ASX, AIM and Media Release
27 November 2019

Maiden Ranobe Ore Reserves Estimate

Highlights

- Ranobe Ore Reserves estimate of 586Mt of ore at an average heavy mineral grade of 6.5%, containing 38Mt of in-situ HM.
- The Ore Reserves estimate is consistent with the Mineral Resources assumptions underpinning the pre-feasibility study.
- Samples from a 26,141m drilling program completed during 2019 are currently being processed, seeking to upgrade the Mineral Resources and Ore Reserves estimates for Ranobe over the course of 2020.

Base Resources Limited (ASX & AIM: BSE) (**Base Resources** or the **Company**) is pleased to release its maiden Ranobe Ore Reserves estimate which forms the foundation of its Toliara Project in Madagascar.

The Company completed the acquisition of the Toliara Project in January 2018 and, following positive findings from the Pre-Feasibility Study (**PFS**) completed in March 2019[1], is currently progressing the project through a Definitive Feasibility Study (**DFS**) phase due for completion in December 2019. With the PFS demonstrating a positive economic outcome, an initial Ore Reserves estimate has been prepared (the **Ranobe Ore Reserves**).

The Ranobe Ore Reserves estimate shown below underpins an expected 33-year mine life, consistent with the PFS.

Table 1: 2019 Ranobe Ore Reserves estimate.

	Ranobe Mineral Ore Reserves* as at 27 November 2019								
Category	Tonnes (Mt)	HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage			
						ILM (%)	RUT (%)	LEUC** (%)	ZIR (%)
Proved	347	24	7.0	3.8	0.1	75	1.0	1.0	5.9
Probable	239	14	5.8	4.2	0.2	73	1.3	0.8	5.7
Total	**586**	**38**	**6.5**	**3.9**	**0.1**	**74**	**1.1**	**0.9**	**5.9**

* Figures in Table 1 are subject to rounding.

** Recovered Leucoxene will be split between Rutile and Chloride Ilmenite products depending on product specification requirements.

The Ranobe Ore Reserves estimate has been prepared by Base Resources and IHC Robbins and is based on the Ranobe Mineral Resources estimate released on 23 January 2019 (**2019 Ranobe Mineral Resources**), which was reported in accordance with the JORC Code[2]. The Ranobe Ore Reserves are contained within the Measured and Indicated categories of the 2019 Ranobe Mineral Resources estimate.

[1] For further information, including the material assumptions and underlying methodologies upon which the key findings from the PFS were based, refer to Base Resources' announcement on 21 March 2019 "Toliara Project PFS confirms status as a world-class mineral sands development" available at https://www.baseresources.com.au/investor-centre/asx-releases/ (**PFS Announcement**).

[2] For further information refer to Base Resources' announcement on 23 January 2019 "Updated Ranobe Deposit Mineral Resources (corrected)" available at https://www.baseresources.com.au/investor-centre/asx-releases/.

Information material to understanding the Ranobe Ore Reserves estimate

The Ranobe Ore Reserves estimate is reported in accordance with the JORC Code. The information set out below is a summary of the information material to understanding the Ranobe Ore Reserves estimate and is provided in accordance with Chapter 5 of the ASX Listing Rules. This information should be read in conjunction with the information provided for the purposes of Section 4 (Estimation and Reporting of Ore Reserves) of Table 1 of the JORC Code included as Appendix 1 to this announcement.

The Toliara Project is based on the Ranobe deposit which is located on the 125.4 km^2 Mining Lease (Permis D'Exploitation) 37242 (**PDE 37242**), approximately 40 kilometres north of the regional town of Toliara in south west of Madagascar and 15 kilometres inland from the coast (see Figure 1). The Ranobe deposit comprises a single continuous body of mineralisation, comprising three units: the upper sand unit (**USU**), the intermediate clay sand unit (**ICSU**) and the lower sandy unit (**LSU**) (see Figure 2). The Ranobe Ore Reserves estimate only comprises material in the Measured and Indicated resource categories from the USU. A 26,141m drilling program was completed over the course of 2019 with the samples currently being analysed. The aim of this drilling program is to increase the volume of Mineral Resources in the Measured and Indicated categories in all three mineralised units and provide a basis to update the Ranobe Ore Reserves estimate over the course of 2020.

In addition to the 2019 Ranobe Mineral Resources estimate, the Ranobe Ore Reserves estimate is also based on the Toliara Project PFS metrics.

The key findings from the PFS were: [3]

- Post-tax / pre-debt (real) NPV @ 10% discount rate of US$671m, measured from the date of the final investment decision.
- Revenue to cost of sales ratio of 3.06.
- Stage 1 capex cost of US$439m – to establish 13 million tonnes per annum (**Mtpa**) operation consisting of a single 1,750 t/hr dozer mining unit paired with a relocatable primary wet concentrator plant (**WCP**).
- Stage 2 capex cost of US$67m – to increase the operation to 19Mtpa from year 3.5 onwards through the addition of a smaller 825 t/hr dozer mining unit paired to a second fixed location WCP.
- Annual averages (excluding first and last partial operating years):
    - Production of 806kt ilmenite (sulphate, slag and chloride), 54kt zircon and 8kt rutile.
    - Revenue US$254m – 62% ilmenite, 34% zircon and 4% rutile.
    - Operating costs of US$77m or US$82m incl. assumed 2% royalty[4].
    - Non-operating costs of US$7m (community, external affairs, marketing etc.)[4].
    - EBITDA US$165m, NPAT US$110m.
    - Free cash flow US$133m.

For the purposes of the PFS, Base Resources' internal price forecasts were used up to 2030. From 2035, TZMI's forecast long term inducement prices were used, with prices transitioning between 2030 and 2035 in a straight line.

Mining is based on conventional dozer mining units (**DMU**), using Caterpillar D11T dozers to feed the DMU. The DMUs comprise a skid mounted grizzly and conveyor, slurrying and screening unit, and pump station. Ore is pumped from the DMU to the Wet Concentration Plant (**WCP**) where it is processed via screens, desliming circuit and spirals, typical of many mineral sands operations, to produce a heavy mineral concentrate (**HMC**). The HMC is further processed in the Mineral Separation Plant (**MSP**), primarily using magnetic and electrostatic separators, with secondary gravity separation to produce ilmenite, rutile and zircon. The mine site layout at commencement of operations is shown in Figure 3.

The estimation methodology used an economic derived cut-off. Material modifying factors drawn from the PFS were operating costs, product recoveries and yields, ramp up schedules, and expected product pricing. MaxiPit (a Datamine product which performs Lerch-Grossman pit optimisations) was then used to determine, on a model cell by model cell basis, whether material is ore or waste. As result of this approach, cut-off grades were not used. The product prices used are consistent with those used in the PFS.[5]

[3] The key findings from the PFS should be considered in light of, and read together with, the PFS Announcement which (among other things) set outs the material assumptions and underlying methodologies for deriving those key findings.
[4] Fiscal terms applicable to the Toliara Project are yet to be agreed with the Government of Madagascar. For further information refer to Base Resources' announcement on 7 November 2019 "Toliara Project – Government of Madagascar statement" available at https://www.baseresources.com.au/investor-centre/asx-releases/.
[5] Refer to the PFS Announcement for details of the average product prices used for the purposes of the PFS.

The mining method employed is non-selective and there is no ore/waste discrimination. However, sub-economic material that cannot be selectively left in the void is included as planned dilution in the ore feed for Stage 1. Due to an insignificant volume of dilution and mining losses in Stage 1, no global dilution factor has been applied for Stage 2 where detailed design has not yet been undertaken. Mining recovery of 100% was assumed after consideration of mining shape design, planning and scheduling.

Processing recoveries are summarised in Table 2 (WCP) and Table 3 (MSP). The PFS assumes three separate ilmenite products will be produced with the split of ilmenite into the three products shown in Table 4. PFS operating costs are summarised in Table 5.

While the PFS assumed varying prices over time, a flat pricing regime from operating year five was selected.

The Ranobe deposit has been assigned Mineral Resources classifications of Measured, Indicated and Inferred under the JORC Code. The criteria used to support those classifications was:

- regular drill hole spacing that defines the geology and HM mineralisation distribution and trends.
- domain controlled Variography for HM that supports the drill spacing for each of the classifications.
- the distribution of mineral assemblage composites having adequately identified the various mineralogical domains as well as the variability within those domains.

Due to the high level of confidence in the modifying factors, the classification of Ore Reserves into Proved and Probable generally followed the Mineral Resources estimate classification, i.e. Measured Mineral Resources convert to Proved Ore Reserves and Indicated Mineral Resources convert to Probable Ore Reserves. The only exception to this is for material found in the lowest 1.5 metres of blocks scheduled for mining in Stage 2 where detailed design has not yet been undertaken to provide confidence in the level of the pit floor. As a result, this material has been classified as Probable Ore Reserves notwithstanding its Mineral Resources estimate classification of Measured. Inferred Mineral Resources are excluded from the Ranobe Ore Reserves estimate.

The right to mine the Ranobe deposit is provided by PDE 37242, a mining lease under Malagasy law. PDE 37242 was granted on 23 October 2017, and is valid for a period of 40 years from 21 March 2012 (the date of grant of the original PDE 37242) and may be renewed in 20-year increments thereafter. Before the Toliara Project construction and subsequent mining operations can commence, surface rights need to be secured, which requires completion of the land acquisition process currently in progress.

The Company holds a valid Permis Environnemental (Environment Permit No 55-15/MEEMF/ONE/DG/PE) and approved Plan de Gestion Environnementale (PGE) (Environmental Management Plan). More detailed environmental management plans and specific work instructions addressing construction, operational and decommissioning matters are required to be prepared and submitted three months prior to the commencement of each stage.

The Toliara Project requires significant infrastructure which does not presently exist, primarily the product haulage road and bridge and the export facility. These are within the scope of project development and the costs are included in the PFS capital expenditure estimates.

Table 2: PFS reported WCP recoveries

	Low Grade Ore %	Medium Grade Ore %	High Grade Ore %	Avg %	PFS Design %
Ilmenite	97.1	96.6	96.4	96.7	94.9
Zircon	98.5	98.6	98.7	98.6	97.2
Rutile	97.1	95.8	93.8	95.6	92.3
Leucoxene	85.0	80.0	70.0	78.3	75.0
% HM in HMC	91.0	91.0	91.0	91.0	91.0

Table 3: PFS reported MSP recoveries

	Base %	After leucoxene re-distributed %
Ilmenite	93.6	93.9
Zircon	79.0	79.0
Rutile	59.5	73.7
Leucoxene	53.4	0

Table 4: PFS reported average ilmenite break-up

Ilmenite	Proportion %	Target % TIO_2
Sulphate Ilmenite	36.5	48.3
Slag Ilmenite	35.0	50.5
Chloride Ilmenite	28.4	57.0

Table 5: PFS derived operating costs

Operating cost category	LOM Total US$m	US$m per annum	US$/t mined	US$/t produced	Comments
Power	671	20	1.14	24	Power sourced from an independent power producer (**IPP**) and based on a solar hybrid solution using HFO as a fuel source. Assumes an HFO price of US$0.73/L, which results in an average power price of US$0.20/kWhr.
Maintenance	577	18	0.98	21	Maintenance is based on experience gained from the Company's Kwale mineral sand operation in Kenya and scaled where appropriate.
Labour – Expatriates	122	4	0.21	4	Operations commence with 71 expats, dropping to 27 after four years before reaching a steady state of six senior managers from FY31 onwards.
Labour – Nationals	186	6	0.32	7	Operations commence with 707 national employees, before peaking at 861 in FY25 following completion of the Stage 2 expansion.
Fuel – Drying	187	6	0.32	7	Diesel for the MSP drying process. Cost based on actual usage at the Company's Kwale mineral sands operations in Kenya and a delivered diesel fuel price is US$0.88/L.
Fuel – Mobile Equip.	167	5	0.28	6	Mobile equipment fuel burn rates are based on actual usage at the Company's Kwale mineral sands operations in Kenya and a delivered diesel fuel price is US$0.88/L.
Product Transport & Port Rates	200	6	0.34	7	All products transported in bulk to the export facility at an estimated cost of US$3.99/t.
Flocculant	11	1	0.02	1	Flocculant usage between 0.08 and 0.12kg/t slime at cost of US$3.67/kg.
Other Operating Costs	358	11	0.61	12	Other fixed operating costs, including insurance, camp management and laboratory.
Total Operating Costs	**2,479**	**77**	**4.22**	**89**	
Royalties	162	5	0.27	6	Government royalty rate of 2%[6]
Total Operating Costs (incl. Royalties)	**2,641**	**82**	**4.49**	**95**	

[6] Fiscal terms applicable to the Toliara Project are yet to be agreed with the Government of Madagascar. For further information refer to Base Resources' announcement on 7 November 2019 titled "Toliara Project – Government of Madagascar statement" available at https://www.baseresources.com.au/investor-centre/asx-releases/.

Competent Persons' Statement

The information in this announcement that relates to Ore Reserves is based on, and fairly represents, information and supporting documentation prepared by Mr. Chris Sykes and Mr. Scott Carruthers. Mr. Sykes and Mr. Carruthers are members of the Australasian Institute of Mining and Metallurgy. Mr. Sykes acts as Consultant Mining Engineer for Base Resources. Mr. Carruthers is employed by Base Resources, he holds equity securities in Base Resources, and is entitled to participate in Base Resources' long-term incentive plan and receive equity securities under that plan. Details about that plan are included in the Company's 2019 Annual Report. Both Mr. Sykes and Mr. Carruthers have sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity which they are each undertaking to qualify as a Competent Person as defined in the JORC Code, and both are considered Qualified Persons for the purposes of the AIM Rules for Companies. Mr. Sykes and Mr. Carruthers have each reviewed this announcement and consent to the inclusion in this announcement of the Ranobe Ore Reserves estimate and the supporting information in the form and context in which the relevant information appears.

Other Announcements

Information in this announcement should be read in conjunction with other announcements made by Base Resources to ASX, particularly the Company's ASX announcements on:

- 21 March 2019 titled "Toliara Project PFS confirms status as a world-class mineral sands development".
- 23 January 2019 titled "Updated Ranobe Deposit Mineral Resources (corrected)".

The PFS Announcement discloses details about the material assumptions and underlying methodologies adopted for deriving the production information and forecast financial information included in this announcement in respect of the Toliara Project. It also discloses key pre and post FID risks and an NPV sensitivity analysis in respect of the Toliara Project. Base Resources confirms that the material assumptions underpinning the production information and the forecast financial information disclosed in the PFS Announcement continue to apply and have not materially changed.

The Company's ASX announcements are available at https://www.baseresources.com.au/investor-centre/asx-releases/.

Forward Looking Statements

Certain statements in or in connection with this announcement contain or comprise forward looking statements. Such statements include statements with respect to the anticipated production and financial performance for the Toliara Project.

By their nature, forward looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and may be outside Base Resources' control. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic and market conditions, success of business and operating initiatives, changes in the regulatory environment and other government actions, fluctuations in product prices and exchange rates and business and operational risk management. Subject to any continuing obligations under applicable law or relevant stock exchange listing rules, Base Resources undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this announcement or to reflect the occurrence of unanticipated events.

No representation or warranty, express or implied, is made as to the fairness, accuracy or completeness of the information contained in this announcement (or any associated presentation, information or matters). To the maximum extent permitted by law, Base Resources and its related bodies corporate and affiliates, and their respective directors, officers, employees, agents and advisers, disclaim any liability (including, without limitation, any liability arising from fault, negligence or negligent misstatement) for any direct or indirect loss or damage arising from any use or reliance on this report or its contents, including any error or omission from, or otherwise in connection with, it.

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Figure 1: Toliara Project Location

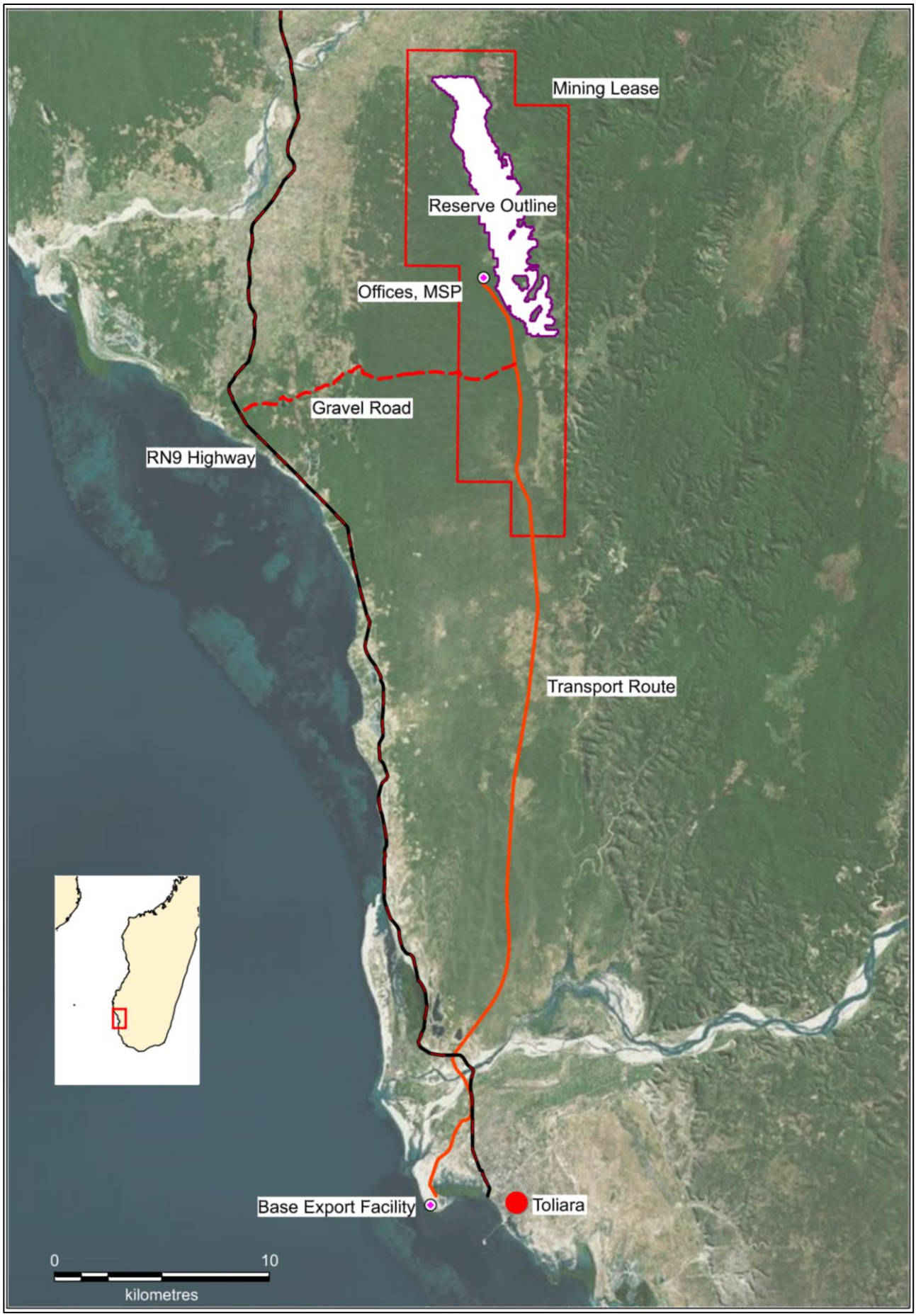
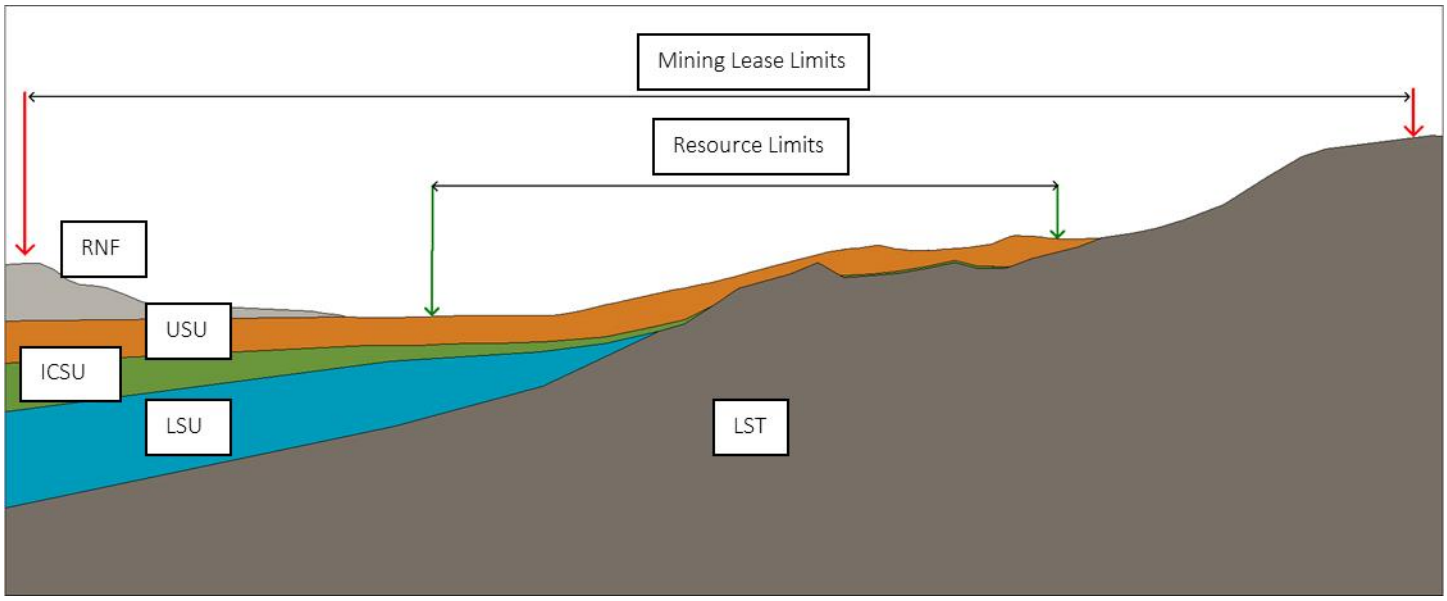
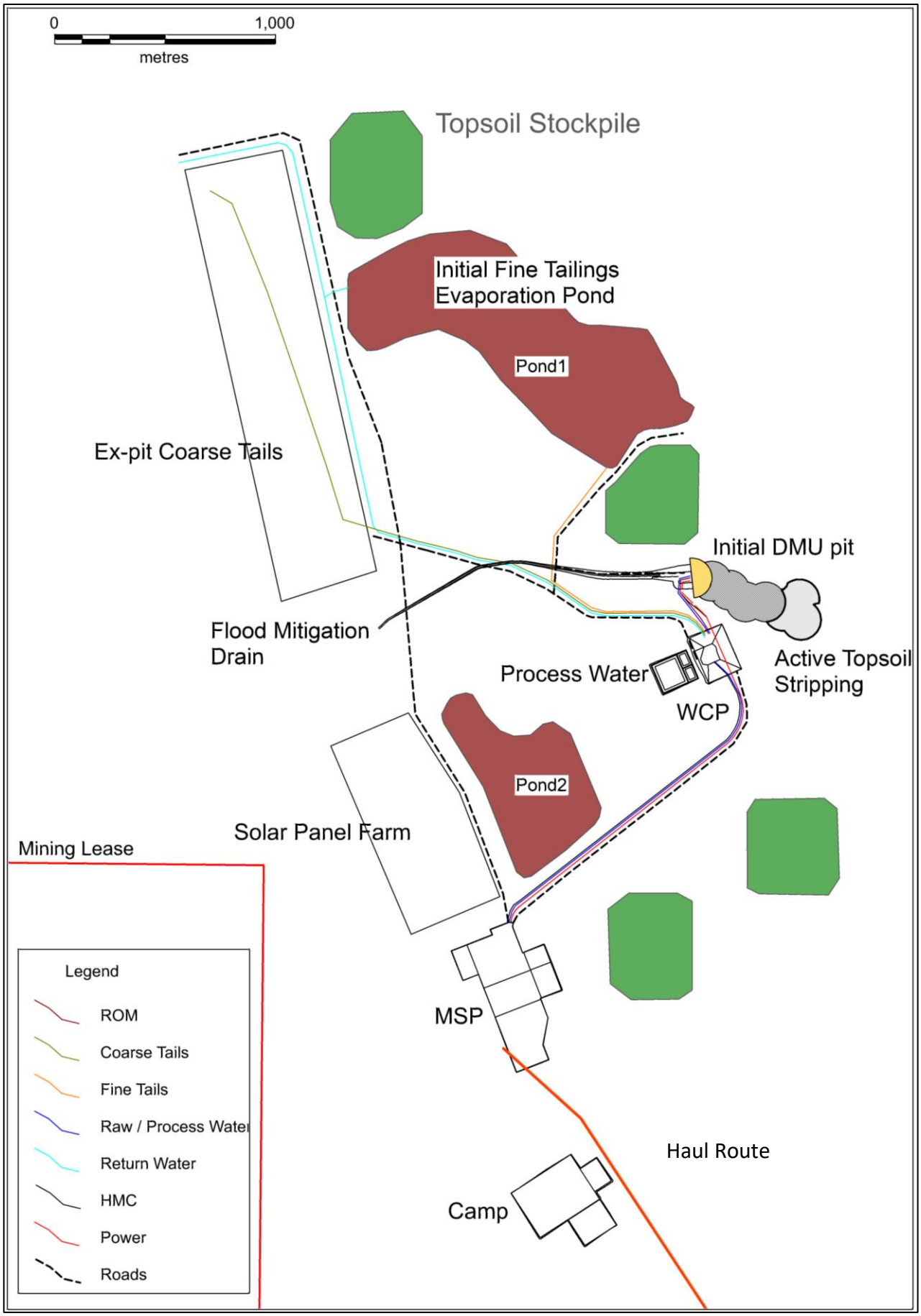


Figure 2: Stylised cross section



RNF = Ranobe Formation (excluded from Ore Reserves estimate)
USU = Upper Sandy Unit
ICSU = Intermediate Clay Sand Unit (excluded from Ore Reserves estimate)
LSU = Lower Sandy Unit (excluded from Ore Reserves estimate)
LST = Limestone (excluded from Ore Reserves estimate)

Figure 3: Mine Layout at Commencement of Operations



Note: The flood mitigation drain is designed to allow water to escape the mined pit void in the occurrence of a 1 in 20 year or greater rainfall event.

Appendix 1

JORC Code, 2012 Edition

Section 4 Estimation and Reporting of Ore Reserves

Section 1 (Sampling Techniques and Data), Section 2 (Reporting of Exploration Results) and Section 3 (Estimation and Reporting of Mineral Resources) have been reported previously, and are disclosed in the Company's ASX announcement of the 2019 Ranobe Mineral Resources on 23 January 2019 titled "Updated Ranobe Deposit Mineral Resources (corrected)" and available at https://www.baseresources.com.au/investor-centre/asx-releases/.

Criteria	Explanation	Comment
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	The Ranobe Ore Reserves estimate is based entirely on the Measured and Indicated portion of the 2019 Ranobe Mineral Resources estimate. Mineral Resources are reported inclusive of the Ore Reserve.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* *If no site visits have been undertaken indicate why this is the case.*	One of the Competent Persons has visited the site on several occasions.
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	The Toliara Project pre-feasibility study (PFS) study supports the Ore Reserves. Modifying factors accurate to the study level have been applied. The resulting mine plan is technically achievable and economically viable.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied.*	A value model was developed that assigns mining and processing recoveries, costs, and revenue to the geological model. This value model follows the entire mining process from initial land clearing to final rehabilitation. There is no ore/waste definition due to the mining method selected.

Criteria	Explanation	Comment
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.* *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* *The mining dilution factors used.* *The mining recovery factors used.* *Any minimum mining widths used.* *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* *The infrastructure requirements of the selected mining methods.*	Mineral Resources are converted to Ore Reserves by open pit optimisation software (Datamine MaxiPit) to provide a guide for detailed design and scheduling. The software uses the Lerch-Grossman algorithm to generate a series of nested pit shells. A subset of the shells were preliminarily scheduled to test heavy mineral concentrate production profiles, final production requirements, and financial investment decisions. The preferred pit shell was selected for more detailed mine planning and scheduling. The initial mining area (Stage 1) was selected based on its high grade and location. Detailed mining shapes based on circular dozing push profiles to a centrally located Dozer Mining Unit (DMU) were developed. Mining shapes that were identified as too small (less than nominal 150kt) and inefficient to direct feed (greater than 100m away) a DMU by dozer mining, were marked for auxiliary mining using truck and excavator, where the material would be hauled to feed an existing DMU. Only material identified as Upper Sand Unit (USU) was included in the PFS and the Ore Reserves estimate. There is no ore/waste discrimination and sub-economic USU material that cannot be selectively left in the void is included as planned dilution in the ore feed for Stage 1. No global dilution factor has been applied. Pit slopes for the Stage 1 mining shapes have been assumed at 30 degree, with a maximum target of a 100m dozing distance. Where possible, the mining locations and sequence was developed to avoid uphill dozing. For the purposes of scheduling the ore for Stage 2, mining shapes have been assumed as rectangular sides up to a maximum size of 200m by 400m for the remainder of the LOM schedule. A mining recovery factor of 98% was applied when using the Lerch-Grossman algorithm to undertake economic evaluation and the generation of the pit shells. Following more detailed mining shape design, planning and scheduling, a mining recovery factor of 100% was applied in the Ranobe Ore Reserves estimate. Mining recovery also makes provision for a 0.25m topsoil profile.

Criteria	Explanation	Comment
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* *Whether the metallurgical process is well-tested technology or novel in nature.* *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* *Any assumptions or allowances made for deleterious elements.* *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* *For minerals that are defined by a specification, has the ore reserves estimation been based on the appropriate mineralogy to meet the specifications?*	The ore is processed via screens, thickeners and spirals as in almost every other mineral sand operation to produce a heavy mineral concentrate (HMC). The HMC is processed using magnetic and conductor separators to produce ilmenite and rutile products. The remaining material is further processed using classifiers, wet tables and cleaned with conductor separators to produce zircon and recover some more rutile. This is a typical process for mineral sands. The plant design is based on the results of metallurgical test work conducted as part of the PFS. Wet Concentrator Plant (WCP) recovery is ilmenite - 94.9%, rutile - 92.3%, zircon - 97.2% and leucoxene - 75.0%. Mineral Separation Plant (MSP) recovery is ilmenite - 93.6%, rutile - 59.5%, zircon - 79.0% and leucoxene - 53.4%. Leucoxene will ultimately report to rutile and ilmenite – chloride products at 25.7% and 74.3% respectively. Due to the expected variation in ilmenite product split to satisfy market demands, a single overall ilmenite recovery (of the combined three ilmenite recoveries) has been used rather than separate ilmenite product recovery. The 2019 Ranobe Mineral Resource estimate, upon which the Ranobe Ore Reserves estimate is based, incorporates 1,249 individual drill holes and 10,717 individual drill samples.
Environmental	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	The Company holds a valid Permis Environnemental (Environment Permit No 55-15/MEEMF/ONE/DG/PE) and approved Plan de Gestion Environnementale (**PGE**) (Environmental Management Plan). More detailed environmental management plans and specific work instructions addressing construction, operational and decommissioning matters are required to be prepared and submitted three months prior to the commencement of each stage. As required by the PGE, base-line monitoring programs have been established and will continue through the construction, operational and decommissioning phases. There are two tailings streams: sand and clay. The sand tails are clean sand having been washed in the WCP. The fine (clay) tails are flocculated and thickened prior to pumping to solar drying areas. Sand tails will be pumped initially to an ex-pit tailings storage facility until sufficient mining void is established, after which appropriate in-pit tails deposition assumptions have been applied. Fine tails will be dried and mixed with coarse tails, prior to return of topsoil.

Criteria	Explanation	Comment
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.*	The Toliara Project mine site is approximately 40km due north of the existing port of Toliara and approximately 15km inland from the coastline. The Ranobe deposit lies west of the north-south escarpment running parallel with the coast at an elevation of between 80m and 160m above current sea level. Existing transport links are via a bituminised road to within 15km of the proposed mine site with only minor dirt tracks leading to the mine site. Existing infrastructure at site is limited and designed to support an exploration camp only. There is no power or water distributed in the area. The development of the Toliara Project will incorporate all the infrastructure required to support the mining, concentration, separation, haulage and shipment of approximately 875ktpa of ilmenite, zircon and rutile products. Temporary infrastructure will be required to support the early construction activities. The Toliara Project pre-feasibility study estimates the costs for the development of all infrastructure items.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.* *The methodology used to estimate operating costs.* *Allowances made for the content of deleterious elements.* *The source of exchange rates used in the study.* *Derivation of transportation charges.* *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* *The allowances made for royalties payable, both Government and private.*	The mine planning underpinning the Ranobe Ore Reserves estimate was conducted using capital and operating costs derived from the Toliara Project PFS, which are suitable for block model coding, strategic planning and mine design. All costs have been estimated in US Dollars. The PFS capital cost is estimated at US$439m (+20%/-10%) based on preliminary engineering and budget quotes from vendors, following an extensive budget quotation request process on major contract packages to establish unit rates that reflect the market conditions in Madagascar for all earthworks, concrete, SMP and buildings contractors. The PFS estimated operating costs have been derived from experience gained operating the Company's Kwale mineral sands mine in Kenya, incorporating local Malagasy cost inputs where appropriate. With the benefit of this experience, operating cost were modelled using a bottom up approach which considered the equipment being used, manning schedules and work rosters, and local supplier quotes for inputs such as product haulage, power, diesel and HFO prices. The fiscal terms applicable to the Toliara Project have not yet been agreed with the Government of Madagascar. A royalty of 2% of sales revenue payable to Government of Madagascar has been assumed, on the basis that it is consistent with the prescribed rate under the Malagasy Mining Code. There are no additional treatment or refining charges applied, and minerals are sold as finished products.

Criteria	Explanation	Comment
Revenue factors	*The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	The revenue is a function of block modelled grade and mineral assemblage, which is then comprehensively modelled through the mining, wet and dry separation processes to estimate final products which is expected to be delivered to an off taker at a forecast price. During the evaluation of the resource model, various pit shells where generated using a range of 5% revenue decrements from the original 100% of revenue using the MaxiPit Software. A subset of these pit shells (65% to 80%) were selected for high level scheduling and financial modelling to identify a pit shell (70%) that met production requirements and an acceptable EBITDA and return on investment. This pit shell provided the basis for more detailed mine planning and scheduling. The mine planning underpinning the Ranobe Ore Reserves was conducted using preliminary product pricing that was suitable for block model coding, strategic planning and mine design. In the final financial analysis, revenue from ore deliveries were then recalculated using the PFS pricing, sales product mix and shipping schedules. The PFS product pricing forecasts through to 2030 are derived from Base Resources' internal supply/demand analysis then moving to TZMI's long term inducement prices from 2035, with prices transitioning between 2030 and 2035 in a straight line. While the PFS prices vary over time, the pit optimisation software (MaxiPit) cannot know when a block of material will be mined, so a flat pricing regime from PFS operating year 5 (FY2026) is used. The Ranobe Ore Reserves are feasible and economic under both pricing schedules. Prices for products used in the evaluation of the resource model are drawn from the PFS.
Market assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* *A customer and competitor analysis along with the identification of likely market windows for the product.* *Price and volume forecasts and the basis for these forecasts.* *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	Demand for mineral sands products has historically been closely linked to growth in global GDP, which has grown at close to 3% per annum. Base Resources performs its own internal assessment of the market and also subscribes to the various market outlook and commentaries provided by TZMI. The Toliara Project PFS covers the supply and demand outlook for all products and highlights future supply deficits that in turn provide support for the development of the Toliara Project. Base Resources has existing customers for ilmenite, rutile and zircon products from its Kwale mineral sands mine in Kenya. Product samples produced from Toliara Project PFS and DFS test work indicates the product quality will meet customer requirements and have been assessed as such by potential customers. Contracts and agreements pertaining to Base Resources are confidential.

Criteria	Explanation	Comment
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	The Toliara Project PFS NPV of US$671 million is reported on a post-tax, pre-debt, real basis using a 10% discount rate. Sensitivity to changes in capital costs, operating costs, product recoveries, product prices, discount rate etc are shown in the PFS.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate.*	Base Resources is working closely with local communities, government and other key stakeholders to ensure all agreements will be in place to allow construction, mining and processing to commence. The Company operates a comprehensive Stakeholder Engagement Plan in concert with a Community Development Plan. Close liaison with stakeholders will be maintained through the operation by a series of liaison committees representing those affected by the mine's presence. This is discussed in detail in the Toliara Project PFS.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* *Any identified material naturally occurring risks.* *The status of material legal agreements and marketing arrangements.* *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	All naturally occurring risks are assumed to have adequate prospects for control and mitigation. The right to mine the Ranobe deposit is provided by Mining Lease (Permis d'Exploitation) 37242, a mining lease under Malagasy law. PDE 37242 was granted on 23 October 2017, and is valid for a period of 40 years from 21 March 2012 (the date of grant of the original PDE 37242) and may be renewed in 20-year increments thereafter. Before the Toliara Project construction and subsequent mining operations can commence, surface rights need to be secured, which requires completion of the land acquisition process. The Company holds a valid Permis Environnemental (Environment Permit No 55-15/MEEMF/ONE/DG/PE) and approved Plan de Gestion Environnementale (**PGE**) (Environmental Management Plan). More detailed environmental management plans and specific work instructions addressing construction, operational and decommissioning matters are to be prepared and submitted three months prior to the commencement of each stage. Fiscal terms applicable to the Toliara Project are yet to be agreed with the Government of Madagascar. The Competent Persons consider there are reasonable grounds for the Toliara Project to obtain the remaining approvals required. Marketing arrangements are commercially sensitive but detailed test work suggests that the expected product specifications are within marketable ranges.

Criteria	Explanation	Comment
Classification	*The basis for the classification of the Ore Reserves into varying confidence categories.* *Whether the result appropriately reflects the Competent Person's view of the deposit.* *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	Measured Mineral Resources are converted to Proved Ore Reserves and Indicated Mineral Resources are converted to Probable Ore Reserves. The only exception to this is for material found in the lowest 1.5 metres of blocks scheduled for mining in Stage 2 where detailed design has not yet been undertaken to provide confidence in the level of the pit floor and as a result this material is classified as Probable Ore Reserves regardless of its Mineral Resources estimate classification as Measured. Approximately 18 Mt of Probable Ore Reserves have been derived from Measured Mineral Resources. Inferred Mineral Resources are not included in the Ore Reserves estimate. The results reflect the views that both Competent Persons have of the deposit.
Audits or reviews	*The results of any audits or reviews of Ore Reserves estimates.*	No external audit of the Ranobe Ore Reserves estimate has been undertaken.

Criteria	Explanation	Comment
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserves 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserves viability, or for which there are remaining areas of uncertainty at the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	Mining and processing methods selected are typical for mineral sands and have been demonstrated in various other mineral sand operations, they are considered a low risk of impacting the Ore Reserves. The Ranobe Ore Reserves estimate is a global estimate for the entire known extent of the Ranobe deposit within the Mining Lease. No production data is available against which the Ranobe Ore Reserves estimates may be reconciled. Stage 1 and Stage 2 capital cost estimate is considered to be -10% to +20%. Stress testing of operating cash flow shows this remains positive well beyond the stated accuracy of the cost estimates. Detailed mine design has been undertaken for Stage 1. As additional resource definition drilling, processing test work and other key project parameters and costs are updated, the mine design will be updated accordingly. The PFS provides a higher degree of confidence in the modifying factors than usual because Base Resources PFS studies are conducted in two stages: the first analyses options for mining and processing and the second analyses the selected option in greater detail. The MSP and mining throughputs are based on detailed assessment of market capacity to absorb the mine production, and the impact of the additional production on expected pricing. This gives confidence that the product price expectations are realistic. The metallurgical test work has been conducted with those throughputs in mind, giving confidence that the recovery estimates are accurate. The 2019 Ranobe Mineral Resources estimate used as the basis for the Ranobe Ore Reserves estimate was made in accordance with JORC Code, and only Measured and Indicated categories have been considered. Generally, there is a high level of confidence in the technical and economic aspects of modifying factors. The confidence in social and government related modifying factors is moderate to high. Overall, the confidence in the Ranobe Ore Reserves estimate is high.

Glossary

Competent Person	The JORC Code requires that a Competent Person must be a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Professional Organisation'. A Competent Person must have a minimum of five years' experience working with the style of mineralisation or type of deposit under consideration and relevant to the activity which that person is undertaking.
Indicated Mineral Resource	An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.
Inferred Mineral Resource	An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, as published by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.
Measured Mineral Resource	A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.
Mineral Resources	Mineral Resources are a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.
Ore Reserves	Ore Reserves are the economically mineable part of Measured and/or Indicated Mineral Resources.
Probable Ore Reserves	The economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.
Proved Ore Reserves	The economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.
Variography	A geostatistical method that investigates the spatial variability and dependence of grade within a deposit. This may also include a directional analysis.

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About Base Resources

Base Resources is an Australian based, African focused, mineral sands producer and developer with a track record of project delivery and operational performance. The Company operates the established Kwale Operations in Kenya and is developing the Toliara Project in Madagascar. Base Resources is an ASX and AIM listed company. Further details about Base Resources are available at www.baseresources.com.au.