21 October 2021

40% Increase of the Cape Flattery Silica Sand Resource to 53.5Mt

Highlights

- Substantial increase in high quality silica sand mineral resource
- Total resources increased by 40% from 38.3 Mt to 53.5 Mt with improved confidence
- Measured resource of 9.6Mt @ 99.29 % SiO_2 reported for the first time
- Measured and Indicated resource of 47.8 Mt @ 99.18% SiO_2
- In-situ SiO_2 grade averages 99.19%
- Expansion of the existing Cape Flattery resource possible with further in-fill and step out drilling in the Indicated resource area
- Metallurgical studies commenced on representative drill samples
- Project is adjacent to the designated Port area of Cape Flattery

Metallica Minerals Limited (**Metallica**, ASX: MLM) is pleased to announce that it has successfully upgraded the resource at its Cape Flattery Silica Sand Project in Far North Queensland to 53.5 million tonnes at an in-situ quality of 99.19% SiO_2 and 0.12% Fe_2O_3 (see Table 1 on page 5).

Utilising the assay data from the August 2021 drilling program[1] industrial mineral specialists, Ausrocks Pty Ltd, have estimated a 40% increase to the resource, which includes a significant increase in the Indicated resource and the classification of Measured resource for the first time (see Table 1 on page 5).

Metallica Executive Chairman, Theo Psaros said "we are delighted to announce a further major upgrade of the high purity silica sand resource at our Cape Flattery project. We lodged our Mining Lease Application in June of this year[2] with confidence in the project's potential. The combined Measured and Indicated components of the total resource confirms our confidence and are a major milestone as we progress the development of our high-quality silica sand project. We continue to receive positive interest from international and domestic parties for quality silica sand. This does not surprise us based on forecast growth in the global demand for premium product."

Mr Psaros added "these results were achieved with the significant support and effort of representatives of the key clans whose shared land includes the project area. A team comprising representatives from the Dingaal Clan and Nguurruumungu Clan worked tirelessly on the drilling program."

[1] First reported in ASX release dated 20th September 2021. "Latest Assay Results confirm significant intervals and extend High Purity Silica Sand a Cape Flattery Silica Sand Project".
[2] First reported in ASX release dated 15th June 2021" Cape Flattery Silica Sand Project advances as Mining Lease Application Lodged'

The Resource Area is shown in Figure 1 below.

The area that contains the Measured resource category is where initial development is planned. This area also contains the highest silica grades and lowest iron content. Samples from the 20 holes within the Measured Resource area have been composited to produce a representative sample for metallurgical test work. The average distance from the Measured resource to the preferred location of the planned jetty is 1km.

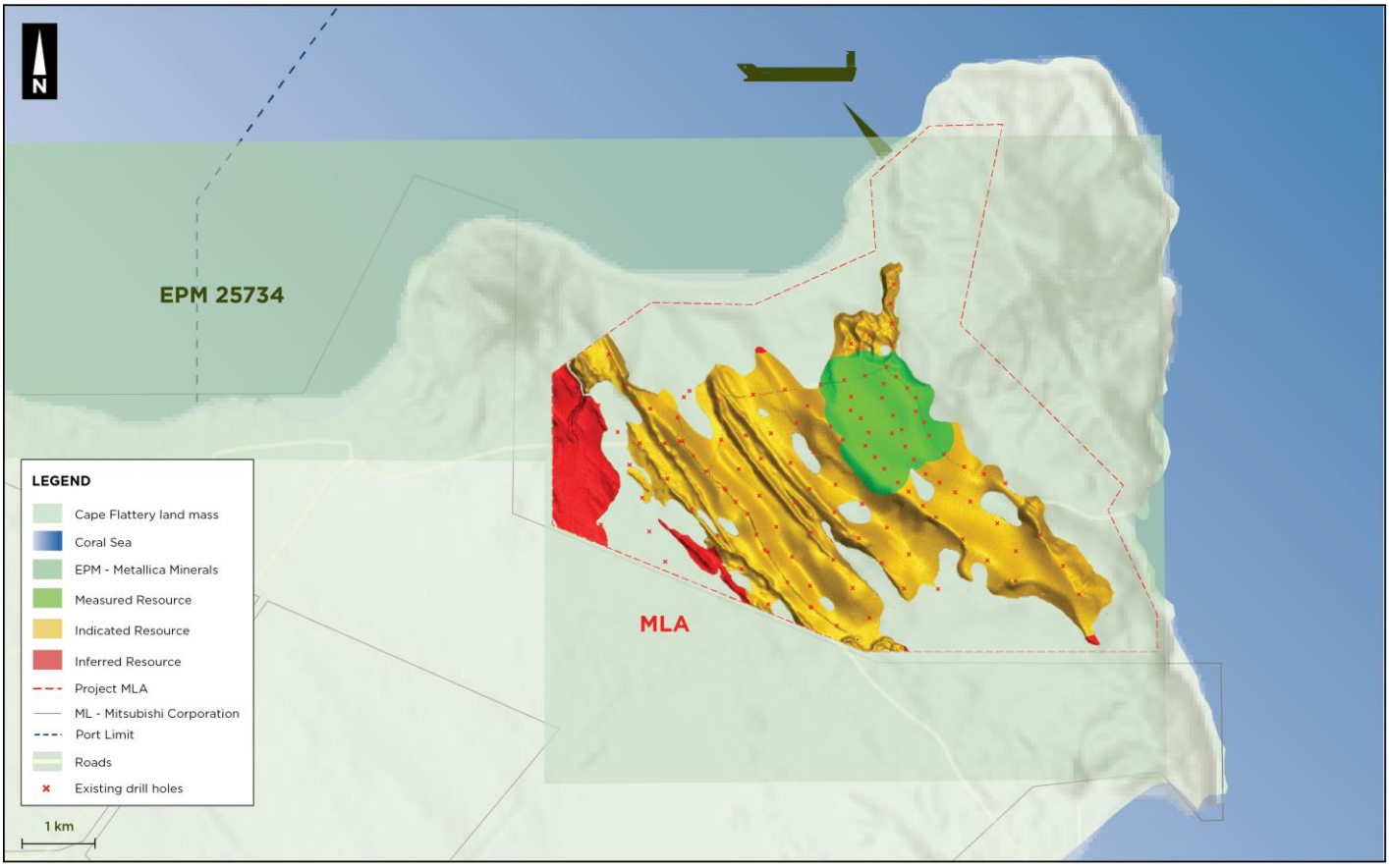


Figure 1. CFS Project Resource Areas

The combined campaigns of vacuum drilling (120 holes) and hand auger work have confirmed that high-quality white silica sand exists with SiO_2 levels greater than 98.5% and relatively low iron Fe_2O_3 < 0.12% present across the wider project area. These specifications are the key attributes that offtake partners are interested in as they provide the basis for a potential marketable product.

The Resource Estimation has been undertaken in accordance with JORC 2012 guidelines and supersedes the Resource reported in March 2021[3]. The infill and step out drilling completed in August 2021 and the observed geology supports the substantial increase in the Indicated portion of the resource and the establishment of a Measured resource component.

[3] First reported in ASX Release dated 2 March 2021: 38 MT of High Purity Silica Sand).

Three representative sections of the SiO2 resource contained within the CFS area are shown below in figures 2 to 5.

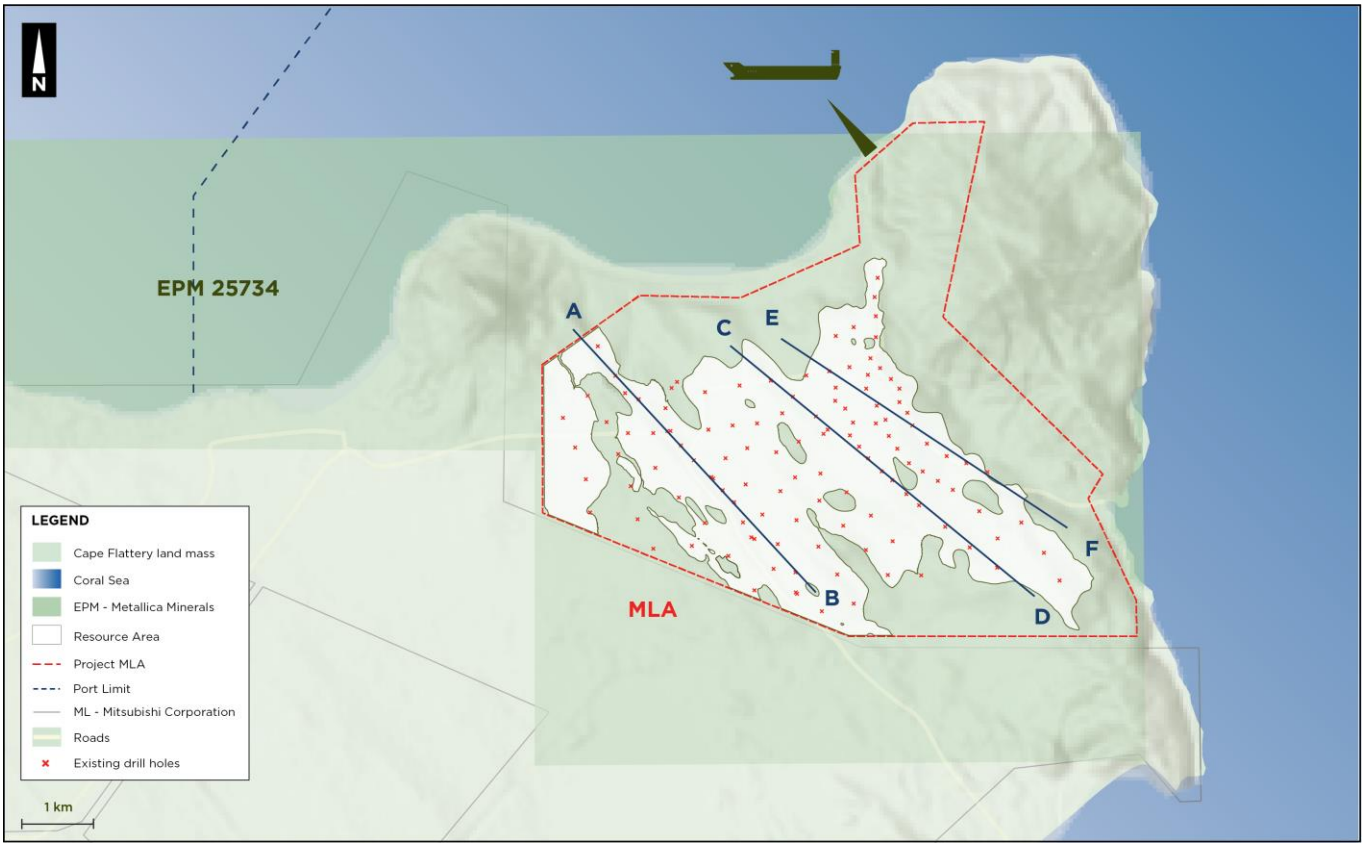
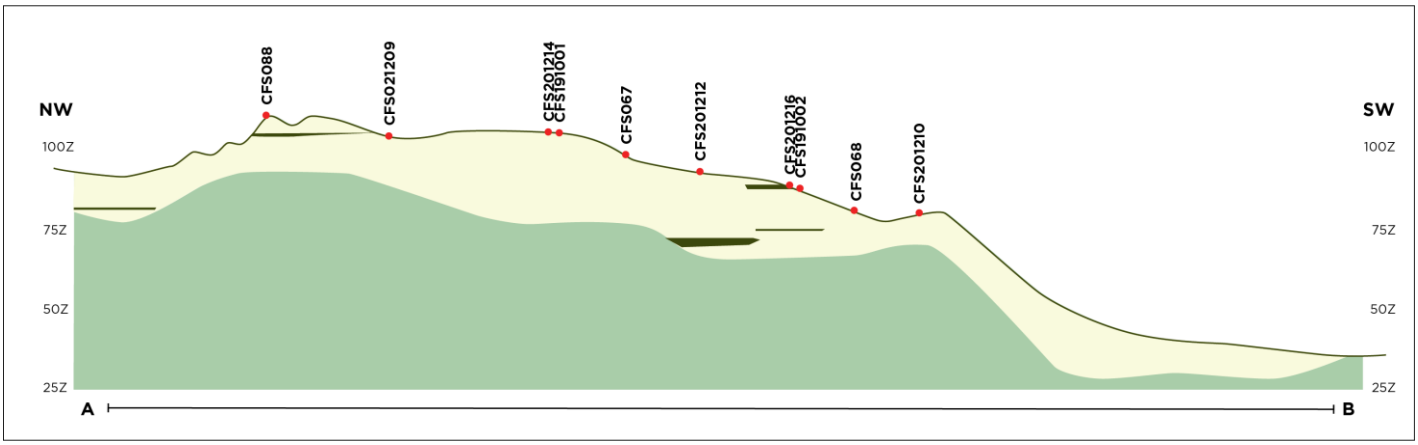
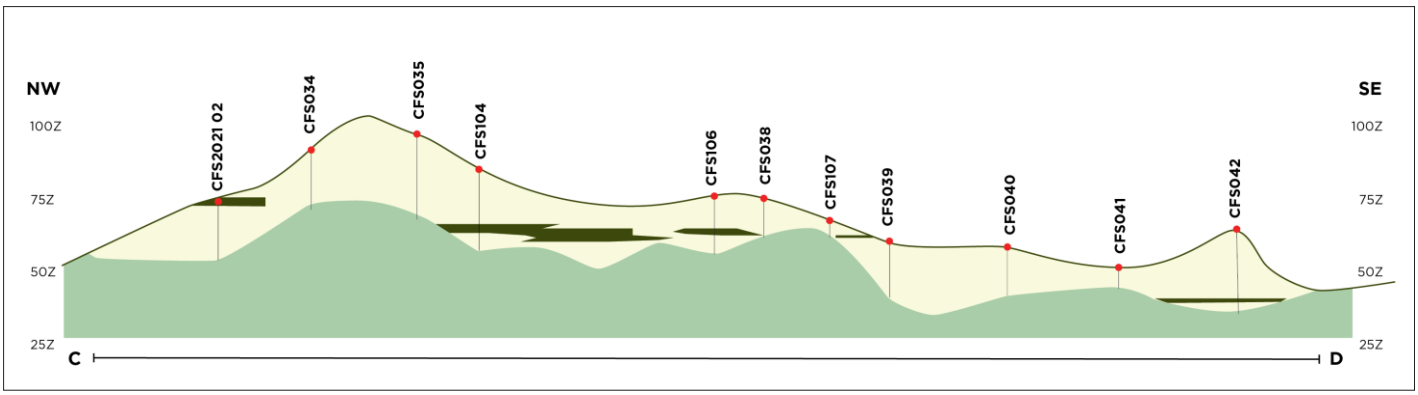
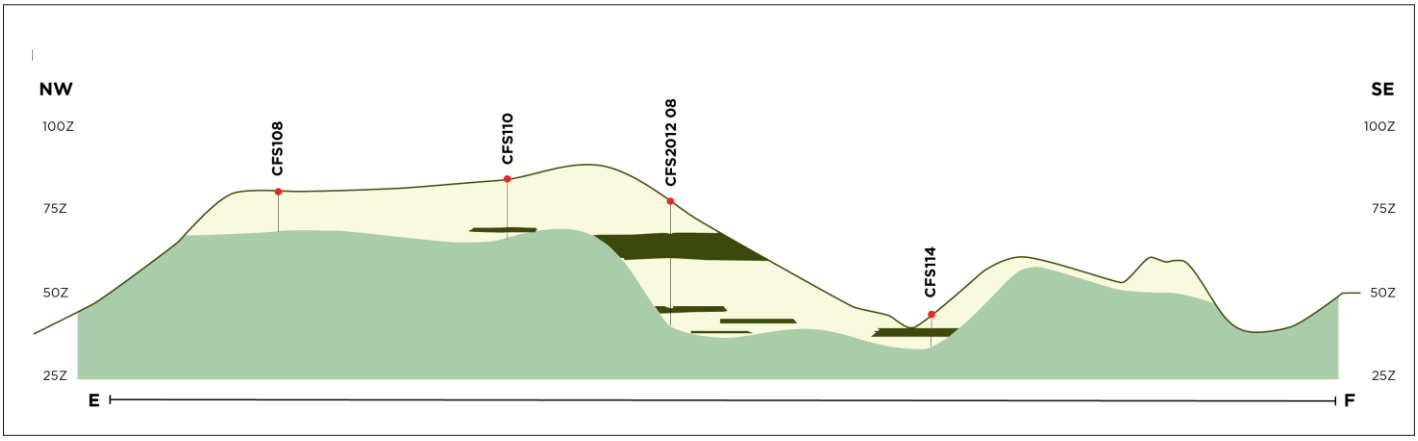
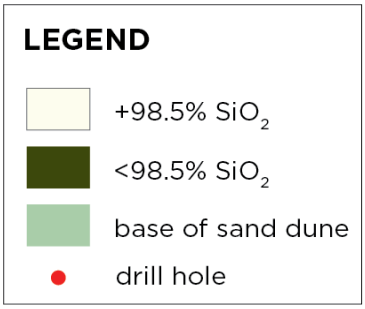


Figure 2 CFS Project – Location of sections (blue lines)









Figures 3 - 5 CFS Project Cross Sections

Resource Estimate

Modelling of the Silica sand resource was undertaken using; 10m (L) x 10m (W) x1m (H) blocks with 5m sub blocks (L) x 5m (W) x 0.5m (H) which were used to generate the block model. The blocks were constrained by the model boundaries, i.e., topography, geology, water table, base of hole and populated by the Ordinary Kriging (OK) estimation method to interpolate assay grades for each of the chosen elements (SiO_2, Fe_2O_3, Al_2O_3, LOI and TiO_2). Inverse Distance Weighting (IDW - 4:1) was used to check the model and yielded similar results.

The upgraded CFS Resource Area is summarised in Table 1, as follows:

Resource Category	Silica Sand (Mt)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)	Al_2O_3 (%)	Density (t/m^3)	Silica Sand (Mm^3)
Measured	9.6	99.29	0.10	0.13	0.18	0.08	1.6	5.97
Indicated	38.2	99.15	0.13	0.14	0.19	0.12	1.6	23.91
Inferred	5.7	99.26	0.11	0.11	0.18	0.16	1.6	3.54
Total	**53.5**	**99.19**	**0.12**	**0.14**	**0.19**	**0.12**	**1.6**	**33.41**

Table 1 – Resource Area Cape Flattery Silica Project

The resource has been prepared in accordance with the JORC Code 2012 – A cut-off grade 98.5% has been defined based on the surrounding data. These results show there is potential to produce a premium grade silica product using standard processing techniques.

Upcoming CFS Work Plan

There are a number of activities already initiated to advance the Cape Flattery Silica project with more planned to start in this quarter which will continue into the new year:

- Continue the Pre-Feasibility Study ("PFS") (first visit to site by the team of consultants occurring the week of 18 October 2021);
- Complete the PFS metallurgical testing and reporting in the coming months – this work is currently underway with Mineral Technologies;
- Continue environmental studies and field work, which is currently underway;
- Progress key agreements with the Traditional Landowners. Two meetings were held in Hope Vale on Wednesday, 6 October 2021. The first meeting was with representatives of Hopevale Congress Aboriginal Corporation (Hopevale Congress), as agent for the Nguurruumungu Clan, and Walmbaar Aboriginal Corporation, as agent for the Dingaal Clan. The second meeting was with members of the Hope Vale township;
- Finalise a study on options to build a barge-loading facility to tranship silica sand onto Ocean-Going Vessels to support PFS decision making;
- Continue a PFS level assessment on the silica sand market and potential for establishing customer off-take agreements, using marketing consultants with offices in Hong Kong, China and Malaysia; and
- Continue work towards lodging a site-specific Environmental Application.

About the Cape Flattery Silica (CFS) Project

Metallica's 100% owned Cape Flattery Silica Sands (CFS) project is adjacent to the world class Cape Flattery Silica Sand mining and shipping operation owned by Mitsubishi. Exploration drilling to date has now confirmed that the sand dunes within EPM 25734 contain high purity silica sands with an in-situ quality which is understood to be comparable to Mitsubishi's Cape Flattery Silica Mine.

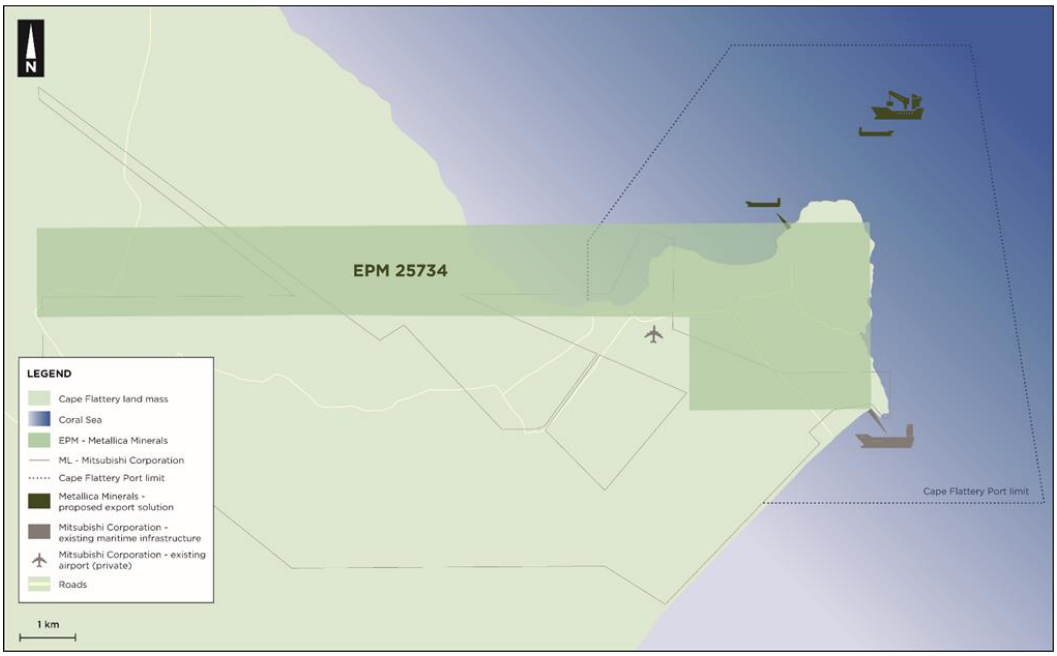


Figure 6 *EPM 25734 location and orientation at Cape Flattery and within the Cape Flattery Port limit*

On 15 June 2021 the Company announced that it had lodged a Mine Lease Application (MLA) for the project[4] , Figure 7.

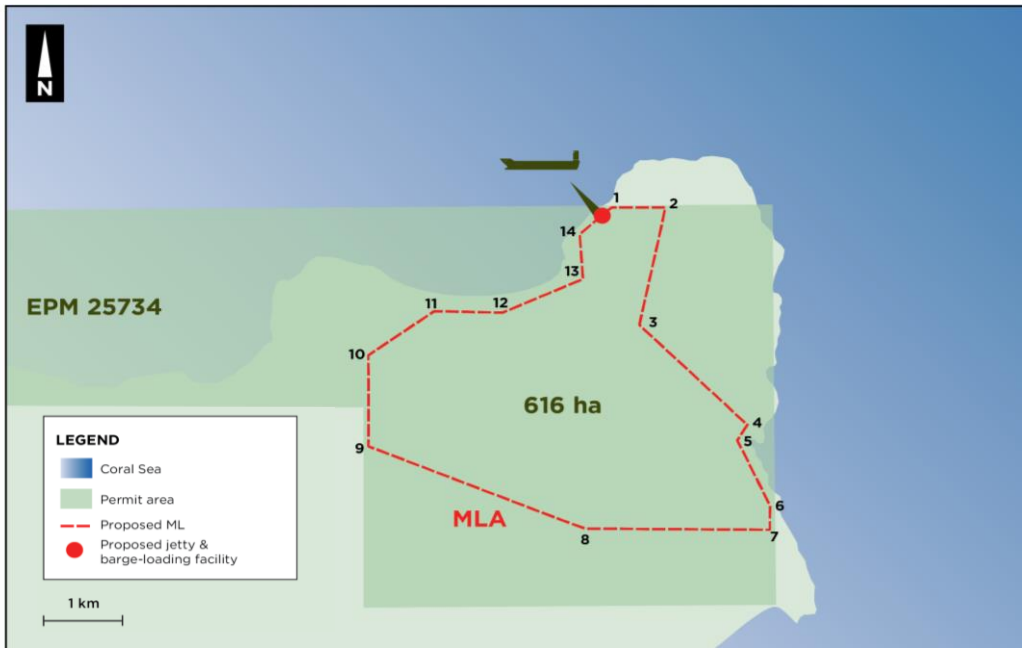


Figure 7 *Cape Flattery Silica Sand project MLA area boundary and EPM*

[4] First Report to the ASX on the 15th June 2021"MLA Lodged for Cape Flattery Silica"

On 22 June 2021 the Company released the first metallurgy test results on samples taken from the December 2020 drilling program. The bulk sample metallurgical testing confirmed high quality silica sand product and demonstrated a low contaminant product with an attractive narrow particle size distribution can be produced at a high yield. The test work produced a product with 99.8% SiO_2, 170ppm Fe_2O_3 and 450ppm Al_2O_3 and further work included successful test of process to reduce Fe_2O_3 from 170ppm to 70ppm Fe_2O_3[5] .

This announcement has been approved in accordance with the Company's published continuous disclosure policy and has been approved by the Board.

For further information, please contact:

Mr Theo Psaros
Executive Chairman
+61 (7) 3249 3000

Mr Scott Waddell
CFO & Company Secretary
+61 (7) 3249 3000

Competent Person Statement

Cape Flattery Silica Sands Resource
The information in this report that relates to Mineral Resources at the Cape Flattery Silica Sands Project is based on information and modelling carried out by Dale Brown, Senior Mining Engineer, Ausrocks Pty Ltd who is a competent person and a Member of the Australasian Institute of Mining & Metallurgy. Dale Brown is employed by Ausrocks Pty Ltd who have been engaged by Metallica Minerals Ltd to prepare this independent report, there is no conflict of interest between the parties.
Dale Brown has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code). Dale Brown consents to the inclusion in the report on the matters based on their information in the form and context in which it appears.

Cape Flattery Silica Sands Exploration Results
The information in this report that relates to the Exploration Sampling and Exploration Results is based on information compiled by Mr Patrick Smith, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy.

Mr Smith is the owner and sole Director of PSGS Pty Ltd and is contracted to Metallica Minerals as their Exploration Manager. Mr Smith confirms there is no potential for a conflict of interest in acting as the Competent Person. Mr Smith has sufficient experience that is relevant to the style of mineralisation and type of deposits 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 Resources and Ore Reserves. Mr Smith consents to the inclusion of this information in the form and context in which it appears in this release/report.

[5] First reported to the ASX on the 22nd June 2021 "Excellent Metallurgical Test Results on Cape Flattery Silica" competent persons, Mr Neil Mackenzie-Forbes, Mr Chris Ainslie, Carl Morandy, Mr Brice Mutton and Mr Kruger

Reference to Previous Releases

Drilling, resource estimates and metallurgical results referred to in this announcement have been previously announced to the market in reports dated; 2nd March, 15th June, 22nd June and the 12th August 2021 and are available to view and download from the Company's website: ASX Announcements — Metallica Minerals Limited***https://metallicaminerals.***

Regional aeromagnetic data used as underlays in some figures of this announcement have been previously reported to the market in the report dated 23 September 2020 and can be viewed and downloaded from the Company's website.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. MLM confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

Forward-looking statements

Forward-looking statements are based on assumptions regarding Metallica, business strategies, plans and objectives of the Company for future operations and development and the environment in which Metallica may operate.

Forward-looking statements are based on current views, expectations and beliefs as at the date they are expressed and which are subject to various risks and uncertainties. Actual results, performance or achievements of Metallica could be materially different from those expressed in, or implied by, these forward-looking statements. The forward-looking statements contained in this presentation are not guarantees or assurances of future performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of Metallica, which may cause the actual results, performance or achievements of Metallica to differ materially from those expressed or implied by the forward-looking statements. For example, the factors that are likely to affect the results of Metallica include general economic conditions in Australia and globally; ability for Metallica to funds its activities; exchange rates; production levels or rates; demand for Metallica's products, competition in the markets in which Metallica does and will operate; and the inherent regulatory risks in the businesses of Metallica. Given these uncertainties, readers are cautioned to not place undue reliance on such forward-looking statements.

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	• *Nature and quality of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Drilling was completed using a tractor mounted vacuum rig, with samples predominantly collected every one meter. Occasionally samples of less than one meter were collected (usually at the top of the hole), The drilled sand was collected from a cyclone and 100% of the sample was collected and placed into a pre-numbered sample bag, with each sample having a mass of between 2.5 to 4kg. • Seven hand auger samples from a 2020 programme were used in the resource estimate, The hand auger holes were samples were between 1-2kg in weight (~50% of drill material returned via the auger) and collected and bagged. Care was taken to remove possible contamination from the Shell Auger. • In the case of the drill samples the entire 1m sample was collected on site and dispatched to the laboratory for splitting and analysis (2021 programme), In the 2020 programme a spear sample of the 1m was taken and submitted for assay. • Samples were submitted to ALS Laboratories in Brisbane for drying, splitting and pulverization in a tungsten carbide bowl, prior to being analysed by an XRF analysis. • Sampling techniques are mineral sands "industry standard" for dry aeolian sands with low levels of induration and slime. • As the targeted mineralization is silica sand, geological logging of the drill material is a primary method for identifying mineralisation. • Samples from this drilling programme have been selected for Metallurgical testwork. These samples will be composited to form a bulk sample. Initially all the samples (above the COG) for each hole within the Measured Resource area will be composited to form a bulk sample for metallurgical testwork. Selected samples with high clay content are also

		being tested to determine if the purity of the SiO_2 in the sample can be upgrade by scrubbing out any clay.
Drilling techniques	• *Drill type and details.*	• Two (2) drilling techniques were used to collect samples for the resource estimate, namely hand-auger and vacuum drilling operated by Yearlong Drilling Contractors. All holes were drilled vertically. • Vacuum drilling was by a 4x4 tractor mounted drill rig with a blade drill bit diameter of 60mm equivalent to NQ sample size, using 1.8m rods. • Holes were terminated in a basement layer (clay/coloured sands) or when the very damp sand or water was intersected.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• Visual assessment and logging of sample recovery and sample quality. • Vacuum drilling is low disturbance and low impact, minimising drill hole wall impact and contamination. • Samples are collected in a cyclone which has a clear Perspex casing allowing visual inspection of sample as they are being collected. • Regular cleaning of cyclone and drill rods was utilised to prevent sample contamination. • No sample bias occurred between sample recovery and grade. • The consistent weight of the samples indicates that recovery of between 90 to 100% was achieved, lower recoveries (less than 80%) were recorded in the top 1m of each hole due to the presence of organic matter and topsoil
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature.* • *The total length and percentage of the relevant intersections logged*	• Geological logging of the total hole by field geologist, with retention of sample in chip trays to allow subsequent re-interpretation of data if required. • The total hole was logged at 1m intervals; logging includes qualitative descriptions of colour, grain size, sorting, induration and estimates of HM, slimes and oversize utilising panning. • Photographs of each chip tray were taken so a digital visual record of each of the drill holes was obtained • Logging has been captured through field drill log sheets and transferred through to an excel spreadsheet which is then transferred to a central

		database and storage prior to being provided to a third-party consultant (Ausrocks) for resource estimation.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Hand-auger holes were sampled in 1m intervals with 1-2kg (~50% of drill material returned via the auger) collected and bagged. • For the August vacuum drilling programme sample for the entire 1m interval was collected from the cyclone • The entire one meter (1) samples were placed in a numbered calico bag (August 2021), or subsamples of approximately 500g were speared and separately numbered, bagged and sealed ready for assaying (December 2020 programme) prior to being placed in a poly-weave sack for dispatch to the laboratory • Each one meter sample weighed between 2.5 to 4.0Kg. • At ALS the samples were split to 100gram samples for analysis in the laboratory under laboratory-controlled methods • The sample size is considered appropriate for the grain size of material, average grain size (87% material by weight between 0.125mm and 0.5mm • The Competent Person considers the sample preparation to be appropriate for drilling of this nature. • The Competent Person considers the sample sizes to be appropriate for the type of material being sampled. Appropriate sample sizes and pulverisation of the entire sample support good representivity
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model,*	• All assaying has been carried out by ALS Mineral Laboratories, Brisbane. ALS is a global leader with over 71 laboratories worldwide providing laboratory testing, inspection certification and verification solutions. ALS Quality Assurance and all ALS geochemical hub laboratories are accredited to ISO/IEC 17025:2017 for specific analyses, which includes their Townsville and Brisbane laboratories. ALS is NATA Accredited, Corporate Accreditation No. 825, Corporate Site No. 818. • XRF was chosen as the most cost-effective assaying method for silica and minor elements for all exploration samples.

	reading times, calibrations factors applied and their derivation, etc. • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Analysis was undertaken by ALS Brisbane utilising a Tungsten Carbide pulverization, ME-XRF26 (whole rock by Fusion/XRF) and OA-GRA05 (H_2O/LOI by TGA furnace). • 2,229 %SiO_2 assays were completed on 1m downhole intervals over various drilling programs. • Assaying was primarily to determine the silica (SiO_2%) percentage, but as part of the method results were obtained for a range of minor elements, namely Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SO_3, SrO, TiO_2. • Analysis undertaken determined by a sample code which correlates to drill logs to ensure no sample bias. • There is an alternative ICP method which has lower detection limits for the other oxides such as Fe_2O_3 and Al_2O_3, but the SiO_2 assay is determined by calculation and not a measured quantum. • Internal laboratory QAQC checks include the analyses of standards, blanks and duplicates. • Acceptable levels of precision and accuracy were established. • QC procedures - No duplicate samples were collected in the field for the August 2021 programme as the entire sample was submitted to the laboratory. However selected duplicate samples have been selected from the coarse rejects at the laboratory, for duplication, Inter-laboratory checks will also be undertaken by Intertek in Perth.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*	• Significant intersections validated against geological logging and local geology/ geological model. • No holes have been twinned, as the grade continuity in the holes is consistent. • All data captured and stored in both hard copy and electronic format. Assay data had to be adjusted in some locations for the 0-1m interval due to minor topsoil contamination. • All digital data is verified by the Competent Person.

	• *Discuss any adjustment to assay data.*	• No adjustments were made to assay data. • Significant intersections were independently validated by Ausrocks against geological logging and the geological model. • Four (4) holes have been twinned with vacuum and hand-auger to check repeatability of drill results. To date, there is a strong correlation between results from different type holes and different assay batches. Downhole variability is matched in different drill programs and different assay batches. • The infill drilling in 2021 validated the 2020 programme as the intercepts and grade of the silica were consistent along the various sections
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All holes initially located using handheld GPS with an accuracy of 5m for X, Y. • UTM coordinates, Zone 55L, GDA94 datum. • LiDAR topography and imagery with a vertical accuracy of <10cm was used as the topographic surface. Collar RL's draped against this surface verifies the accuracy of the hole locations. The Lidar imagery which was produced by Aerometrex
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*	• Drilling was completed on existing tracks and newly cleared lines which are 100m to 200m apart, the lines are orientated approximately NW – SE • The holes were spaced approximately 200 meters apart and in some areas were infilled to 100m and 50m centres. • Drill spacing and distribution is sufficient to allow valid interpretation of geological and grade continuity for a Measured Mineral Resource, Indicated Mineral Resource and Inferred Mineral Resource where determined. Drilling has been completed at varying spacings across the Resource Area. • Drill spacing and interpreted geological continuity has allowed three resource categories to be defined which have been estimated in

	• *Whether sample compositing has been applied.*	accordance with the JORC Code (2012) and are defined as follows: • **Measured Mineral Resource:** Area with drillholes completed at semi-gridded spacing <150m x 150m ending in basement/water table. • **Indicated Mineral Resource:** Area with drillholes at a confirmatory level spacing (150m-250m) ending in basement/water table. • **Inferred Mineral Resource:** Areas with drillholes at a scout level spacing (250m-400m). • No sample compositing was undertaken
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.*	• The dune field has ridges dominantly trending 320º - 330°. • The drill access tracks typically run along or sub-parallel to dune ridges which suggest unbiased sampling, some cross-dune tracks linking the ridges were also drilled • Silica deposition occurs as windblown with angle of rest approximately 35º. Drilling orientation is appropriate for the nature of deposition. • The orientation of the drilling undertaken is assessed to provide representative intersections and unbiased data for the deposit. All drilling is vertical, intersecting the dune field geology essentially normal or at 90 degrees to the dune sand formation. Drilling was undertaken along or sub-parallel to dune ridges. Some cross-dune tracks linking the ridges were also drilled.
Sample security	• *The measures taken to ensure sample security.*	• Sample collection and transport from the field was undertaken by company Personnel following company procedures. • Samples were aggregated into larger polyweave bags and sealed with plastic zip ties, Bags were labelled and put into palette-crates and sealed prior to being shipped to ALS Townsville. • Samples were delivered direct to ALS in Townsville, where they were transhipped to ALS Brisbane for sample preparation and analysis
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• A review was conducted internally by Metallica Minerals Ltd and a third-party consultant, Ausrocks Pty Ltd, who also reviewed the data prior to undertaking a resource estimate.

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	• *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 Cape Flattery Silica Sands Project is located within EPM 25734 in Queensland and is held by Metallica Minerals Ltd through subsidiary company Cape Flattery Silica Pty Ltd. • The project is located in Far North Queensland, approximately 220km north of Cairns or about 50km north of Cooktown and lies within EPM 25734. EPM 25734 is held by Cape Flattery Silica Pty Ltd, a wholly owned subsidiary of Metallica Minerals Pty Ltd and comprises 11 contiguous subblocks covering the very northern end of the extensive Cape Bedford/Cape Flattery dunefield complex. The dunefield complex is characterised by large northwest trending transgressive elongate and parabolic sand dunes, stretching inland from the coastline for kilometres. • A compensation and conduct agreement is in place with the landholder (Hopevale Congress) and native title party. • The tenement is in good standing and there are no impediments to conduct exploration programs on the tenements.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Previous exploration has been carried out in the area during the 1970's and 80s by Cape Flattery Silica Mines (CFSM). CFSM reported seven (7) holes drilled for 84 meters. These holes intersected sand dunes between 10 and 20 meters in thickness. • The historical exploration data is of limited use since but never assayed for SiO2 and there is poor survey control to determine exact locations of historical holes. • All current exploration programs are managed by Metallica Minerals

Geology	• *Deposit type, geological setting, and style of mineralisation.*	• The CFS Sand Project is a large surface deposit of overlying sand dunes that lies in the northern most part of the Quaternary age Cape Flattery-Cape Bedford dunefield complex. • The geology comprises variably re-worked aeolian sand (silica) dune deposits associated with Quaternary age sand-dune complex. The mineralisation is high grade quartz (silica) and it occurs as sand deposits within an aeolian dune complex. • Cape Flattery Silica Mines, which also lies at the northern end of the dune field, has been in operation since 1967 and is Queensland's largest producer of world class silica and the highest production of silica sand of any mine in the world. • The linear sand dunes developed predominantly during the dry Pleistocene glacial and interglacial periods when the sea-level receded and fluctuated approx. 100m below present. Prior to sea level rises in the Holocene (10,000 years before present) sand was blown inland by the prevailing south-easterly winds to form linear dunes and is now interspersed with numerous lakes and swamps. The land sand masses form mainly as elongate parabolic and longitudinal dunes. Multiple episodes of dune building are evident. Most dunes are stabilised by vegetation, but some active dune fronts occur. Periods of water level table fluctuations, erosion and depositional phases have occurred. • Silica sand Mineralisation occurs within aeolian dune sands
Drill hole Information	• *A summary of all information material to the understanding of the exploration results* • *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.*	• A tabulation of the material drill holes used in this Mineral Resource Estimation is attached to this JORC Table 1. • Relative to the previous Mineral Resource Estimate (March 2021), an additional 98 drillholes have been added. •

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• The significant intercepts for each drill hole are calculated using a cut off grade of 98.5% SiO_2, only intercepts of greater than 3m are considered as significant. • Internal dilution of up to 3m is included in the reported intercepts • A cut-off grade of 98.5% silica has been used for the Mineral Resource Estimation. • The grade is highly consistent, and the aggregate intercepts use a simple arithmetic average • No top cuts were applied to the data. • No metal equivalents reported.
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').*	• All drilling was vertical (-90°) intersecting undulating flat-lying aeolian dune sands. • Down hole length correlates with true width. • As the mineralisation is associated with aeolian dune sands the majority sub-horizontal, some variability will be apparent on dune edges and faces.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being*	• A map of the drill collar locations is incorporated with the main body of the report.

	reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	
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.*	• All exploration results are reported in a balanced manner. All results are supported by clear and extensive diagrams and descriptions. No assays or other relevant information for interpreting the results have been omitted.
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.*	• Geological observations are consistent with aeolian dune mineralisation. • Groundwater was intersected during drilling at the base of holes, as expected given the dune complex is an aquifer and drilling was undertaken to a maximum depth of 35m. • The relationship of the groundwater to the regional groundwater table is unknown. It is likely that the true groundwater table is well below the termination depth of the current drillholes. • A bulk sample will be composited from the individual samples for metallurgical testwork, this work will commence in Q4 • Iron (Fe_2O_3) in various forms may potentially act as a contaminant for very high-quality "processed" end products. • IHC Robbins completed a bulk laboratory sample in early 2021 to determine the processing requirements and assist in understanding the marketability of a premium sand product. Testing confirmed a product: ○ between 99.8% and 99.9% SiO_2 ○ 450ppm Al_2O_3 ○ 170ppm Fe_2O_3 ○ 210ppm TiO_2 ○ 2.6% <125µm particles. • Mass yield of 77.4%

		• All exploration results detailed in attached report.
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*	• Further metallurgical testing • A limited amount of infill drilling may be required to increase the confidence levels in the resource prior to a PFS and FS • The next stage of exploration on the EPM will be to assess the western targets on the EPM utilising Auger sampling, but this work has yet to be planned