

ASX Announcement 24 March 2017

## MOTHAE JORC CLASSIFIED DIAMOND RESOURCE

- Maiden JORC classified diamond resource estimate for Mothae of +1 million carats valued at US\$1,063 per carat

### **KEY POINTS**

- Independent JORC classified Indicated and Inferred Diamond Resource of more than one million carats estimated for the Mothae kimberlite pipe, Lesotho
- Known recoveries of high-value Type IIa diamonds at Mothae contribute to an average modelled JORC diamond value of US\$1,063 per carat
- Potential for higher average US\$ diamond prices highlighted, based on large diamond recoveries
- Mothae kimberlite pipe modelled to 500m depth JORC resource calculated for first 300m only

Lucapa Diamond Company Limited (ASX: **LOM**) ("Lucapa" or "the Company") is pleased to announce a maiden JORC classified diamond resource estimate ("Diamond Resource") for the advanced Mothae Kimberlite Diamond Project ("Mothae" or "the Project") in Lesotho, southern Africa.

As announced to the ASX on 31 January 2017, Lucapa was awarded a 70% interest in Mothae Diamonds (Pty) Ltd ("MDL") following a competitive tender process run by the Government of the Kingdom of Lesotho, who retains a 30% interest. MDL holds the recently awarded 10 year mining licence and other assets related to Mothae.

As part of the acquisition, Lucapa engaged independent consultants The MSA Group of Johannesburg, South Africa, to update and convert the existing Canadian-standard NI43-101 Mothae Resource Estimate, dated 28 February 2013, into a classified JORC 2012 estimate.

MSA has completed its independent validation of the Mothae Diamond Resource, which is set out in Table 1.

In summary, the total Indicated and Inferred Mothae Diamond Resource has been estimated by MSA to be **38.96 million tonnes at a diamond grade of 2.7 carats per 100 tonnes, containing 1.04 million carats of diamonds at an average modelled revenue of US\$1,063 per carat (to 300m below surface, at a 2mm bottom screen – Refer Table 1)**.

In its report, MSA also highlighted the potential upside to its diamond revenue model, stating: "There is upside potential for the average diamond value based on the model value of large stones."

While the JORC classified Indicated and Inferred Diamond Resource of 38.96 million tonnes is calculated to a depth of 300m, MSA has modelled the Mothae kimberlite to a total depth of 500m below surface, corresponding to a total estimated 77.4 million tonnes.

Lucapa's staged development plan and timetable for Mothae is set out in the Company's ASX announcement of 31 January 2017.

Mothae is located within 5km of Letšeng, the world's highest US\$ per carat kimberlite diamond mine.

MOTHAE	MOTHAE CLASSIFIED DIAMOND RESOURCE – 21 MARCH 2017				
	Γο 300m Belo	w Surface; 2r	nm Bottom Sc	reen	
Resource Classification	Tonnes (Mt)	Grade (cpht)	Average Revenue Modelled (US\$/ carat)	Average Value Per Tonne (US\$/ tonne)	Total Resource (Million carats)
Indicated (to 50m)	2.39	3.0	1,196	34	0.07
Inferred (50m-300m)	36.57	2.7	1,053	28	0.97
TOTAL	38.96	2.7	1,063	28	1.04
Notes:					
(i) Table contains rounded	figures				
(ii) Grade figures are based on recovery factors derived from total content curves for each geological domain, and actual plant recoveries achieved					
(iii) The Diamond Resource estimate was originally reported in accordance with Canadian NI43-101 standard in February 2013 and has been re-stated in accordance with JORC 2012 guidelines					
(iv) The estimate is global in	nature				
(v) Unclassified kimberlite	exists from 300	om to 500m be	low surface		

Table 1: Inferred and Indicated kimberlite resource as at 21 March 2017

#### **Geology and Geological Interpretation**

The Mothae kimberlite is situated on the southern edge of the Kaapvaal Craton, which extends through central, eastern and north-eastern South Africa, into southern Zimbabwe and south-eastern Botswana, and incorporates most of Swaziland. The Kaapvaal Craton is host to numerous diamondiferous kimberlites of various ages, including the Mesoproterozoic Premier kimberlite (Cullinan Mine), the Cambrian age Venetia kimberlites, the Middle Triassic Jwaneng kimberlites, and the Cretaceous Kimberley and Finsch kimberlites. The Archaean basement in Lesotho is entirely covered by the flat-lying Paleozoic to Mesozoic age Karoo Supergroup, which reaches a thickness of approximately 4km in Lesotho.

The surface geology within the Mothae licence area comprises Drakensberg Group flood basalt, into which the Mothae kimberlite has intruded. The average elevation of the Mothae kimberlite is ~2,900 mamsl (metres above mean sea level) and the thickness of the basalt into which it is emplaced is estimated to be of the order of 1,000m. Basalts are underlain by Beaufort Group sediments of the Karoo Supergroup.

The Mothae kimberlite consists of a main southern pipe-like lobe (South Lobe) connected to a smaller northern lobe (North Lobe) by an elongate central kimberlite body (Neck). The South Lobe has a surface expression of 5.05 ha and the three areas combined form a total surface area of 8.81 ha. Wall rock contacts for the North and South Lobes have been delineated by geophysical data, mapping and drill core intercepts. The contact between the kimberlite and the basalt is typically sharp and steep with localised zones of wall rock breccia.

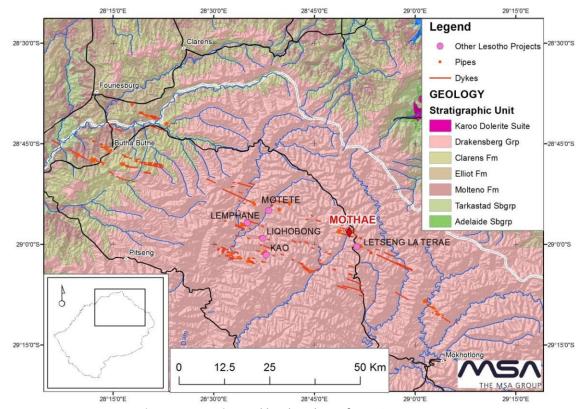


Figure 1: Location and local geology after MSA 2017

The entire Mothae pipe was buried under 1.5m to 8m of overburden, comprising a layer of peat and/or black organic-rich soil, underlain by reddish brown, clay-rich soil and, in places, residual gravels overlying the kimberlite. This overburden was stripped off the kimberlite during the different phases of the bulk sampling program.

The kimberlite itself is comprised almost entirely of massive volcaniclastic kimberlite ("VK") of different types. The different kimberlite types have been 'fingerprinted' in terms of their Kimberlite Indicator Mineral ("KIM") content and petrographic characteristics as a control on bulk sampling; this being important as each has a different diamond grade and revenue.

The Mothae kimberlite was discovered in 1961 by Basutoland Diamonds Ltd, following up the occurrence of kimberlitic garnets and ilmenites downstream of the pipe in the Mothae River.

Determination of the presence or absence of Type IIa diamonds at Mothae is important in assessing the deposit's economic potential. These were originally distinguished on the basis of their infra-red spectra, with Type IIa stones characterised by their very low (<20 ppm) nitrogen content. Type IIa stones often are top quality white colours (D-G), a consequence of their low nitrogen content. They include the largest gem diamond, the 3,106 carat Cullinan, recovered in 1905 from the Premier Mine, South Africa, as well as gems like the legendary Koh-i-noor, from India.

The presence of an unusually high proportion of Type IIa stones at Letšeng results in this locality having the world's highest average diamond value (US\$1,695 - Gem Diamonds, 2016) for a kimberlite, but it is also the lowest grade kimberlite pipes being mined economically at just 1.63 carats per 100 tonnes.

Type IIa diamonds have the following general characteristics:

- Morphology is typically irregular and stones are often elongate and highly resorbed. Very rarely, primary crystal faces are preserved
- They can be almost any colour except yellow (reflecting the absence of nitrogen). Many are of top white colour (D, E, F or G), but they also occur in shades of brown
- Unlike Type I diamonds, which cleave in steps, the Type IIa stones often show excellent planar cleavage, a characteristic linked to their low nitrogen content
- With rare exceptions, Type IIa stones do not fluoresce

## Sampling and Sub-Sampling

From 2007 onwards, a series of surface pits were excavated on a grid over the pipe, as well as a single trench along the southern boundary of the Mothae kimberlite. The excavations were undertaken using a Bell HD1023 track-mounted excavator. The purpose of this exercise was to establish overburden thickness and to obtain spatially representative kimberlite samples for further assessment. A total of 73 pits were completed, 51 of which intersected kimberlite (Figure 2). The remainder either intersected basalt bedrock or were not able to reach bedrock. No pitting was carried out in the northern part of the South Lobe and in the southern part of the Neck due to unstable ground conditions.

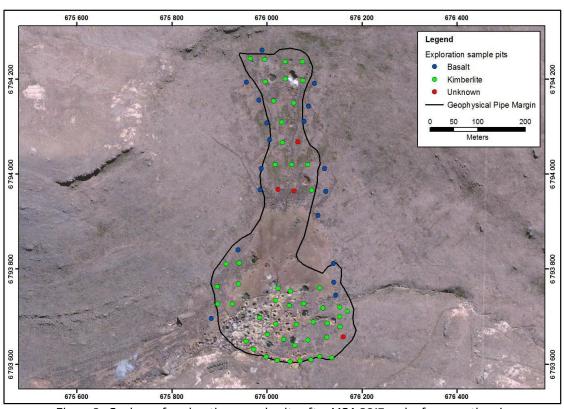


Figure 2: Geology of exploration sample pits after MSA 2017 and references therein

Petrographic samples were taken in order to characterise the kimberlite (Figure 3) in different parts of the pipe. A total of 42 rock samples were retained for macroscopic petrographic descriptions and thin section preparation for microscopic petrographic analysis.

A total of 49 representative 5kg kimberlite samples from these pits were collected for KIM analysis in Cape Town, South Africa, in 2007. The material was crushed to maximise liberation of discrete minerals. Heavy mineral concentration was carried out by Scientific Services (Pty) Ltd using tetrabromoethane at an SG of 2.85. For each sample, a single representative split of heavy mineral concentrate was sieved into +300  $\mu$ m, +425  $\mu$ m, +710  $\mu$ m and +1000  $\mu$ m screen fractions, and stripped of KIMs by skilled mineral sorting staff at Mineral Services Laboratories ("MSL") in Cape Town using binocular microscopes with standardised plain light sources.

The absolute number of each KIM type recovered in the +300 µm fraction of each representative split was used to calculate its abundance per kilogram of original sample. These samples provided a quantitative indication of the amount and nature of mantle material contained within the material sampled, and served to fingerprint different domains within the pipe.

Total diamond liberation (microdiamond) test work was carried out in 2008 to evaluate the potential effectiveness of microdiamond data as a means of confirming grade continuity at depth within each of the geological domains defined at Mothae. The low diamond count in size classes was considered ineffective for diamond content modelling and the method was abandoned for the Project.

The Mothae bulk sampling program was completed in three phases with Phase 1 (completed in August 2008) excavating and processing ~30,000 tonnes of weathered, near-surface kimberlite in order to recover a targeted initial parcel.

Positive results from Phase 1 provided the basis for the decision to commence with Phase 2, which involved taking an additional ±70,000 tonne bulk sample to provide more robust constraints on grade and diamond value, as well as a limited core drilling program to provide an initial indication of rock volumes present and preliminary information on the internal geology of the pipe.

Phase 2 began in August 2008 and was completed in April 2009. Positive results from Phase 2 provided justification for the implementation of Phase 3, which was completed in September 2012 involved collection of a  $\pm 600,000$  tonne sample in conjunction with more extensive delineation drilling to define the grade, value and distribution of different kimberlite types present within the Mothae pipe for incorporation into a Diamond Resource Estimate.

A summary of the bulk samples completed during the three phases of the Mothae evaluation program is provided in Table 2.

Phase	Bulk sample	Geological Domain	Start date	Finish date	Wet tonnes	Moisture %	Dry tonnes
1	C1A	SW	2008/02/25	2008/03/12	2,035	9.7	1,837
1	C2A	SW/SC	2008/03/13	2008/03/26	5.023	17.1	4.164
1	C2B	SC	2008/06/10	2008/06/17	1,936	16.5	1,617
1	G1	SC/SE	2008/04/07	2008/06/09	7,341	15.6	6.199
1	F1 A1A	SC SE	2008/03/29 2008/04/18	2008/05/23 2008/05/01	7,470 5.341	16.0 14.5	6,274 4.565
1	Total Pha		2008/02/25	2008/05/01	29,146	15.4	24,655
2	C2C	SC	2008/09/19	2008/10/24	9,965	17.8	8,193
2	СЗА	SW	2008/11/03	2008/12/03	9,569	18.7	7,782
2	G1C	SC/SE	2009/01/10	2009/02/21	27,163	19.1	21,970
2	F1C	SC	2009/03/03	2009/04/01	18,753	17.9	15,390
2	E1A	N	2008/12/14	2009/01/07	5,363	19.1	4,338
2	Total Pha	ase 2	2008/09/19	2009/04/01	70,813	18.6	57,673
3	F1D	SC	2010/06/04	2010/06/11	1,771	10.0	1,594
3	C4A	SW	2010/06/12	2010/08/08	33,833	12.3	29,558
3	C6A	SW	2010/08/09	2010/08/24	8,344	10.4	7,497
3	C5A	SW	2010/08/25	2010/10/22	58,262	15.1	49,486
3	C8A	SW	2010/10/23	2010/12/29	58,475	15.4	49,443
3	C9A	SC/SW	2010/12/29	2011/03/09	47,844	14.5	40,923
3	G2A	SC	2011/03/10	2011/05/03	40,154	15.3	34,005
3	F2A	SC	2011/05/04	2011/07/31	59,663	15.0	50,692
3	G2B	SC	2011/08/01	2011/09/07	25,932	12.6	22,656
3	G3A	SC	2011/09/08	2011/10/21	34,462	11.4	30,523
3	C7A	SW	2011/10/22	2011/11/15	21,288	13.4	18,426
3	C6B	SW	2011/12/02	2011/12/20	11,309	13.6	9,773
3	E2A	N	2011/12/27	2012/01/17	18,119	13.2	15,725
3	C11A	SW	2012/01/17	2012/04/24	75,689	9.7	68,367
3	F3A	SC	2012/05/27	2012/06/08	8,498	9.9	7,660
3	C11C	SW	2012/04/25	2012/07/12	29,058	6.9	27,041
3	CD1B	SC	2012/07/13	2012/09/16	57,312	8.3	52,559
3	CD1C	SC	2012/09/16	2012/09/28	5,964	6.7	5,563
3	Total Pha	ase 3	2010/06/04	2012/09/28	595,978	12.5	521,491
		Total	able 2. Bulk cample		695,938	13.2	603,819

Table 2: Bulk sample results, after MSA 2017

All geological domains were sampled during Phases 1 to 3 of the bulk sampling program with the exception of the Neck domain, which was considered low priority due to its relatively small size and possible dilution by wall rock basalt.

Bulk sampling focussed predominantly on in situ highly weathered friable kimberlite directly underlying and to a depth of approximately 20m below surface overburden and residual kimberlitic soils.

In addition, two bulk samples of unweathered kimberlite were excavated and processed to quantify the effect of reduced liberation of diamonds from consolidated material for estimation of run-of-mine grade for the bulk of the Mothae kimberlite.

Wet and dry bulk density measurements for Phase 3 bulk sample excavations were calculated using the Water Displacement Method. No bulk sample density measurements were collected during Phases 1 and 2.

Phase 3 measurements were carried out on large consolidated pieces of kimberlite collected during the course of bulk sample excavation. Samples were carefully immersed in water and the mass captured to reduce measurement error associated with disaggregation of samples in water, or ingress of water into the sample itself. A total of 543 surface sample bulk density measurements were captured during Phase 3.

## **Drilling Techniques**

Core drilling campaigns were carried out on the Mothae kimberlite in 2008/2009 and 2011/2012. Altogether, 43 drill holes were completed for a total drill length of 8,085m.

All drilling was undertaken by Remote Drilling Services (Pty) Ltd using Boart Longyear LF90D core rigs. During 2008 and 2009, all drill holes commenced with HQ diameter and telescoped down to NQ diameter when stable unweathered ground was intersected.

During 2011 and 2012, selected holes commenced with PQ diameter to provide samples for ore dressing studies ("ODS"), after which holes telescoped down through HQ to NQ. Where no ODS sampling was required, the 2011 and 2012 holes began with HQ as in 2008 and 2009. All core recovered (except for the core removed from site for sample purposes) is stored on site at Mothae in a secure dedicated core storage and logging facility.

Positions of 2008/9 drill holes were initially captured using a Garmin handheld GPS set to record the position by averaging the reading over one minute. Positions were later confirmed by DGPS survey conducted by a subcontracted surveyor, the resident mine surveyor from Letšeng. Positions of 2011/12 drill holes were captured to sub-centimetre level accuracy with a Trimble R6 GPS receiver surveying in real time kinematic mode with a single fixed base station.

For the 2008/9 drilling campaign, drill hole orientation and azimuth was measured using a Reflex EZ-shot survey tool. Significant azimuth errors were encountered with this tool (attributed to instrument drift and interference from magnetic bedrock) resulting in unacceptable apparent spatial deviations of drill holes. Starting azimuths were therefore used as a basis for plotting the drill holes in three-dimensions.

During 2011 and 2012, drill hole orientation and azimuth was captured using a Reflex GYRO survey tool. No significant measurement errors were incurred with this system.

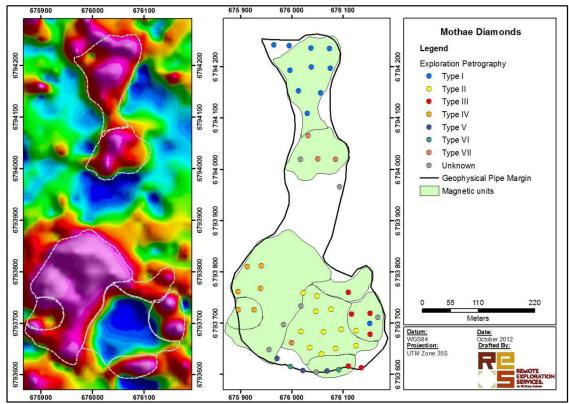


Figure 3: Geophysics relative to pipe margins and kimberlite types

#### Criteria for Classification

The Diamond Resource has been classified according to the degrees of uncertainty with respect to the confidence level for each of the components according to JORC guidelines. The overall resource classification for each domain is based on the highest risk component. In general, diamond value estimates are considered to have the highest degree of uncertainty, followed by grade and then kimberlite tonnage.

Due to the very large, spatially representative bulk density dataset and the relatively homogeneous geology within each resource domain, the average bulk density for each domain is considered to be constrained to better than  $\pm$  5%.

For each geological domain, the SFD models were constructed to represent best fit to the sample data. The large bulk samples collected provided very robust size frequency curves. The MSA and earlier estimates of the SFD produce grade estimates that vary by up to 4%.

A key source of uncertainty in the grade estimates stems from variability in grade within geological domains, the extent of which can be assessed by examining the variation in grade within each domain as determined from surface bulk samples. With some volumetrically minor exceptions, the geology and KIM data do not provide any evidence for variation at depth beyond what is evident at surface. A classification matrix as applied is presented in Table 3.

Geological domain	Resource domain	Tonnes	Grade (cpht)	Average value (\$/ct)
South West	SW_WX	IND	MEAS	IND
	SW_50	IND	IND	IND
	SW_300	INF	INF	INF
	SW_500	INF	ET	ET
South Centre	SC_WX	IND	MEAS	IND
	SC_50	IND	IND	IND
	SC_300	INF	INF	INF
	SC_500	INF	ET	ET
South East	SE_WX	IND	INF	INF
	SE_50	IND	INF	INF
	SE_300	INF	INF	INF
	SE_500	INF	ET	ET
North	N_WX	INF	INF	INF
	N_300	INF	INF	INF
	N_500	ET	ET	ET

Table 3: Resource classification matrix representing the interpreted confidence level in different components of the Resource Estimate (MSA, 2017). Confidence is expressed in terms of JORC Resource categories. MEAS = measured; IND = indicated; INF = inferred ET = exploration target

### **Petrographic Sample Analysis**

Petrography samples, comprising approximately either 15cm of PQ, 20cm of HQ or 30cm of NQ core, were collected at regular 10m spaced intervals down-hole in kimberlite intersections for all drill holes. A total of 579 petrography samples were collected.

Based on preliminary field logs, a total of 437 samples were selected for processing under the "dry" petrographic sample preparation method. A polished petrographic slab preserved with epoxy and two thin sections (standard and wedged) were produced for each sample, for examination under binocular and petrographic microscopes.

## **Size Frequency Distribution**

The SFDs for the four major domains are presented below. The SFDs for the South West and South Centre domains are well constrained (up to stone sizes of approximately 30 carats) due to the large parcels available (6,540 carats and 11,055 carat, respectively). The SFD of the North domain is less well constrained, being represented by a parcel of only 429 carats, and the South East domain is very poorly constrained, with only 130 carat available.

For the purpose of SFD modelling, the following adjustments were made:

- The broken 254.04 carat boart diamond recovered from sample CD1B (South Centre domain) was excluded from grade and SFD analysis
- The fragments of two broken diamonds that were recovered during processing of samples C2C and C9A were treated as single stones of the appropriate reconstituted size, i.e. 44.9 and 82.34 carats, respectively

DTC/ct size class	South	West	South	Centre		uth ist	No	rth	Motha	e (all)	Avg. st. size
	St	Ct	St	Ct	St	Ct	St	Ct	St	Ct	(cps)
DTC3	124	5	38	2	10	0	0	0	167	7	0.04
DTC5	700	48	432	31	50	5	3	0	1,179	83	0.07
DTC6	1,757	174	1,831	197	0	0	38	4	3,887	404	0.10
DTC7	3,480	487	4,947	748	89	13	171	27	9,393	1,386	0.15
DTC9	4,285	942	7,955	1,868	116	26	304	70	13,768	3,166	0.23
DTC11	2,204	784	4,489	1,721	68	31	158	60	7,536	2,822	0.37
DTC12	878	465	1,716	961	0	0	69	36	2,937	1,614	0.55
DTC13	846	681	1,728	1,436	18	17	78	65	2,940	2,418	0.82
DTC15	203	225	378	452	11	14	9	10	640	746	1.17
DTC17	220	321	404	620	4	7	15	22	709	1,068	1.51
DTC19	282	659	491	1,186	5	13	26	61	882	2,105	2.39
DTC21	166	769	188	896	1	4	14	61	413	1,947	4.71
8-10ct	21	182	26	229	0	0	0	0	53	463	8.74
10-15ct	23	260	25	297	0	0	1	12	55	645	11.72
15-20ct	11	191	5	93	0	0	0	0	18	321	17.83
20-30ct	5	115	6	142	0	0	0	0	12	278	23.18
30-45ct	2	69	5	177	0	0	0	0	7	246	36.54
45-60ct	3	163	0	0	0	0	0	0	3	163	51.45
60-100ct	0	0	0	0	0	0	0	0	1	82	77.25
100-200ct	0	0	0	0	0	0	0	0	0	0	144.35
+200ct	0	0	0	0	0	0	0	0	0	0	244.35
Total	15,210	6,540	24,664	11,055	372	130	886	429	44,600	19,965	0.45

Table 4: Mothae bulk sample diamond recoveries per DTC and carat size classes summarised by geological domain

With the small number of microdiamonds available, the main source of information on diamond size was drawn from bulk sample macrodiamond recoveries. Each size distribution model was authenticated by means of simulation of a large typical diamond parcel, which was based on a size model derived from bulk sample sieving. As an approximation of diamond concentration, the average sample stone frequency derived from microdiamond sampling was used. Diamond content for the typical parcel was compared with diamond content for the respective sample parcels. Each comparison comprised of a cumulative size and grade-size distribution.

In the case of the Mothae kimberlite, microdiamond data is sparse. Thus for weathered kimberlite domains, the grade estimation has not followed the normal methodology which would include the use of total liberation (microdiamond) analysis using large numbers of microdiamonds.

However, large numbers of macrodiamonds are available from upper elevations in the pipe. The connection between micro and macrodiamonds has been demonstrated, suggesting that it will be possible to achieve higher levels of confidence by means of total liberation sampling from deeper levels in the body, if required.

It was observed that diamond size models for South Centre and South East are identical, with the North Pipe fractionally coarser.

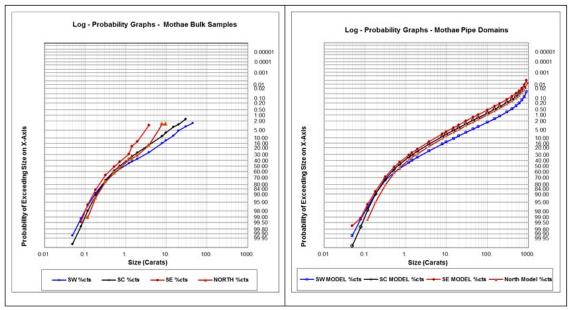


Figure 4: Comparison of sampling and modelled diamond size frequency distributions for the four domains.

Size distribution models for South Centre and South East are identical, North domain is slightly coarser followed by South West, which seems to contain the coarser diamond assortment

Modifying factors are applied to grade models (Figure 4) on the basis that not all diamonds are likely to be recovered from the kimberlite during processing. The models shown above have modifying factors applied on the basis of the current bulk sampling plant at Mothae, and the observation that diamonds that would report to the smallest sieve sizes were not all recovered.

Losses occur because of diamond lockup, as well as bottom screening. Diamond lockup is more inclined to occur in hard kimberlite and affects mainly small stones. Screening losses occur regardless of the nature of material treated. Separate modifying factors for lower screen losses need to be specified for softer weathered kimberlite and hard fresh kimberlite.

Average size class values for diamonds from the large bulk samples (21,766 carats from the first three sales) were used to calculate the average diamond value for the four domains and for hard and weathered rock. Average diamond values (US\$ per carat) for each of the geological domains have been estimated by integrating diamond value data, derived from the sale of Mothae diamonds, with the size distribution estimates for each domain.

Mothae diamonds have been sold on four separate occasions (March and December 2011, September 2012 and February 2013) providing an indication of the market value of the diamonds at the time of sale. The diamond sales were run by AGM Diamond Expertise HK Ltd ("AGM") who also processed and analysed the resultant data to provide key value information relevant to the Mothae Resource Estimate.

#### **Estimation**

In kimberlite resource estimation a 3D geological model as well as bulk density and tonnage estimates, a diamond revenue estimation and resource classification, complete the estimation method. These have been completed from reports from 2013 onwards. The sections on SFD (size frequency distribution) and grade modelling and on uncertainty of revenue estimates have been based on MSA's current review.

The three-dimensional geological model (Figure 5) of the Mothae kimberlite consists of two main components: the pipe shell model; and the internal geological domain model. The data and methods used to construct the Mothae geological model are described below. The Mothae kimberlite consists of three bodies termed the South Lobe, North Lobe and Neck, and collectively referred to as 'the pipe'.

The model for the pipe margin (Figure 3) was derived primarily from the ground magnetic and gravity surveys. Various magnetic units were mapped within the pipe. These show a strong correlation with the inferred kimberlite Types I to VII as defined from the macroscopic petrographic description of rock samples derived from exploration pits. Results for the KIM samples taken from exploration pits also provided a basis for the definition of potentially different internal units within the pipe based on mantle mineral abundance. The pipe outline and internal domains based on initial exploration results were updated by a revised pipe shell model and internal domains based on geological and KIM data obtained from mining and the delineation core drilling programs undertaken in 2008/9 and 2011/12.

Approximately 46% of the Mothae kimberlite pipe margin (850 m of the total calculated 1,850 m pipe perimeter) has been exposed by bulk sampling excavations. Where exposed, the contact was accurately surveyed with a Trimble R6 GPS receiver using the RTK technique with a single fixed base station. The remaining 54% of the pipe margin at surface has been mapped on the basis of geophysics. The pipe contacts and geometry of the South Lobe, North Lobe and Neck at depth are defined by twenty four, six and nine kimberlite-to-country rock drill hole pierce points, respectively (Figure 6). The 3D pipe shell model was constructed using GEMS® software. Polylines were produced on 20m spaced plan levels using the pipe contacts in all available drill holes (P to EP contacts in drill hole logs). The uppermost portion of the model was defined using a combination of contacts mapped in surface excavations and drill hole intersections.

The various rock types encountered at Mothae have been composited into six major geological domains for the purpose of 3D modelling. Five of the six geological domains are kimberlite domains: South West, South Centre, South East, North and Neck and the sixth domain is country rock.

For each of the five modelled geological domains, a surface representing the base of the weathered kimberlite was produced by interpolating the weathered-to-unweathered contacts in drill holes. A plane that approximates the present surface (the 'reference surface') was produced first and then copied to -50 m, -300 m and -500 m depth below surface.

All down-hole drill core (n = 785) and surface bulk sample (n = 543) bulk density data was collated into a final bulk density database (1,328 measurements). The bulk density data is represented as depth profiles by geological domains. There is a significant variation in bulk density with depth, reflecting the high degree of weathering of near-surface material. Most of the variability occurs within the first 25m below surface, after which there is only a very minor gradual overall increase in bulk density with depth.

Volumes for the resource domains were generated from the solid models in GEMS® software. Average dry bulk densities were applied to these solid volumes to derive final dry tonnage estimates for each resource domain.

The total modelled volume of rock in the Mothae kimberlite to a depth of 500m below surface is 30.6 million m<sup>3</sup>, (cubic metres) corresponding to an estimated 77.4 million tonnes.

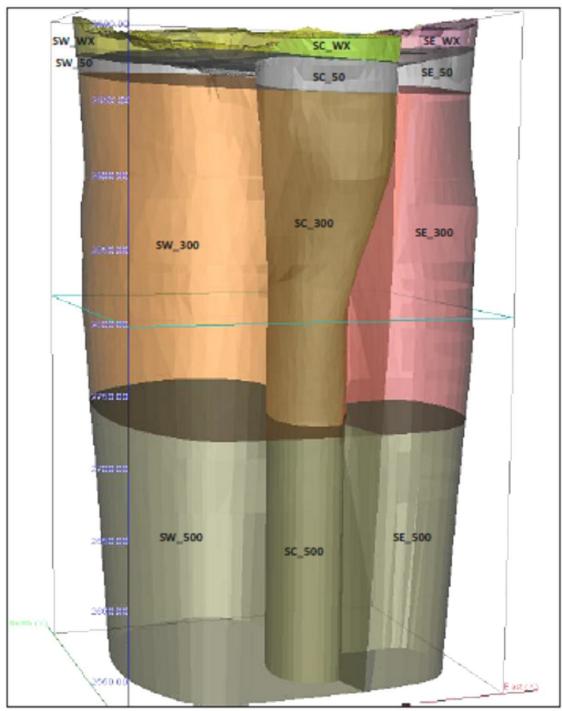


Figure 5: Pipe inclined view (looking north-east) of the South Lobe geological model showing the internal geological and resource domains, with the South West and South East domains rendered transparent to show the geometry of the South Centre domain

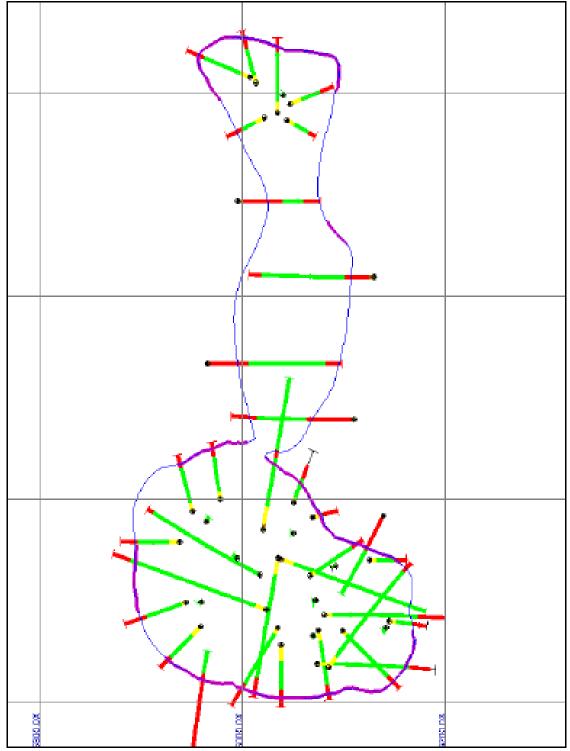


Figure 6. Plan view of the Mothae pipe shell model showing the modelled pipe outline at surface (blue) in relation to drill holes (red = country rock, green = kimberlite) and surveyed surface contact points (purple)

Details of all bulk samples are provided in Table 2, including the assignment of samples to geological domains for estimation purposes. With the exception of samples C11C and CD1C, excavated to test diamond recovery from deeper, hard kimberlite, all bulk samples were taken from the highly weathered surface zone (upper ±20 m) of the Mothae kimberlite. Thus the sub-surface portions of each of the domains are not represented by direct bulk sampling.

Domain grade estimates and size-frequency distribution analysis are based on data for samples that for the most part satisfy the following criteria:

- Occur within (or largely within) the domain
- · Only comprise weathered kimberlite, and
- Have complete (sieved) DTC size data for the entire diamond parcel

In total, samples incorporated into the grade and size distribution estimates for individual geological domains comprise  $\pm 488,000$  tonnes (dry) from a total of  $\pm 604,000$  tonnes sampled (81% of tonnes), representing 18,408 of 23,446 carats produced (79% of carats). The compiled sample results are summarised by domain in Table 5.

Geological domain	Included bulk samples	Dry tonnes	Stones	Carats	Avg. stone size (cps)	Sample grade (cpht)
South West	C3A, C4A, C5A, C6A, C6B, C7A, C8A; C11A	240,332	15,210	6,541	0.43	2.7
South Centre	C2C, F1D, F1C, F2A, F3A, G2A, G2B, G3A, CD1B	223,272	24,664	11,309	0.46	5.1
South East	A1A	4,565	372	130	0.35	2.8
North	E2A, E1A	20,063	886	429	0.48	2.1
Total		488,232	41,132	18,408	0.45	3.8

Table 5: Summary of 20 bulk sample results by geological domain. Only data for samples that could be allocated to each domain was used

Note: Sample CD1B includes an outlier boart stone weighing 254.04 ct that is included in the totals represented in the table but was not used for grade estimation and size distribution analysis. A change in bottom cut-off during processing of C11A occurred, this data was used as this had a negligible effect on modelled overall size-frequency.

MSA has reviewed previous value estimates and found them to be acceptable. Due to the large size of the parcels sold from Mothae, average values for size ranges up to 60 carats are considered to be reasonably well supported by the prior sale data. These value estimates (Table 6) are used for estimation of average values per domain.

The only modification made was to the average value for the 20-60 carat range which was adjusted upwards to account for the known breakage of two very large diamonds in the processing plant: (1) a > 45 carat white Type IIa diamond that was broken into multiple fragments, the largest of which was a 23.4 carat stone that sold for US\$2,786 per carat; and (2) a  $\pm 83$  ct yellow diamond that was sold in two fragments for between US\$2,000 and US\$3,000 per carat. To account for this, an estimate of the value loss resulting from the breakage (US\$600,000, primarily associated with the breakage of the large Type IIa diamond) was added into the total value for 20-60 carat diamonds, raising the average value for this size range from US\$7,196 to US\$7,939 per carat.

Other than the above-described correction for value loss due to breakage of reconstituted large diamonds, the potential effect of diamond breakage has not been accounted for in diamond value modelling.

Valuation size class	Modelled average value (USD/ct)	Basis for estimate
+200 ct	18,000	Modelled value
100-200 ct	14 500	Modelled value
60-100 ct	12,000	Modelled value
20-60 ct	7,939	Sale Data (adjusted for broken stones)
10-20 ct	3,005	Sale Data
8-10 ct	1,865	Sale Data
+21 DTC	923	Sale Data

Table 6: Estimates of average diamond values (USD per carat) for large stone size classes at Mothae

#### **Cut-Off Grade**

Cut-off grades are not applicable concepts in kimberlite resource estimation. Bulk sampling and sampling has been undertaken using a bottom screen size of -2mm. With macro diamonds, recovered size distribution is modelled and valuations applied and compared to actual sales. Values achieved in sales are commonly factored to the state of the diamond market at any specific time.

## **Mining and Metallurgical Methods**

Mining will be conventional drill/blast, truck and shovel. Preliminary modelling using Whittle optimisation software terminates a stage 2 pit at -255m below reference. The recoverable resource is estimated to be 53% of the global resource, extracted in two stages.

Diamond recovery is planned to be by conventional crushing, dense media (DMS) separation XRL and XRT (X-ray transmission) sorting. XRT technology is a mature sorting method that separates minerals based on their specific atomic density. The effect of a change on the bottom screen size from -2mm to 3mm has been modelled by Foundation Resources, consultants to the Company. A 25-26% reduction in grade in the smaller diamond fraction may result in an improvement of between 31-32% in revenue factors (Table 7, below).

Estimated in	Estimated impact of 2 mm versus 3mm bottom cut-off on grade and revenue			
Geological	Grade factor	Revenue factor		
domain	(3 mm versus 2mm)	(3 mm versus 2mm)		
SW	-25%	+32%		
SC	-26%	+31%		
Source:	Foundation Resources, 2016			
Note:	SW = south west; SC = south central; Total carats recovered from the southeast and north domains are not sufficient for this type of calculation, but the limited data suggests that the factors could be similar to the SC domain (Foundation Resources, 2016)			

Table 7: Effect of change of Bottom screen size: effect on recovery

## **Mothae Completion Update**

Lucapa has made the first payment of US\$400k to the Government of Lesotho and following the processing of the Share Transfer form has been registered at the Company Register as the majority 70% shareholder in Mothae Diamonds (Pty) Ltd. On receipt of the physical share certificate (which is expected shortly), Lucapa will have 60 days from that date to make the second payment of US\$4.1m.

For and behalf of the Lucapa Board.

STEPHEN WETHERALL MANAGING DIRECTOR

#### **Competent Person's Statement**

Information included in this announcement is based on and fairly represents information and supporting documentation prepared, compiled and supervised by Albert Thamm MSc FAusIMM (CP), who is a Corporate Member of the Australasian Institute of Mining and Metallurgy. Mr Thamm is a Director and shareholder of Lucapa Diamond Company Limited. Mr Thamm has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves. Mr Thamm and consents to the inclusion in the announcement of the matters based on this information in the form and context in which it appears.

Information included in this announcement that relates to the stone frequency, grade and size frequency valuation and validation in the resource estimate is based on and fairly represents information and supporting documentation prepared and compiled by Dr Friedrich Johannes Reichhardt, Pri.Sci.Nat and Dr Johannes Ferreira, Pri.Sci.Nat. Both are employees of The MSA Group, Johannesburg, South Africa. Both hold qualifications and experience such that both qualify as members of a Recognised Overseas Professional Organisation (ROPO) under relevant ASX listing rules. Dr Reichhardt and Dr Ferreira have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves. Both Dr Reichhardt and Dr Ferreira have consented in writing to the inclusion in the announcement of the matters based on this information in the form and context in which it appears.

#### **Forward-Looking Statements**

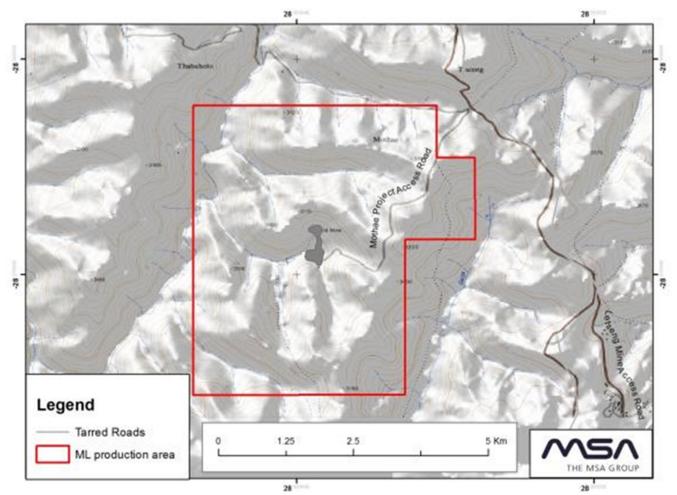
This announcement has been prepared by Lucapa Diamond Company Limited. This document contains background information about Lucapa Diamond Company Limited and its related entities current at the date of this announcement. This is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained in this announcement. This announcement is for information purposes only. Neither this document nor the information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sale of shares in any jurisdiction.

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Any forward-looking statements in this announcement speak only at the date of issue of this announcement. Subject to any continuing obligations under applicable law and ASX Listing Rules, Lucapa Diamond Company Limited does not undertake any obligation to update or revise any information or any of the forward-looking statements in this document or any changes in events, conditions or circumstances on which any such forward-looking statement is based.

# Appendix 1



Mothae Project Tenement Location (after MSA, 2017)

## Appendix 2

## Depleted, Classified Kimberlite Resource as at 21 March 2017 Sampling Techniques and Data

Criteria	JORC Code Explanation	Lucapa Commentary
techniques	<ul> <li>Nature and quality of sampling (e.g. 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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	Four of the five geological domains of the Mothae kimberlite were bulk sampled in three phases. Bulk sampling was predominantly carried out on near-surface weathered kimberlite (±20 m) using conventional free-dig truck and shovel methods. Limited excavation of unweathered hard kimberlite during Phase 3 required blasting.  The five geological domains were delineated by geophysical surveys, shallow pitting, mapping, drilling and bulk sampling of each of the four spatially separate domains (the Neck was excluded) was carried out in three successive phases with tonnages increasing from 29 kt to 71kt and 596 kt with a total of 29 sample batches collected.  Independent surveyors conducted ad hoc surveys during Phase 1 and 2 to establish sample volumes at various stages of excavation. During Phase 3, daily survey work was carried out to monitor sample excavation progress and to calculate the in situ volumes of excavated bulk samples. Real time kinematic surveying was conducted using a Trimble R6 GPS receiver with a single fixed base station. Initially these survey results were verified weekly and then monthly by audit surveys conducted by an independent professional mine survey company.  Sample processing was conducted with crusher, scrubber and sizing screens followed by DMS, grease table, X-ray units and final recovery using glove boxes. Process plant design for Phases 1 and 2 was contracted to Gemcore and independently reviewed by Hatch Engineering. Phase 3 process plant modifications were designed and supervised by Paradigm and operated by Minopex.  Industry-standard methods and technology was used for all three phases. Process modifications between the phases e.g. insertion of a large diamond recovery circuit and the switch from grease table to X-ray technology in Phase 3 were implemented to optimise diamond recovery
Drilling techniques	<ul> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core</li> </ul>	The core drilling campaigns of the five geological domains of the Mothae kimberlite were conducted in 2008/2009 and 2011/2012.  Altogether, 43 holes were completed for a total

Criteria	JORC Code Explanation	Lucapa Commentary
	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.).	drill length of 8,085 m. All drilling was undertaken by RDS using Boart Longyear LF90D core rigs and standard tubes. During 2008 and 2009, all drill holes commenced with HQ diameter and telescoped down to NQ diameter when stable unweathered ground was intersected. During 2011 and 2012, selected holes commenced with PQ diameter to provide samples for ore dressing studies ("ODS") after which holes telescoped down through HQ to NQ.  Where no ODS sampling was required, the 2011 and 2012 holes began with HQ as in 2008 and 2009.
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	Core run lengths were measured and recorded to provide a complete record of core return  PQ, HQ and NQ were used to optimise sample recovery.  Drill core was not used for diamond grade estimation, hence it is not known if a bias exists between core recovery and diamond grade.
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	Drill core was geologically logged in two stages: primary field logging and secondary interpretive logging. Primary logging recorded the depth of all kimberlite-wall rock contacts, preliminary subdivision of kimberlite into codes based on textural and component variations such as:  • a visual estimate of the total olivine and olivine macrocryst content, and the sizes of the five largest olivine crystals • the type of magma clasts, specifically the relative proportion of cored and uncored varieties, and the maximum magma clast size • size and number of country rock xenoliths (measured over 1 m interval) • KIM abundance counts over a ±3 cm by 20 cm area.  Secondary interpretive logging involved verifying the kimberlite-wall rock contacts, internal subdivisions and model codes assigned during the primary logging. The nature of and variations in rock texture and components were assessed to establish the major kimberlite types and the variability within them. The internal subdivisions derived from this stage of logging were then composited into geological domains based on their lithological characteristics and spatial distribution for the purpose of geological

Criteria	JORC Code Explanation	Lucapa Commentary
		modelling. A five-tier geological coding system was applied to the Mothae drill cores.
		Logging was mainly quantitative. All cores were photographed at high resolution.
		All 8,085 m from the 43 holes were logged and used for geological modelling.
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube</li> </ul>	Diamond grades were determined from mechanically excavated bulk sample material which had a natural moisture content.
7 7 7 7 7 7	sampled, rotary split, etc. and whether sampled wet or dry.	Bulk samples did not require special preparation techniques.
	<ul> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the</li> </ul>	Representative KIM samples were collected at regular intervals from headfeed material during bulk sample processing in order to confirm the KIM signature of the material excavated and processed. This was to allow a correlation of the bulk sample material (and its associated diamond recoveries) with the surface delineation and drill core KIM abundance results. Samples were collected approximately every 4,000 tonnes during bulk sample processing. Samples were derived from the active ROM headfeed stockpile.
	material being sampled.	bulk sample material from the five geological domains
		<ul> <li>Bulk samples are invariably representative of the in-situ material; No duplicate samples were collected or deemed necessary</li> </ul>
		<ul> <li>Mothae kimberlite has a low average grade (&lt;5 cpht) and a relatively coarse diamond size population; The excavated volume (696,000 t) is considered to be sufficient for resource estimation; Bulk samples are from weathered material which required minimal crushing/blasting that could result in diamond breakage</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> </ul>	Bulk sample processing, a total technique, was conducted with industry-standard equipment/ procedures and managed by highly qualified contractors.
	<ul> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations</li> </ul>	Prepared 2-18 mm material was mixed into ferrosilicon slurry with a density of 2.70 g/cm³ and passed through a cyclone set at a cut point of 2.90 g/cm³. The DMS sink material was conveyed to the recovery sizing screens, where material was collected in storage bins in the 2-3 mm, 3-8 mm, 8-16 mm and +16 mm fractions

Criteria	JORC Code Explanation	Lucapa Commentary
	factors applied and their derivation, etc.  Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	(Phase 1 and 2) for final diamond recovery by grease table and hand-sorting; Phase 3 DMS sink was processed with X-ray units prior to hand sorting.  A range of audit work was carried out after each phase to assess grease and recovery tailings for unrecovered diamonds.
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	Samples from the same geological domain produced comparable results confirming the criteria for delineating the five geological domains.  Twin holes were not deemed necessary. Primary data were recorded manually and then captured in digital format using suitable software; SOPs and selected data files were verified by CP. No adjustments to assay data were done
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	Collar positions of 2008-2009 drill holes were initially captured using a Garmin handheld GPS set to record and average the position over 1 minute. Positions of all collars including the 2011-2012 holes were later surveyed by DGPS conducted by a registered mine surveyor. Drill holes were captured to sub-centimetre level accuracy with a Trimble R6 GPS receiver surveying in real time kinematic mode with a single fixed base station.
		For the 2008-2009 drilling campaign, drill hole orientation and azimuth was measured using a Reflex EZ-shot survey tool. Significant azimuth errors were encountered with this tool (attributed to instrument drift and interference from magnetic bedrock) resulting in unacceptable apparent spatial deviations of drill holes. Starting azimuths were therefore used as a basis for plotting the drill holes in three-dimensions. During 2011 and 2012, drill hole orientation and azimuth was captured using a Reflex GYRO survey tool. No significant measurement errors were incurred with this system.
		<ul> <li>UTM Zone 35 S with WGS83 Datum</li> <li>The DGPS used has adequate topographic accuracy</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the</li> </ul>	The spatial distribution and sample spacing of cored boreholes for KIMs is good.  Quantity and quality of data generated on the Project are of a high standard and appropriate for the declaration of an Indicated and Inferred

Criteria	JORC Code Explanation	Lucapa Commentary
	Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.  • Whether sample compositing has been applied.	Diamond Resource; The diamond content of the 4 domains beyond (>±20 m) the bulk sampled depth is reasonably constrained by documenting litho-/ mineralogical continuity in the cored holes; With volumetrically minor exceptions, the geology and KIM data do not provide evidence for variation at depth beyond what is evident at surface.  The individual geological domains were bulk sampled separately.
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	Sampling was conducted on a geological domain basis; Litho-/ mineralogical characteristics in holes confirm the vertical continuity of the individual domains  A sub-vertical to vertical (as opposed to horizontal geological and grade homogeneity is a common feature in many kimberlites; Hence no drill- or sampling related bias is to be expected.
Sample security	The measures taken to ensure sample security.	Core is stored on-site in locked containers, while bulk samples were processed within days of being excavated.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	DMS tailings and grease audits were regularly conducted and shortcomings remedied by modifications to the processing plant design. MSA 2017 is a review of earlier published work to NI-43-101 standard.

# **Reporting of Exploration Results**

Criteria	JORC Code Explanation	Lucapa Commentary
Mineral tenement and land tenure status	<ul> <li>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.</li> <li>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.</li> </ul>	A Mining Lease ("ML"; number 001-16/17) for the Mothae kimberlite in the Lesotho highlands is valid until 28 January 2027 and renewable for a further 10 years; Lucapa holds a 70% interest in the ML and the remaining 30% is held by the GoL. A 4% royalty is payable to the GoL and is based upon the gross sale value receivable at the mine gate and, in the case of diamond projects, is negotiable; There is no crop farming at the altitude of 2,900 m and the vegetation types are classified as 'Least Threatened' but are 'Poorly Protected'. Surface rights have been ceded to the ML holder; Sheep grazing occurs.  Lucapa is not aware of any impediments that could negatively affect the security of tenure other than as previously announced.

Criteria	JORC Code Explanation	Lucapa Commentary
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The most recent phase of prospecting was initiated by Motapa in 2006 which entered into an option agreement with Lucara to secure funding for a bulk sampling and core drilling programme (subject of this Report) in 2007. Lucara subsequently bought Motapa and in January 2017 Lucapa was awarded the Mothae Project through an international tender process by the GoL following Lucara's withdrawal from the Project.
Geology	Deposit type, geological setting and style of mineralisation.	The Mothae kimberlite is a diatreme which was the feeder to a now eroded volcano; Kimberlite is the main source of diamond. Karoo basalt is the country rock.
Drill hole Information	<ul> <li>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:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth hole length.</li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul> </li> </ul>	No new drill hole information is released here.  The majority of the holes were drilled inclined to determine the contact between kimberlite and basalt country rock and the intersections were used to delineate the shape of the kimberlite and to construct the geological model; A total of 8,085 m were drilled in 43 holes during the two drill campaigns in 2008/2009 and 2011/2012.
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	Diamond grades were determined from the bulk samples while the drill holes provided spatial information and lithological and mineralogical characteristics were used to define five geological domains and delineate them at depth.  Diamond grades were determined from 29 sample batches with a total of 604,000 dry tonnes processed from 4 of the 5 geological domains. Grades were determined for each batch and the results used for the grade estimation of each domain. The 5 <sup>th</sup> domain ('Neck') not sampled.  No metal equivalent values were used.

Criteria	JORC Code Explanation	Lucapa Commentary
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	Not applicable to bulk samples.  Diamond mineralisation was not determined by drill holes which were used to delineate the geometry of the kimberlite and document geological continuity.  This concept does not apply to bulk samples as lengths are measured.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Included as separate Appendices.
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.	Diamond grades are reported individually for each of the 29 bulk sample batches; the five geological domains differ in their diamond content and size distribution.
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.	Ground geophysics was conducted and all three methods used (magnetic, gravity and EM) were effective in mapping out the pipe margins; The magnetic survey was effective in discriminating most of the internal pipe geology; Total liberation (microdiamonds) has been conducted on two samples. No geotechnical studies, other than examining the contact characteristics of kimberlite with the basalt country rock, were conducted.
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	Total liberation studies should be carried out on drill core to assess the diamond characteristics in the deeper parts of the five domains not tested with bulk samples; The optimal bottom cut off size for processing should be further evaluated to determine diamond grade vs size vs value and associated processing costs;  Commission and Conduct a Pre-Feasibility Study.  The spatial extent of the kimberlite has been adequately determined with the cored drill holes.

# **Estimation and Reporting of Mineral Resources**

Criteria	JORC Code explanation	Lucapa Commentary
Database integrity	<ul> <li>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.</li> <li>Data validation procedures used.</li> </ul>	MSA has reviewed the data for the Diamond Resource estimation.  The Diamond Resource estimate has been reviewed by MSA in detail and found to have been carried out according to best practice principles, excluding data where appropriate, and following strict a protocol. MSA remodelled the Diamond Resource and the results were very similar to the earlier results.
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	During the February 2017 site visit by Dr Reichhardt and a September 2012 visit by MSA, the following aspects of the programme were reviewed:  The core logging was found by to have been completed to a high standard. Some of the core was re-logged by MSA and found to correspond closely with the original logging.  The core storage is excellent, and all cores are available for re-examination except for small sections that have been removed for sampling  The open pit was visited in September 2012 by MSA the different geological domains observed in outcrop.  The South Lobe pit was flooded during the February 2017 visit and only the North Lobe and Neck were examined by Dr Reichhardt.  The bulk sampling plant and final diamond recovery facilities were visited and the equipment, process design and layout were found to conform with industry standard.
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	The geological model is well constrained by drill holes.  Mineralogical and lithological data from the drill holes were used to delineate individual geological domains which were then assigned at depth with the grades from the bulk samples from the same domains.  The grades of the individual domains at depth (>20 m) might be lower or higher than established from the near surface bulk sampling.  Geological characteristics were used exclusively to identify and delineate the 5 domains which were then assigned the

Criteria	JORC Code explanation	Lucapa Commentary
		diamond grades established from the near surface bulk samples collected from these domains.
		Geological continuity of the individual domains is adequately documented, however there is no confirmation that the domains have a homogenous diamond grade and size distribution.
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.	Diamond grades at depths have not been determined directly (only by geological considerations) and the Diamond Resource is therefore classified as 'Inferred' beyond a depth of 50 m to 300m. At depths greater than 300m to 500m the resource is unclassified.
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.	Average grade of bulk samples were applied on an individual domain basis together with average diamond values for the total bulk samples. Extrapolation of the near surface sampling data is to 300 m below surface based on diamond drill petrography showing no discernible change with depth.  MSA carried out checks on the MSC estimates and no significant differences were found between the two estimates.
	The availability of check estimates, previous estimates and/or mine production records and whether the	There are no by-products.
	Mineral Resource estimate takes appropriate account of such data.	No deleterious elements have been identified.
	• The assumptions made regarding recovery of by-products.	Block model interpolation was not carried out.
	• Estimation of deleterious elements or	No SMU determination was carried out.
	other non-grade variables of economic significance (e.g. sulphur for acid mine	No variables were correlated.
	<ul> <li>drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> </ul>	The lithological and weathering domains were used to guide the bulk sampling, the results of which were applied to the domains.
	Any assumptions behind modelling of	No grade capping or cutting was applied.
	<ul><li>selective mining units.</li><li>Any assumptions about correlation between variables.</li></ul>	No reconciliation data available.
	<ul> <li>Description of how the geological interpretation was used to control the resource estimates.</li> </ul>	
	<ul> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking</li> </ul>	
	process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	

Criteria	JORC Code explanation	Lucapa Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnage estimates were done on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	A bottom cut-off of -2 mm was applied.
Mining factors or assumptions	<ul> <li>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</li> </ul>	Open pit mining is likely; A total of 604,000 dry tonnes of predominantly weathered material have been processed during the evaluation phase.  The material was extracted with free-dig truck and shovel mining methods with minor blasting.
	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.	Future mining is likely to use the same method for weathered material while the unweathered material will require a conventional drill-and-blast method; The grade and size of diamonds in the deeper, unweathered portion of the pipe will need to be confirmed through mining and the processing plant needs to be optimised for the unweathered, fresh material.
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.	Physical bottom cut of screen size is -2mm. Potential effect of changed to a coarser bottom cut (-3mm) has been investigated and modelled.  Lock up factors have been modelled from SFD and sales data, hence the difference between the overall bulk sample grade and the modelled resource grade.  Metallurgical methods applied were crush, wash, screen, dense media separation and X ray fluorescence recovery. XRT (X ray transmissive technology is being considered at development stage.
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	Environmental Management Programme and Environmental Impact Assessment have been completed for the Mothae Project and were approved prior to the granting of the Mining Lease.  In addition, Lucapa continues an ongoing public participation process; To MSA's knowledge, there are no environmental impediments to the Project continuing to the development stage.

Criteria	JORC Code explanation	Lucapa Commentary
	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.	MSA has identified a potential risk with the 'fines' escaping into the local fresh water system; Tailings management will need to be designed to prevent fines escaping into local streams and potentially impacting on Lesotho's fresh water exports.
Bulk density	<ul> <li>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.</li> <li>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.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	Bulk density measurements were determined from 543 surface samples and 785 drill core samples using the 'Archimedes Principle' method; Results were used for the tonnage calculations; The frequency and spatial distribution of measurements are considered adequate by the CP.  The method applied is considered suitable and adequate for this type of deposit.  Bulk density measurements on a range of kimberlite material were used for the Resource estimation.
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (i.e. 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).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	The South-west and South-central domains, which have the largest bulk sample tonnages, were declared as 'Indicated' for the weathered portion (±20 m) and the underlying unweathered part to a depth of -50 m; The SW, SC, SE and N domains were classified as 'Inferred' to a depth of -300 m; The depth interval to- 500 m has not been classified for all four domains.  All relevant factors have been considered for the Diamond Resource estimate.  The results appropriately reflect the level of acquired data for this type of kimberlite deposit (low grade, high diamond value).
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The results obtained by MSA were comparable to the Diamond Resource initially estimated by earlier estimates to NI-43-101 standard in terms of tonnage, grade and revenue.
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	A global estimate by geological domain has been made.  The CP considers that the quantity of bulk sample processed is sufficient to determine average diamond grade and value for the deposit however local estimation has not been performed.

Criteria	JORC Code explanation	Lucapa Commentary
	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.	Diamond drilling has confirmed geological continuity at depth, however the assumption that the grades and diamond values are the same at depth as the bulk sample near surface has not been verified.

# **Estimation and Reporting of Diamonds and Other Gemstones**

Criteria	JORC Code Explanation	Lucapa Commentary
Indicator minerals	<ul> <li>Reports of indicator minerals, such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory.</li> </ul>	Quantitative KIM abundances of purple garnet and ilmenite were used to discriminate different geological domains.
Source of diamonds	<ul> <li>Details of the form, shape, size and colour of the diamonds and the nature of the source of diamonds (primary or secondary) including the rock type and geological environment.</li> </ul>	Diamonds are derived from the Mothae kimberlite and in excess of 23,000 carats were recovered from bulk samples from 4 geological domains.
Sample collection	<ul> <li>Type of sample, whether outcrop, boulders, drill core, reverse circulation drill cuttings, gravel, stream sediment or soil, and purpose (e.g. large diameter drilling to establish stones per unit of volume or bulk samples to establish stone size distribution).</li> <li>Sample size, distribution and representivity.</li> </ul>	Diamond grade and size distribution were established from three bulk sampling campaigns.
Sample treatment	<ul> <li>Type of facility, treatment rate, and accreditation.</li> <li>Sample size reduction. Bottom screen size, top screen size and re-crush.</li> <li>Processes (dense media separation, grease, X-ray, hand-sorting, etc.).</li> <li>Process efficiency, tailings auditing and granulometry.</li> <li>Laboratory used type of process for micro diamonds and accreditation.</li> </ul>	A total of 604,000 dry tonnes of predominantly weathered material were processed from 4 geological domains identified in the kimberlite.  Industry standard processing plant operated by qualified experts.  Grizzly, scrubber, screens, crusher; 40 mm top and 2 mm bottom size DMS, grease table, X-ray units and glove box hand-sorting >90% recovery of carats; several phases of tailings audits; screening.

Criteria	JORC Code Explanation	Lucapa Commentary
		Accredited SGS SA carried out total digestion on two samples.
Carat	• One fifth (0.2) of a gram (often defined as a metric carat or MC).	Grades quoted in carats per hundred metric tonnes; diamonds reported at carats.
Sample grade	<ul> <li>Sample grade in this section of Table 1 is used in the context of carats per units of mass, area or volume.</li> <li>The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For alluvial deposits, sample grades quoted in carats per square metre or carats per cubic metre are acceptable if accompanied by a volume to weight basis for calculation.</li> <li>In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive sample grade (carats per tonne).</li> </ul>	52,017 diamonds weighing 23,446 ct were recovered for a total dry sample grade of 3.88 cpht at a 2 mm bottom cut-off with an average diamond size of 0.45 cps (carats per stone). Individual bulk sample grades vary from 1.52 cpht to 7.08 cpht.  Size frequency distribution models were created for the four major diamond bearing geological domains.
Reporting of Exploration Results	<ul> <li>Complete set of sieve data using a standard progression of sieve sizes per facies. Bulk sampling results, global sample grade per facies. Spatial structure analysis and grade distribution. Stone size and number distribution. Sample head feed and tailings particle granulometry.</li> <li>Sample density determination.</li> <li>Per cent concentrate and undersize per sample.</li> <li>Sample grade with change in bottom cut-off screen size.</li> <li>Adjustments made to size distribution for sample plant performance and performance on a commercial scale.</li> <li>If appropriate or employed, geostatistical techniques applied to model stone size, distribution or frequency from size distribution of exploration diamond samples.</li> <li>The weight of diamonds may only be omitted from the report when the diamonds are considered too small to be of commercial significance. This lower cut-off size should be stated.</li> </ul>	The five domains are spatially separate and have different diamond grades and size frequency distributions; Mothae, like nearby Letšeng kimberlite mine, has a relatively coarse diamond size distribution.  The +20 mm / -40 mm material is passed through a coarse diamond X-ray recovery unit; -2 mm goes to tailings but no particle size analyses is conducted.  The data for a complete set of DTC sieve sizes for the individual geological domains are presented in the text above. The five domains are spatially separate and have different diamond grades and size frequency distributions; Mothae, like nearby Letšeng kimberlite mine, has a relatively coarse diamond size distribution; The +20 mm / -40 mm material is passed through a coarse diamond X-ray recovery unit; -2 mm goes to tailings but no particle size analyses is conducted;  • 543 near surface and 785 drill core samples density measurements were determined by the 'Archimedes Principle' method.  • Percentage of concentrate and -2mm material has not been quantified

Criteria	JORC Code Explanation	Lucapa Commentary
		<ul> <li>Bulk sample grades vary from 1.52 cpht to 7.08 cpht at 2 mm and can be modelled to drop by 10- 20% when using a 3 mm bottom cut-off</li> <li>Size frequency size distribution models were carried out for the four major geological domains.</li> <li>All diamonds (+2 mm cut off) have been reported including the results of microdiamond work (+106 micron) from 2 large samples.</li> </ul>
Grade estimation for reporting Mineral Resources and Ore Reserves	<ul> <li>Description of the sample type and the spatial arrangement of drilling or sampling designed for grade estimation.</li> <li>The sample crush size and its relationship to that achievable in a commercial treatment plant.</li> <li>Total number of diamonds greater than the specified and reported lower cut-off sieve size.</li> <li>Total weight of diamonds greater than the specified and reported lower cut-off sieve size.</li> <li>The sample grade above the specified lower cut-off sieve size.</li> </ul>	A total of 29 bulk sample batches (604,000 dry t) spread over the four geological domains were used to establish diamond content.  Bulk samples were mainly weathered nearsurface material and required minimal crushing; Cone crusher (18 mm) and scrubber were used for oversize.  52,017 diamonds (≥2 mm) weighing 23,446 ct were recovered.  The 52,017 diamonds (≥2 mm) had a total weight of 23,446 ct.  Overall estimated bulk sample grade for Mothae is 3.88 cpht at a 2 mm bottom cut-off.
Value estimation	<ul> <li>Valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing exploration samples.</li> <li>To the extent that such information is not deemed commercially sensitive, Public Reports should include:         <ul> <li>diamonds quantities by appropriate screen size per facies or depth.</li> <li>details of parcel valued.</li> <li>number of stones, carats, lower size cut-off per facies or depth.</li> </ul> </li> <li>The average \$/carat and \$/tonne value at the selected bottom cut-off should be reported in US Dollars. The value per carat is of critical importance in demonstrating project value.</li> <li>The basis for the price (e.g. dealer buying price, dealer selling price, etc.).</li> <li>An assessment of diamond breakage.</li> </ul>	Valuation is based on macrodiamonds recovered from 3 bulk sample campaigns.  A detailed description of the quantities, size distribution of the four diamond parcels valued by AGM in Antwerp, Belgium;  All diamonds are from the near-surface weathered bulk sample material from the 4 domains; Diamonds were not sold separately by domain, and estimates of value by size class are therefore made on a global basis.  Diamonds were sold on a sealed tender basis.  Diamond breakage has occurred and an assessment is complete.

Criteria	JORC Code Explanation	Lucapa Commentary
Security and integrity	<ul> <li>Accredited process audit.</li> <li>Whether samples were sealed after excavation.</li> <li>Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.</li> <li>Core samples washed prior to treatment for micro diamonds.</li> <li>Audit samples treated at alternative facility.</li> <li>Results of tailings checks.</li> <li>Recovery of tracer monitors used in sampling and treatment.</li> <li>Geophysical (logged) density and particle density.</li> <li>Cross validation of sample weights, wet and dry, with hole volume and density, moisture factor.</li> </ul>	Sub-contractors were used for plant design and operating; Various audits were carried out.  Samples transported ±100 m from pit to plant and processed within a few days.  Couriered in 4 batches and valued by AGM in Antwerp, Belgium; Minimal cleaning losses observed; One case of theft in final recovery unit;  Tungsten drill bit and tracers used for MiDa work;  All bulk samples treated on site;  Grease audited by external operator;  Diamond simulant breakage tests where done in the bulk sampling plant.  No down-hole geophysics were carried out.  Bulk density measurements using 'Archimedes Principle' carried out on 543 bulk samples and 785 drill core samples.
Classification	• In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive grade (carats per tonne). The elements of uncertainty in these estimates should be considered, and classification developed accordingly.	Relevant uncertainties are discussed in the text above.

#### Appendix 3

### **General glossary of Technical Terms**

Archaean The oldest rocks of the Precambrian era, older than about 2,500 million

years.

ASX Australian Stock Exchange.

basalt A dark, fine-grained volcanic rock of low silica (<55%) and high iron and

magnesium composition, composed primarily of plagioclase and

pyroxene.

basement The igneous and metamorphic crust of the earth, underlying sedimentary

deposits.

breccia Intensely fractured body of rock.

Cambrian The oldest of the systems into which the Palaeozoic stratified rocks are

divided, 545 to 490 million years ago.

carbonate A rock, usually of sedimentary origin, composed primarily of calcium,

magnesium or iron and CO3. Essential component of limestones and

marbles.

chrome diopside A calcium, magnesium silicate, Ca(Mg,Fe,Cr)(Si,Al)206, with a high

proportion of chromium substitution in the lattice, which is a common

indicator mineral for diamond.

chromite An oxide of chromium, (Mg,Fe)Cr2O4, some varieties of which can

represent an indicator of diamonds.

cpht Carats per 100 tonnes. cps Carats per stone.

craton Large, and usually ancient, stable mass of the earth's crust comprised of

various crustal blocks amalgamated by tectonic processes. A cratonic

nucleus is an older, core region embedded within a larger craton.

Cretaceous Applied to the third and final period of the Mesozoic era, 141 to 65 million

years ago.

diamond drilling Method of obtaining cylindrical core of rock by drilling with a diamond set

or diamond impregnated bit.

diatreme A volcanic vent or pipe created by gaseous magma sourced from the

mantle.

dipolar anomaly A magnetic dipole created by a magnetic source with a roughly cylindrical

shape and considerable depth extent.

dyke A tabular body of intrusive igneous rock, crosscutting the host strata at an

oblique angle.

fault A fracture or fracture zone, along which displacement of opposing sides

nas occurred.

Gneiss A coarse grained, banded, high grade metamorphic rock.

gravity survey Recording the specific gravity of rock masses in order to determine their

distribution.

ilmenite An iron, magnesium and titanium oxide ((Fe,Mg)TiO3). The magnesium-

rich ilmenite in kimberlite is called picro-ilmenite.

indicator minerals A suite of resistant minerals with an origin and mode of occurrence

similar to diamond, that can be indicative of the presence of primary

diamond deposits.

joints Regular planar fractures or fracture sets in massive rocks, usually created

by unloading, along which no relative displacement has occurred.

kimberlite An alkaline ultramafic igneous rock that is generated at great depths in the

earth and emplaced at the surface in pipes (diatremes), dykes or sills. The

principal source of primary diamonds.

KIIM Kimberlite Indicator Mineral: pyrope garnet, eclogitic garnet, picro-

ilmenite, chromite, chrome diopside

kt Thousands of tonnes

limestone A sedimentary rock containing at least 50% calcium or calcium-

magnesium carbonates.

lineament A significant linear feature of the earth's crust.

lithosphere Mass of the mantle attached to the base of the crust that has a geological

history related to that of the overlying crust, and that is cold and rigid

relative to the deeper parts of the mantle.

load An historical measure of weight on South African kimberlite mines. It is

equivalent to 16 cubic feet or 1,600 pounds of broken fresh kimberlite, or

approximately 0.726 metric tonnes.

Ma Million years.

mafic Descriptive of rocks composed dominantly of magnesium and iron rock-

forming silicates.

mamsl Standard metric measurement in metres of the elevation or altitude of a

location in reference to a historic mean sea level.

mantle The layer of the earth between the crust and the core. The upper mantle,

which lies between depths of 50 and 650 km beneath continents, is the principal region where diamonds are created and stored in the earth.

Mesoproterozoic Middle Proterozoic era of geological time, 1,600 to 1,000 million years

ago

metamorphism Alteration of rock and changes in mineral composition, most generally due

to increase in pressure and/or temperature.

Palaeozoic An era of geologic time between the Late Precambrian and the Mesozoic

era, 545 to 251 million years ago.

picro-ilmenite A magnesium-rich variety of ilmenite, commonly indicative of the presence

of diamonds.

Precambrian Pertaining to all rocks formed before Cambrian time (older than 545 million

years).

Proterozoic An era of geological time spanning the period from 2,500 to 545 million

years before present.

Pr.Sci.Nat Registered Professional Scientist, a South African statutory body

recognised by the ASX.

pyrope garnet A ruby-coloured garnet, Mg<sub>3</sub>Al<sub>2</sub>(SiO<sub>4</sub>)<sub>3</sub>, common in deep-seated ultramafic

intrusive rocks and a common indicator of the presence of diamonds.

sandstone A sedimentary rock composed of cemented or compacted detrital minerals,

principally quartz grains.

satellite positioning system (global positioning system

GPS) An instrument used to locate or navigate, which relies on three or more

satellites of known position to identify the operators location.

SFD Size-frequency distribution of diamonds

spinel A group of oxide minerals of various compositions, commonly occurring

as an accessory in basic igneous rocks.

stratigraphic drill hole A drill hole completed to determine the nature of rocks, rather than to

identify mineral deposits, frequently applied for research or in the early

stages of petroleum exploration.

strike Horizontal direction or trend of a geological structure.

ultramafic Igneous rocks consisting essentially of ferromagnesian minerals with trace

quartz and feldspar.

volcaniclastic Pertaining to clastic rock containing volcanic material.

xenolith Applies to a rock that is foreign to the body of rock in which it occurs.

XRT Processing technology used to sort ore minerals based on atomic weight

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