and supports Mineral Resource estimation. • Three sets of mineral assemblage data have been used to estimate the ilmenite, leucoxene, rutile and zircon concentrations within the HM: – data from Iluka (magnetic separation followed by density separation using solutions of 3.85 g/cm^3 and 4.05 g/cm^3) – XRF data (after microscope examination to exclude non-representative samples e.g. laterite) – QEMSCAN data.
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.	• Image drilled a number of twin holes (within 10 m of Iluka holes). The twin holes compare favourably for HM and slimes grades. Oversize grades could not be compared as Image and Iluka use different size thresholds for oversize. • Image collected primary data on hard copy logs and also used a data logger. Data from laboratories was provided in digital form and compiled in Microsoft Access databases and spreadsheets. • Almost 50% of the assayed intervals have been analysed using a <53 µm grain size for slimes and a -2mm+53µm grain size for HM, and almost 50% of the data has been analysed using a <63 µm grain size for slimes and a -1mm+63um grain size for HM. Less than 2% of the HM data is from a grain size fraction of -1mm+53µm Grain size analysis was used to generate adjustment factors that have been applied to convert the +53 µm HM data to +63 µm HM data and to convert the -53 µm slimes data to -63 µm slimes data. • Grain size analysis indicates that the zircon and TiO_2 minerals are all ≤850 µm. • Results from QEMSCAN analysis of 20 composite samples, originally analysed using XRF, were used to calibrate the results from XRF with the QEMSCAN results.
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.	• Drill hole collars at Boonanarring have been surveyed using hand-held DGPS and RTK DGPS methods, with the latter method deemed most accurate. • The collar coordinates and survey ground controls have been tied to the Landgate GOLA database by a registered surveyor. • All collars for the Mineral Resource estimate have been adjusted to a LiDAR topographic model described below. • Data for Boonanarring has been surveyed in MGA Zone 50 GDA94. The Mineral Resource has been estimated in a local grid system based on a two-point transformation. This transformation has been validated by Image's survey contractor. • The topographic model for Boonanarring is based on LiDAR survey. A review of this survey by Image's survey contractor revealed that the survey had an incorrect vertical datum; elevations are 0.3 m higher than measured at collars using RTK DGPS. The corrected LiDAR surface was used to constrain the Mineral Resource model.

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.	• The drill hole spacing is generally 20 m to 40 m across strike on section lines spaced at 100 m or 200 m along strike. Some areas have been drilled at a wider spacing of up to 80 m by 400 m. • The drill database used in the resource estimate comprises 1,513 drill holes for a total 62,499.5 m drilled by Image and Iluka between 1998 and 2016. • Samples for HM assemblage determination were composited on intervals according to a combination of grade and geology appropriate to reflect resource estimation domains. 292 composites from 569 holes totalling 3,799 m were used in the Mineral Resource estimate. • The data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource estimation procedure and classification applied.
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.	• All drill holes are vertical and intersect sub-horizontal strata. This is appropriate for the orientation of the mineralisation and will not have introduced a bias.
Sample security	• The measures taken to ensure sample security.	• All samples are collected from site by Image's staff as soon as practicable once drilling is completed and then delivered to Image's locked storage sheds. • Image's staff deliver samples to the laboratory and collect heavy mineral floats from the laboratory, which are also stored in Image's locked storage. • Image considers there is negligible risk of deliberate or accidental contamination of samples. Occasional sample mix-ups are corrected using Images checking and quality control procedures..
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• The results and logging have been reviewed internally by Image's senior exploration personnel including checking of masses despatched and delivered, checking of CRM results, and verification logging of significant intercepts. • The database, sampling procedures and documentation were reviewed by Harlequin Consulting Pty Ltd in 2015. • In April 2013, CSA Global audited Robbins Metallurgical Laboratory and found the laboratory practices acceptable to support results for Mineral Resource estimation

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • 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 Boonanarring deposit is within mining leases M70/1194 (expiry 15/12/2026) and M70/1311 (expiry 11/03/2034), exploration licence E70/3041 (expiry 9/06/2018) and general purpose licence G70/250 (expiry 7/05/2034). Image has a 100% interest in each of these licences. • M70/1311 abuts Bartlett's Well and Boonanarring Nature Reserves and Image has allowed for a 50 m buffer zone (of no mining activity) adjacent to these reserves.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• The Boonanarring deposit was discovered by Iluka, who drilled out the central area to a Measured Resource status. The work is well documented in reports from Iluka, prior Mineral Resource estimators McDonald Speijers (2005) and Widenbar and Associates (2013), and Harlequin Consulting Pty Ltd (2014 and 2015).
Geology	• Deposit type, geological setting and style of mineralisation.	• Boonanarring is hosted in the Perth Basin, in the Pleistocene Yoganup Formation on the eastern margin of the Swan Coastal Plain. • The Yoganup Formation is a buried pro-graded shoreline deposit, with dunes, beach ridge and deltaic facies. This formation lies unconformably over the Lower Cretaceous Leederville Formation and is overlain by the Quaternary Bassendean Sand. • The Yoganup Formation consists of unconsolidated poorly sorted sands and gravels, with local interstitial clay and heavy minerals that occur sporadically along the Gingin Scarp, which is interpreted to be an ancient shoreline that was stable during a period of marine regression. • Boonanarring has three major strandlines of heavy minerals, which are interpreted to have been deposited during the Pleistocene in a notch in the local basement rock that may represent an ancient sea cliff. Lower grade mineralisation is present in the sands overlying the higher grade strandlines. • The basement to the standline mineralisation is identified by the increased slimes content of the Leederville Formation. Mineralisation within this has high zircon concentrations.
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: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and	• Not relevant – Mineral Resource defined. Exploration results are not being reported for the Mineral Resource area.

	o interception depth o hole length.	
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • 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. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Not relevant – Mineral Resource defined. Exploration results are not being reported for the Mineral Resource area. • There are no metal equivalent values assumptions applied in the Mineral Resource reporting.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	• The geometry of the Boonanarring mineralisation is effectively horizontal and the vertical drill holes used to define the Mineral Resource give the approximate true thicknesses of mineralisation.
Diagrams	• Appropriate maps and sections and tabulations of intercepts should be included for any significant discovery being reported	• Refer to previous ASX releases.
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.	• Not relevant – Mineral Resource defined. Exploration results are not being reported for the Mineral Resource area.
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.	• Slimes and HM grain size analysis reported under "Verification of sampling and assaying". • Bulk density and geotechnical work reported under "Bulk Density" and "Logging". • Metallurgical test results of bulk samples reported under "Metallurgical factors or assumptions".
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially	• 2.5 km of under-explored ground separate the updated Boonanarring deposit from the Gingin North deposit. Image is negotiating with landowners in the area to gain access for the purpose of testing this ground. Further work is planned directly east of the Gingin North deposit where magnetic targets have been delineated. Permission to access currently being sought. This has the potential to extend the Boonanarring Mineral Resource a further 4.5 km south. • A first phase small-scale drill programme is planned for Q1

	sensitive.	2017 on E70/4689. This programme will be situated between 400 m and 800 m directly west of the Boonanarring deposit and has been designed to test 8 km of previously un-tested magnetic targets. • Extensions to the north will be assessed by a roadside-drilling programme for the potential of a 5 km extension north of the current Boonanarring Mineral Resource. As previously announced (25th March 2015 and 13th July 2015) this extension was identified from mineralisation intersected by drilling over a distance of 1.6 km.

Section 3 Estimation and Reporting of Mineral Resources

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.	• The drill hole database is managed by CSA and has been compiled from Image's internal databases and from databases provided by Iluka. Maintenance of the database includes internal data validation protocols by CSA and Image. • Harlequin Consulting Pty Ltd completed a high level review of the database in 2015 and found the method of construction of the database and validation procedures are acceptable and that the data is acceptable for Mineral Resource estimation. • For the Mineral Resource estimate the drill hole data was extracted directly from the CSA drill hole database. • Data was further verified and validated by Optiro using mining software (Datamine) validation protocols, and visually in plan and section views.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	• Mrs Christine Standing (CP for the Mineral Resource estimate) visited the Boonanarring deposit during December 2016. • The sites of the geotechnical drill holes and exclusion zones for reporting of the Mineral Resources were inspected.
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.	• Two stratigraphic (Yoganup and Leederville Formations) units within the deposit area were defined using a combination of slimes and oversize data and drill hole lithological logs. • For the purposes of resource estimation, these units were used in combination with grade criteria to define four mineralised domains, as follows: – main strandlines: within Yoganup Fm., grade criteria >2% HM – western strandline: within Yoganup Fm., grade criteria >2% HM – below main strandlines: within Leederville Fm., grade criteria >2% HM – mineralisation overlying the main strandlines, within Yoganup Fm., grade criteria >1.8% HM. • There is good confidence in the geological interpretation of the main strandlines. Confidence in the other three domains is lower, as reflected by the classification.
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 main strandline mineralisation has been shown from drilling to extend for approximately 13.2 km north/south and have a combined across strike width of up to 500 m. The strandline mineralisation extends from 14 m to 58 m depth. The mineralisation below the main strandline extends from a depth of 20 m to 61 m and the overlying, lower grade mineralisation extends from surface to a depth of 39 m.

		• The western strandline has been shown from drilling to extend for approximately 4 km north/south and has an across strike width of up to 200 m. The mineralisation extends from 11 m to 35 m depth.
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. • 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 (e.g. 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.	• Datamine resource estimation software was used to create a geological model and define the mineralisation envelopes. A series of mineralised domains was used to constrain the Mineral Resource estimate. • Wireframe interpretations of mineralisation were made by Optiro based on geological logging and HM content, using thresholds of ~1.8% HM to define the overlying mineralisation and 2% HM to define the strandline mineralisation. • Optiro assessed the robustness of these domains by critically examining the geological interpretation and by using a variety of measures, including statistical and geostatistical analysis. The domains are considered geologically robust in the context of the resource classification applied to the estimate. • Drill hole sample data was flagged from the three dimensional interpretation of the mineralised horizons. • Samples are from intervals of 0.5 m, 0.7 m, 1 m and1.5 m and 2 m. As the majority of samples (98%) are from intervals of 1 m the data was composited to 1 m downhole intervals for resource estimation. • Extrapolation of up to 50 m along strike and approximately half the drill spacing across strike was used for the interpretation. • HM, slimes and oversize quantities were estimated using ordinary kriging (OK) into blocks of 10 mE by 50 mN by 1 mRL. • Zircon, leucoxene, rutile and ilmenite (VHM components) percentages within the HM fraction were estimated using inverse distance (ID) into the parent blocks. • Block dimensions were selected from kriging neighbourhood analysis and reflect the variability of the deposit and the model's practicality for future mine planning. Sub-cells to a minimum dimension of 2.5 mE by 12.5 mN by 0.5 mRL were used to represent volume. • Drill holes are generally spaced at 20 m on-section on lines that are 100 m and 200 m apart with areas drilled at a spacing of up to 80 m by 400 m. • Data analysis and estimation was undertaken using Snowden Supervisor and Datamine software. • All variables were estimated separately and independently. • Hard boundaries were applied to the estimation of HM, slimes and oversize and the VHM components within the mineralisation domains. • Grade capping was applied to HM%, slimes% and oversize%. The top cut levels were determined using a combination of top cut analysis tools, including grade histograms, log probability plots and the coefficient of variation. • Variogram analysis was undertaken to determine the kriging estimation parameters used for OK estimation of HM, slimes and oversize and the search dimensions used for ID estimation of the VHM components. • HM mineralisation continuity was interpreted from variogram analyses to have an along strike range of 1,140 m and an

		across strike range of 40 m within the main strandlines. Within the other mineralised domains along strike continuity has ranges of 485 m to 600 m and across strike ranges of 50 m to 90 m. • The VHM continuity was interpreted from variogram analyses to have an along strike range of 1,400 m and an across strike range of 110 m within the main strandline. Ranges of 800 m by 130 m were interpreted for the upper mineralisation and ranges of 600 m by 75 m were interpreted for the mineralisation below the main strandlines. • Kriging neighbourhood analysis was performed in order to determine the block size, sample numbers and discretisation levels. • Three estimation passes were used for HM; the first search was based upon the variogram ranges; the second search was the same as the initial search with reduced sample numbers required for estimation and the third search was up to four times the initial search for the main and western standlines and upper mineralisation. For the mineralisation below the main strandline the third search was up to 8 times the initial search. The majority of blocks (93%) were estimated in the first pass, 5% in the second pass and 2% in the third pass. • The HM, slimes and oversize estimated block model grades were visually validated against the input drill hole data and comparisons were carried out against the declustered drill hole data and by northing, easting and elevation slices. • The VHM estimated block model grades were visually validated against the input drill hole data and comparisons were carried out against the drill hole data and by northing and easting slices.
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 on a dry basis.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• The Mineral Resource estimate for the Boonanarring deposit has been reported at a 2.0% HM cut-off. This cut-off grade was selected by Image based on technical and economic assessment carried out during Feasibility Studies.
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.	• Open pit mining methods will be used, similar to those commonly and currently in use in HM mining operations both in Australia and globally. • Image has assumed mining by conventional truck and shovels, with dozers used to improve vertical selectivity.

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.	• Mineral assemblage data within the Mineral Resource estimate has been sourced from three different assemblage programs: – data from Iluka (magnetic separation followed by density separation using solutions of 3.85 g/cm^3 and 4.05 g/cm^3) – XRF data (after microscope examination to exclude non-representative samples e.g. laterite) – QEMSCAN data. • Results from QEMSCAN analysis of 20 composite samples, originally analysed using XRF, were used to calibrate the results from XRF with the QEMSCAN results. • The QEMSCAN rules for the titanium mineral determination are as follows: – Ilmenite: 50-70% TiO_2 – Leucoxene: 70-95% TiO_2 – Rutile: >95% TiO_2 • Process metallurgical studies of bulk samples from Boonanarring were undertaken in 2013, 2015 and 2016 for the purpose of developing a process flowsheet for the deposit. The results from this work are sufficient for Image to expect that the Boonanarring mineralisation will be amenable to treatment with conventional mineral sands processing techniques. • Image considers there are no metallurgical factors which are likely to affect the assumption that the deposit has reasonable prospects for eventual economic extraction.
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.	• Environmental exclusion zones, within 50 m of the Bartlett's Well and Boonanarring Nature Reserves, have been defined and these areas are excluded from the reported Mineral Resource.
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.	• 19 bulk density measurements were made during the 2016 geotechnical drilling program. • Previous resource estimates (2013) used bulk density values predicted from an industry-standard formula which accounts for the HM and slimes content of heavy mineral sand deposits. • The formula was found to overstate the bulk density. The formula was calibrated with the 2016 data for estimation of the bulk density for the 2017 Mineral Resource estimate.

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 estimate has been classified according to the guidelines of the JORC Code (2012), into Measured, Indicated and Inferred Resources taking into account data quality, data density, geological continuity, grade continuity and confidence in estimation of heavy mineral content and mineral assemblage. In plan, polygons were used to define zones of different classification within each of the mineralised domains. – Measured Resources are generally defined where drilling is at 20 m to 40 m on 100 m spaced section lines. – Indicated Resources are generally defined where drilling is at 20 m to 40 m by 200 m. – Inferred Resources are defined where the drill spacing is up to 80 m by 400 m. In addition, Inferred Resources are defined for blocks with HM grades estimated by the third search.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• The Mineral Resource has been reviewed internally as part of normal validation processes by Optiro. • No external audit or review of the current Mineral Resource has been conducted.
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. • 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 assigned classification of Measured, Indicated and Inferred reflects the Competent Persons' assessment of the accuracy and confidence levels in the Mineral Resource estimate. • The confidence levels reflect production volumes on a monthly basis. • No production has occurred from the deposit.