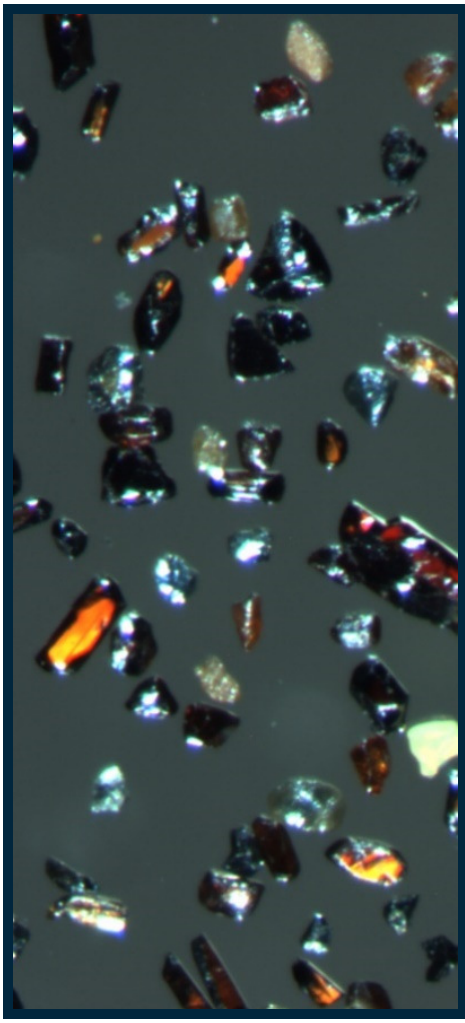
ASTUTEMETALSNL

23 August 2023

JACK TRACK BULK TESTWORK PRODUCES MARKETABLE HEAVY MINERAL PRODUCTS

High-value Ilmenite, Rutile and Zircon products separated from Jack Track Heavy Mineral Concentrate



Highlights

- **Governor Broome Heavy Minerals Project: Wet and Dry Plant testwork program successfully completed on a 2-tonne bulk sample from the cornerstone Jack Track deposit**
- **Heavy Mineral Concentrate (HMC) successfully produced in the wet concentrator circuit using conventional mineral sands processing equipment**
- **High 85.5% recovery of Heavy Minerals (HM) to produce HMC with heavy mineral grade exceeding 90% using conventional wet gravity separation techniques.**
- **High-value Ilmenite, Rutile and Zircon products successfully produced from HMC using conventional dry plant mineral separation equipment**
- **Rutile product meets premium criteria and suitable for high-value welding applications**
- **A concentrate rich in monazite was also generated which could be sold into the Chinese markets**
- **Zircon meets standard ceramic and foundry specification**
- **Scoping Study to be completed incorporating results from the bulk sample testwork to demonstrate the potential of the Governor Broome Heavy Mineral Project**

Astute Metals NL (ASX: ASE) ("ASE", "Astute" or "the Company") is pleased to advise that it has taken another important step towards unlocking the value of its 100%-owned **Governor Broome Heavy Mineral Sands Project** in the South West of Western Australia after receiving highly encouraging results from metallurgical testwork carried out on bulk samples from the key Jack Track deposit.

Astute Executive Chairman, Tony Leibowitz, said:
"These excellent bulk sample testwork results mark another important step in our value-realisation strategy at the Governor Broome Project. Because of its scale and Tier-1 location, Governor Broome is a valuable asset which probably doesn't receive the recognition that it should in our portfolio.
"The bulk sample testwork on the Jack Track deposit has further de-risked the project, demonstrating the ability to produce the three high-value saleable products Rutile, Zircon and Ilmenite from the eastern portion of the deposit. Previous test-work focused on the western part of the deposit.

The results, together with the impending resource upgrade due next quarter, will be incorporated in the Scoping Study scheduled for completion early next year. This should provide investors with a clear line of sight to the value proposition that we can see emerging at Governor Broome."

Background

The 100% Astute-owned Governor Broome Heavy Mineral Sands Project is located in the heart of Mineral Sands country in South West WA. The development project is being systematically de-risked as part of the clear critical-minerals focused value-realisation strategy implemented by the restructured Board of the Company earlier this year.

The first stage of the de-risking process was completed in Q2, with the successful execution of in-fill drilling designed to upgrade high-value Inferred Mineral Resources to Indicated status, to be reported in a Mineral Resource update due for completion in Q4. The updated Mineral Resource estimate will underpin a Scoping Study scheduled for completion Q1 of 2024. Strong study output metrics are expected due to the shallow, high-grade Mineral Resources that form the foundation of the Project, and the Project's demonstrated ability to separate the valuable heavy minerals into products.

Another pre-requisite for the Scoping Study is bulk testwork, which demonstrates the ability of the deposit to produce a Heavy Mineral Concentrate (HMC) from which heavy mineral products may be separated into marketable products.

Previous bulk sample results from the Governor Broome (western) part of the Project demonstrated the ability of the project to produce premium-grade Zircon, chloride-grade Ilmenite and sulfate-grade Ilmenite[1]. This most recent testwork focused on the Indicated Resources of the Jack Track Deposit, in the eastern part of the Project (Figures 1 and 5).

Results Summary

Outstanding performance of the Jack Track bulk sample was observed through processing of a 2-tonne bulk sample by employing conventional processing stages, including:

- **Successful processing of the feed sample through the first processing stage by rejecting the unwanted fine (<45µm) and oversize (>2mm) fractions using conventional mineral sands processing techniques and methods.**
- **High 85.5% recovery of Heavy Minerals (HM) to produce Heavy Mineral Concentrate (HMC) with heavy mineral grade exceeding 90% using conventional wet gravity separation techniques.**
- **Ilmenite, Rutile and Zircon products produced using conventional gravity, magnetic and electrostatic dry processing methods, with additional Monazite (rare-earth element mineral) concentrate by-product.**
- **Low levels of impurities in the Ilmenite and Zircon products.**
- **The Zircon product generated would be suitable for ceramics and foundry applications.**
- **The Ilmenite (58.7% TiO_2) produced is suitable for direct use in chloride feedstock markets or for chloride slag manufacture.**
- **The Rutile meets the criteria of a premium grade Rutile product. Low levels of key impurities make it suitable for welding applications as a high-value product.**
- **A concentrate rich in monazite was also generated which could be sold into the Chinese markets.**

Interpretation

The bulk testwork results clearly indicate that the Jack Track Deposit is highly amenable to processing using conventional mineral sands processing equipment producing separate TiO_2 (titania) feedstock, zircon and monazite products. The results also indicate that further optimisation of Wet Concentration Plant conditions may result in improved performance.

Next Steps

The bulk testwork results will form key inputs to the upcoming Scoping Study, scheduled for completion in Q1 2024. The Company intends to undertake further optimization testwork with a view to improving on what is an excellent foundation of HM processing and separation characteristics.

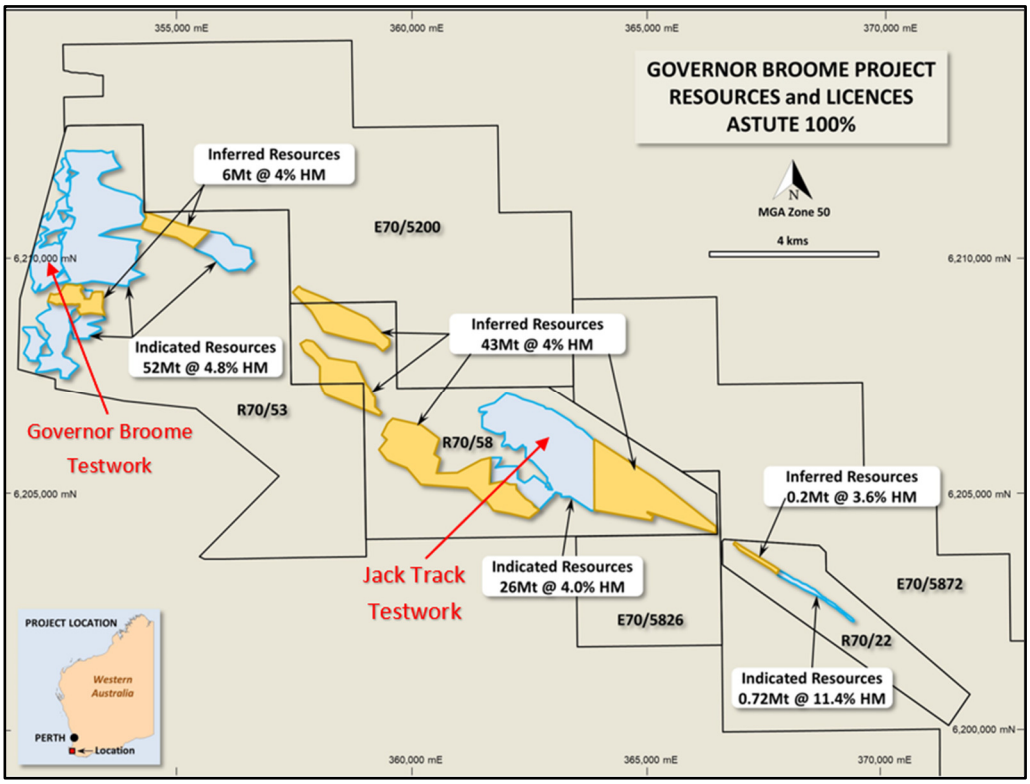


Figure 1. Governor Broome Project tenements and Mineral Resources

Detailed Bulk Testwork Program and Results

Program Objectives

The testwork program, carried out by Allied Mineral Laboratories (AML) in Perth, was designed to evaluate grades and recoveries of potential heavy mineral products separated from the Jack Track Deposit (Figure 1) bulk sample. The testwork comprised Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP) and Dry Plant sighter testwork on a 2-tonne bulk sample from the Jack Track Deposit.

The Wet Concentrator Plant is the second stage of typical Mineral Sands processing, whereby HM are concentrated from the sand by exploiting the differences in the density of the various minerals present in the feed. This process rejects the lighter low value minerals such as quartz, which are not of economic interest. Dry Plant testwork separates the HMC produced by the WCP stage into mineral products using conventional magnetic, gravity and electrostatic processes. The mineral products produced are then tested for quality. Products produced as part of the testwork include TiO_2 feedstocks including primary ilmenite, secondary ilmenite and rutile, as well as zircon and monazite concentrate.

Results

Feed preparation plant test-work

Feed preparation is the first stage in Mineral Sands processing, whereby coarse material (>2mm) and fine clays/slimes (the <45µm fraction) are separated and rejected from the sand fraction containing the valuable heavy minerals. The processing employed a trommel, screen, and desliming cyclone. Table 1 shows the proportions of the size fractions recovered from the bulk sample.

Size Fraction	Jack Track Deposit Mass %
Coarse	1.5%
Sand	89.8%
Slimes	8.6%

Table 1. Size proportions of Bulk Sample

As with the Governor Broome West and East material previously tested[1], this stage of the testwork successfully demonstrated the amenability of the material sourced from the Jack Track Deposit to processing through the feed preparation circuit using conventional mineral sands processing equipment.

The material was processed without difficulty with the sand fraction containing the valuable heavy minerals readily liberated from the slimes without the need for energy intensive processing equipment. A photomicrograph of the heavy mineral concentrate produced during the trial is shown in Figure 2.

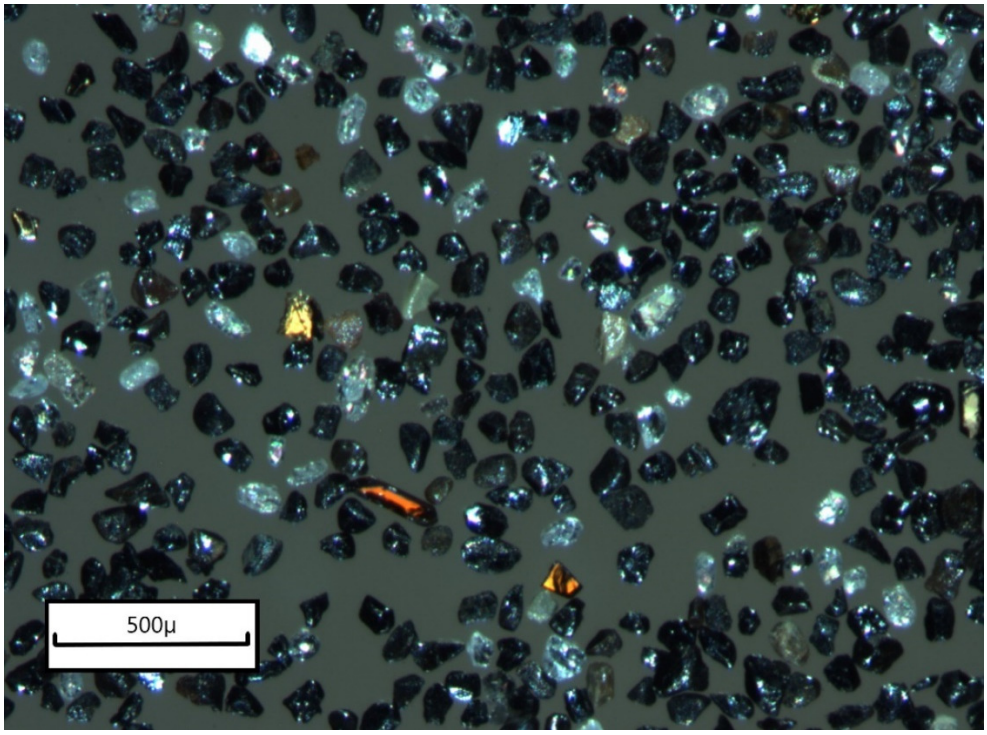


Figure 2. Photomicrograph of heavy mineral concentrate produced during testwork (scale approximate)

Wet Concentrator Plant test-work

The metallurgical performance of the sand-fraction through the WCP circuit was assessed using full-scale gravity concentration spirals in a five-stage circuit followed by an attritioning/gravity upgrade stage. The processing successfully demonstrated that a heavy mineral concentrate containing valuable heavy minerals could be produced with a high recovery of valuable heavy minerals to the concentrate. The low-density 'gangue', or valueless, minerals were successfully rejected to tails producing a heavy mineral concentrate containing greater than 90% heavy minerals.

Overall recovery of heavy minerals to the heavy mineral concentrate at 85.5% exceeded the previous results achieved for the Governor Broome West and Governor Broome East bulk testwork[1].

Estimates of the recoveries of minerals across the FPP and WCP, based on a mineralogical assessment were determined to be:

- Zircon: 97.5%
- Primary Ilmenite 89.7%
- Rutile 74.7%
- Secondary ilmenite 58.0%

The testwork results indicated the potential to isolate several TiO_2 mineral products of differing TiO_2 grades, and the opportunity exists to improve the recovery of valuable heavy minerals by optimisation of the WCP circuit. Overall, the wet circuit testwork demonstrated the amenability of the material sourced from the Governor Broome Project Jack Track Deposit to processing using conventional mineral sands processing equipment and that high recoveries of valuable heavy mineral to a high-grade heavy mineral concentrate could be achieved.

Dry Plant Test-work

The HMC produced from the Governor Broome Project Jack Track Deposit bulk sample was then processed through a drymill flowsheet, making use of conventional mineral sands processing techniques and equipment, to investigate the potential quality of the final mineral products.

The dry plant process was simulated at a pilot scale by employing multiple magnetic separation stages (RED and RER) followed by electrostatic separation and a screening stage to investigate the potential to isolate several ilmenite products of differing TiO_2 grades.

The non-magnetic stream, rich in zircon and rutile, was upgraded through stages of gravity, electrostatic, and high intensity magnetic separation to isolate zircon and rutile products. A by-product monazite concentrate product was also produced which assayed 7.46% CeO_2 (Cerium oxide).

The testwork demonstrated that the HMC produced responded well to the dry circuit processing with ilmenite, rutile and zircon minerals readily isolated into final products.

Mineral Products

The drymill processing of the HMC successfully demonstrated that a range of ilmenite, leucoxene, rutile, and zircon products could be recovered from the HMC. Monazite was also recovered to a para-magnetic concentrate stream.

Highly-regarded international mineral sands consultancy group TZMI has assessed the TiO_2 feedstock products generated during the testwork program and is of the opinion that:

- The combined ilmenite (58.7% TiO_2) product will be suitable for direct use in chloride feedstock markets or for chloride slag manufacture.
- The CaO, MgO and MnO of the combined ilmenite are within the generally accepted thresholds for direct use in chloride pigment manufacture or as an ilmenite feed for chloride slag or SR manufacture, particularly with the MgO content at ≤ 0.3% compares favourably against competing products.
- The rutile product meets the criteria of a premium grade rutile product and will be suitable for use in pigment production. Low levels of key impurities make it suitable for welding applications for sale as a higher value product.

The composition of the TiO_2 products generated during the trial is given in Table 2.

Element	Primary Ilmenite	Secondary Ilmenite	Leucoxene	Combined Ilmenite Product	Rutile Product
TiO_2 (%)	55.9	63.3	79.6	58.7	96.5
Fe_2O_3 (%)*	41.1	30.9	14.7	37.2	0.79
Al_2O_3 (%)	0.41	0.99	1.15	0.62	0.28
CaO (%)	0.04	0.08	0.11	0.06	<0.01
Cr_2O_3 (%)	0.05	0.11	0.14	0.07	0.13
MgO (%)	0.29	0.19	0.10	0.26	<0.01
MnO (%)	0.98	0.88	0.34	0.94	<0.002
Nb_2O_5 (%)	0.12	0.17	0.34	0.14	0.33
P_2O_5 (%)	0.07	0.14	0.15	0.10	0.03
SiO_2 (%)	0.87	0.51	0.66	0.80	0.44
V_2O_5 (%)	0.20	0.24	0.28	0.22	0.48
U+Th (ppm)	64	205	260	116	66
*Total iron expressed as Fe_2O_3					

Table 2. Indicative TiO_2 product compositions

A photomicrograph of a sample of the ilmenite produced is shown in Figure 3.

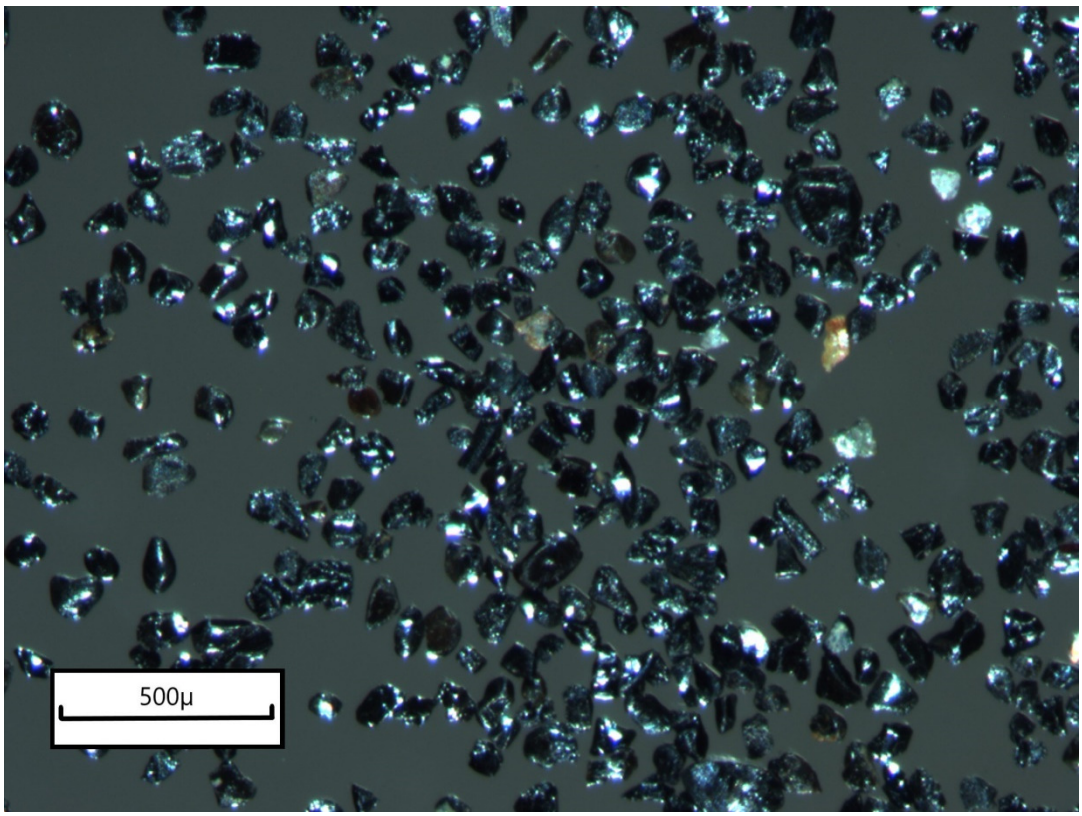


Figure 3. Photomicrograph of ilmenite produced during the testwork (Scale approximate)

TZMI has also assessed the zircon products and is of the opinion that:

- At a ZrO_2 + HfO_2 content of 65% the zircon product generated is considered a standard grade product.
- The Fe_2O_3 and TiO_2 contents of the Jack Track zircon product are within the acceptable threshold for ceramics and foundry applications.
- TZMI estimates that a price discount of about 5% relative to premium grade zircon may be applicable.

Element	Zircon Product
ZrO_2+HfO_2 (%)	65.0
SiO_2 (%)	32.8
Al_2O_3 (%)	0.68
TiO_2 (%)	0.14
Fe_2O_3 (%)	0.04
CaO (%)	0.03
CeO_2 (%)	<0.01
U+Th (ppm)	530
Cr_2O_3 (%)	0.01
MgO (%)	0.01
MnO (%)	0.01
Nb_2O_5 (%)	0.01
P_2O_5 (%)	0.14
K_2O (%)	0.01
SO_3 (%)	<0.01
LOI1000	0.17

Table 3. Indicative Zircon product composition

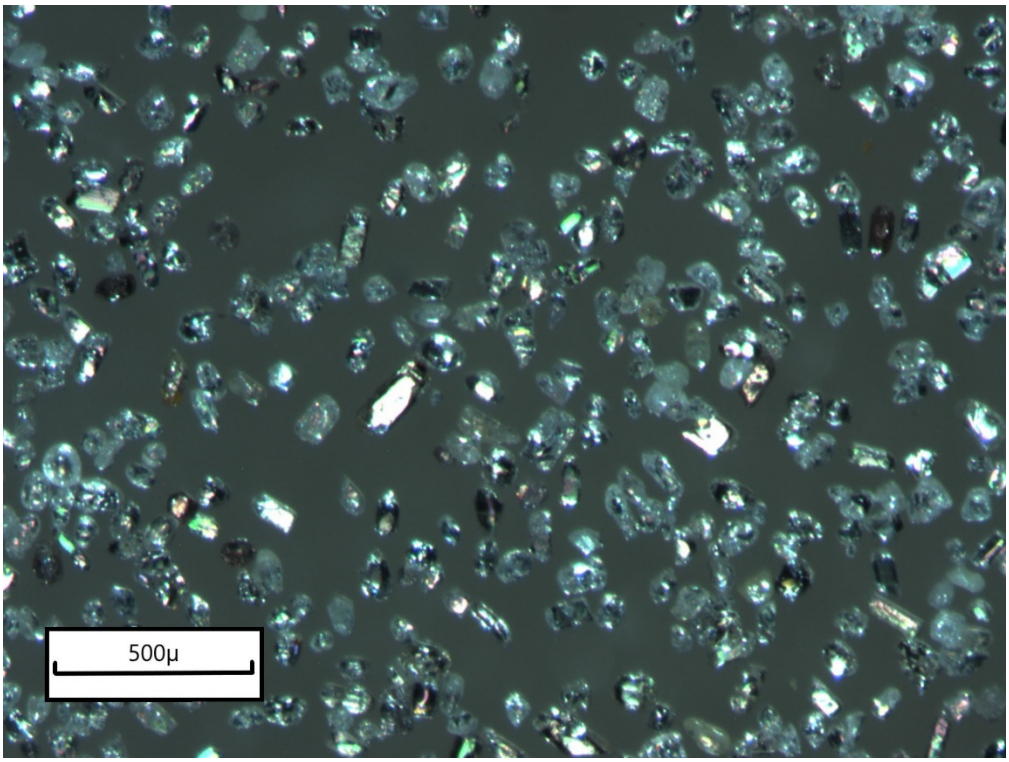


Figure 4. Photomicrograph of zircon produced during the testwork (Scale approximate)

Bulk Sample Data

The bulk samples were sourced from the full depth of the modelled heavy mineral sands mineralisation in each of the 233 air-core holes drilled by Astro into the Jack Track Deposit during 2022 and, as such, are representative of its HM mineralisation. A total of 960 one-metre samples were used to make up the bulk sample. Full details of the hole locations and HM intersections that provided the bulk samples are given in Appendix 2.

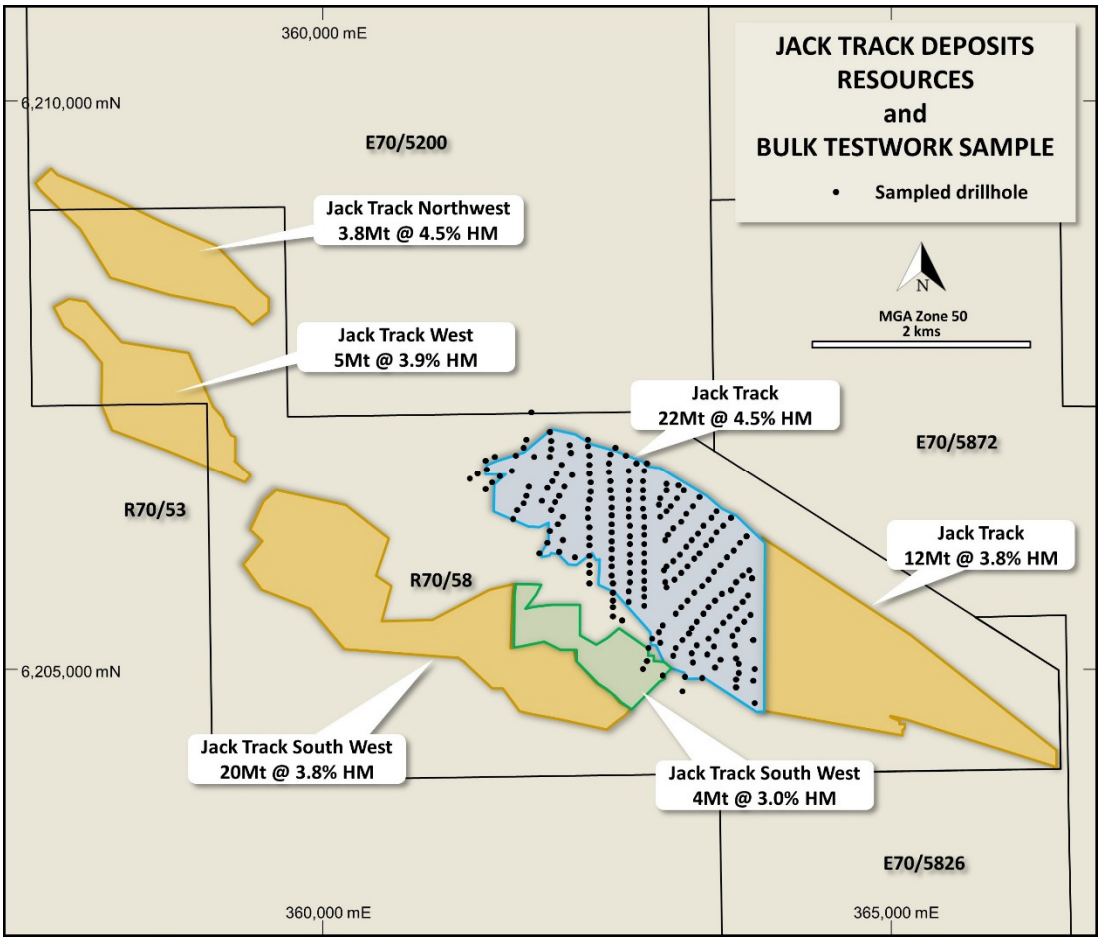


Figure 5. Jack Track Heavy Mineral Resources and aircore drill holes

Tenement	Category	Tonnage (Mt)	HM (%)	Slimes (%)	Oversize (%)
R70/58 - Jack Track	Indicated	26	4.0	8.6	7.1
	Inferred	43	4	9	3
R70/53 - Governor Broome	Indicated	52	4.8	13	8.5
	Inferred	6	4	15	6
R70/22 - Fouracres	Indicated	0.72	11.4	6.5	1.7
	Inferred	0.2	4	9	0.8
Project	Indicated	79	4.5	11	8
Project	Inferred	48	4	10	4
Project	Total Resources	127	4.3	11	6.5

Table 2. Governor Broome Project Resources – at 2% HM lower block-cut-off grade

Notes to Table 4:
(a) the above figures have been appropriately rounded.
(b) Fouracres Resources estimated at a 3% Heavy Mineral (HM) lower block cut-off grade
(c) Governor Broome and Jack Track Resources estimated at a 2% HM lower block cut-off grade

Authorisation

This announcement has been authorised for release by the Board of Astute.

More Information

Matt Healy
General Manager – Exploration
mhealy@astutemetals.com
+61 (0) 431 683 952

Nicholas Read
Media & Investor Relations
nicholas@readcorporate.com.au
+61 (0) 419 929 046

Competent Persons

The information in this report as it relates to Mineral Resources and Exploration Results for the Governor Broome Project is based on information compiled by John Doepel, a Director of Continental Resource Management Pty Ltd (CRM), who is a member of the Australasian Institute of Mining and Metallurgy. Mr Doepel has sufficient experience in mineral resource estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Doepel consents to the inclusion in this announcement of the information in the form and context in which it appears.

[1] ASX: ARO 16 June 2021 'Bulk Testwork Program Delivers Further Positive Results for Governor Broome Heavy Mineral Project'

APPENDIX 1 - JORC Code, 2012 Edition – Table 1

Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (eg cut channels, random chips, or specific specialisedindustry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheldXRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensuresample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, suchas where there is coarse gold that has inherentsampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	Air-core drilling was used to obtain 1m samples from target horizons; The approximately 5.5 kg samples were collected into RC plastic bags from the drill cyclone. Approximately 1.5 kg sub-samples were split from the bags by PVC spears or scoops from potentially mineralised sections of each hole, as determined on site by the Competent Person. These samples were sent for assay. The remaining approximately 4kg sample was sealed by cable tie for transportation to AML for bulk testwork.
Drilling techniques	Drill type (eg core, reverse circulation, open-holehammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core isoriented and if so, by what method, etc).	Vertical NQ Air-core
Drill sample recovery	Method of recording and assessing core andchip sample recoveries and results assessed. Measures taken to maximise sample recoveryand 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/gainof fine/coarse material.	Good recovery and retention of all size fractions; Holes and cyclone cleaned at completion of each three-metre rod
Logging	Whether core and chip samples have been geologically and geotechnically logged to alevel of detail to support appropriate MineralResource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative innature. Core (or costean, channel, etc) photography. The total length and percentage of the relevantintersections logged.	All intervals geologically logged during drilling, recording grainsize, sorting, mineralogy, colour, and stratigraphic unit. All chip trays stored for future reference

APPENDIX 1 - JORC Code, 2012 Edition – Table 1

Section 1 - Sampling Techniques and Data (continued)

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotarysplit, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparationtechnique. Quality control procedures adopted for all sub-sampling stages to maximise representivityof samples. Measures taken to ensure that the sampling isrepresentative of the in situ material collected,including for instance results for field duplicate/second-half sampling.	Sample preparation via drying and manual pulverisation before removal of +3.3mm material; 100g sub-samples riffle split from remaining sample
Quality of assay data and laboratory tests	Whether sample sizes are appropriate to thegrain size of the material being sampled. The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial ortotal. For geophysical tools, spectrometers, handheldXRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precisionhave been established.	Analysis by Western Geolabs Pty Ltd by its standard HM analytical procedures for HM%, Slimes % (-53µ), and Oversize % (+710µ); Repeat laboratory sub-sample splits analysed at 1:12 ratio. Western Geolabs Pty Ltd re-analysed 10% of samples from within the mineralised wireframes at -45µ, +710µ.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entryprocedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data.	Sampling carried out under supervision of Competent Person; Logging carried out by Competent Person; Assay entry by digital capture of laboratory files, with later verification of significant intervals against geological logging; Twinned holes drilled at 1:20 ratio. Duplicate sub-samples taken at 1:20 ratio.
Location of data points	Accuracy and quality of surveys used to locatedrill 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.	Holes located using a handheld GPS; Grid MGA_GDA94, Zone 50; Elevation data interpolated from elevation data on Google Earth.

Section 1 - Sampling Techniques and Data (continued)

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Data spacing for reporting of Exploration Results. Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the MineralResource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied.	1m samples collected and analysed throughout mineralized horizons. Holes drilled on approximate 80m spacing along lines approximately 160m apart. No sample compositing applied
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Vertical drilling through horizontal stratigraphy resulted in intersected thickness equivalent to true thickness
Sample security	The measures taken to ensure sample security.	Sub-samples transported from accommodation site to laboratory by courier. Bulk samples transported in bulka bags from drill site to AML.
Audits or reviews	The results of any audits or reviews of samplingtechniques and data.	Sample techniques, logs, and data reviewed by Competent Person

APPENDIX 1 - JORC Code, 2012 Edition – Table 1

Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The Jack track Deposit is within Retention Licence, R70/58 held by Governor Broome Sands Pty Ltd, a wholly owned subsidiary of Astute Metals NL. R70/58 has an expiry date of 24/07/24 and is in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration byother parties.	Metals Sands Australia Ltd carried out an air-core drilling campaign over the ground in 2007 within E70/1583,1584, and 2464. Iluka carried out an air-core drilling campaign over the ground in 2015 within E70/ 2464. The recent drilling infills and extends that coverage.
Geology	Deposit type, geological setting and style of mineralisation.	The deposits are located in the Scott Coastal Plain, within the Perth Basin. It consists of beach deposited HM strands. The host beach sand facies (Warren Sands) is overlain by sand and soil at surface. The poorly sorted and arkosic (fluvial) Beenup Beds forms the basement. The Warren Sands vary in thickness from 4m to 16m within the area, with an average thickness of 9.5m. They contain HM mineralisation, which increases in grade in the unit's lower few metres; The average overburden thickness is 5.2m and an average mineralisation thickness of 4.4m; for an overburden to mineralisation ratio of 1.2:1. The heavy mineral assemblage of the Jack Track Deposit comprises approximately 66.5% primary ilmenite (58% TiO_2), 14.5% secondary ilmenite (including approx. 8.5% leucoxene), 4.5% rutile, 10.5% zircon, and 0.8% monazite – for an overall 96.5% valuable heavy mineral ("VHM") content. The TiO_2 minerals have an average composition of 63% TiO_2.

Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: ◦ 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.	See Appendix 2, which lists the 233 Astro air-core drill-holes drilled into the Jack Track Deposit. HM intercepts are provided for each hole.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shownin detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.	No grade cutting carried out; No metal equivalents employed.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	Vertical drilling through virtually horizontal stratigraphy resulted in intersected thickness equivalent to true thickness
Diagrams	Appropriate maps and sections (with scales) andtabulations 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.	See figures in announcement body
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.	Report gives balanced view of the deposits
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysicalsurvey 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.	2015: Iluka carried out mineralogical testwork on 12 composite samples of HM sinks from its 2015 drilling of the Jack Track Deposit. Its results were similar to those reported here. Iluka reported that the HM assemblage of the deposit was 75% ilmenite, 10.8% zircon, 6.8% leucoxene, and 2.4% rutile – for an overall 94% VHM content and 59.4% TiO_2. 2023: 2t Jack Track Deposit bulk sample test-work completed 2023 4t bulk sample composited from 960 1m samples within mineralisation split into two 2t samples. 2t sample processed through the feed preparation circuit with no indication of potential issues with slimes within the mineralisation. Other 2t bulk sample split retained at AML. Heavy mineral concentrate successfully produced in wet concentrator using conventional mineral sands processing equipment Ilmenite, zircon, and monazite products successfully produced from HMC using conventional dry plant mineral separation equipment.
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Mineral Resource Estimate to be updated to incorporate 2023 drilling Scoping study to be completed following Mineral Resource Estimate update

APPENDIX 2 – Drillhole Information (all holes are vertical)

ASTUTEMETALSNL

Hole	East (GDA94 Z50)	North (GDA94 Z50)	From (m)	Interval (m)	Heavy Mineral (%)
GB2295	362223	6205968	8	4	4.5
GB2297	362209	6206707	6	2	5.1
GB2298	362193	6206896	2	5	5.3
GB2299	362185	6206969	3	3	3.7
GB2300	362007	6206865	4	2	3.1
GB2301	361867	6206862	4	4	3.4
GB2302	361517	6206860	3	2	2.1
GB2303	362534	6206565	7	2	2.4
GB2304	362534	6206645	4	5	5.3
GB2305	362531	6206725	2	5	3.4
GB2306	362530	6206805	3	3	3.6
GB2307	362539	6206884	2	4	3.1
GB2308	362584	6206947	3	2	2.1
GB2309	362019	6206934	4	2	3.4
GB2310	362011	6207005	3	3	3.9
GB2311	362002	6207080	3	2	2.7
GB2312	361704	6206882	4	2	3.9
GB2313	361772	6206938	4	2	1.8
GB2314	361797	6207015	3	2	1.8
GB2318	362365	6206559	7	2	6.4
GB2319	362362	6206637	6	2	3.9
GB2320	362358	6206717	4	4	3.3
GB2321	362356	6206797	5	2	3.6
GB2322	362353	6206875	3	3	3.8
GB2323	362346	6206953	3	2	2.4
GB2324	362340	6207015	3	2	1.5
GB2325	361432	6206826	4	2	2.8
GB2326	361446	6206746	4	2	2.0
GB2327	361365	6206713	4	2	1.6
GB2328	361442	6206575	3	2	2.8
GB2329	361303	6206660	4	2	1.3
GB2339	361503	6206632	4	2	1.7
GB2340	361566	6206693	3	1	3.0
GB2341	361668	6206743	2	3	4.0
GB2342	361817	6206595	2	3	4.6
GB2343	361801	6206518	4	3	5.4
GB2344	361780	6206444	5	3	7.0
GB2345	361717	6206383	6	2	6.1
GB2346	361683	6206310	5	2	2.6
GB2350	362107	6206789	5	4	5.2
GB2351	362063	6206719	6	3	6.7
GB2352	362029	6206647	7	2	4.0
GB2353	361986	6206583	6	2	1.4
GB2354	362091	6206519	4	2	2.7

Hole	East (GDA94 Z50)	North (GDA94 Z50)	From (m)	Interval (m)	Heavy Mineral (%)
GB2366	362350	6206479.5	8	2	4.2
GB2367	362350	6206480.5	8	2	3.6
GB2368	362344	6206398	9	3	3.3
GB2369	362348	6206316.5	7	2	2.5
GB2370	362350	6206235	7	2	2.0
GB2371	362350	6206153.5	7	2	2.1
GB2372	362352	6206072	8	3	4.1
GB2373	362350	6205990.5	7	5	2.5
GB2374	362352	6205909	8	2	5.5
GB2375	362354	6205827	8	2	2.4
GB2376	362356	6205746	9	2	2.9
GB2377	362544	6206490	6	3	4.1
GB2378	362544	6206415	6	4	5.3
GB2379	362545	6206340	7	4	5.9
GB2380	362546	6206265	8	3	3.9
GB2381	362546	6206190	4	2	3.1
GB2381	362546	6206190	9	3	2.3
GB2382	362549	6206115	3	4	4.0
GB2383	362550	6206040	4	2	6.5
GB2384	362551	6205965	5	4	5.1
GB2385	362553	6205890	6	6	6.2
GB2386	362553	6205815	7	5	6.6
GB2387	362555	6205739	8	3	6.9
GB2388	362555	6205740	8	3	5.7
GB2389	362558.5	6205664	10	2	3.9
GB2390	362562	6205596	11	1	3.5
GB2391	362562	6205528	11	1	1.9
GB2392	362564	6205454	11	2	2.4
GB2394	362857	6205062	13	2	3.4
GB2395	362828	6204994	13	2	2.5
GB2409	363300	6205204	8	6	5.1
GB2410	363255	6205137	10	4	5.5
GB2411	363407	6205251	8	6	3.8
GB2412	363266	6205054	10	5	5.5
GB2413	363199	6204916	12	4	3.2
GB2414	363178	6204792	14	2	2.8
GB2415	363004	6204927	14	2	2.7
GB2416	363348	6204908	11	4	3.0
GB2417	363650	6204899	12	4	4.6
GB2418	363803	6204887	10	5	5.8
GB2419	363810	6204687	12	4	5.6
GB2420	363803	6205248	2	4	2.6
GB2420	363803	6205248	9	4	3.8

Hole	East (GDA94 Z50)	North (GDA94 Z50)	From (m)	Interval (m)	Heavy Mineral (%)
GB2421	363803	6205247	2	4	2.6
GB2421	363803	6205247	9	4	4.0
GB2422	363227	6205303	8	5	5.5
GB2423	362979	6205217	12	2	6.0
GB2424	363177	6205247	9	5	6.0
GB2425	363117	6205175	11	3	6.0
GB2426	363091	6205103	11	4	5.1
GB2427	363392	6205119	9	5	4.4
GB2428	363618	6205271	5	4	2.5
GB2428	363618	6205271	10	4	3.3
GB2429	363635	6205198	5	4	3.3
GB2429	363635	6205198	10	5	4.0
GB2430	363456	6205184	7	7	3.9
GB2431	363650	6205086	7	7	3.9
GB2432	363513	6205072	9	6	3.8
GB2433	363674	6205037	9	5	3.7
GB2434	363644	6204828	13	3	5.0
GB2435	363645	6204828	13	3	6.5
GB2436	362128	6206596	3	2	0.9
GB2436	362128	6206596	7	2	4.0
GB2437	362057	6206456	4	6	2.8
GB2438	361941	6206467	3	5	1.8
GB2439	362018	6206393	5	5	2.7
GB2440	362122	6206336	5	2	4.5
GB2440	362122	6206336	9	3	3.8
GB2441	362076	6206257	7	2	4.2
GB2442	362002	6206207	6	2	5.4
GB2443	362122	6206123	7	4	3.4
GB2444	362087	6206024	10	2	5.6
GB2445	361982	6206095	5	5	2.1
GB2447	361910	6206012	7	3	4.0
GB2448	362697	6206561	3	5	5.9
GB2449	362698	6206485	2	7	5.2
GB2450	362702	6206405	4	5	7.0
GB2451	362703	6206327	2	8	4.5
GB2452	362705	6206250	4	7	4.0
GB2453	362705	6206164	7	2	5.5
GB2454	362709	6206084	1	4	3.5
GB2454	362709	6206084	8	1	4.3
GB2455	362709	6206085	1	4	2.1
GB2455	362709	6206085	8	2	5.1
GB2456	362710	6206000	5	5	2.7
GB2457	362711	6205925	7	4	2.6
GB2458	362712	6205828	4	4	3.7

Hole	East (GDA94 Z50)	North (GDA94 Z50)	From (m)	Interval (m)	Heavy Mineral (%)
GB2458	362712	6205828	10	2	2.2
GB2459	362706	6205750	6	3	4.4
GB2459	362706	6205750	10	2	2.2
GB2460	362701	6205667	8	3	5.0
GB2461	362701	6205584	9	3	4.2
GB2463	362647	6205424	12	1	3.0
GB2465	362825	6206562	3	7	4.1
GB2466	362826	6206490	3	6	3.9
GB2467	362825	6206406	4	6	3.8
GB2468	362835	6206331	5	5	4.0
GB2469	362835	6206332	5	5	4.9
GB2470	362833	6206242	5	6	3.3
GB2471	362832	6206170	4	7	4.6
GB2472	362834	6206091	3	7	4.5
GB2473	362836	6206006	6	5	2.7
GB2474	362836	6205930	2	2	2.5
GB2474	362836	6205930	9	2	3.8
GB2475	362838	6205854	3	2	3.6
GB2475	362838	6205854	9	2	2.8
GB2476	362837	6205762	4	3	3.9
GB2476	362837	6205762	9	3	2.2
GB2504	362675	6206875	2	2	2.2
GB2506	363031	6206565	2	5	3.5
GB2507	363186	6206562	1	4	2.9
GB2510	363473	6206377	1	4	2.4
GB2511	363421	6206318	1	4	3.9
GB2512	363361	6206246	1	5	4.5
GB2513	363305	6206186	2	5	4.7
GB2514	363258	6206126	3	5	5.6
GB2515	363205	6206065	5	3	6.7
GB2516	363147	6206003	5	4	5.9
GB2517	363091	6205941	6	4	5.2
GB2518	363043	6205892	6	4	4.2
GB2520	363596	6206323	2	2	2.2
GB2521	363531	6206249	1	5	3.6
GB2522	363480	6206189	1	5	4.6
GB2523	363429	6206132	1	6	4.1
GB2524	363378	6206072	1	6	6.3
GB2525	363325	6206010	5	3	7.7
GB2526	363280	6205955	3	6	5.6
GB2527	363220	6205894	4	5	5.0
GB2528	363163	6205830	5	4	3.4
GB2529	363109	6205772	1	2	2.5
GB2529	363109	6205772	7	3	4.9

Hole	East (GDA94 Z50)	North (GDA94 Z50)	From (m)	Interval (m)	Heavy Mineral (%)
GB2530	363792	6205791	3	5	3.9
GB2531	363791.5	6205791.5	3	5	4.5
GB2532	363809	6204993	7	7	4.4
GB2533	363669	6204958	10	6	4.8
GB2534	363461	6204999	10	5	5.2
GB2535	363027	6205712	3	3	2.9
GB2535	363027	6205712	8	3	3.0
GB2536	363023	6205758.5	2	3	2.7
GB2536	363023	6205758.5	8	2	5.3
GB2537	363006	6205861	7	3	5.2
GB2538	362833	6205700	6	2	6.7
GB2538	362833	6205700	10	2	2.7
GB2539	362833	6205622	7	6	4.3
GB2540	362833	6205542	8	4	5.3
GB2541	363329	6206503	1	4	2.3
GB2542	363269	6206427	1	5	2.9
GB2543	363208	6206356	2	5	3.1
GB2544	363156	6206293	2	6	5.4
GB2545	363091	6206226	2	7	5.3
GB2546	363045	6206171	4	5	3.6
GB2547	363018	6206132	2	1	3.1
GB2547	363018	6206132	5	5	5.4
GB2548	363124	6206496	1	5	3.5
GB2549	363074	6206432	1	6	4.8
GB2550	363032	6206379	2	5	7.8
GB2551	362981	6206327	2	6	6.8
GB2552	362961	6206438	3	4	5.9
GB2553	362976	6206491	2	6	3.8
GB2554	362975.3	6206490.3	2	6	4.9
GB2555	362840	6206735	3	6	3.4
GB2556	362700	6206733	2	3	3.4
GB2557	362830	6206643	3	5	3.3
GB2558	362710	6206643	2	6	4.4
GB2559	362861	6206809	4	2	1.9
GB2560	362773	6206806	1	3	3.5
GB2561	363032	6206626	2	5	2.7
GB2562	363139	6206615	2	3	2.7
GB2563	363734	6206162	2	2	5.3
GB2564	363685	6206104	3	4	3.2
GB2565	363626	6206033	2	5	4.0
GB2566	363570	6205968	3	6	3.6
GB2567	363570.7	6205968.7	3	6	3.8
GB2568	363515	6205906	6	2	4.4
GB2569	363458	6205845	6	3	5.5

Hole	East (GDA94 Z50)	North (GDA94 Z50)	From (m)	Interval (m)	Heavy Mineral (%)
GB2570	363403	6205782	2	8	5.3
GB2571	363345	6205720	5	5	4.6
GB2572	363280	6205658	8	3	4.5
GB2573	363223	6205594	2	4	3.1
GB2573	363223	6205594	8	3	3.0
GB2574	363165	6205536	4	4	4.0
GB2574	363165	6205536	9	3	2.6
GB2575	363118	6205474	6	6	5.1
GB2576	363752	6205640	4	6	2.7
GB2577	363699	6205578	5	6	3.7
GB2578	363647	6205520	7	5	4.2
GB2579	363590	6205456	3	1	2.8
GB2579	363590	6205456	9	3	6.4
GB2580	363533	6205390	3	3	2.7
GB2580	363533	6205390	9	4	3.7
GB2581	363479	6205328	5	4	3.2
GB2581	363479	6205328	10	4	3.5
GB2582	363760	6205863	3	4	4.6
GB2583	363706	6205806	4	5	5.1
GB2584	363652	6205749	4	5	3.1
GB2585	363595	6205686	5	5	5.8
GB2586	363595.7	6205686.7	5	5	5.0
GB2587	363519	6205653	6	5	5.2
GB2588	363465	6205596	7	5	5.2
GB2589	363408	6205536	7	5	2.1
GB2590	363355	6205471	3	3	2.5
GB2590	363355	6205471	9	4	3.5
GB2591	363298	6205409	6	6	2.9
GB2592	363253	6205353	8	4	3.4
GB2593	363775	6205467	5	6	2.3
GB2594	363716	6205404	8	4	5.1
GB2595	363661	6205342	2	2	2.2
GB2595	363661	6205342	9	4	3.8
GB2596	363001	6205376	9	4	4.3
GB2597	362961	6205315	10	3	5.4
GB2598	362914	6205249	11	3	3.7
GB2599	362873	6205180	12	2	3.3