

ASX Announcement

15 July 2019

Mallina drilling, new targets and metallurgy update

- **Diamond drilling results, Sub Audio Magnetic (SAM) targets and positive gold recoveries continue to advance Mallina**
- **High grade lode extended with 13.42m @ 5.12g/t** from 126.58m in MLRC 181D. This intercept is down dip from previously reported shallow intercepts of **10m @ 6.09g/t/** and **4m @ 2.71g/t** and remains open.
- **MLRC 259D intersected a wide zone (~50m) of alteration including fine grained sulphides and limited quartz veining.** This zone is geologically similar to the previously reported zones in MLRC214D (56m @ 3.04g/t including 30m @ 5.29g/t) 80m above and MLRC 215 (16m @ 3.00g/t including 6m @ 4.66g/t) 50m above. Results show lower grade mineralisation than expected with 0.72m @ 3.73g/t and 5.45m @ 0.73g/t, however significant core loss occurred through this zone and further drilling will be required to fully assess this zone down dip and along strike. A potential new lode extension associated near the margins of the porphyry intersected 4.5m @ 1.28g/t.
- **86% gold recovery** defined in metallurgical test work based on the proposed processing flowsheet as designed by GR Engineering.
- **SAM survey** provides new and encouraging insights into potential new geological controls of the lodes with immediate along strike resource extension targets and many large untested targets planned to be tested with aircore drilling during 2019/2020.
- **Significant new drill results include:**

13.42m @ 5.12g/t Au from 126.58m in MLRC181D
4m @ 1.05g/t Au from 47m in MLRC253D
0.72m @ 3.73g/t Au from 76.4m in MLRC259D
4.5m @ 1.28g/t Au from 180.5m in MLRC259D
 (incl **0.4m @ 5.43g/t Au** from 181.1m)

Metallurgy Holes

8m @ 1.52g/t Au from 6m in MLDD001
 (incl **2m @ 2.49g/t Au** from 10m)
30.2m @ 0.85g/t Au from 26.8m in MLDD001
 (incl **2m @ 2.76g/t Au** from 27.8m)
 (incl **1m @ 5.27g/t Au** from 45m)
4.93m @ 1.23g/t Au from 106.32m in MLRC253D
 (incl **1.19m @ 3.73g/t Au** from 109.17m)

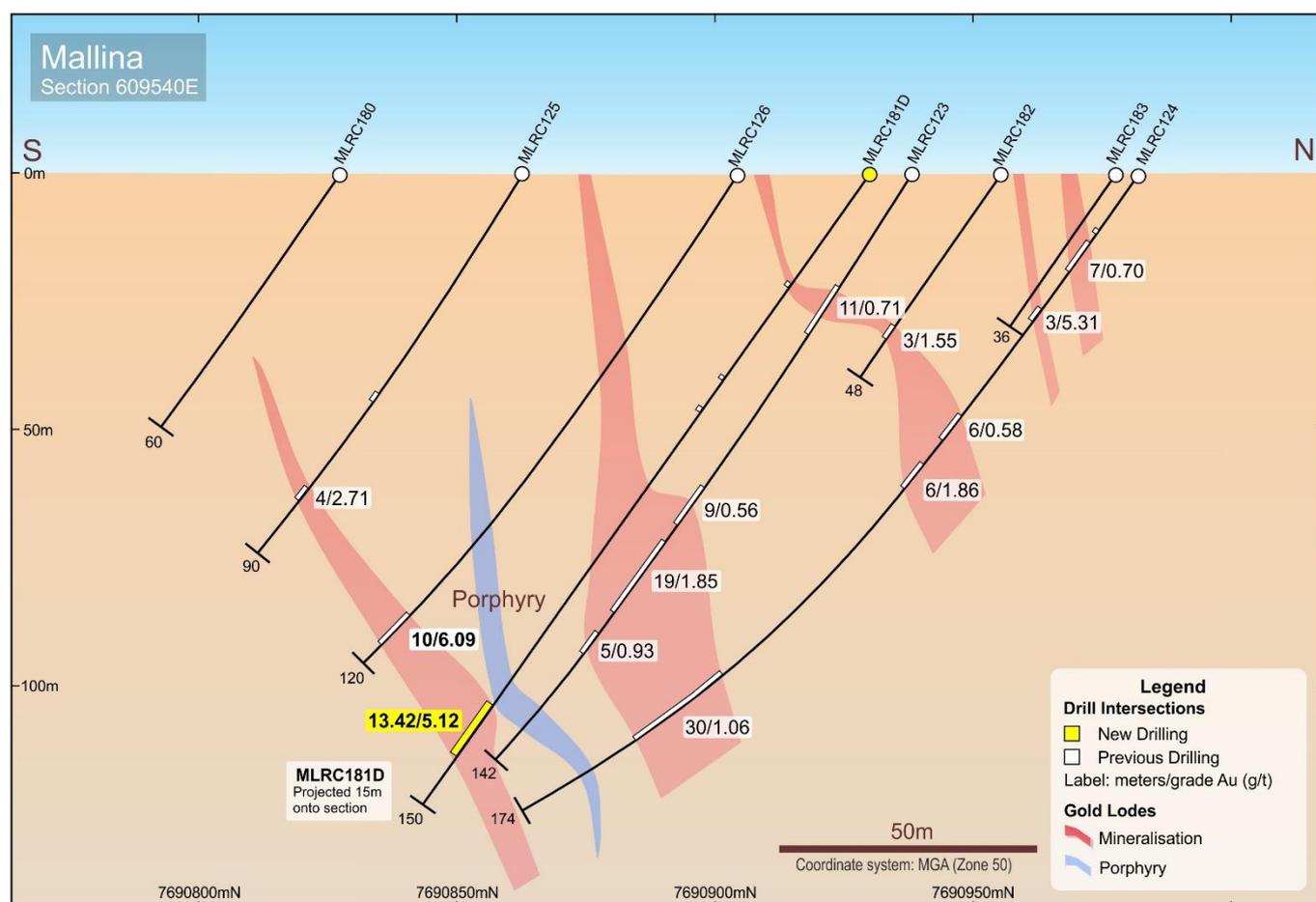
De Grey Mining Limited (ASX: DEG, “De Grey”, “Company”) is pleased to announce an update on drilling results, Sub Audio Magnetic (SAM) survey and metallurgical test work from the Mallina deposit. The Mallina deposit (3.83Mt @ 1.3g/t for 160,700oz*) is a large under explored 5km long prospective corridor along the Mallina Shear Zone. The deposit and surrounding targets have substantial exploration upside and are located only 15km from the Withnell deposit. (*ASX release “2018 Total Gold Mineral Resource increases to 1.4Moz”, 3 October 2018)

Diamond Drilling Results

Step out diamond drilling comprising 3 holes, targeting extensions to known gold mineralisation has provided further encouraging results and a further 2 diamond holes (MLDD001 and MLRC253D) were drilled specifically for metallurgical test work. Significant intersections greater than 2 gram x metres are provided in Table 3 and locations in Table 2.

Results of MLRC181D shows a down dip extension of a higher grade lode (Figure 1) with an intercept of **13.42m @ 5.12g/t** from 126.58m. This intercept is down dip from previously reported intercepts of **10m @ 6.09g/t** and **4m @ 2.71g/t**. Figure 1 has been drafted to show how MLRC181D when project on to the neighbouring section 609540E indicates holes MLRC123 and 124 have most likely stop just before the postulated location of the lode extensions on this section.

Figure 1 Mallina Central Section 609540E

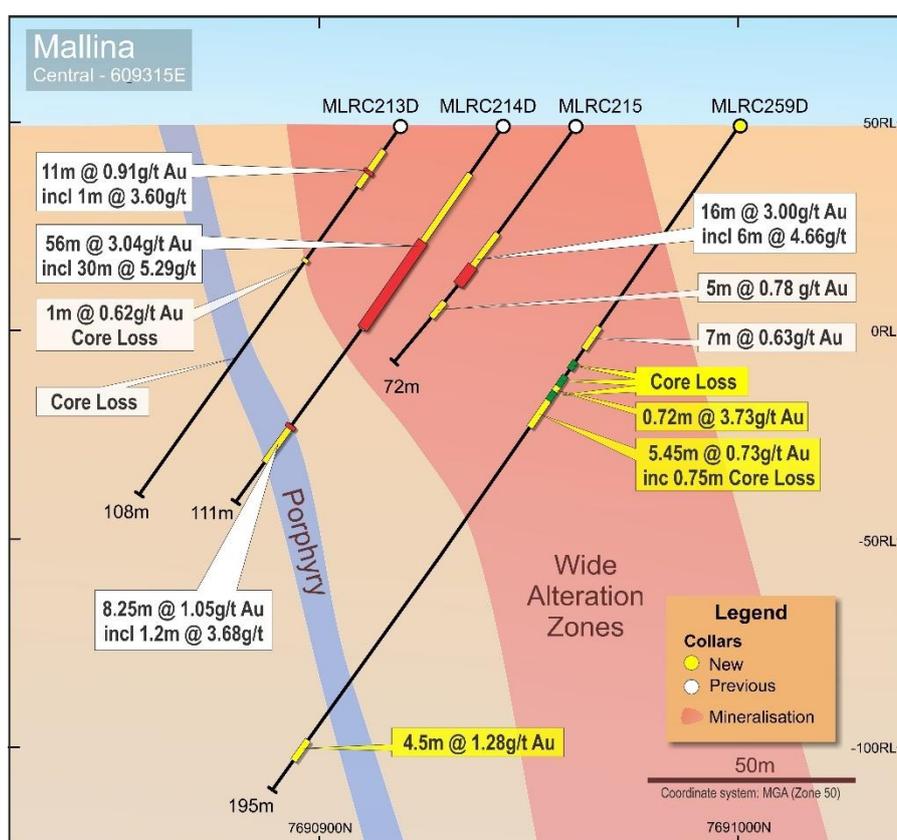


On section 609315E (Figure 2), diamond drill hole MLRC259D was drilled to test depth extensions of broad alteration zones and strong gold mineralisation below MLRC214D (56m @ 3.04g/t including 30m @ 5.29g/t) and

MLRC 215 (16m @ 3.00g/t including 6m @ 4.66g/t). Results were generally disappointing with 0.72m @ 3.73g/t and 5.45m @ 0.73g/t, however significant core loss occurred through this zone and further drilling will be required to fully assess this zone down dip and along strike. A potential new lode extension associated near the margins of the porphyry intersected 4.5m @ 1.28g/t.

Geologically, the broad alteration zones in all three holes contain fine grained disseminated arsenopyrite and minor quartz veining. The geophysical response of this alteration zone is being assessed for potential use of a ground and/or downhole EM (Electro-magnetic) or IP (Induced Polarisation), both of which are electrical techniques. Further assessment of the SAM survey is also being reviewed to understand any possible plunging shoots components or reinterpretation of lode orientations that may alter current targeting parameters.

Figure 2 Mallina Central Section 609315E



As part of ongoing activities, a Sub-Audio Magnetic (SAM) survey has commenced and is expected to finish in approximately 1-2 weeks. This survey is designed to provide greater ability to target along strike extensions by providing more confidence in the lateral extents of the controlling mineralised structures and allow for larger drill programs to be designed going forward. These larger drill programs are expected to enable larger and more rapid resource extensions to be defined.

SAM Survey

The SAM survey, previously released, provides many new target areas along strike from the known gold mineralisation. The detailed review of this data is an iterative process as new information comes to hand, such as new drilling information, and Figure 3 and 4 provides some insight into immediate along strike targets generated from the SAM survey

Metallurgy

Overall the initial metallurgical testwork indicates the oxide ore recovery is expected average ~86% through a standard CIL processing plant and the fresh sulphide bearing ore is expected to yield ~86% via a sulphide float to produce a sulphide rich concentrate with a mass pull of approximately 8.6% followed by pressure oxidation of the concentrate. This processing is in line with the proposed processing flowsheet as designed by GRES and is as expected very similar to the Withnell fresh ore processing requirements.

Two additional diamond holes, MLDD001 and MLRC253D, were completed for the specific purpose of obtaining oxide and fresh zones of gold mineralisation for metallurgical test work. The test work was carried out by ALS Metallurgy, a leading global testing and analysis company, on the oxidised and fresh rock intervals obtained from the diamond core. Details of the drill hole location and sample intervals are provided in Table 3 and 4. The test work program was supervised by GR Engineering Services Limited, with input from De Grey technical staff.

Test work to assess conventional carbon-in-leach (CIL) gold recovery from both oxidised and fresh rock was carried out at grind sizes ranging from 150µm, 106 µm to 75µm. High gold recovery was obtained from the oxide zone sample, ranging from 85.6%, 87.1% and 86.9% respectively within a 24 hour extraction time.

The fresh rock samples returned low gold recoveries of 11% at both 150 µm and 75 µm grind sizes. Additional ultrafine grinding to 13µm was undertaken with only a margin increase in gold recovery from 11% to 18%. Importantly, the pressure oxidation of the 150µm sulphide float concentrate provided a recovery of 85.7%. Also, it is worthy to note the original sample head grades of the fresh samples were close to 1g/t which is below the average grade of the deposit. No gravity test work has been completed to date. The merits of employing gravity extraction will be further evaluated in subsequent test work. The metallurgical results are summarised in Table 1. Further variability test work will be required across the deposit to assess gold recovery at various head grades and De Grey cautions that lower grade material may yield lower gold recovery rates.

Table 1 Summary Metallurgy Test Work Results – CIL and rock parameters

		CIL Gold Recovery			Rock Parameters			
Deposit	Type	Head Grade g/t	Residue Grade g/t	Recovery %	Grind Size (P80) µm	Bwi kWh/t	Rwi kWh/t	Abrasion Index
Toweranna	Oxide	1.65	0.21	94.7	75	10.5	10.7	0.04
	Fresh(POX)	1.04	0.15	85.7	75	18.9	21	0.0813

Comminution test work was carried out to assess the physical properties of the Mallina samples. The oxide material was classified as soft with a low abrasion index, similar to the other deposits at the PGP. The fresh samples were classified as hard with a high abrasion index.

Figure 3 5km long Mallina SAM survey showing interpreted lodes (white polygons) in the resource model and new target areas

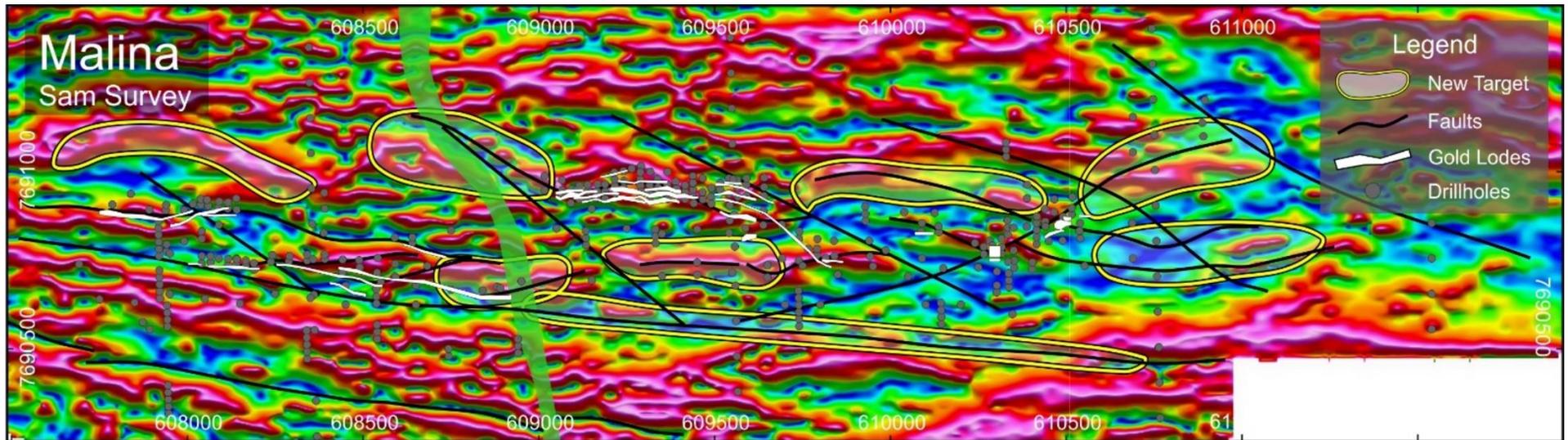


Figure 4 Mallina SAM survey zoomed into Central Zone resource lodes showing selected along strike resource extension targets

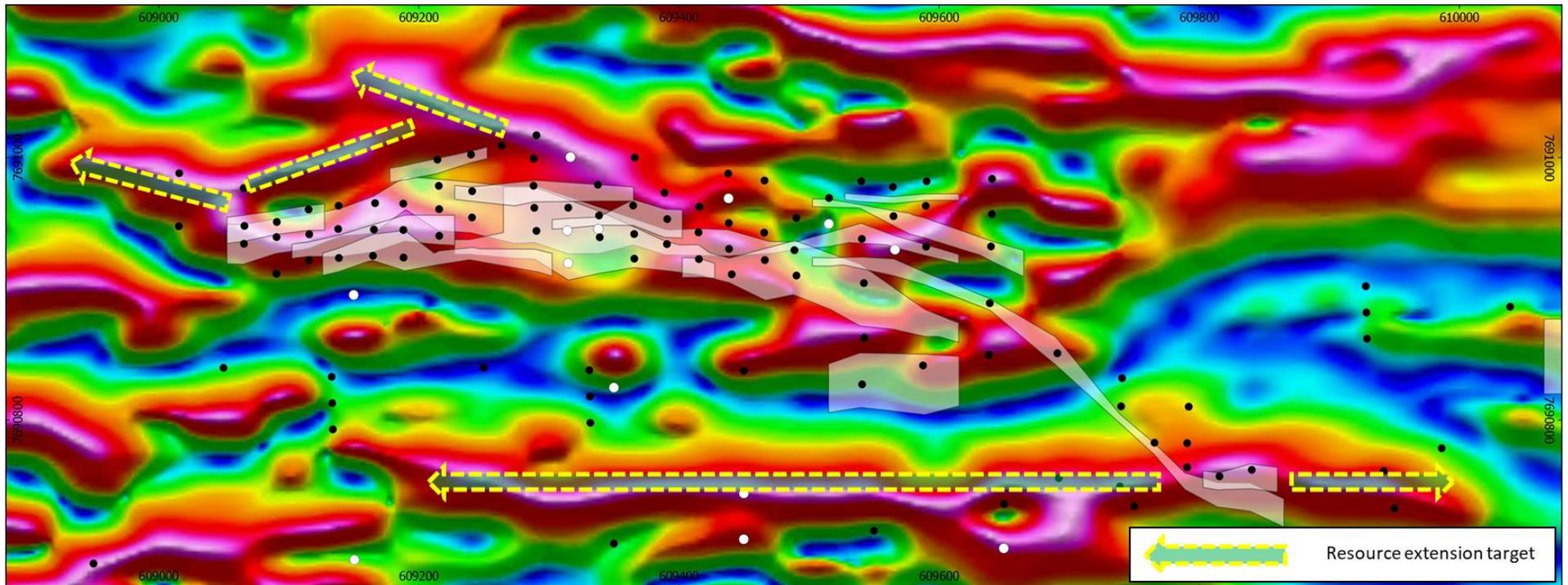
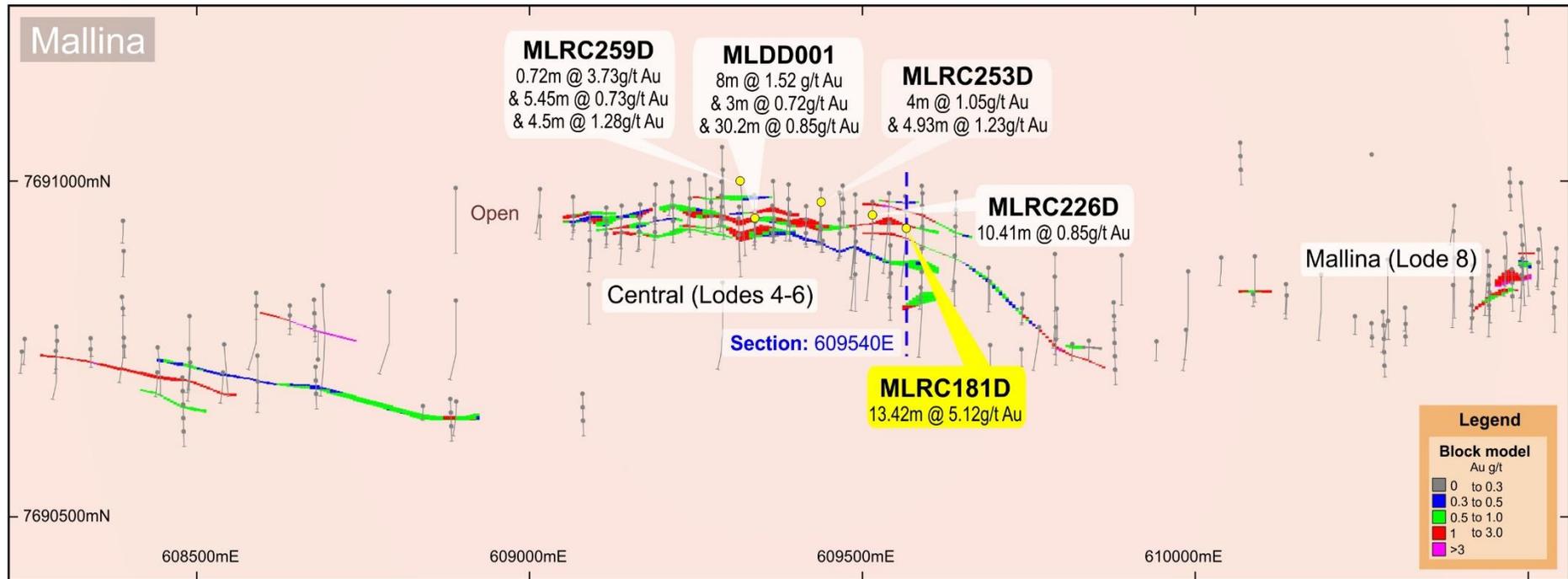


Figure 5 Mallina hole collar locations and new significant results



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Competent Person Statements

The information in this report that relates to exploration results is based on, and fairly represents information and supporting documentation prepared by Mr. Phil Tornatora, a Competent Person who is a member of The Australasian Institute of Mining and Metallurgy. Mr. Tornatora is a consultant to De Grey Mining Limited. Mr. Tornatora has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resource and Ore Reserves". Mr. Tornatora consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Table 2 Mallina – Drill hole location information

HoleID	Collar East (GDA94)	Collar North (GDA94)	Collar RL (GDA94)	Dip (degrees)	Azimuth (GDA94)	Hole Depth
MLRC226D	609515.2	7690949.5	49.5	-54.8	179.0	192.3
MLRC181D	609566.0	7690929.9	49.6	-54.92	181.1	150.37
MLRC259D	609316.5	7691000.3	49.4	-55.92	170.6	195
MLDD001	609338.0	7690945.5	49.6	-53.79	181.5	70
MLRC253D	609438.1	7690968.9	49.4	-55.57	182.7	113.45

Table 3 Significant Drill Intersections (>2 gram x m)

HoleID	Depth From (m)	Depth To (m)	Downhole Width (m)	Au (g/t)
MLDD001	6.0	14.0	8.0	1.52
incl	10.0	12.0	2.0	2.49
MLDD001	19.0	22.0	3.0	0.72
MLDD001	26.8	57.0	30.2	0.85
incl	27.8	29.8	2.0	2.76
incl	45.0	46.0	1.0	5.27
MLRC181D	126.6	140.0	13.4	5.12
MLRC253D	47.0	51.0	4.0	1.05
MLRC253D	106.3	111.3	4.9	1.23
incl	109.2	110.4	1.2	3.73
MLRC259D	76.4	77.1	0.7	3.73
MLRC259D	81.4	86.9	5.5	0.73
MLRC259D	180.5	185.0	4.5	1.28
incl	181.1	181.5	0.4	5.43
MLRC226D	89.6	100.0	10.4	0.85
incl	89.6	92.0	2.4	1.70

JORC Code, 2012 Edition – Table 1
Section 1 Sampling Techniques and Data
 (Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> 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. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where ‘industry standard’ work has been done this would be relatively simple (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. 	<ul style="list-style-type: none"> All drilling and sampling was undertaken in an industry standard manner Samples were collected with a diamond drill rig drilling NQ2 or PQ diameter core. After logging and photographing, NQ2 drill core was cut in half, with one half sent to the laboratory for assay and the other half retained. PQ core was quartered, with one quarter sent for assay. Holes were sampled over mineralised intervals to geological boundaries on a nominal 1m basis. Sample weights ranged from 2-4kg The independent laboratory then takes the sample and pulverises the entire sample for analysis as described below.
Drilling techniques	<ul style="list-style-type: none"> Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.). 	<ul style="list-style-type: none"> NQ2 diamond drill holes comprised NQ2 core of a diameter of 51mm. PQ diamond drill holes comprised PQ core of a diameter of 85mm.
Drill sample recovery	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Core recovery is measured for each drilling run by the driller and then checked by the Company geological team during the mark up and logging process. Samples are considered representative with generally good recovery. No sample bias is observed
Logging	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The entire hole has been geologically logged and core was photographed by Company geologists, with systematic sampling undertaken based on rock type and alteration observed The sample results are appropriate for a resource estimation

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Samples were collected with a diamond drill rig drilling NQ2 or PQ diameter core. After logging and photographing, NQ2 drill core was cut in half, with one half sent to the laboratory for assay and the other half retained. PQ holes were quarter cored. Holes were sampled over mineralised intervals to geological boundaries on a nominal 1m basis. • Industry prepared independent standards are inserted approximately 1 in 20 samples. • Each sample was dried, split, crushed and pulverised. • Sample sizes are considered appropriate for the material sampled. • The samples are considered representative and appropriate for this type of drilling and for use in a resource estimate.
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> • 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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established. 	<ul style="list-style-type: none"> • The samples were submitted to a commercial independent laboratory in Perth, Australia. • Au was analysed by a 50gm charge Fire assay fusion technique with an AAS finish. • The techniques are considered quantitative in nature. • As discussed previously certified reference standards were inserted by the Company and the laboratory also carries out internal standards in individual batches • The standards and duplicates were considered satisfactory
Verification of sampling and assaying	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Sample results have been merged by the company's database consultants • Results have been uploaded into the company database, checked and verified • No adjustments have been made to the assay data. • Results are reported on a length weighted basis
Location of data points	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Drill hole collar locations are located by DGPS to an accuracy of +/-10cm. • Locations are given in GDA94 zone 50 projection • Diagrams and location table are provided in the report • Topographic control is by detailed airphoto and Differential GPS data.
Data spacing and distribution	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Drilling is on a nominal 40m x 40m grid spacing. • All holes have been geologically logged and provide a strong basis for geological control and continuity of mineralisation. • Data spacing and distribution is sufficient to provide support for the results to be used in a resource estimate. • Sample compositing has not been applied except in reporting of drill intercepts, as described in this Table
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • The drilling is approximately perpendicular to the strike of mineralisation and therefore the sampling is considered representative of the mineralised zone. • In some cases, drilling is not at right angles to the dip of mineralised structures and as such true widths are less than downhole widths. This will be allowed for in resource estimates

Criteria	JORC Code explanation	Commentary
	<i>considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	when geological interpretations are completed.
Sample security	<ul style="list-style-type: none"> The measures taken to ensure sample security. 	<ul style="list-style-type: none"> Samples were collected by company personnel and delivered direct to the laboratory via a transport contractor
Audits or reviews	<ul style="list-style-type: none"> The results of any audits or reviews of sampling techniques and data. 	<ul style="list-style-type: none"> No audits have been completed. Review of QAQC data has been carried out by database consultants and company geologists.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> 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 license to operate in the area. 	<ul style="list-style-type: none"> Mallina is on E47/3504 and is located approximately 80km south of Port Hedland. The tenement is held 100% by Indee Gold Pty Ltd. On 9 February 2018, De Grey executed a Share Sale Agreement ("SSA") to acquire 100% of the Indee Gold Pty Ltd, holder of all the Indee Gold Project tenements. Under the executed SSA, the total acquisition price is A\$15 Million, inclusive of the following payments made - the Initial Exclusivity Fee of \$100,000 (paid in Jan 2017), the Initial Deposit of \$1.5 Million (paid on SSA execution - 9 February 2018) and a Settlement Extension Deposit of \$700,000 (December 2018). Final settlement cash payable is \$9.7 Million and \$3 Million of Consideration Shares (new De Grey fully paid ordinary shares) on or before 24 July 2019 (the Settlement Date).
Exploration done by other parties	<ul style="list-style-type: none"> Acknowledgment and appraisal of exploration by other parties. 	<ul style="list-style-type: none"> The Mallina prospect includes small scale historic mining and has had previous drilling undertaken over a period of many years. Most previous work was completed by Resolute and Indee Gold.
Geology	<ul style="list-style-type: none"> Deposit type, geological setting and style of mineralisation. 	<ul style="list-style-type: none"> The mineralisation targeted is hydrothermally emplaced and sediment/quartz hosted gold mineralisation within a shear zone and is similar in style to many other Western Australian gold deposits.
Drill hole Information	<ul style="list-style-type: none"> 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 style="list-style-type: none"> easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. 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. 	<ul style="list-style-type: none"> Drill hole location and directional information provide in the report.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	<ul style="list-style-type: none"> <i>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.</i> <i>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.</i> <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i> 	<ul style="list-style-type: none"> Results are reported to a minimum cutoff grade of 0.3g/t gold for Mallina with an internal dilution of 3m maximum. Intervals over 0.5g/t Au and 2gm metal content are reported. Intercepts are length weighted averaged. No maximum cuts have been made.
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <i>These relationships are particularly important in the reporting of Exploration Results.</i> <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i> <i>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').</i> 	<ul style="list-style-type: none"> The drill holes are interpreted to be approximately perpendicular to the strike of mineralisation. Drilling is not always perpendicular to the dip of mineralisation and true widths are less than downhole widths. Estimates of true widths will only be possible when all results are received, and final geological interpretations have been completed.
Diagrams	<ul style="list-style-type: none"> <i>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.</i> 	<ul style="list-style-type: none"> Plans and sections are provided in the report.
Balanced reporting	<ul style="list-style-type: none"> <i>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.</i> 	<ul style="list-style-type: none"> All significant results are provided in this report. The report is considered balanced and provided in context.
Other substantive exploration data	<ul style="list-style-type: none"> <i>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.</i> 	<ul style="list-style-type: none"> The Mallina Gold deposit has an existing 2012 JORC gold resource of 160,700oz recently reported by De Grey.
Further work	<ul style="list-style-type: none"> <i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i> 	<ul style="list-style-type: none"> A SAM geophysical survey to assist in targeting the potentially mineralised structures has been completed with ongoing assessment of this data underway. Additional geophysical surveys are being considered to advance drill targeting. Follow up RC and diamond drilling aimed at extending resources at depth and laterally is being planned. Aircore drilling will be undertaken further along strike on new target areas during 2019/2020.