SOVEREIGN METALS LIMITED

9 June 2021

MAIDEN JORC RESOURCE CONFIRMS KASIYA AS ONE OF THE WORLD'S LARGEST RUTILE DEPOSITS

*Sovereign Metals Limited (**the Company** or **Sovereign**) is delighted to announce its maiden Mineral Resource Estimate (**MRE**) for Kasiya, a major technical milestone for the Company's flagship, large, high-grade rutile deposit in Malawi.*

***644Mt @ 1.01% rutile** (0.7% cut-off, Inferred)*

including a high-grade component of

***137Mt @ 1.41% rutile** (1.2% cut-off, Inferred)*

HIGHLIGHTS

- The maiden MRE establishes Kasiya as a **strategic and globally significant natural rutile discovery** and confirms it as **one of the largest natural rutile deposits in the world.**
- **Scoping Study well underway** to unlock this large-scale natural rutile project with a focus on ESG and sustainability.
- All mineralisation within the **MRE occurs in a single, large, and coherent deposit** with much of the high-grade material occurring within the top ~5 metres from surface.
- **Substantial additional resource growth is expected** with the maiden MRE covering 49km^2 or just 43% of the total 114km^2 (Kasiya 89km^2 + Nsaru 25km^2) drill-defined rutile-mineralised footprint.
- **The rutile market is in supply deficit with prices rising steadily over the last 12 months.** This is due to increased demand coupled with existing global rutile reserves being in overall decline and limited additional supply forecast to come online in the near to medium term.
- Kasiya could significantly **impact the titanium industry** with the potential to displace carbon, energy and waste-intensive alternatives (synthetic rutile and titania slag).

Sovereign's Managing Director Dr Julian Stephens commented:

"It is a remarkable result to achieve the maiden JORC mineral resource estimate of this scale, grade and global significance in under 18 months since discovery. We believe this maiden resource is just the beginning and expect to upgrade and expand the resource over the coming quarters. The Company is surging forward with the Kasiya Scoping Study which will target a large-scale natural rutile operation to help address the supply deficit and reduce the titanium industry's environmental footprint."

ENQUIRIES

Dr Julian Stephens (Perth)
Managing Director
+61(8) 9322 6322

Sam Cordin (Perth)
+61(8) 9322 6322

Sapan Ghai (London)
+44 207 478 3900

KASIYA JORC MINERAL RESOURCE ESTIMATE

The Kasiya MRE is presented at various cut-off grades below. As indicated in Table 1 and Figure 1 below, the MRE has broad zones of very high-grade rutile which occurs contiguously across large areas. The highlighted cut-off of 0.70% presents a rutile grade of 1.01% which places Kasiya as one of the largest known rutile deposits in the world and as directly comparable to its closest peer Sierra Rutile.

Cut-off	Resource (Mt)	Rutile Grade	Contained Rutile (Mt)
0.40%	1,109	0.82%	9.1
0.50%	974	0.87%	8.5
0.60%	811	0.93%	7.6
0.70%	**644**	**1.01%**	**6.5**
0.80%	491	1.09%	5.3
0.90%	362	1.17%	4.2
1.00%	265	1.26%	3.3
1.10%	195	1.33%	2.6
1.20%	**137**	**1.41%**	**1.9**
1.30%	93	1.49%	1.4
1.40%	59	1.57%	0.9
1.50%	35	1.65%	0.6

Table 1: Kasiya Maiden MRE. All mineralisation is classified as Inferred.

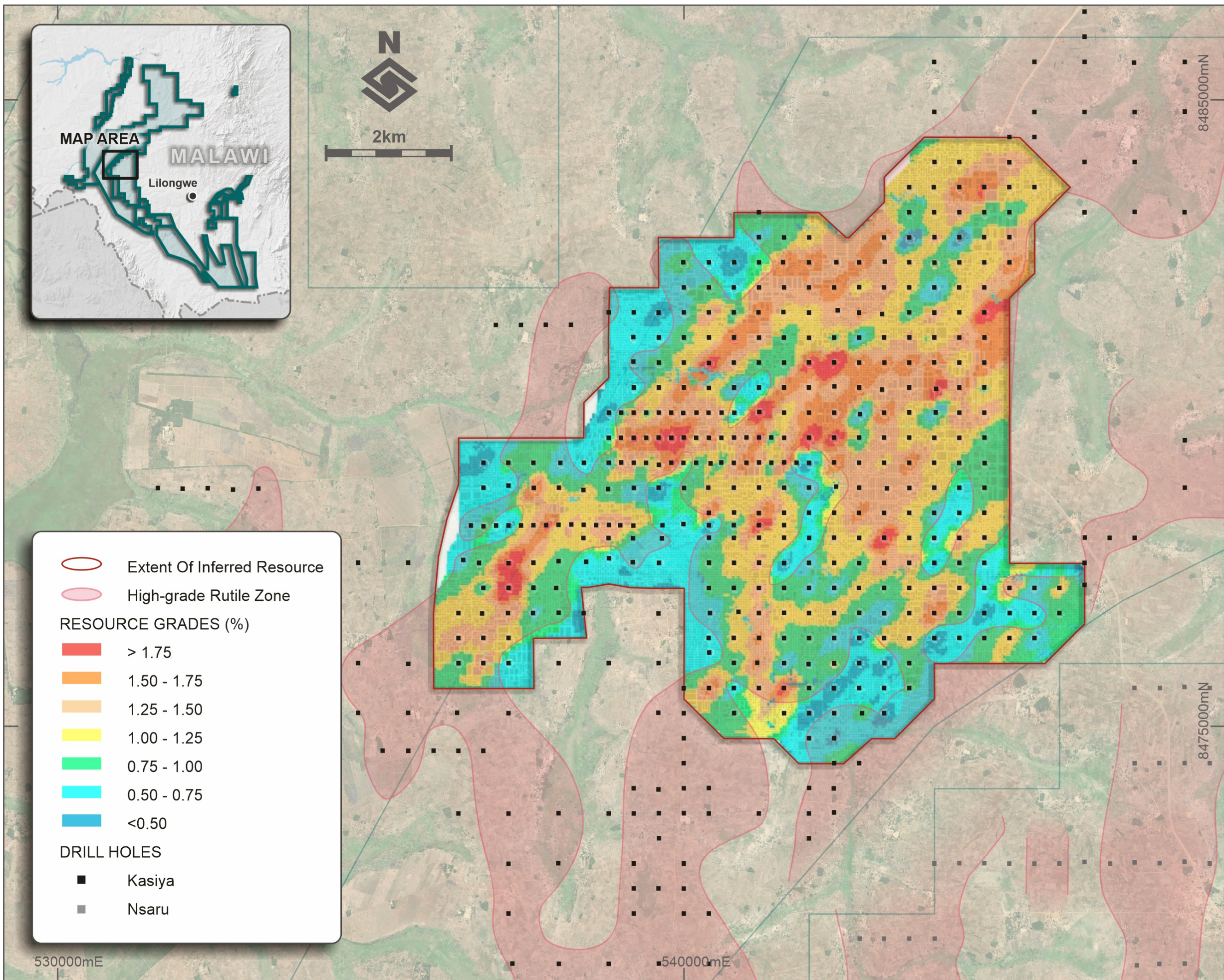
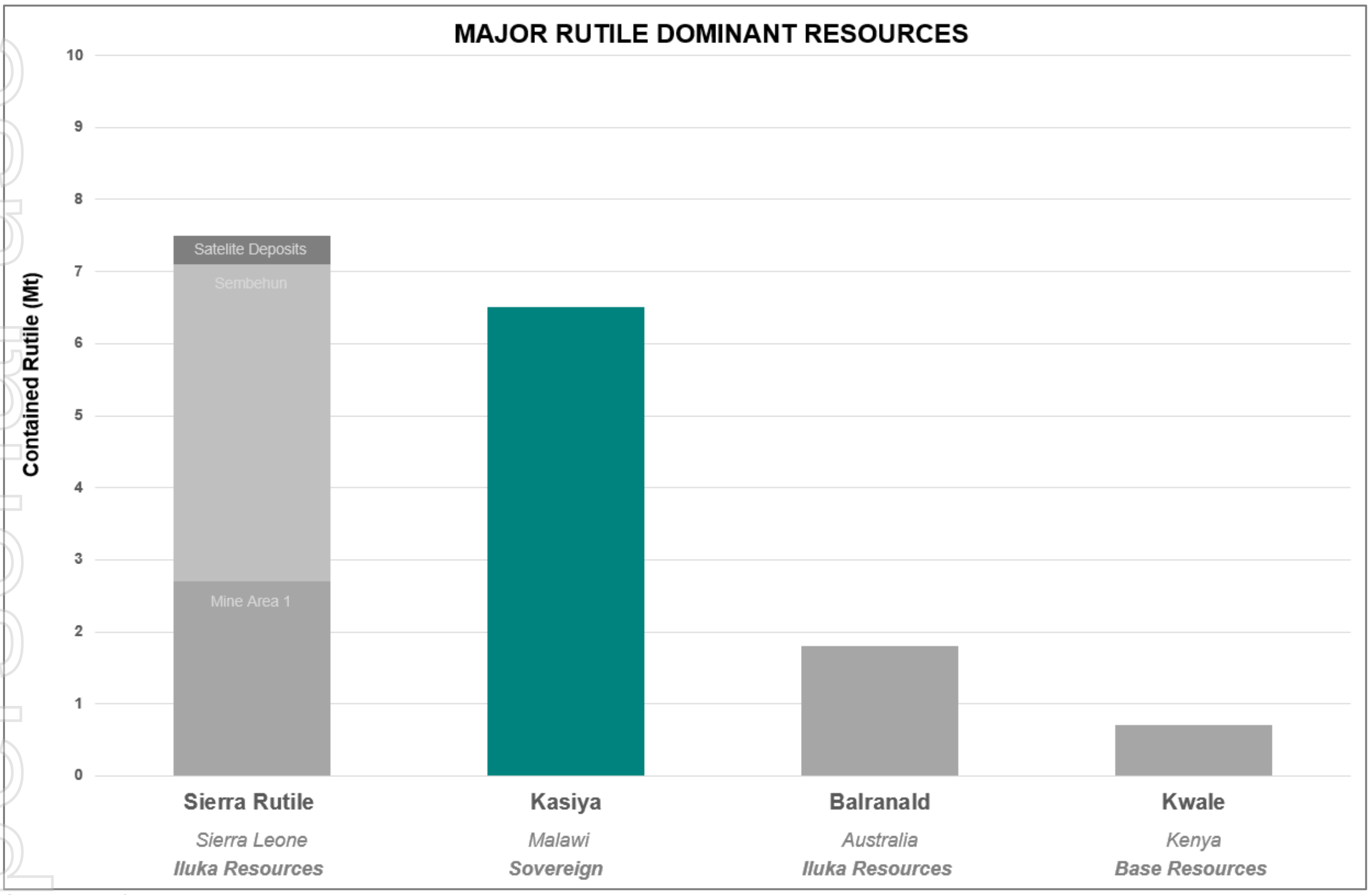


Figure 1: Drill density map over the Kasiya MRE showing rutile grades in the uppermost part of the MRE block model.

GLOBAL SIGNIFICANCE

Natural rutile is traditionally a by-product or co-product from mineral sands mining where ilmenite is commonly the dominant mineral in the assemblage, alongside lesser natural rutile and zircon. Natural rutile is considered to be a genuinely scarce commodity, with no other known large rutile dominant deposits being discovered in the last half century.

Comparing Kasiya to the other major rutile-dominant resources, it sits within the top two alongside Sierra Rutile. Further near-future resource growth could see Kasiya potentially become the largest and pre-eminent rutile deposit globally, with central Malawi potentially becoming the largest rutile province in the world.



Sources: Refer to Table 2

Figure 2: Major rutile dominant resources.

Current sources of natural rutile are in decline as several operations' reserves are depleting concurrently with declining ore grades. These include Iluka Resources' (**Iluka**) Sierra Rutile and Base Resources' Kwale operations in Kenya. Recent announcements by Iluka advising of the potential suspension of operations at Sierra Rutile may cause significant additional product to be removed from the market in the near to medium term. Additionally, there are limited new deposits forecast to come online, and hence supplies of natural rutile are likely to remain in structural deficit.

Company[1]	Project	Resource (Mt)	In-situ Grade			Contained Rutile (Mt)
			Rutile (%)	Ilmenite (%)	Zircon (%)	
Iluka Resources	Sierra Rutile	715	1.10%	0.90%	0.10%	7.5
Sovereign Metals	**Kasiya**	**644**	**1.01%**	**-**	**-**	**6.5**
Iluka Resources	Balranald [2]	46	3.90%	19.9%	3.60%	1.8
Base Resources	Kwale	194	0.37%	1.31%	0.17%	0.7

Table 2: Summary of major rutile dominant resources.

Notes:
1. Projects selected with rutile contributing over 30% of the in-situ value
2. The Balranald Project is being investigated for underground mining by Iluka

Sources:
Base Resources – Kwale: Updated Kwale North Dune and maiden Bumamani Mineral Resource Estimate (released on ASX 19/02/2021)
Iluka Resources – Sierra Rutile: Iluka Resources Limited's 2020 Annual Report (released on ASX 25/02/2021)
Iluka Resources – Balranald: Iluka Resources Demerger Briefing Presentation (released on ASX 10/09/2020)

Figure 3: Drone photo above Kasiya showing the generally flat terrain.

GROWTH POTENTIAL

The Company now has a total of ~114km^2 of drilled, high-grade rutile mineralisation (Kasiya 89km^2 + Nsaru 25km^2). The area covered by the Kasiya MRE is just 49km^2 or 43% of the 114km^2 drilled mineralised footprint. The opportunity to significantly expand on the maiden MRE in the near to medium term is therefore substantial.

The peripheral zones at Kasiya with nominal 800m x 800m drill spacing will be infilled to allow this material to be included in a future MRE. The Nsaru deposit also requires further infill and extensional drilling before it can be brought in to the MRE.

Step-out drilling at Kasiya and Nsaru is continuing with multiple field drilling teams deployed. Additional rutile mineralisation delineated should result in further future additions to the MRE.

At Kasiya, a two rig, ~150 hole infill core drilling program is due to commence this week with the aim of bringing the central high-grade zone into the Indicated resource category so that it can form the basis of the Scoping Study.

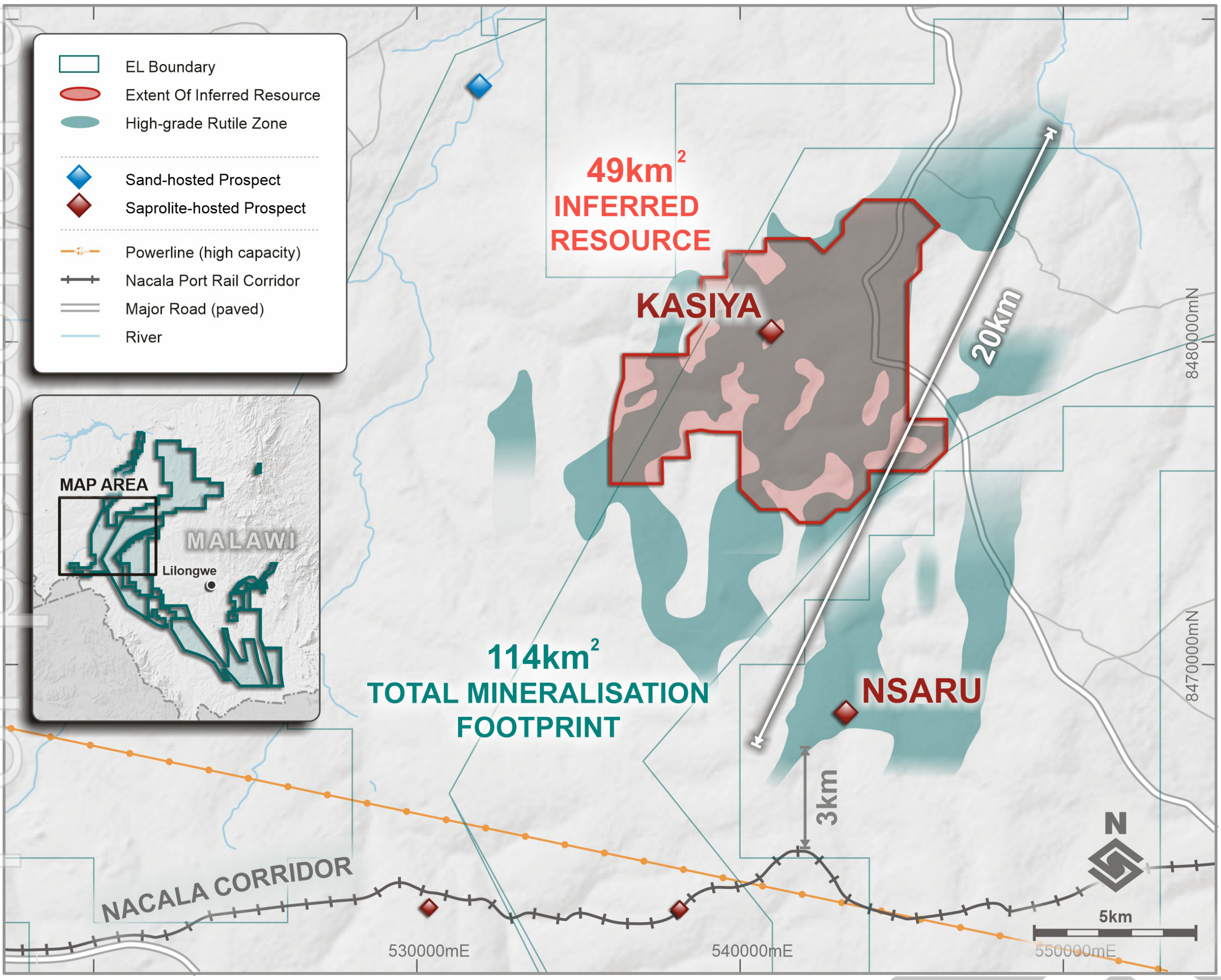


Figure 4: Kasiya MRE with the remaining mineralisation footprint.

RUTILE MARKET

Natural rutile is the purest, highest-grade natural form of titanium dioxide (**TiO_2**) and is the preferred feedstock in manufacturing titanium pigment and producing titanium metal. Titanium pigments are used in paints, coatings and plastics. Titanium also has specialty uses including in welding, aerospace and military applications.

The global titanium feedstock market is over 7.4Mt of titanium dioxide with the majority of this been consumed by the pigment industry. Natural rutile's high purity classifies it as a high-grade titanium feedstock. The high-grade titanium feedstock market consumes approximately 2.6Mt of contained titanium dioxide with strong demand driven from the pigment, welding and metal industries.

The lack of supply of natural rutile, due to its genuine scarcity, prompted the titanium industry to develop energy and carbon intensive processes to upgrade ilmenite (low-grade titanium mineral) to high-grade titanium feedstock products that can be used as substitutes for natural rutile (i.e. synthetic rutile and titania slag).

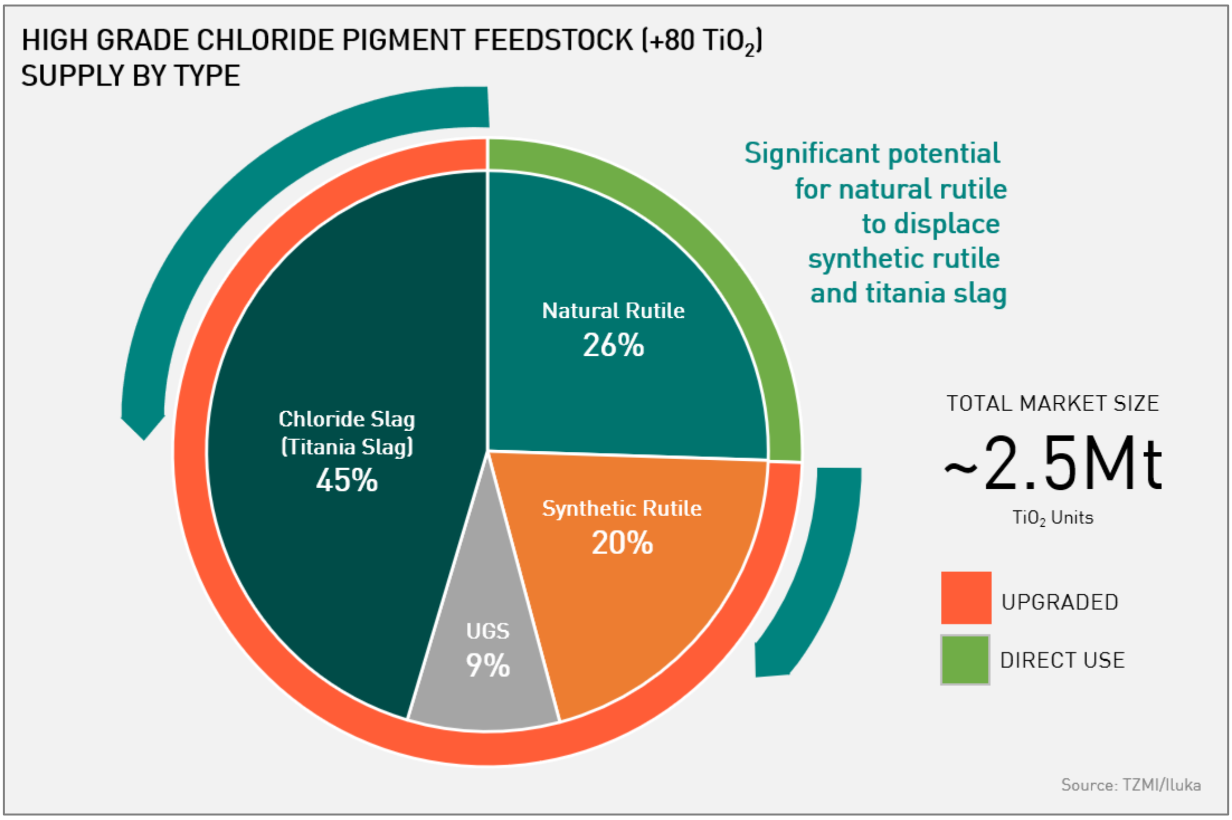


Figure 5: High-grade titanium feedstocks (+80% TiO_2) by supply type *(Source: TZMI/Iluka, based on 2018 data)*

Natural rutile requires no upgrading for direct use as titanium pigment feedstock, eliminating the upgrading step required for ilmenite, resulting in zero additional CO_2 emissions. Up to 2.8 tonnes CO_2 eq. for each tonne of natural rutile utilised could be saved compared to the upgrading/beneficiation of ilmenite, via smelting and chemical processes, to high-grade titanium feedstocks like titania slag and synthetic rutile.

The downstream processes (i.e. pigment production) rely heavily on the use of upgraded titanium feedstocks such as synthetic rutile and titania slag, each having an associated substantial environmental impact.

Due to growing environmental pressures, and with the significant carbon footprints of numerous industry players related to pyrometallurgical ilmenite upgrading operations, Sovereign's natural rutile product is well positioned to impact the titanium supply chain with the ability to potentially displace and reduce the use of carbon and waste-intensive upgraded alternative titanium feedstocks.

The rutile market fundamentals continue to be robust with current and forecast pricing remaining very strong. In 2021, the market has rebounded strongly with pigment plant utilisation rates returning to pre-pandemic levels. Major producers have noted that very strong demand in the welding market is outstripping supply.

High-grade titanium feedstock supply is tight with limited new projects coming online in the short to medium term. Iluka has recently announced the potential suspension of its Sierra Rutile operations. Sierra Rutile is the largest global producer of natural rutile, currently contributing over 20% of the total natural rutile market with production of about 150ktpa.

A resurgence in demand for titanium pigment and from the welding sector combined with concurrent supply shortages has led the CIF China spot prices sharply upwards toward US$1,800 per tonne (Figure 6). In the quarter ended 31 March 2021, Iluka achieved rutile prices of US$1,199 per tonne with the majority of Iluka's sales under take-or-pay contracts.

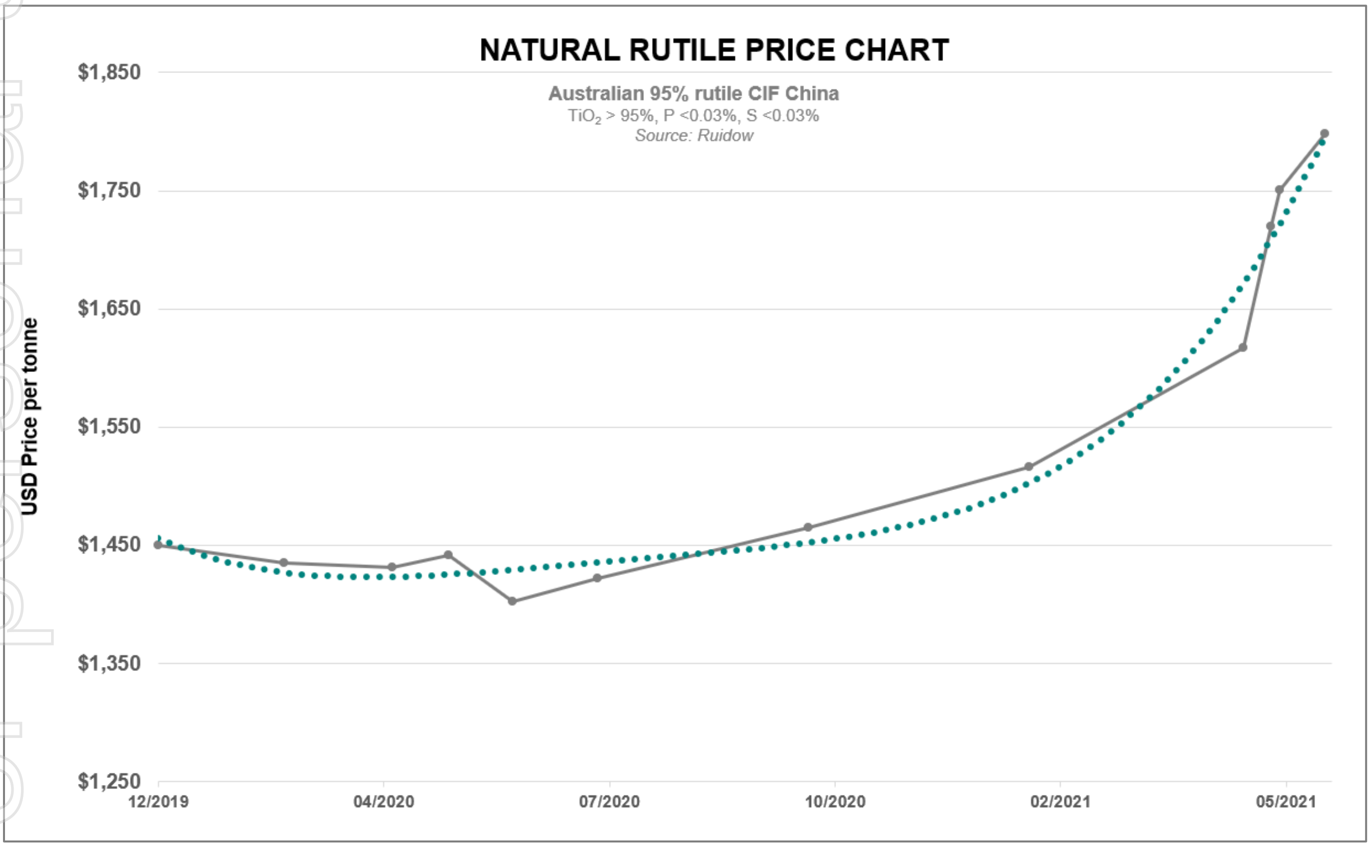


Figure 6: Rutile benchmark price over the last 18 months *(Source: Ruidow)*

NEXT STEPS

The major milestone of delivering the maiden MRE at Kasiya positions it as one of the largest and pre-eminent rutile deposits in the world.

This globally significant rutile province is located in Malawi, a stable, transparent jurisdiction known as "the Warm Heart of Africa". Malawi is increasingly attracting international investment with substantial potential for mining to contribute to the country's economic growth and development. Central Malawi boasts excellent existing infrastructure including grid power and an excellent sealed road network. Kasiya is strategically located in close-proximity to the capital city of Lilongwe, providing access to a skilled workforce and mining and industrial services. The location provides access to the operating Nacala Rail Corridor linking to the Indian Ocean deep water port of Nacala in Mozambique, providing a low-cost transport solution and access to major international markets.

The Company's objective is to develop a large-scale, long life rutile operation, with the Scoping Study well underway and focusing on developing an environmentally responsible, sustainable and socially uplifting operation.

Sovereign is rapidly continuing its work programs with the following near and medium-term targets and developments:

- Appointment of key members of the Scoping Study owner's team, including a lead Study Manager and a highly experienced African mineral sands Technical Manager.

- Aggressive drilling programs are planned and already underway with expansion, extensional and infill drilling continuing to enable future resource upgrades and extensions which are targeted for Q4 2021. Including:

  - Two core drilling rigs are set to be mobilised next week, with a planned +150 hole core program with the aim of upgrading the central, high-grade parts of Kasiya to JORC Indicated category; and

  - Continued step-out hand-auger drilling at Kasiya and Nsaru to expand the overall JORC resource with multiple drill teams mobilised across the Company's +2,600km^2 ground package.

- Kasiya's Scoping Study is targeted for completion in late 2021 with multiple components well underway, including:

  - Mining method and pit optimisation studies which now incorporate the outcomes of the MRE;

  - Tailings disposal design and methodology studies;

  - Continued metallurgical test-work now focused on variability;

  - Investigation of a potential graphite by-product; and

  - Commencement of the environmental and social impact studies.

KASIYA MRE TECHNICAL DETAILS

The Kasiya MRE has been prepared by independent consultants, Placer Consulting Pty Ltd (**Placer**) and is reported in accordance with the JORC Code (2012 Edition).

Rutile mineralisation lies in laterally extensive, near surface, flat "blanket" style bodies in areas where the weathering profile is preserved and not significantly eroded. The high-grade zones appear to be geologically continuous with limited variability along and across strike. The mineralisation style is illustrated best in Figures 7 & 8 below.

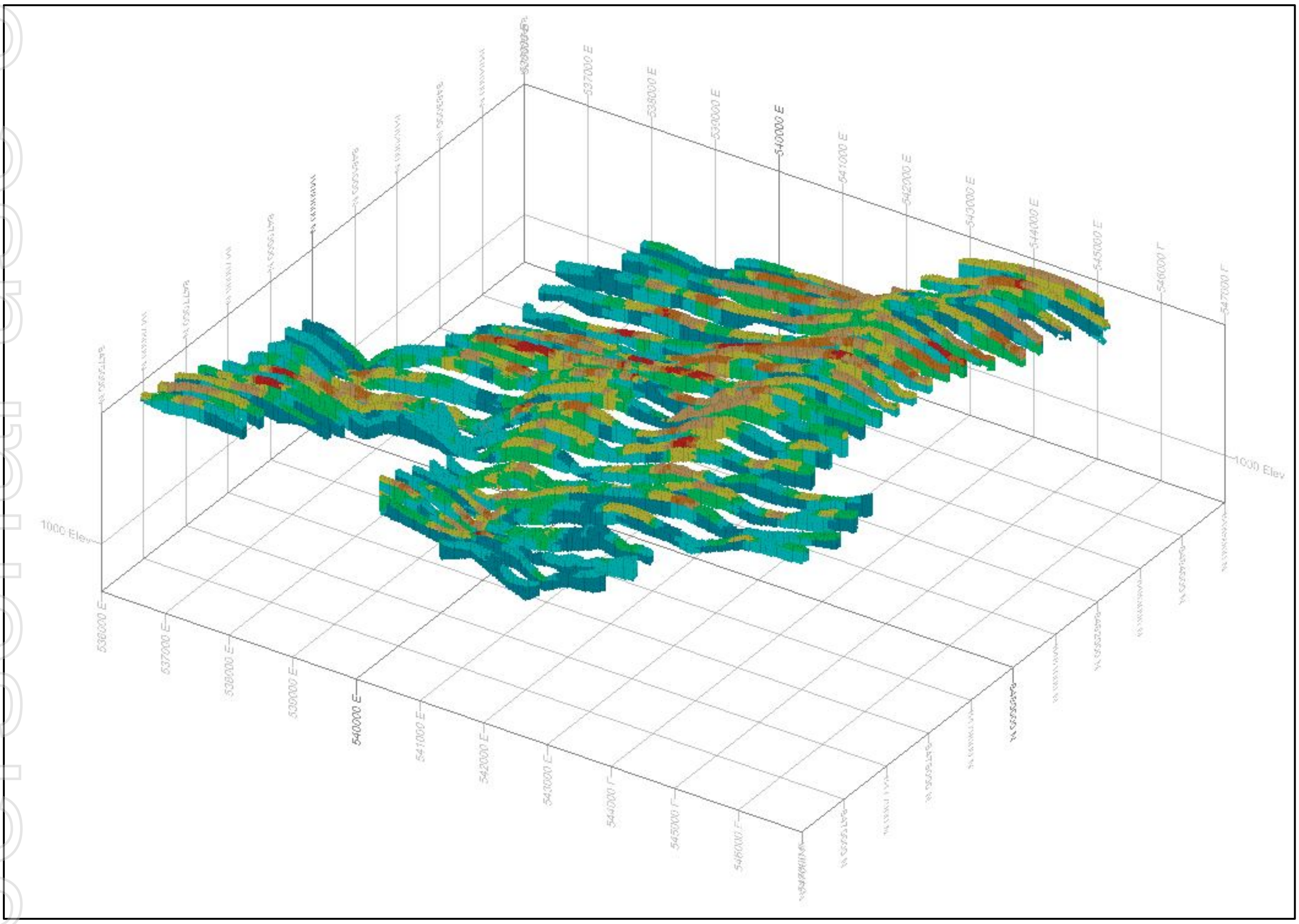


Figure 7: Kasiya Deposit block model sliced section map, oblique view looking Northwest.

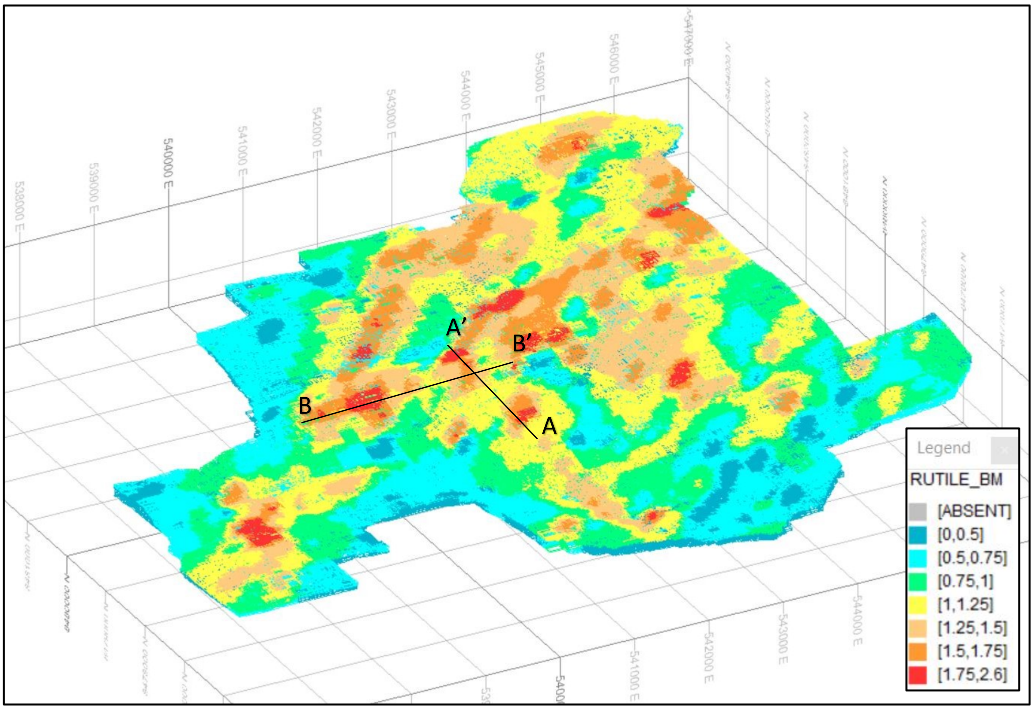


Figure 8: Kasiya Deposit block model heat map, oblique view looking Northeast, showing top block within the inferred resource model.

The inferred resource remains open to the northeast, east, and southwest. Wide spaced exploratory drilling has confirmed the mineralised rutile footprint extends beyond the current constraints of the inferred resource boundary.

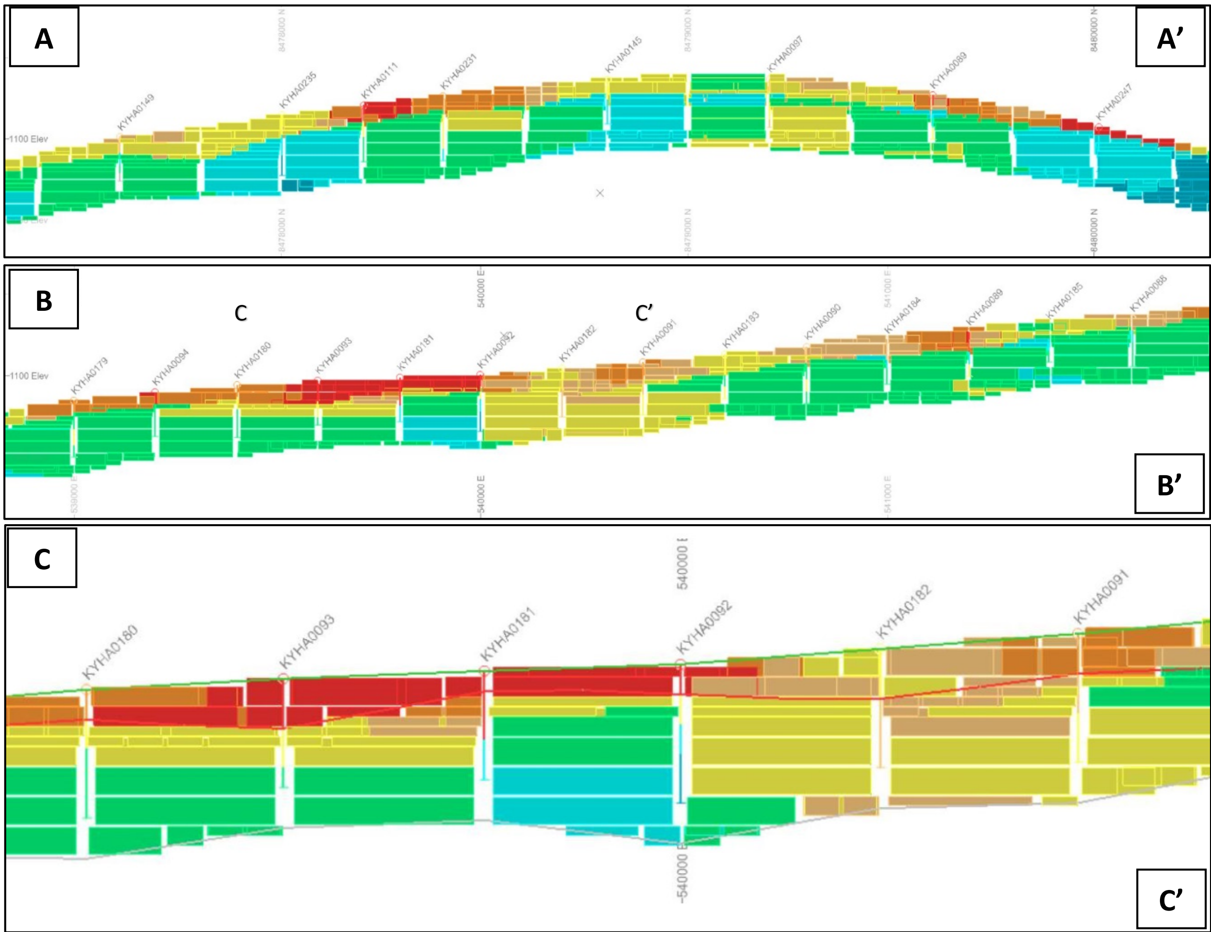


Figure 9: Cross-sections across the mineralisation footprint in the high-grade areas. See Figure 8 for legend and section lines.

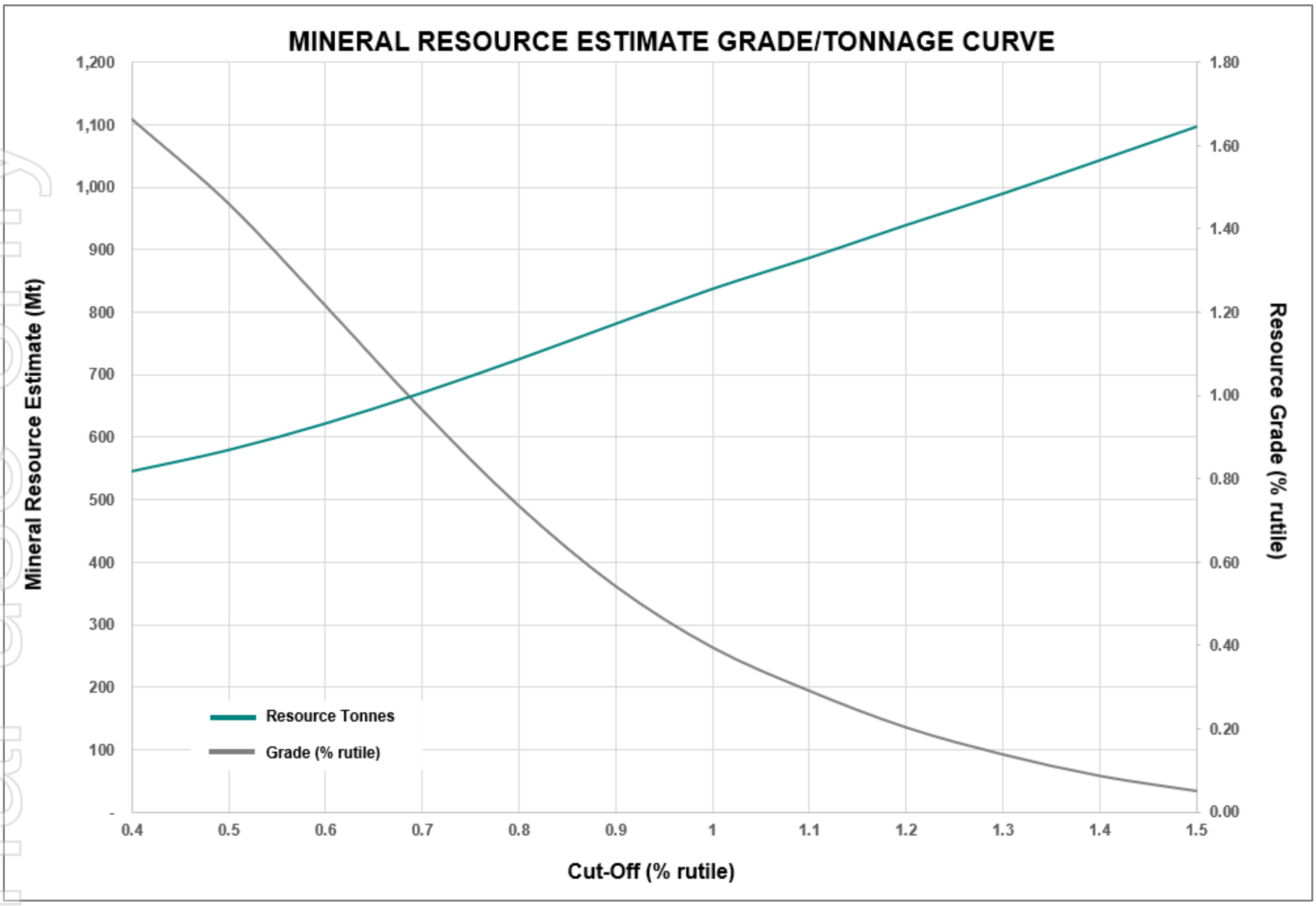


Figure 10: Grade Cut-off versus Tonnage Curve.

SUMMARY OF RESOURCE ESTIMATE REPORTING CRITERA

As per ASX Listing Rule 5.8 and the 2012 JORC reporting guidelines, a summary of the material information used to estimate the MRE is detailed below.

Geology

Regional Geology

The greater part of Malawi is underlain by crystalline Precambrian to lower Paleozoic rocks referred to as the Malawi Basement Complex. In some parts these rocks have been overlain unconformably by sedimentary and volcanic rocks ranging in age from Permo-triassic to Quaternary. The Basement complex has undergone a prolonged structural and metamorphic history dominated by uplift and faulting resulting in the formation of the Malawi Rift Valley.

Kasiya is located on the Lilongwe Plain which is underlain by the Basement Complex paragneisses and orthogneisses which are part of the Mozambique Belt. The bulk of the gneisses are semi-pelitic but there are bands of psammitic and calcareous rocks that have been metamorphosed under high pressure and temperature conditions to granulite facies. Interspersed within the paragneiss units are lesser orthogneisses, often cropping-out as conspicuous tors, as well as amphibolites, pegmatites and minor mafic to ultramafic intrusions. Foliation and banding in the gneisses have a broad north-south strike over the general area. Thick residual soils and pedolith with some alluvium overlie the gneisses and include sandy, lateritic and dambo types.

Figure 11: Drone photo above the Kasiya Deposit showing the open flat terrain and the numerous all-weather unpaved roads in the area.

Project Geology

Sovereign's tenure covers 2,682km^2 over an area to the north, west and south of Malawi's capital city covering the Lilongwe Plain. The topography is generally flat to gently undulating and the underlying geology of the is dominated by paragneiss with pelitic, psammitic and calcareous units.

A particular paragneiss unit is rich in rutile and graphite (**PGRG**) and is the primary source of both of these minerals in the area. This area was deeply weathered during the Tertiary and in the PGRG zones rutile concentrated in the upper part of the weathering profile forming a residual placer, such as the Kasiya Deposit. Once this material is incised and eroded, it is transported and deposited into wide, regional braided river systems forming alluvial heavy mineral placers such as the Bua Channel.

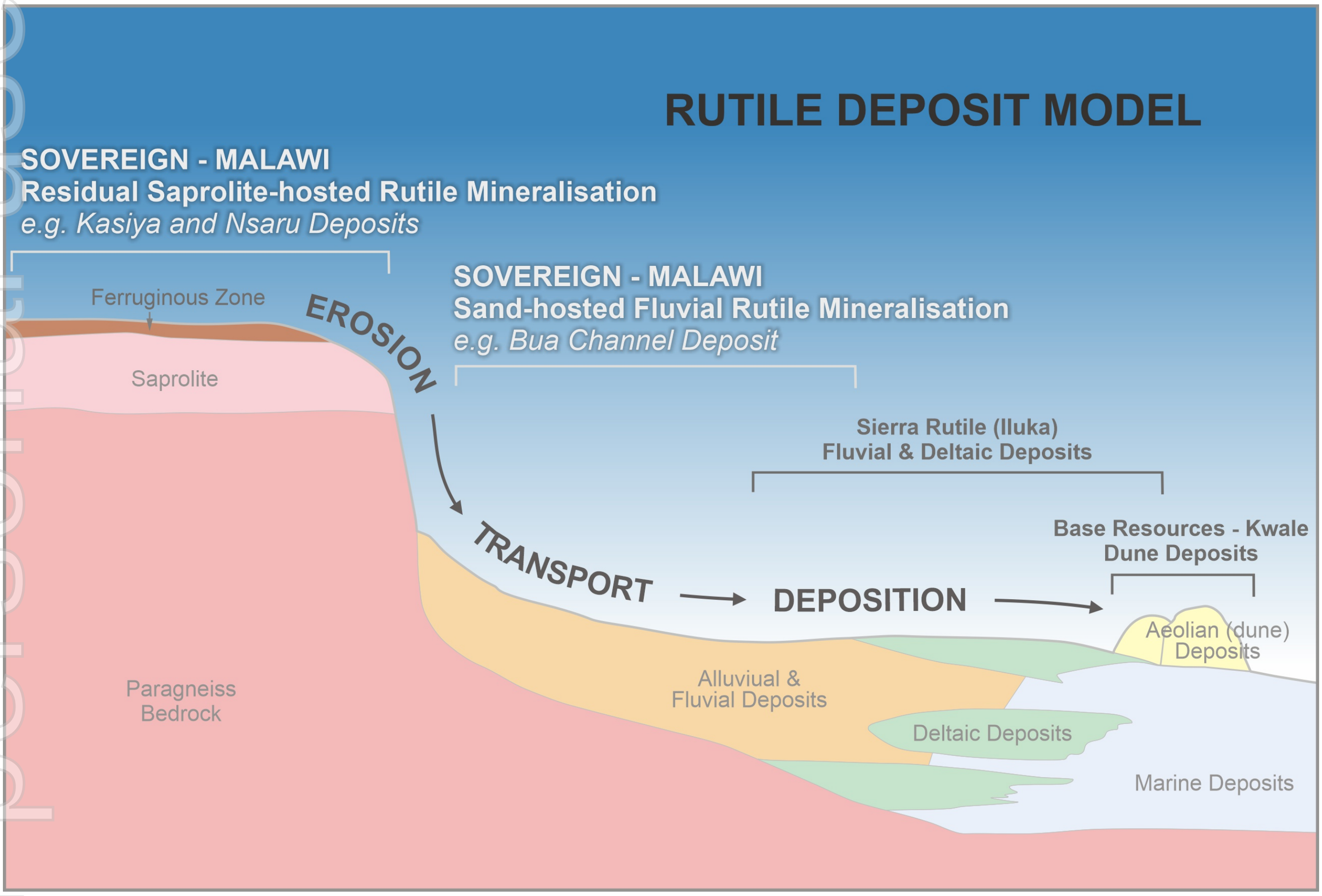


Figure 12: Rutile deposit model showing residual saprolite hosted mineralisation and the various traditional sand hosted deposit types.

Kasiya Deposit Geology

The high-grade rutile deposit at Kasiya is best described as a residual placer, or otherwise known as eluvial heavy mineral deposit. It is formed by weathering of the primary host rock and concentration in place of heavy minerals, as opposed to the high-energy transport and concentration of heavy minerals in a traditional placer.

The highly aluminous nature (kyanite) and the presence of carbon (graphite) in the host material suggest that the protolith was of sedimentary origin. The protolith likely started with a 0.5-1.5Ga basin that also experienced consistent influx of titanium minerals.

These sedimentary rocks were subject to granulite facies metamorphism under reduced conditions in the Pan-African Orogeny at circa 0.5-0.6Ga. The reduced environment, relatively high titanium content and low iron content, resulted in rutile being the most stable titanium mineral under these conditions. Slow exhumation and cooling then resulted in in crystallisation of paragneisses containing coarse rutile and graphite.

The final and most important stage of enrichment came as tropical weathering during the Tertiary depleted the top ~10m of physically and chemically mobile minerals. This caused significant volume loss and concurrent concentration of heavy resistate minerals including rutile and kyanite.

Rutile mineralisation lies in laterally extensive, near surface, flat "blanket" style bodies in areas where the weathering profile is preserved and not significantly eroded. The high-grade rutile zones appear to be geologically continuous with limited variability along and across strike. Accessory graphite mineralisation is depleted near surface, with much higher grades occurring from 6m and deeper.

	Depth (m)	WEATH Code	Typical rutile %	Typical graphite %	Geological Description
	0				
Pedolith	4	FERP	1.0% - 2.0%	0.5% to 2%	**Ferruginous Pedolith:** Ferruginous sandy with some clay. May locally contain variably cemented layers that tend towards a duricust, though where present is always less than 1m thick. Strongly enriched in rutile and kyanite, strongly depleted in graphite. Fine graphite flake size. Significant volume loss in this zone during the weathering process.
Pedolith	6	MOTT	0.7% to 1.5%	1% to 5%	**Mottled Zone:** Ferruginous rich and less ferruginous clay+quartz rich mottled colouring. In-situ chemical weathering of clay gangue minerals with graphite remaining inert. Primary fabric (ie foliation) may be partialy destroyed. Generally medium graphite flake size. Moderate rutile enrichment, moderate graphite depletion. Some volume loss in this zone during teh weathering process.
Saprolith	8	PSAP	0.4% to 1.2%	1% to 10%	**Pallid Saprolite:** Pale saprolite dominated by clay and quartz gangue mineralogy (i.e. same as SAPL). Has same graphite grade distribution as SAPL. Generally coarse graphite flake size. No rutile depletion or enrichment. No graphite depletion or enrichment.
Saprolith	25	SAPL	0.4% to 1.2%	1% to 10%	**Saprolite:** In-situ, strongly chemically weathered bedrock, with a clay-quartz quartz gangue mineralogy. More than 20% of weatherable minerals (= feldspar/mica/sulphides) altered. Primary fabric of bedrock (i.e. foliation) retained. Generally coarse graphite flake size. No rutile depletion or enrichment. No graphite depletion or enrichment.
Saprolith	35	SAPR	0.4% to 1.2%	1% to 10%	**Saprock:** More compact, slightly weathered rock with a lower porosity/permeability and higher density than saprolite. Less than 20% of weatherable minerals (= feldspar/mica/sulphides) altered. Generally requires a hammer blow to break. Sulphides are mostly oxidised. Weathering predominantly occurs along meso/micro fractures with the groundmass largely unweathered. Generally coarse graphite flake size. No rutile depletion or enrichment. No graphite depletion or enrichment.
Bedrock		FRESH	0.4% to 1.2%	1% to 10%	**Fresh Rock:** Foliated graphitic gneiss: Primary mineralogy of feldspar-quartz-graphite-rutile+/-biotite+/-pyrite+/-pyrrhotite. Generally coarse graphite flake size. No rutile depletion or enrichment. No graphite depletion or enrichment.

Table 3: Typical weathering and rutile/graphite grade profile encountered in the residual saprolite hosted mineralisation at Kasiya.

Sampling and Sampling Techniques

Spiral hand-auger (**HA**) samples were obtained at 1m intervals generating on average approximately 2.5kg of drill sample. HA samples are manually removed from the auger bit and sample recovery visually assessed in the field. As samples become wet at the water table and recovery per metre declines the drill hole is terminated.

Samples are collected on a metre by metre basis. Each 1m sample is sun dried, logged, weighed and pXRF analysed. Samples are then composited based on the logged weathering zone. Care is taken to ensure that only samples with similar geological characteristics are composited together. An equal mass is taken from each contributing metre to generate a 1.5kg composite sample. Sub-samples were carefully riffle split to ensure representivity.

Composite samples are always greater than 1m and do not exceed 5m in width. This sampling and compositing method is considered appropriate and reliable based on accepted industry practice.

Sample analysis methodology

Heavy mineral concentrates (**HMC**) were generated onsite via wet-tabling or at Diamantina Laboratories in Perth via heavy liquid separation.

The Malawi onsite laboratory sample preparation methods are considered quantitative to the point where a HMC is generated.

The HMC is then subject to magnetic separation at Allied Mineral Laboratories Perth (**AML**) in Perth by Carpco magnet @ 16,800G (2.9Amps) into a magnetic (**M**) and non-magnetic (**NM**) fraction.

The NM fractions were sent to either ALS Perth or Intertek Perth for quantitative XRF analysis. Intertek samples received the standard mineral sands suite FB1/XRF72. ALS Samples received XRF_MS.

Sovereign uses internal and externally sourced wet screening reference material inserted into sample batches at a rate of 1 in 20. The externally sourced, certified standard reference material is provided by Placer Consulting.

An external laboratory raw sample check duplicate is sent to laboratories in Perth, Australia as an external check of the full workflow. These duplicates are produced at a rate of 1 in 20.

Accuracy monitoring is achieved through submission of certified reference materials (**CRM's**). ALS and Intertek both use internal CRMs and duplicates on XRF analyses. Sovereign also inserts CRMs into the sample batches at a rate of 1 in 20.

Analysis of sample duplicates is undertaken by standard geostatistical methodologies (Scatter, Pair Difference and QQ Plots) to test for bias and to ensure that sample splitting is representative. Standards determine assay accuracy performance, monitored on control charts, where failure (beyond 3SD from the mean) triggers re-assay of the affected batch.

Precision and accuracy assessment has been completed on all alternate workflow methodologies and a consistent method has been recommended by Placer Resource Geologists. Examination of the QA/QC sample data indicates satisfactory performance of field sampling protocols and assay laboratories providing acceptable levels of precision and accuracy. Rutile determination by alternate methods showed no observable bias.

Acceptable levels of accuracy and precision are displayed in geostatistical analyses to support the resource classifications as applied to the estimate.

QEMSCAN of the NM fraction shows dominantly clean and liberated rutile grains and confirms rutile is the only significant titanium species in the NM fraction (Figure 13). Recovered rutile is therefore defined and reported here as: TiO_2 recovered in the +45 to -600um range to the NM concentrate fraction as a % of the total primary, dry, raw sample mass divided by 95% (to represent an approximation of final product specifications). i.e. recoverable rutile within the whole sample.

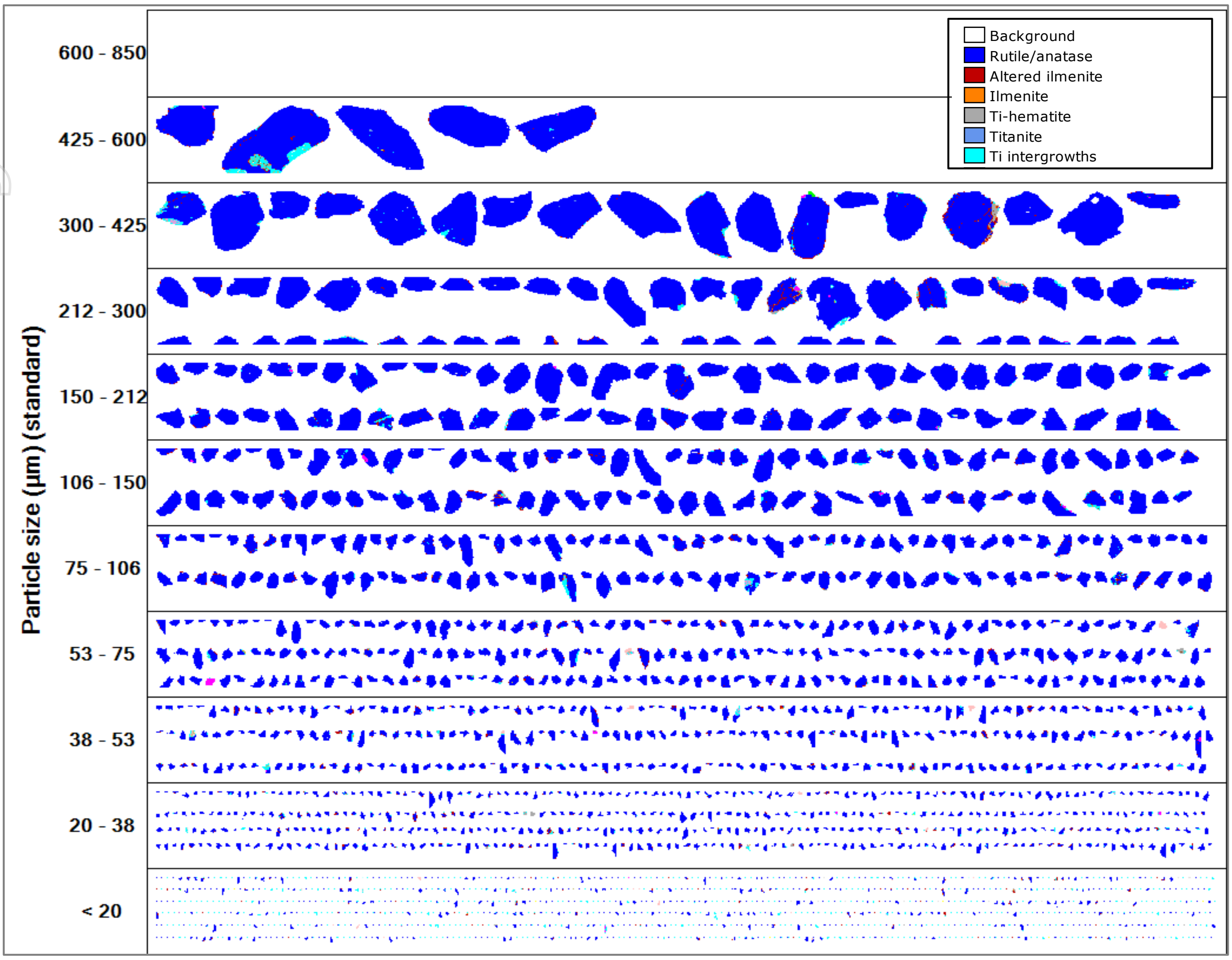


Figure 13: QEMSCAN image of Sovereign's premium rutile product from Kasiya.

Drilling Techniques

HA drilling has been used extensively at the Kasiya Deposit by Sovereign to define mineralisation and to obtain rutile assay information in the upper sections of the weathering profile.

A total of 507 HA holes for 4,820m and 36 PT (push-tube core) holes for 437m have been drilled at Kasiya since 2019. The drilling programs to date show a mineralised envelope, defined nominally by >0.5% rutile, of approximately 89km^2 with numerous areas of high-grade rutile defined. An additional 25km^2 rutile mineralised envelope has been drill-defined at the nearby Nsaru Deposit.

HA collars in the Inferred MRE area are spaced on a nominal 400 x 400m grid and infill lines completed at a 200m hole spacing. All extensional holes are designed to provide systematic strike and width extension of the anomalous lines of HA drilling previously reported along this same trend.

It is deemed that these holes should be broadly representative of the mineralisation style in the general area. More work is required to accurately determine the variability of the mineralisation in the Kasiya region.

All holes were drilled vertically on an east-west cross-sectional grid as the nature of the rutile mineralisation is broadly horizontal. No bias attributable to orientation of drilling has been identified.

Figures 14 & 15: Left: Sovereign team's hand augering with the SOS bit
Right: Core rig in action at Kasiya.

HA drilling was executed by SVM field teams using a manually operated enclosed-flight Spiral Auger (SP / SOS) system and produced by Dormer Engineering in Queensland, Australia. The HA bits are 62mm and 75mm in diameter with 1m long steel rods. Each 1m of drill advance is withdrawn and the contents of the auger flight removed into bags and set aside. An additional 1m steel rod is attached and the open hole is re-entered to drill the next metre. This is repeated until the drill hole is terminated often due to the water table being reached, and more rarely due to bit refusal. The auger bits and flights were cleaned between each metre of sampling to avoid contamination.

Core-drilling is undertaken for twin drilling analysis using a drop hammer Dando Terrier MK1. The drilling generated 1m runs of 83mm PQ core in the first 2m and then transitioned to 72mm core for the remainder of the hole. Core drilling is oriented vertically by spirit level.

Placer has reviewed SOPs for HA and push-tube drilling and found them to be fit for purpose and support the resource classifications as applied to the MRE.

Classification

The HA collars are spaced at nominally 400m x 400m in the Inferred area of the resource.

The PT core twin holes are selectively placed throughout the deposit to ensure a broad geographical and lithological spread for the analysis.

The drill spacing and distribution is considered to be sufficient to establish a degree of geological and grade continuity appropriate for the MRE.

Variography and kriging neighborhood analysis completed using Supervisor software informs the optimal drill and sample spacing for the MRE. Based on these results and the experience of the Competent Person, the data spacing and distribution is considered adequate for the definition of mineralisation and adequate for mineral resource estimation.

Classification of the MRE has been conservative and reflects the uncertainty that remains in data spacing and down-hole sample interval definition and grade determinations.

A high-degree of uniformity exists in the broad and contiguous lithological and grade character of the deposit. Open-hole drilling technique has been expertly applied and data collection procedures, density assessments, QA protocols and interpretations conform to industry best practice.

Assay, mineralogical determinations and metallurgical test work conform to industry best practice and demonstrate a rigorous assessment of product and procedure. The development of a conventional processing flowsheet and marketability studies support the classification of the Kasiya Resource.

Estimation Methodology

Datamine Studio RM and Supervisor software was used for the resource estimation with key fields being interpolated into the volume model using the Inverse Distance weighting (power 3) method. Dynamic Anisotropy search ellipses, informed by variography and kriging neighbourhood analysis, were used to search for data during the interpolation and suitable limitations on the number of samples, and the impact of those samples, was maintained.

Interpolation was constrained by hard boundaries (domains) that result from the geological interpretation.

The average parent cell size used was approximately equivalent to half the average drill hole spacing over the bulk of the deposit (200m x 200m). Cell size in the Z-axis was established to cater for the varied sample and composite sample spacing. This resulted in a parent cell size of 200m x 200m x 3m for the volume model with 5 sub-cell splits available in the X and Y axes and 3 in the Z axis to smooth topographical and lithological transitions.

Extreme grade values were not identified by statistical analysis, nor were they anticipated in this style of deposit. No top cut is applied to the resource estimation.

Validation of grade interpolations was done visually in Datamine by loading model and drill hole files and annotating, colouring and using filtering to check for the appropriateness of interpolations.

Statistical distributions were prepared for model zones from both drill holes and the model to compare the effectiveness of the interpolation. Distributions of section line averages (swath plots) for drill holes and models were also prepared for each zone and orientation for comparison purposes.

The resource model has effectively averaged informing drill hole data and is considered suitable to support the resource classifications as applied to the estimate.

Density is calculated by the water immersion technique using core from geographically and lithologically diverse sample sites throughout the project. This methodology delivers an accurate density result that is interpolated in the MRE for each host material type.

Density data are interpolated into the resource estimate by geological domain. An average density of 1.39 t/m³ for the soil (**SOIL**) domain, 1.60 t/m³ for the ferruginous pedolith (**FERP**) domain, 1.65 t/m³ for the mottled (**MOTT**) domain, 1.68 t/m³ for the pallid saprolite (**PSAP**) domain, 1.63 t/m³ for the saprolite (**SAPL**) domain, and 1.93 t/m³ for the laterite (**LAT**) domain were calculated.

Cut-off Grades

The resource is reported at a range of bottom cut-off grades in recognition that optimisation and financial assessment is outstanding.

A nominal bottom cut of 0.4% rutile is offered, based on preliminary assessment of resource value and anticipated operational cost.

Mining and Metallurgy Factors

Conventional dry mining methods are assumed at this stage and will likely include a combination of loader and dozer feed to a mobile, in-pit mining unit. It is recognised that wet mining (hydro-mining) may be possible for this deposit style, though the Company will need to progress further studies to determine its potential applicability for Kasiya. It is considered that the strip ratio would be zero or near zero.

Dilution is considered to be minimal as mineralisation commonly occurs from surface and mineralisation is generally gradational with few sharp boundaries.

Recovery parameters have not been factored into the estimate. However, the valuable minerals are readily separable due to their SG differential and are expected to have a high recovery through the proposed, conventional wet concentration plant.

Sovereign have announced two sets of metallurgical results to the market (24 June 2019 and 9 September 2020), relating to the Company's ability to produce a high-grade rutile product with a high recovery via simple conventional processing methods. Sovereign engaged AML to conduct the metallurgical test work and develop a flowsheet for plant design considerations. The work showed a premium quality rutile product of 96.3% TiO_2 with low impurities could be produced with recoveries of about 98% and with favourable product sizing at d_{50} of 145µm.

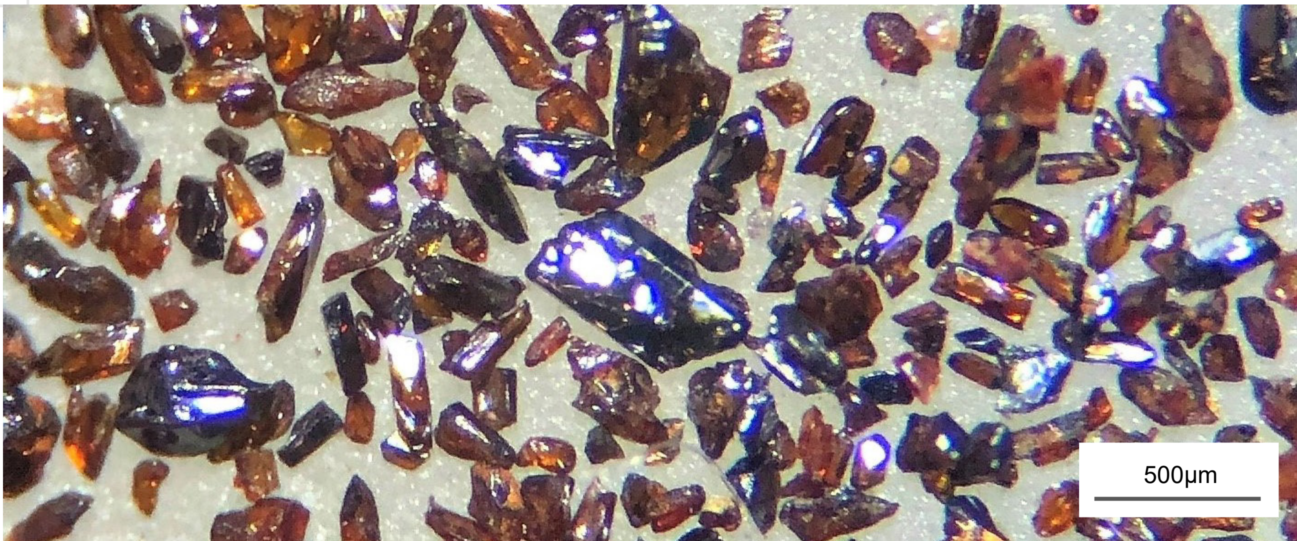


Figure 16: Photo-micrograph of Sovereign's premium rutile concentrate.

MINERAL RESOURCE ESTIMATE TABLE

Mineral Resource Category	Material Tonnes (millions)	Rutile (%)	Rutile Tonnes (millions)
Inferred	644	1.01	6.49
Total	**644**	**1.01**	**6.49**

Cut-off: 0.7% rutile

Competent Person's Statement

The information that relates to Mineral Resources is based on, and fairly represents, information compiled by Mr Richard Stockwell, a Competent Person, who is a fellow of the Australian Institute of Geoscientists (AIG). Mr Stockwell is a principal of Placer Consulting Pty Ltd, an independent consulting company. Mr Stockwell has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity 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'. Mr Stockwell consents to the inclusion of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to Exploration Results is based on information compiled by Dr Julian Stephens, a Competent Person who is a member of the Australian Institute of Geoscientists (AIG). Dr Stephens is the Managing Director of Sovereign Metals Limited and a holder of ordinary shares, unlisted options and performance rights in Sovereign. Dr Stephens 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 Resources and Ore Reserves'. Dr Stephens consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to Metallurgical Results (rutile) is extracted from an announcement on 9 September 2020 This announcement is available to view on www.sovereignmetals.com.au. The information in the original announcement that related to Metallurgical Results was based on, and fairly represents, information compiled by Mr Gavin Diener, a Competent Person who is a member of the AusIMM. Mr Diener is the Chief Operating Officer of TZMI, an independent mineral sands consulting company and is not a holder of any equity type in Sovereign Metals Limited. Mr Diener 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 Resources and Ore Reserves'. 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. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Forward Looking Statement

This release may include forward-looking statements, which may be identified by words such as "expects", "anticipates", "believes", "projects", "plans", and similar expressions. These forward-looking statements are based on Sovereign's expectations and beliefs concerning future events. Forward looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Sovereign, which could cause actual results to differ materially from such statements. There can be no assurance that forward-looking statements will prove to be correct. Sovereign makes no undertaking to subsequently update or revise the forward-looking statements made in this release, to reflect the circumstances or events after the date of that release.

This announcement has been approved and authorised for release by the Company's Managing Director, Julian Stephens.

SOVEREIGN METALS LIMITED
ASX:SVM

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 (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.*	A total of 507 hand auger holes for 4,820m were drilled at the Kasiya Rutile Deposit to obtain samples for quantitative determination of recoverable rutile. A total of 30 core drilling holes for 359.4m were drilled at the Kasiya Rutile Deposit to obtain samples for quantitative determination of recoverable rutile, validation of hand auger drilling results and bulk density test work. Samples are composited based on regolith boundaries and chemistry generated by hand-held XRF, generally at 3, 4 or 5m intervals.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Placer Consulting (Placer) Resource Geologists have reviewed Standard Operating Procedures (SOPs) for the collection of drill samples and found them to be fit for purpose and support the resource classifications as applied to the Mineral Resource Estimate (MRE). Drilling and sampling activities are supervised by a suitably qualified Company geologist who is present at all times. All bulk 1-metre drill samples are geologically logged by the geologist at the drill site. Each 1m sample is sun dried and homogenised. Sub-samples are carefully riffle split to ensure representivity ~1.5kg composite samples are processed. An equivalent mass is taken from each 1m sample to make up the composite. A calibration schedule is in place for laboratory scales, sieves and field XRF equipment. The primary composite sample is considered representative for this style of rutile mineralisation.
	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.	Logged mineralogy percentages, lithology information and TiO_2% obtained from handheld XRF are used to determine compositing intervals. Care is taken to ensure that only samples with similar geological characteristics are composited together
Drilling Techniques	*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).*	Placer has reviewed SOPs for hand-auger and push-tube drilling and found them to be fit for purpose and support the resource classifications as applied to the MRE. Two similar designs of hand auger drilling equipment are employed. Hand-auger drilling with 75mm diameter enclosed spiral bits (SOS) with 1-metre long steel rods and with 62mm diameter open spiral bits (SP) with 1-metre long steel rods. Drilling is oriented vertically by eye. Each 1m of drill sample is collected into separate sample bags and set aside. The auger bits and flights are cleaned between each metre of sampling to avoid contamination. Core-drilling is undertaken for twin drilling analysis using a drop hammer Dando Terrier MK1. The drilling generated 1-metre runs of 83mm PQ core in the first 2m and then transitioned to 72mm core for the remainder of the hole. Core drilling is oriented vertically by spirit level.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Samples are assessed visually for recoveries. The configuration of drilling and nature of materials encountered results in negligible sample loss or contamination. Hand-auger drilling is ceased when recoveries become poor once the water table has been reached. Water table and recovery information is included in lithological logs. Core drilling samples are actively assessed by the driller and geologist onsite for recoveries and contamination.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	The Company's trained geologists supervise drilling on a 1 team 1 geologist basis and are responsible for monitoring all aspects of the drilling and sampling process.

Criteria	JORC Code explanation	Commentary
		For push-tube drilling, core is extruded into core trays; slough is actively removed by the driller at the drilling rig and core recovery and quality is recorded by the geologist.
	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.	No relationship is believed to exist between grade and sample recovery. The high percentage of silt and absence of hydraulic inflow from groundwater at this deposit results in a sample size that is well within the expected size range. No bias related to preferential loss or gain of different materials is observed.
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.*	Geologically, data is collected in detail, sufficient to aid in Mineral Resource estimation. All individual 1-metre auger intervals are geologically logged, recording relevant data to a set template using company codes. A small representative sample is collected for each 1-metre interval and placed in appropriately labelled chip trays for future reference. All individual 1-metre core intervals are geologically logged, recording relevant data to a set template using company codes. Half core remains in the trays and is securely stored in the company warehouse.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging includes lithological features and estimates of basic mineralogy. Logging is generally qualitative. The core is photographed dry, after logging and sampling is completed.
	The total length and percentage of the relevant intersection logged	100% of samples are geologically logged.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Due to the soft nature of the material, core samples are carefully cut in half by hand tools. The half core is then halved again by hand to create quarter core for sampling.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Samples from the 507 auger holes and 30 core holes drilled are composited. Each 1m sample is sun dried and homogenised. Sub-samples are carefully riffle split to ensure sample representivity. ~1.5kg composite samples are processed. An equivalent mass is taken from each 1m sample to make up the composite. The primary composite sample is considered representative for this style of Rutile mineralisation and is consistent with industry standard practice.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Techniques for sample preparation are detailed on SOP documents verified by Placer Resource Geologists. Sample preparation is recorded on a standard flow sheet and detailed QA/QC is undertaken on all samples. Sample preparation techniques and QA/QC protocols are appropriate for mineral determination and support the resource classifications as stated.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	The sampling equipment is cleaned after each sub-sample is taken. Field duplicate, laboratory replicate and standard sample geostatistical analysis is employed to manage sample precision and analysis accuracy.
	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.	Sample size analysis is completed to verify sampling accuracy. Field duplicates are collected for precision analysis of riffle splitting. SOPs consider sample representivity. Results indicate a sufficient level of precision for the resource classification.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample size is considered appropriate for the material sampled.
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.*	The Malawi onsite laboratory sample preparation methods are considered quantitative to the point where a heavy mineral concentrate (HMC) is generated. Final results generated are for recovered rutile i.e, the % mass of the sample that is rutile that can be recovered to the non-magnetic component of a HMC. All 1,352 samples received the following workflow undertaken on-site in Malawi; • Dry sample in oven for 1 hour at 105℃ • Soak in water and lightly agitate • Wet screen at 5mm, 600µm and 45µm to remove oversize and slimes material • Dry +45µm -600mm (sand fraction) in oven for 1 hour at 105℃

Criteria	JORC Code explanation	Commentary
		358 of the 1352 samples received the following workflow undertaken on-site in Malawi • Pass +45µm -600mm (sand fraction) across wet table twice to generate a heavy mineral concentrate (HMC) • Dry HMC in oven for 30 minutes at 105℃ Bag HMC fraction and send to Perth, Australia for quantitative chemical and mineralogical determination. 994 of the 1,352 sample received the following workflow undertaken at Perth based Laboratories. • Split ~150g off sand fraction for Heavy Liquid Separation (HLS) using Tetrabromomethane (TBE, SG 2.96g/cc) as the liquid heavy media to generate HMC. Work undertaken at Diamantina Laboratories. All of the 1,352 sample received the final workflow undertaken at Perth based Laboratories. • Magnetic separation of the HMC by Carpco magnet @ 16,800G (2.9Amps) into a magnetic (M) and non-magnetic (NM) fraction. Work undertaken at Allied Mineral Laboratories (AML) in Perth. • The NM fractions were sent to either ALS Perth or Intertek Perth for quantitative XRF analysis. Intertek samples received the standard mineral sands suite FB1/XRF72. ALS Samples received XRF_MS.
	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.	Acceptable levels of accuracy and precision have been established. No handheld XRF methods are used for quantitative determination.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicate, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Sovereign uses internal and externally sourced wet screening reference material inserted into samples batches at a rate of 1 in 20. The externally sourced, certified standard reference material is provided by Placer Consulting. An external laboratory raw sample check duplicate is sent to laboratories in Perth, Australia as an external check of the full workflow. These duplicates are produced at a rate of 1 in 20. Accuracy monitoring is achieved through submission of certified reference materials (CRM's). ALS and Intertek both use internal CRMs and duplicates on XRF analyses. Sovereign also inserts CRMs into the sample batches at a rate of 1 in 20. The CRMs used by Sovereign are supplied by African Mineral Standards (AMIS), South Africa. AMIS0602 is used containing TiO_2 XRF 90.62%. Analysis of sample duplicates is undertaken by standard geostatistical methodologies (Scatter, Pair Difference and QQ Plots) to test for bias and to ensure that sample splitting is representative. Standards determine assay accuracy performance, monitored on control charts, where failure (beyond 3SD from the mean) triggers re-assay of the affected batch. Precision and accuracy assessment has been completed on all alternate workflow methodologies and a consistent method has been recommended by Placer Resource Geologists. Examination of the QA/QC sample data indicates satisfactory performance of field sampling protocols and assay laboratories providing acceptable levels of precision and accuracy. Rutile determination by alternate methods showed no observable bias. Acceptable levels of accuracy and precision are displayed in geostatistical analyses to support the resource classifications as applied to the estimate.
Verification of sampling & assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Results are reviewed in cross-section using Datamine Studio RM software and any spurious results are investigated. The deposit type and consistency of mineralisation leaves little room for unexplained variance. Extreme high grades are not encountered.
	The use of twinned holes.	Twinned holes are drilled across a geographically-dispersed area to determine short-range geological and assay field variability for the resource estimation. Twin drilling data accounts for a total of 7% of the drill database for the resource estimate. Twin drilling is completed routinely with hand-auger v hand-auger and between hand-auger v push-tube core drilling.

Criteria	JORC Code explanation	Commentary
		Acceptable levels of precision are displayed in the geostatistical analysis of twin drilling data to support the resource classifications as applied to the estimate.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data are collected initially on paper logging sheets and codified to the Company's templates. This data is hand entered to spreadsheets and validated by Company geologists. This data is then imported to a Microsoft Access Database and validated automatically and manually. A transition to electronic field and laboratory data capture is proposed by the Competent Person.
	Discuss any adjustment to assay data.	Assay data adjustments are made to convert laboratory collected weights to assay field percentages and to account for moisture. QEMSCAN of the NM fraction shows dominantly clean and liberated rutile grains and confirms rutile is the only titanium species in the NM fraction. Recovered rutile is therefore defined and reported here as: TiO_2 recovered in the +45 to -600um range to the NM concentrate fraction as a % of the total primary, dry, raw sample mass divided by 95% (to represent an approximation of final product specifications). i.e recoverable rutile within the whole sample.
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.*	A Trimble R2 Differential GPS is used to pick up the hand auger collars. Daily capture at a registered reference marker ensures equipment remains in calibration. No downhole surveying of hand-auger holes is completed. Given the vertical nature and shallow depths of the hand-auger holes, drill hole deviation is not considered to significantly affect the downhole location of samples.
	Specification of the grid system used.	WGS84 UTM Zone 36 South.
	Quality and adequacy of topographic control.	The digital terrane model (DTM) was generated by land-based survey of drill collar positions and later (2020, 2021) infill at a 200m spacing in X and Y axes using the Trimble RTK DGPS unit. The DTM is suitable for the classification of the resource as stated.
Data spacing & distribution	*Data spacing for reporting of Exploration Results.*	The hand auger collars are spaced at nominally 400m along the 400m spaced drill-lines. It is deemed that this hole spacing should be adequately define the rutile mineralisation style in the area. The push-tube core twin holes are selectively placed throughout the deposit to ensure a broad geographical and lithological spread for the analysis.
	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.	The drill spacing and distribution is considered to be sufficient to establish a degree of geological and grade continuity appropriate for the Mineral Resource estimation. Variography and kriging neighbourhood analysis completed using Supervisor software informs the optimal drill and sample spacing for the MRE. Based on these results and the experience of the Competent Person, the data spacing and distribution is considered adequate for the definition of mineralisation and adequate for mineral resource estimation.
	Whether sample compositing has been applied.	Individual 1-metre auger and core intervals have been composited over a determined interval of interest for the 507 auger holes and 30 core holes drilled in order to obtain a primary sample of ~1.5kg mass for mineralogical analysis.
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*	Sample orientation is vertical and approximately perpendicular to the orientation of the mineralisation, which results in true thickness estimates, limited by the sampling interval as applied. Drilling and sampling are carried out on a regular square grid. There is no apparent bias arising from the orientation of the drill holes with respect to the orientation of the deposit. Infill drilling is proposed by Placer on an offset grid to align with the anisotropy of the mineralisation, demonstrated at approximately 045˚.
	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.	There is no apparent bias arising from the orientation of the drill holes with respect to the orientation of the deposit.
Sample security	*The measures taken to ensure sample security*	Samples are stored in secure storage from the time of drilling, through gathering, compositing and analysis. The samples are sealed as soon as site preparation is complete.

Criteria	JORC Code explanation	Commentary
		A reputable international transport company with shipment tracking enables a chain of custody to be maintained while the samples move from Malawi to Australia. Samples are again securely stored once they arrive and are processed at Australian laboratories. A reputable domestic courier company manages the movement of samples within Perth, Australia. At each point of the sample workflow the samples are inspected by a company representative to monitor sample condition. Each laboratory confirms the integrity of the samples upon receipt.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data*	Richard Stockwell (CP) has reviewed and advised on all stages of data collection, sample processing, QA protocol and mineral resource estimation. Methods employed are considered industry best-practice. Perth Laboratory visits have been completed by Richard. Field and in-country lab visits are precluded by Covid 19 travel restrictions. In these cases, audit is completed by SOP review, site visits by an experienced senior geologist from South Africa and collection of photographs and video during operations. Sovereign Metals Managing Director and CP for all exploration results Julian Stephens has been onsite in Malawi numerous times since the discovery of the Kasiya Deposit.

SECTION 2 - REPORTING OF EXPLORATION RESULTS

Criteria	Explanation	Commentary
Mineral tenement & 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 environment settings.*	The Company owns 100% of the following Exploration Licences (ELs) under the Mines and Minerals Act 2019, held in the Company's wholly-owned, Malawi-registered subsidiary, Sovereign Services Limited: EL0372, EL0355, EL0413, EL0492, EL0528, EL0545, EL0561 and EL0582. A 5% royalty is payable to the government upon mining and a 2% of net profit royalty is payable to the original project vendor. No significant native vegetation or reserves exist in the area. The region is intensively cultivated for agricultural crops. Land access is negotiated with landowners by small courtesy payments relative to the level of disturbance to agricultural activities.
	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 tenements are in good standing and no known impediments to exploration or mining exist.
Exploration done by other parties	*Acknowledgement and appraisal of exploration by other parties.*	Sovereign Metals Ltd is a first-mover in the discovery and definition of residual rutile resources in Malawi. No other parties are involved in exploration.
Geology	*Deposit type, geological setting and style of mineralisation*	The rutile deposit type is considered a residual placer formed by the intense weathering of rutile-rich basement paragneisses and variable enrichment by elluvial processes. Rutile occurs in a mostly topographically flat area west of Malawi's capital, known as the Lilongwe Plain, where a deep tropical weathering profile is preserved. A typical profile from top to base is generally soil ("SOIL" 0-1m) ferruginous pedolith ("FERP", 1-4m), mottled zone ("MOTT", 4-7m), pallid saprolite ("PSAP", 7-9m), saprolite ("SAPL", 9-25m), saprock ("SAPR", 25-35m) and fresh rock ("FRESH" >35m).
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 northings 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; and hole length*	All intercepts relating to the Kasiya Deposit have been included in public releases during each phase of exploration and in this report. Releases included all collar and composite data and these can be viewed on the Company website. An intercept table of all drilling relevant to the resource estimate is listed in the Resource Report. There are no further drill hole results that are considered material to the understanding of the exploration results. Identification of the broad zone of mineralisation is made via multiple intersections of drill holes and to list them all would not give the reader any further clarification of the distribution of mineralisation throughout the deposit.

	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	No information has been excluded.
Data aggregation methods	*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.*	All results reported are of a length-weighted average of in-situ grades. The resource is reported at a range of bottom cut-off grades in recognition that optimisation and financial assessment is outstanding. A nominal bottom cut of 0.4% rutile is offered, based on preliminary assessment of resource product value and anticipated low cost of operations.
	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.	No data aggregation was required.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values are used in this report.
Relationship between mineralisation widths & intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.*	The mineralisation has been released by weathering of the underlying, layered gneissic bedrock that broadly trends NE-SW. It lies in a laterally extensive superficial blanket with high-grade zones reflecting the broad bedrock strike orientation of ~045°.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The mineralisation is laterally extensive where the entire weathering profile is preserved and not significantly eroded. Minor removal of the mineralised profile has occurred in alluvial channels. These areas are adequately defined by the drilling pattern and topographical control for the resource estimate.
	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').	Downhole widths approximate true widths limited to the sample intervals applied. Mineralisation remains open at depth and in areas coincident with high-rutile grade lithologies in basement rocks, is increasing with depth.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of the drill collar locations and appropriate sectional views.*	Refer to figures in this report and in previous releases. These are accessible on the Company's webpage.
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 results are included in this report and in previous releases. These are accessible on the Company's webpage.
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.*	Limited lateritic duricrust has been variably developed at Kasiya, as is customary in tropical highland areas subjected to seasonal wet/dry cycles. Lithological logs record drilling refusal in 37 hand-auger holes, or just over 7% of the drill database. Not all of these record laterite as the primary lithology. The twin drilling programme of push-tube core drilling was recommended by Placer to establish the reliability of drilling completed by the hand-auger method and assist in informing mineral resource confidence. Sample quality (representivity) is established by geostatistical analysis of comparable sample intervals. The twin drilling sample population is statistically insufficient to provide a definitive result. However, the inference is that the hand-auger method is substantially more reliable in the saprolite at Kasiya than could be achieved in beach and dune sand deposits. Some twin pairs showed notable grade variability. Despite this, a conservative approach was decided and applied to the confidence levels in this resource estimate. Rutile has been determined to be the major TiO_2-bearing mineral at and around several rutile prospects within Sovereign's ground package. The Company continues to examine areas within the large tenement package for rutile mineralisation.

Further work	The nature and scale of planned further work (e.g. test for lateral extensions or depth extensions or large-scale step-out drilling).	Infill core drilling is proposed to bring drill definition of the resource to 200m E by 200m N and 2m RL. This drilling will be completed on an offset grid and result in a drilling grid that approximates the trend of basement lithologies and mineral enrichment in surface soil and ferruginous pedolith, at 045°. Closed-hole drilling, a shorter down-hole sample interval and application of established QA protocols is anticipated to provide sufficient confidence for a resource upgrade to an Indicated status, where completed. Whilst the influence of lateritic duricrust on the resource estimate is considered negligible, some assessment of the hardness and extent of lateritic duricrust horizons is recommended in future work to guide optimisation and mining studies. Assessment of resource depth, guided by existing results over high-grade basement lithologies is required. Potentially, a substantial resource increase could be achieved without increasing the disturbance footprint. Further metallurgical assessment is recommended by the Competent Person to characterise rutile quality across the deposit and establish whether any chemical variability is inherent in the layered metamorphic basement rocks and reflected in surface mineralisation. Resource drilling should transition to closed-hole techniques such as coring or reverse circulation. Hand-auger drilling remains as an effective means of determining anomalism in regional exploration programmes. Inherently narrow or thin deposits require sampling at narrow intervals to accurately assign grade and avoid dilution. Whilst mitigated somewhat at Kasiya by the elevated grades in underlying lithologies, true widths are compromised by the sampling regime applied. The 2m interval applied to the infill drilling programme will assist in resource definition.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Refer to diagrams in the body of this report and in previous releases. These are accessible on the Company's webpage.

SECTION 3 - ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Data are manually entered into database tables according to Standard Operating Procedures and conforming to company flied names and classifications. These are then migrated to a MS Access database accompanied by a visual validation stage. Relevant tables from the database are exported to csv format and forwarded to the Competent Person for independent review.
	Data validation procedures used.	Validation of the primary data include checks for overlapping intervals, missing survey data, missing assay data, missing lithological data, missing and mis-matched (to Lithology) collars. Statistical, out-of-range, distribution, error and missing data validation is completed by the Competent Person on data sets before being compiled into a de-surveyed drill hole file and interrogated in 3D using Datamine Studio RM software. The company is in the process of migrating to a secure database hosted by Maxwell Geoscience.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person (Richard Stockwell) was unable to visit the site due to international travel restrictions imposed by the Australian Government. Visits were completed to Perth laboratories. There are no issues observed that might be considered material to the Mineral Resource under consideration.
	If no site visits have been undertaken indicate why this is the case.	The Australian Government has restricted any unnecessary international travel due to the global Covid-19 pandemic. The restrictions have been in place since the discovery of the Kasiya Rutile Deposit in early 2020. The company has endeavoured to increase its site photography and drone footage library to satisfy the competent person that best practice procedures are being employed in country.

Criteria	JORC Code explanation	Commentary
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	There is a high degree of repeatability and uniformity in the geological character of the Kasiya Deposit demonstrated by lithological logging of drill core and hand-auger samples. Satellite imagery and airborne geophysical data provided guidance for interpreting the strike continuity of the deposit. Drill hole intercept logging and assay results (hand auger and core), stratigraphic interpretations from drill core and geological logs of hand auger drill data have formed the basis for the geological interpretation. The drilling exclusively targeted the SOIL, FERP, MOTT and SAPL weathering horizons, with no sampling of the SAPR and below the upper level of the fresh rock (FRESH) domain.
	Nature of the data used and of any assumptions made.	No assumptions were made.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations on mineral resource estimation are offered.
	The use of geology in guiding and controlling Mineral Resource estimation.	The mineral resource is constrained by the topography, which is a lightly-undulating residual and elluvial plain. Rutile, enriched at surface by deflation and elluvial processes, is constrained by a wireframe that separates SOIL and FERP horizons from the (generally less-mineralised) MOTT and SAPL. In this way, continuity of rutile, observed in drilling results, is honoured between drill lines rather than being diluted by averaging of lower-grade sub-surface lithologies in floating cells. The base to mineralisation is arbitrarily designated at 4m below the depth of drill penetration, which is generally where hand auger drilling becomes ineffective at the static water table.
	The factors affecting continuity both of grade and geology.	Rutile grade is generally concentrated in surface regolith horizons. Both rutile grade and deposit geology are consistent along and across strike and are expected to be reinforced by further infill and extensional drilling.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The Kasiya mineralised footprint strikes broadly NE – SW and occupies an area of 89km^2. A polygon of 62.6km^2 was used as the area classified as Inferred in the MRE. 49km^2 of this polygon is defined as the mineralised footprint by Sovereign. Kasiya is the subject of further extensional drilling but currently extends some 20km along-strike and 9km across strike at its widest point. Due to drilling methodology, basement has not been intersected. Average drilling depth is 10m and mineralisation remains open in many of these holes.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	Datamine Studio RM and Supervisor software was used for the resource estimation with key fields being interpolated into the volume model using the Inverse Distance weighting (power 3) method. Dynamic Anisotropy search ellipses, informed by variography and kriging neighbourhood analysis, were used to search for data during the interpolation and suitable limitations on the number of samples, and the impact of those samples, was maintained. Extreme grade values were not identified by statistical analysis, nor were they anticipated in this style of deposit. No top cut is applied to the resource estimation. Interpolation was constrained by hard boundaries (domains) that result from the geological interpretation.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	This is the maiden mineral resource estimate reported for the Kasiya Deposit. No previous estimates or mine production has occurred. Pilot plant-scale test work has been completed and results support the view of the Competent Person that an economic deposit of readily separable, high-quality rutile is anticipated from the Kasiya Deposit.
	The assumptions made regarding recovery of by-products.	No by-products were modelled.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No significant deleterious elements are identified. A selection of assay, magnetic separation and XRF results are modelled and are reported.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The average parent cell size used was approximately equivalent to half the average drill hole spacing over the bulk of the deposit (200m x 200m). Cell size in the Z-axis was established to cater for the varied sample and composite sample spacing. This resulted in a parent cell size of 200m x 200m x 3m for the volume model with 5 sub-cell splits available in the X and Y axes and 3 in the Z axis to smooth topographical and lithological transitions.

SOVEREIGN METALS LIMITED
ASX:SVM

Criteria	JORC Code explanation	Commentary
		No topsoil was modelled in this iteration. A 0.3m topsoil horizon may need to be considered in future to allow application of economic factors to the optimisation of higher confidence resources.
	Any assumptions behind modelling of selective mining units.	No assumptions were made regarding the modelling of selective mining units. The resource is reported at an Inferred level of confidence and is un-suitable for meaningful reserve calculation or mining study.
	Any assumptions about correlation between variables.	No assumptions were made regarding the correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Interpolation was constrained by hard boundaries (domains) that result from the geological interpretation.
	Discussion of basis for using or not using grade cutting or capping.	Extreme grade values were not identified by statistical analysis, nor were they anticipated in this style of deposit. No top cut is applied to the resource estimation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of grade interpolations was done visually In Datamine by loading model and drill hole files and annotating, colouring and using filtering to check for the appropriateness of interpolations. Statistical distributions were prepared for model zones from both drill holes and the model to compare the effectiveness of the interpolation. Distributions of section line averages (swath plots) for drill holes and models were also prepared for each zone and orientation for comparison purposes. The resource model has effectively averaged informing drill hole data and is considered suitable to support the resource classifications as applied to the estimate.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are estimated on a dry basis. No moisture content is factored.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The resource is reported at a range of bottom cut-off grades in recognition that optimisation and financial assessment is outstanding. A nominal bottom cut of 0.4% rutile is offered, based on preliminary assessment of resource value and anticipated operational cost.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	Conventional dry mining methods are assumed at this stage and will likely include a combination of loader and dozer feed to a mobile, in-pit mining unit. It is recognised that wet mining (hydro-mining) may be possible for this deposit style, though the Company would need to undertake further studies to determine its potential applicability for Kasiya. Dilution is considered to be minimal as mineralisation commonly occurs from surface and mineralisation is generally gradational with few sharp boundaries. Recovery parameters have not been factored into the estimate. However, the valuable minerals are readily separable due to their SG differential and are expected to have a high recovery through the proposed, conventional wet concentration plant.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Sovereign have announced two sets of metallurgical results to the market (24 June 2019 and 9 September 2020), relating to the Company's ability to produce a high-grade rutile product with a high recovery via simple conventional processing methods. Sovereign engaged AML to conduct the metallurgical test work and develop a flowsheet for plant design considerations. An initial sighter metallurgical test-work program was undertaken in June 2019 on a 180kg sample of saprolite-hosted rutile from an area representative of the style of mineralisation at the Wofiira prospect. This test work focused on generating saleable product specifications and demonstrated that a high-quality commercial Rutile product can be produced using conventional mineral sands processing methods. The recovered, in-situ rutile grade was 1.16% produced in a +38µm to -250µm size fraction with a produced rutile product grade of 96.0% TiO_2. A follow-up test work program was then commissioned on a mineralised sample of approximately 1,000kg composited from a number of drill holes across the Kasiya deposit. The sample had a head grade of 0.96% recoverable rutile. The test-work focussed on producing a rutile product. The test work was based on the flowsheet previously developed with AML with minor improvements. The work showed a premium quality rutile product of 96.3% TiO_2 with low impurities could again be produced with favourable product sizing at d_{50} of 145µm. Recoveries were about 98%.

Criteria	JORC Code explanation	Commentary
		The product characteristics are considered by the Competent Person (industrial minerals) to be favourable for product marketability. The Competent Person recommends additional variability testing to investigate different geological and weathering domains and to improve confidence in product quality across the deposit. This work is anticipated as the project moves forward into higher-confidence resource classifications to identify discrete mineral populations, where they exist, and assist in accurate mining and product assumptions during optimisations and feasibility study.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	A large portion of the Mineral Resource is confined to the SOIL, FERP and MOTT weathering domains, and any sulphide minerals have been oxidised in the geological past. Therefore, acid mine-drainage is not anticipated to be a significant risk when mining from the oxidised domain. No major water courses run through the resource area. The Kasiya deposit is located within a farming area and has villages located along the strike of the deposit. Sovereign holds regular discussions with local landholders and community groups to keep them well informed of the status and future planned directions of the project. Sovereign has benefited from maintaining good relations with landowners and enjoys strong support from the community at large. Kasiya is in a sub-equatorial region of Malawi and is subject to heavy seasonal rainfall, with rapid growth of vegetation in season. Substantial vegetation or nature reserve is absent in the area.
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Density was calculated from 310 full core samples taken from geographically and lithologically-diverse sites across the deposit. Density measured using wet-bulk and dry-bulk density immersion method performed by Sovereign in Malawi and calculations verified by Placer Consulting. Density data was loaded into an Excel file, which was flagged against weathering horizons and mineralisation domains.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vughs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	All bulk density determinations were completed by the wet-bulk and dry-bulk density, water-immersion method.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average density of 1.65 t/m^3 was determined for the total weathering profile. This incorporates and average density of 1.39 t/m^3 for the soil (SOIL) domain, 1.60 t/m3 for the ferruginous pedolith (FERP) domain, 1.65 t/m^3 for the mottled (MOTT) domain, 1.68 t/m^3 for the pallid saprolite (PSAP) domain, 1.63 t/m^3 for the saprolite (SAPL) domain, and 1.93 t/m^3 for the laterite (LAT) domain. Density data are interpolated into the resource estimate by geological domain.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Classification of the MRE is at an Inferred category. An area equivalent to, and surrounding, the Inferred Resource exists in an unclassified status on account of lower data density.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All available data were assessed and the competent person's relative confidence in the data was used to assist in the classification of the Mineral Resource.
	Whether the result appropriately reflects the Competent Person's view of the deposit	The result appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Reviews of the MRE were undertaken by alternate Placer Consulting personnel and by Sovereign senior geological personnel. No audits of the MRE have been undertaken by external parties at this early stage.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the*	Classification of the MRE has been conservative and reflects the uncertainty that remains in data spacing and down-hole sample interval definition and grade determinations. A high-degree of uniformity exists in the broad and contiguous lithological and grade character of the deposit. Open-hole drilling technique has been expertly applied and data collection procedures, density assessments, QA protocols and interpretations conform to industry best practice. Assay, mineralogical determinations and metallurgical test work conform to industry best practice and demonstrate a rigorous assessment of product and

Criteria	JORC Code explanation	Commentary
	factors that could affect the relative accuracy and confidence of the estimate.	procedure. The development of a conventional processing flowsheet and marketability studies support the classification of the Kasiya Resource.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The estimate is global.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production data is available to reconcile model results.